

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-13036-RS  
ADDRESS: 501 WEST MAIN STREET

AUGUST 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION  
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APPROVED BY

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DATE

August 2, 1985

REA13036:REA-613

8508140334 850806  
PDR WASTE  
WM-54 PDR

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## 1.0 EXECUTIVE SUMMARY

### 1.1 Introduction

The location, DOE ID No. GJ-13036-RS, is a single-family residence located at 501 West Main Street, 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 within the legal property boundaries 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, 12 cu. yd.; interior, 0 cu. yd.

Areas A, B, C, and a portion of Area D 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 \$1,199. Remedial action on this property will take approximately 5 days to complete.

## 2.0 PROPERTY DESCRIPTION

### 2.1 General Description

Address: 501 West Main Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 6,510 sf (0.15 acres)

Legal Description: Beginning 120 feet east of the northwest corner of Lot 2 Block 9 Mobley Subdivision, thence east 42 feet, thence south 155 feet, thence west 42 feet, thence north to beginning, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 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:	Underground
Sewer:	Underground
Water:	Underground
Cable TV:	None

Bordering Properties:

North:	West Main Street
South:	Alley
East:	Chuluota Avenue
West:	Single-family residence

### 2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 787 sf
Construction Date:	1908
Construction:	Wood-frame
Foundation:	Assumed concrete foundation wall and footing
Footing Depth:	Approximately 24" to bottom of footing from grade
Basement:	None
Crawl Space:	Yes
Condition:	Fair

Other Structures:

Type:	Garage
Size:	Approximately 220 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-grade
Condition:	Fair
Type:	Shed
Size:	Approximately 37 sf
Construction:	Prefabricated metal shed
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 over 50 years old. Therefore, it does meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

Alterations to Structure: Extensive alterations to interior and additions to the southern end of the structure.

Architectural Significance: None known

Historical Significance: None known

### **3.0 RADIOLOGIC SURVEY**

#### **3.1 Introduction**

Radiologic data were collected by Bendix at DOE ID No. GJ-13036-RS on June 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 associated with the city sidewalks.

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: 16 to 18 uR/h  
Highest Outside Gamma Reading (HOG): 185 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 17 uR/h  
Highest Inside Gamma Reading (HIG): 17 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.

#### **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 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 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: Lava rock  
Direction From Primary Structure: North  
Total Depth of Contamination: Estimated at greater than 72 inches  
Comments: A storm drain is located in this area.  
The depth of contamination is based on information collected at DOE ID #GJ-01207-RS.  
Approximate Square Footage: 281 (This area will be excluded from remedial action.)
- (Area B) Surface Material: Concrete  
Direction From Primary Structure: North  
Total Depth of Contamination: Estimated at greater than 72 inches  
Other (height or thickness): 4-inch-thick concrete  
Comments: The depth of contamination is based on information collected at DOE ID #GJ-01207-RS.  
Approximate Square Footage: 276 (This area will be excluded from remedial action.)
- (Area C) Surface Material: Concrete  
Direction From Primary Structure: Northeast  
Total Depth of Contamination: 6 inches  
Other (height or thickness): 4-inch-thick concrete  
Comments: The depth of contamination is based on information collected in Area D.  
Approximate Square Footage: 24 (This area will be excluded from remedial action.)
- (Area D) Surface Material: Lava rock  
Direction From Primary Structure: Northeast  
Total Depth of Contamination: 6 inches  
Comments: 120 sf within the legal property boundaries; 20 sf in the street right-of-way. Only the portion of Area D in the street right-of-way will be excluded from remedial action.  
Approximate Square Footage: 120

- (Area E) Surface Material: Concrete  
Direction From Primary Structure: North  
Total Depth of Contamination: 24 inches  
Other (height or thickness): 4-inch-thick concrete  
Comments: The depth of contamination is based on  
information collected in Area F.  
Approximate Square Footage: 15
- (Area F) Surface Material: Lava rock  
Direction From Primary structure: North  
Total Depth of Contamination: 24 inches  
Approximate Square Footage: 110
- (Area G) Surface Material: Washed rock  
Direction From Primary Structure: South  
Other Directions: North of garage  
Total Depth of Contamination: 6 inches  
Comments: Two small deposits are included in this area.  
Approximate Square Footage: 15



#### 4.0 RECOMMENDED REMEDIAL ACTION

##### 4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-13036-RS, includes removal of all areas within the legal property boundaries 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.

Area A, B, C, and a portion of Area D are located beyond the legal property boundaries in the street right-of-way. These areas are associated with a 48-inch diameter concrete storm sewer and a gas line that are bedded in tailings.

If the Department of Energy determines that the storm sewer and gas line deposits should be removed, it is recommended that the portion of Area D, which is in the street right-of-way, and all of Areas A, B, and C be removed as part of remedial action project DOE ID No. GJ-97003-OT. This project would be performed in cooperation with the City of Grand Junction if utility improvements are made in this area. This remedial action project, GJ-97003-OT, would be the most efficient and cost-effective method of tailings removal. It would allow for identification of tailings involvement of other adjacent properties along the utilities and their removal under a single subcontract utilizing a utility subcontractor.

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 \$1,199.

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	Exterior Sample Locations
Figure 3.3	Estimated Extent of Contamination

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

## Radium Concentrations at Exterior Locations

DOE ID #GJ-13036-RS

501 West Main Street

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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	133245	03	TC	124.9		*	North sidewalk  DC = >39 inches Based on the deconvolution graph
		06	TC	152.9		*	
		09	TC	165.2		*	
		12	TC	172.1		*	
		15	TC	175.4		*	
		18	TC	176.3		*	
		21	TC	175.5		*	
		24	TC	173.8		*	
		27	TC	172.1		*	
		30	TC	186.2		*	
		33	TC	167.2		*	
		36	TC	162.7		*	
		39	TC	156.6		*	
3	137245	00	DS	71.8		*	South of sidewalk
		06	DS	139.2		*	
		12	DS	15.9		*	
4	137256	00	DS	60.8		*	South of sidewalk
		06	DS	134.0		*	
		12	DS	19.4		*	
5	139260	03	TC	88.8		*	South of sidewalk  DC = >42 inches Based on the deconvolution graph
		06	TC	119.3		*	
		09	TC	138.8		*	
		12	TC	149.9		*	
		15	TC	155.0		*	
		18	TC	156.6		*	
		21	TC	155.9		*	
		24	TC	153.4		*	
		27	TC	148.4		*	
		30	TC	139.3		*	
		33	TC	123.8		*	
		36	TC	112.2		*	
		39	TC	96.2		*	
		42	TC	70.2		*	
6	144245	03	TC	15.1		*	South of sidewalk  DC = 24 inches Based on the deconvolution graph
		06	TC	18.6		*	
		09	TC	19.2		*	
		12	TC	17.7		*	
		15	TC	14.9		*	
		18	TC	12.3		*	
		21	TC	10.4		*	

## Radium Concentrations at Exterior Locations

DOE ID #GJ-13036-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.		
6	144245	24	TC	9.3		*	
		27	TC	8.3		*	
		30	TC	7.5		*	
		33	TC	7.0		*	
		36	TC	6.9		*	
		39	TC	6.9		*	
		42	TC	6.7		*	
		45	TC	5.9		*	
		48	TC	5.2		*	
		51	TC	4.6		*	
		54	TC	4.0		*	
		57	TC	3.6		*	
7	144265	00	DS	5.2		*	North yard by fence
		06	DS	<1.0		*	DC = 6 inches
8	148245	00	DS	1.0		*	North yard
		06	DS	1.6		*	
9	163255	00	DS	1.8		*	Near north patio
		06	DS	<1.0		*	
10	167260	00	DS	1.6		*	Near north patio
11	169240	00	DS	1.2		*	Northwest corner
		06	DS	1.7		*	of primary structure
		12	DS	1.5		*	
12	171265	03	TC	3.9		*	Water line
		06	TC	4.0		*	DC = 0 inches
		09	TC	4.0		*	
		12	TC	4.1		*	
		15	TC	4.0		*	
		18	TC	4.1		*	
		21	TC	4.2		*	
		24	TC	4.2		*	
		27	TC	4.3		*	
		30	TC	4.3		*	
		33	TC	4.0		*	
		36	TC	4.4		*	
		39	TC	4.4		*	
		42	TC	4.4		*	
		45	TC	4.3		*	
		48	TC	4.3		*	

## Radium Concentrations at Exterior Locations

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501 West Main Street

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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.		
12	171265	51	TC	4.1		*	
		54	TC	4.1		*	
		57	TC	3.9		*	
		60	TC	3.7		*	
		63	TC	3.4		*	
13	175239	00	DS	2.6		*	West of primary structure
		06	DS	1.9		*	
14	185239	00	DS	2.2		*	West of primary structure
		06	DS	1.8		*	
15	197264	03	TC	3.5		*	Sewer line
		06	TC	3.8		*	DC = 0 inches
		09	TC	4.0		*	
		12	TC	4.0		*	
		15	TC	4.1		*	
		18	TC	4.2		*	
		21	TC	4.2		*	
		24	TC	4.2		*	
		27	TC	4.3		*	
		30	TC	4.3		*	
		33	TC	4.2		*	
		36	TC	4.1		*	
		39	TC	4.0		*	
16	198253	00	DS	2.5		*	Above gas line
		06	DS	1.9		*	
		15	DS	3.0		*	On gas line
17	199254	03	TC	4.0		*	Next to gas line
		06	TC	4.1		*	
		09	TC	4.1		*	DC = 0 inches
		12	TC	4.2		*	
		15	TC	4.3		*	
		18	TC	4.3		*	
		21	TC	4.4		*	
		24	TC	4.5		*	
18	215265	00	DS	<1.0		*	Background
		03	TC	3.3		*	
		06	TC	3.7		*	DC = 0
		09	TC	4.0		*	

## Radium Concentrations at Exterior Locations

DOE ID #GJ-13036-RS

501 West Main Street

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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.		
18	215265	12	TC	4.1		*	
		15	TC	4.2		*	
		18	TC	4.3		*	
		21	TC	4.2		*	
		24	TC	4.3		*	
		27	TC	4.2		*	
		30	TC	4.1		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
		39	TC	3.9		*	
		42	TC	3.7		*	
		45	TC	3.6		*	
		48	TC	3.5		*	
		51	TC	3.3		*	
		54	TC	3.3		*	
		57	TC	3.3		*	
		60	TC	3.2		*	
19	235265	00	DS	1.6		*	Southeast of primary structure
		06	DS	1.8		*	
20	254238	00	DS	1.5		*	Along west fence
		06	DS	1.6		*	
21	275249	00	DS	8.1		*	North of garage DC = 6 inches
		06	DS	1.7		*	
22	278243	00	DS	2.7		*	North of garage DC = 6 inches
		06	DS	2.4		*	
23	279251	00	DS	1.7		*	Northeast corner garage
		06	DS	1.6		*	
24	281268	00	DS	1.7		*	East of garage
		06	LS	1.2		*	

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 = 06-13-85  
Team Leader = SM



## Radium Concentrations at Interior Locations

DOE ID #GJ-13036-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.		
1		00	DS	1.2		*	In garage
		06	DS	2.4		*	
		12	DS	1.8		*	

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 = 06-13-85  
Team Leader = SM



Table 3.3

## Summary of Interior Gamma Exposure Rates

DOE ID #GJ-13036-RS

501 West Main Street

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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	*	*	*	*	13-17	*
GARAGE	09	17-17	17	09	17-19	18
SHED	*	*	*	*	14-16	*

\* 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-13036-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					
Concrete					
E	5 x 3 =	15	x 0.3 =	5	
				<hr/>	
Volume of Concrete				= 5 =	5/27 = 0.2
Contaminated Fill					
D	5 x 24 =	120	x 0.5 =	60	
E	5 x 3 =	15	x 1.7 =	26	
F	5 x 9 =	45			
	5 x 13 =	65			
		<hr/>			
		110	x 2.0 =	220	
G	2 x 3 =	6			
	3 x 3 =	9			
		<hr/>			
		15	x 0.5 =	8	
				<hr/>	
Volume of Fill				= 314 =	314/27 = 12
					<hr/>
TOTAL VOLUME - EXTERIOR					= 12

See Appendix Figure 3.3 For Areas

=====

Table 4.2  
Estimated Cost of Decontamination and Restoration  
DOE ID No. GJ-13036-RS

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EXTERIOR

Remove/store/replace personal property items	
Lump sum	\$ 100
Remove/replace 4" concrete walk	
15 sf @ \$3/sf	45
Remove identified residual radioactive materials	
12 cy @ \$14.50/cy (machine-open)	174
Replace areas with roadbase	
7 cy @ \$11.50/cy	81
Replace areas with topsoil	
5 cy @ \$9.50/cy	48
Replace areas with decorative rock	
16 sf @ \$1.50/sf	24
Replace areas with sod	
135 sf @ \$.40/sf	54
Cleanup	
Lump sum	100

TOTAL EXTERIOR	\$ 626
----------------	--------

TOTAL INTERIOR	0
----------------	---

ACCESS CONTROL	100
----------------	-----

SUBTOTAL	\$ 726
----------	--------

CONTINGENCY @ 10%	73
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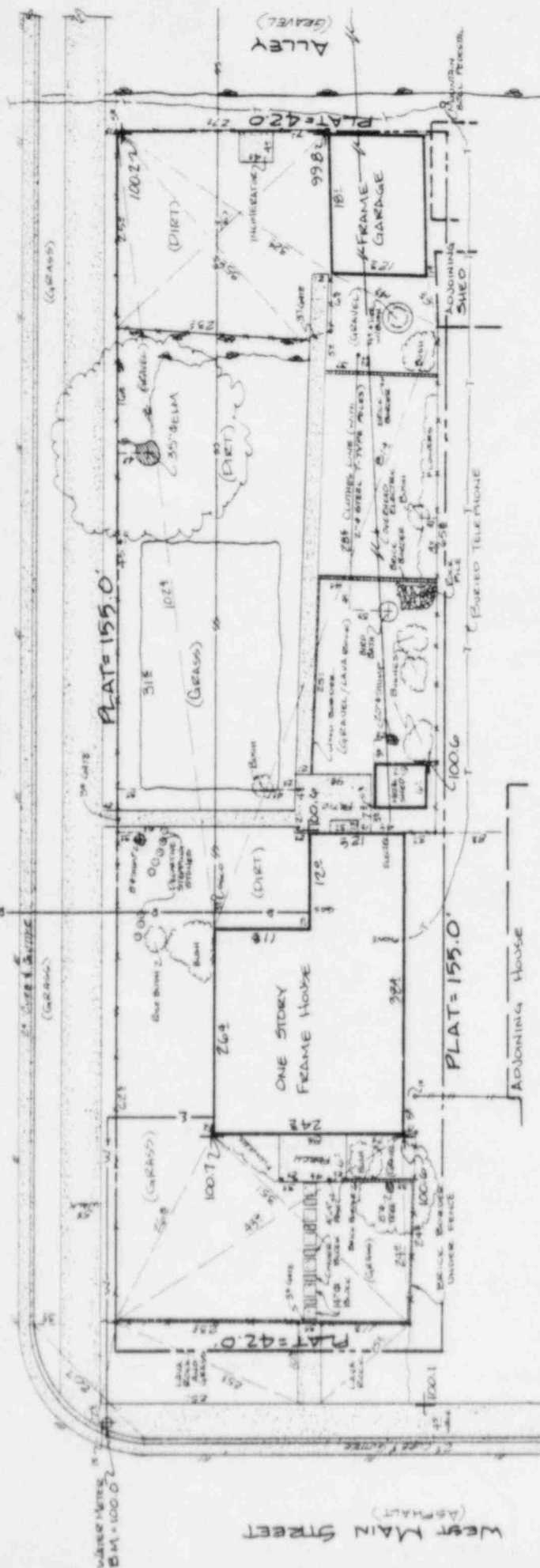
SUBTOTAL	\$ 799
----------	--------

CONTRACTOR OVERHEAD & PROFIT @ 50%	400
------------------------------------	-----

GRAND TOTAL	\$ 1,199
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CHULUOTA AVENUE  
(ASPHALT)



BEGINNING 120.0 FEET EAST OF THE NORTHWEST  
CORNER OF LOT 2 BLOCK 9 MOBLEY SUBDIVISION,  
CITY OF GRAND JUNCTION, COLORADO; THENCE  
EAST 42.0 FEET, THENCE SOUTH 155.0 FEET, THENCE  
WEST 42.0 FEET, THENCE NORTH TO BEGINNING.

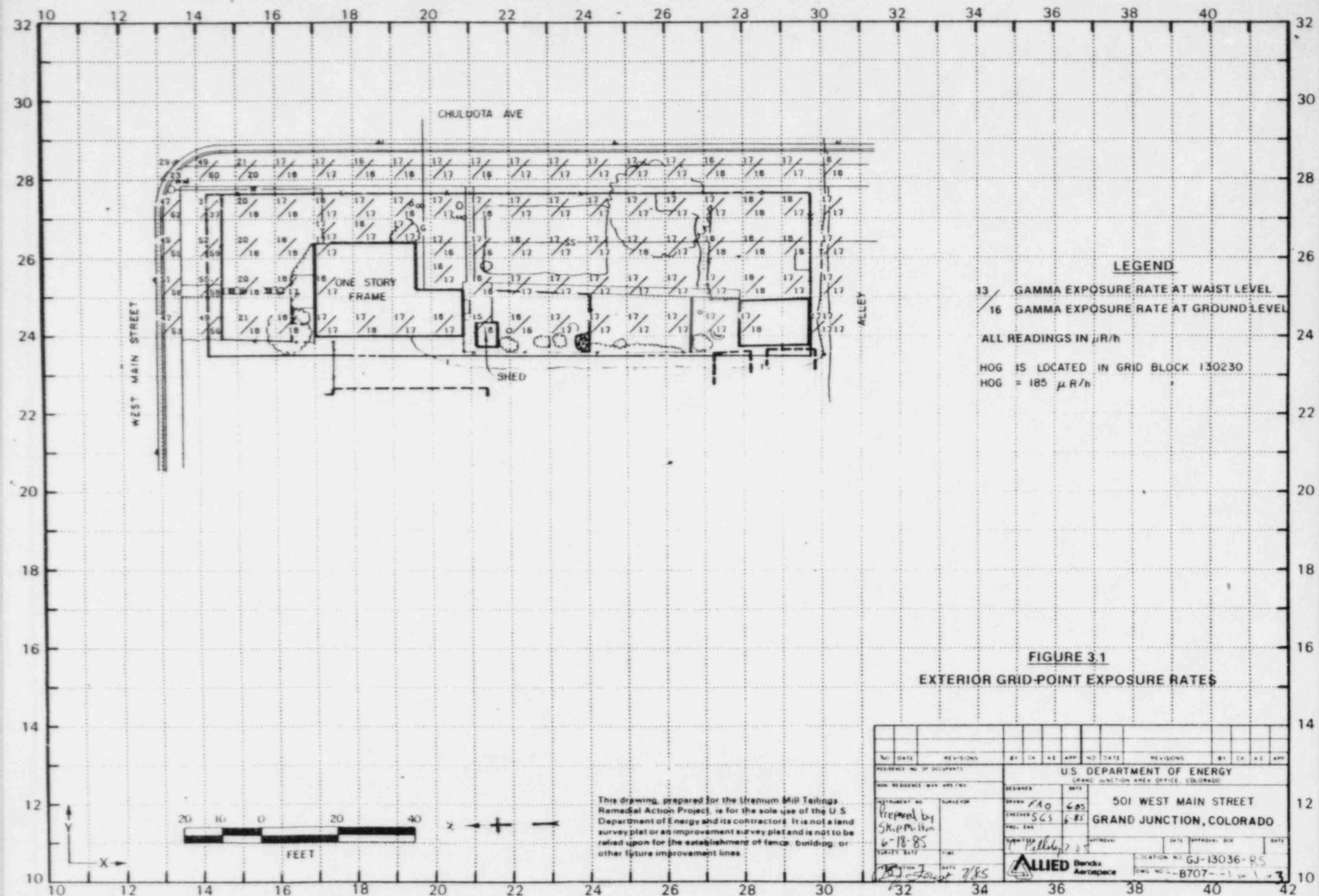
TAX SCHEDULE No. 2945-154-20-003



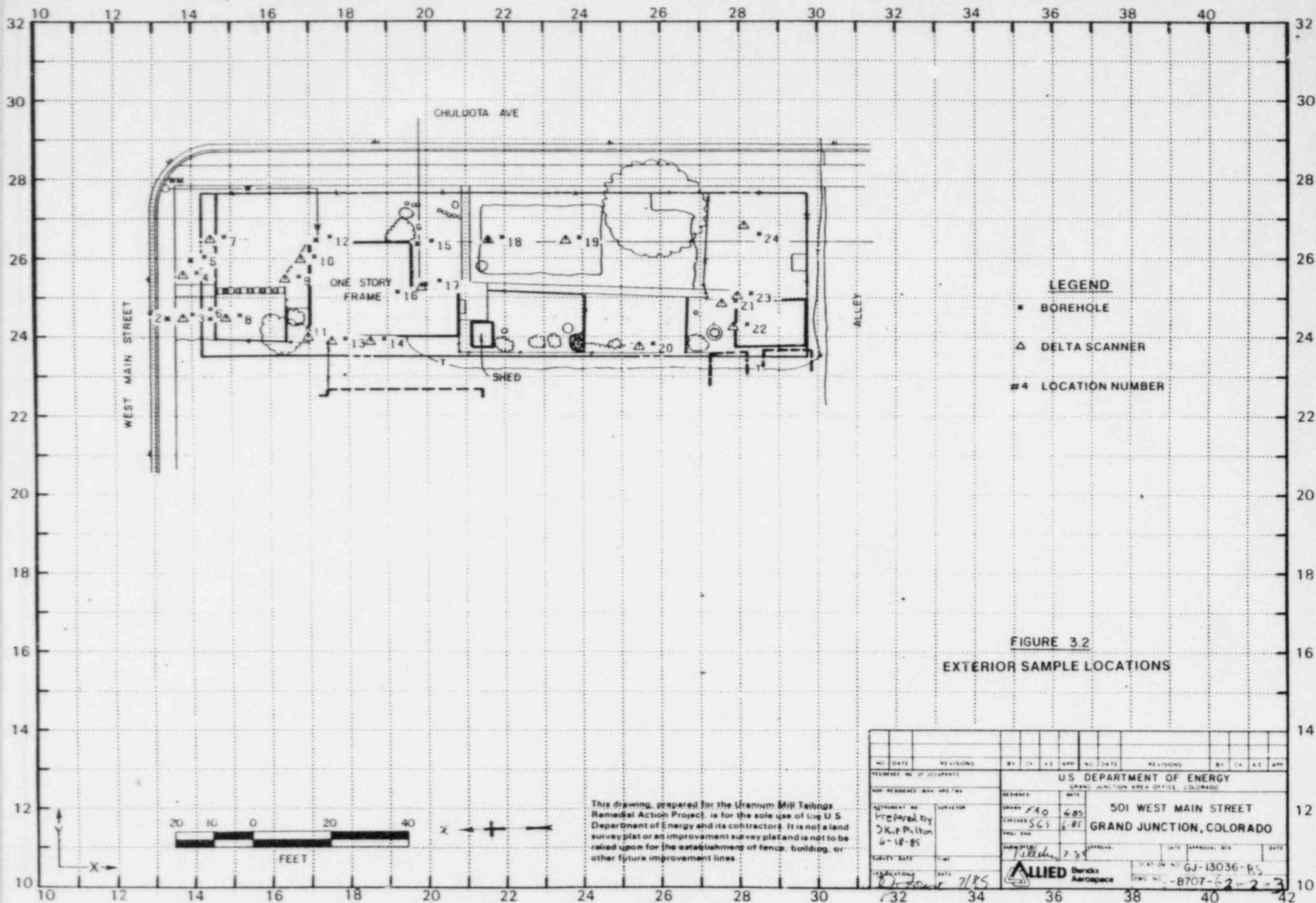
This drawing prepared for the Uranium Mill Tailings  
Remedial Action Project is for the sole use of the U.S.  
Department of Energy and its contractors. It is not a land  
survey plat or an improvement survey plat and is not to be  
relied upon for the establishment of fence, building, or  
other future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

FIGURE 2.2 SITE PLAN

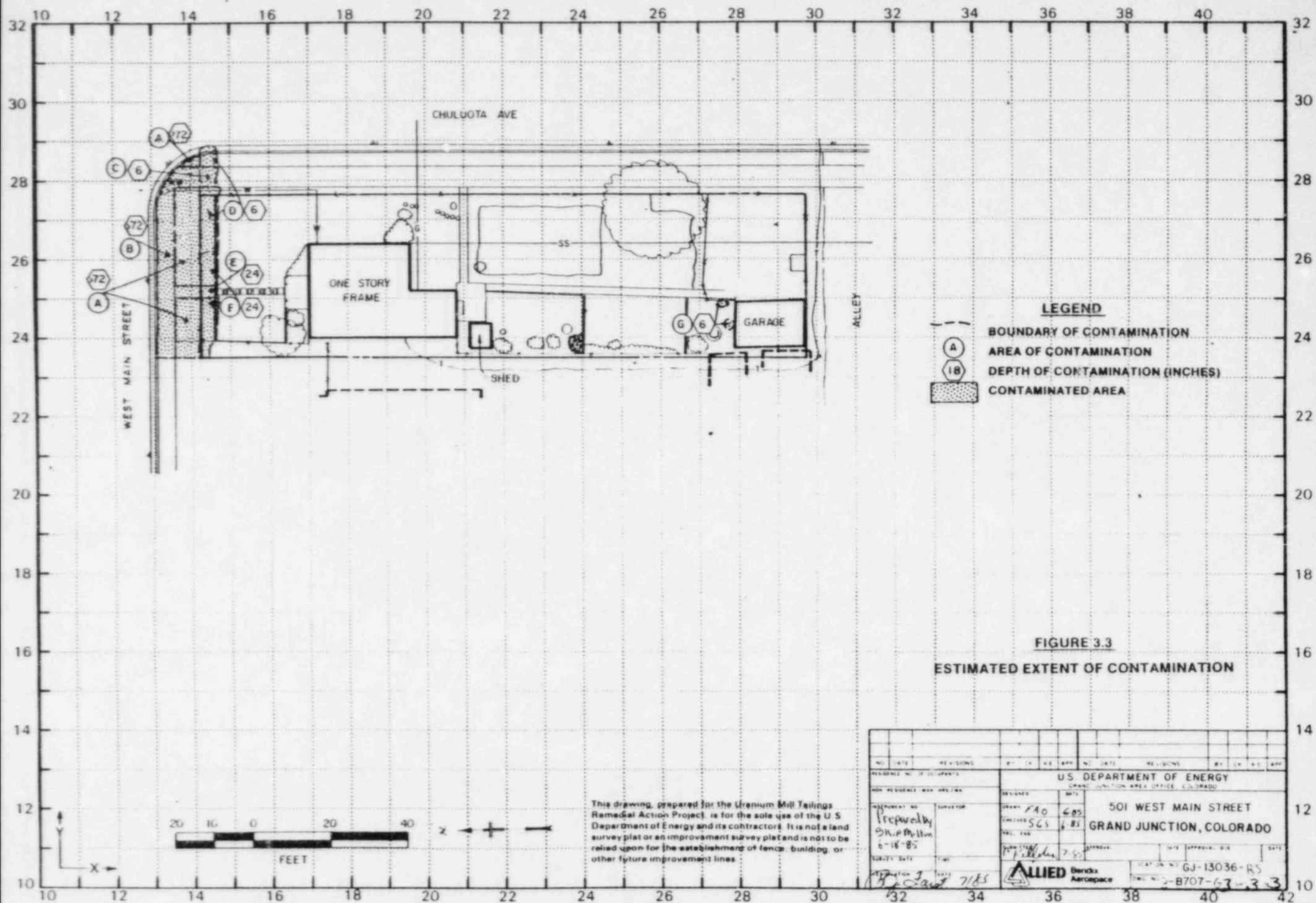
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO	DOE ID NO. GJ15036 RS
ADDRESS 501 WEST MAIN STREET GRAND JUNCTION, COLORADO	ALBION
SURV. FILE 63-85 DRAFT 98K 6-4-85	CK - -
DRAWING NO. 3-C-707 F1	SHEET 1 OF 1







NO. DATE		REVISIONS		BY	CHK	APP	NO. DATE		REVISIONS		BY	CHK	APP
RESIDENCE NO. OF OCCUPANTS													
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO													
NO. RESIDENCE		WAY		HRS		DESIGNED		DATE		501 WEST MAIN STREET			
1		10		0		7/85		6/85		GRAND JUNCTION, COLORADO			
PREPARED BY		SURVEYOR		CHECKED		DATE		APPROVAL		DATE		APPROVAL	
J.K. Milton		7/85		S.G.S.		6/85		[Signature]		7/85		[Signature]	
DATE		TIME		DATE		TIME		DATE		TIME		DATE	
7/32		34		36		38		40		42		44	
7/32		34		36		38		40		42		44	





3/85

DOE ID NO.

GJ-13036-R5

Date

6-18-85

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

Official Survey Report

Property Address 501 West Main Street

Property Owner Norman L. Billings

Address of Owner (if different from above) \_\_\_\_\_

Report Prepared By Skip Milton

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 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 XXX 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.

cc:

G. A. Franz, III, GJ/CDH

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 17 uR/h  
HOG = 125 uR/h

**ALLIED** Bendix  
Aerospace

Bendix Field Engineering Corporation  
Grand Junction Operations  
Grand Junction, Colorado

**Date:** June 13, 1985

**To:** Files

**From:** Skip Milton

**Subject:** Team Leader Notes - GJ-13036-RS

Address: 501 West Main Street

Owner: Norman L. Billings

Team Members

S. Milton (Team Leader)	G. Larsen
S. Larsen	K. Roemer
L. Kula	S. Southern
M. Dexter	

Instruments

See Equipment Summary sheet.

Health and Safety arrived on the site, everything appeared to look good to them.

A core was performed in the sidewalk north of the primary structure. An auger hole, 90-inches in depth, appeared to be contaminated.

A 'storm' drain pipe is buried approximately 1-foot below the surface, and 1-foot south of the sidewalk. The pipe is backfilled with apparent tailings.

All utility lines were investigated.

All team members were frisked before returning to the compound.

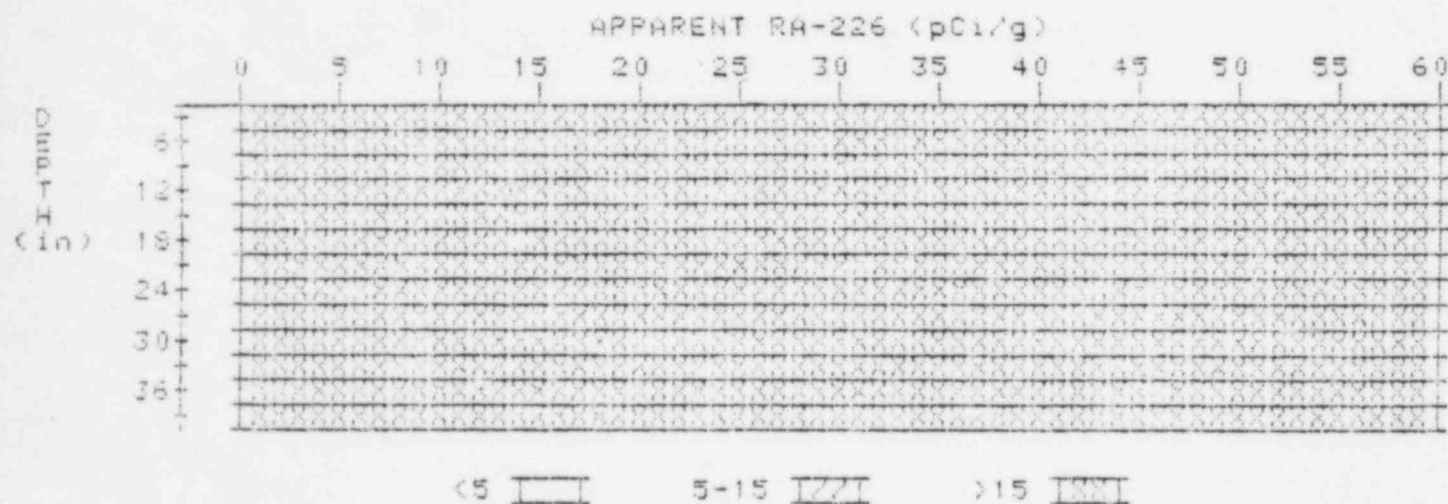
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

2

PROPERTY NUMBER: GJ-13036-RS

HOLE NUMBER: 2

LOCATION: 133245



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	124.9	124.9
6	152.9	180.8
9	165.2	174.9
12	172.1	179.5
15	175.4	179.7
18	176.3	179.3
21	175.5	177.1
24	173.8	173.8
27	172.1	144.0
30	186.2	245.0
33	167.2	141.4
36	162.7	165.5
39	156.6	156.6

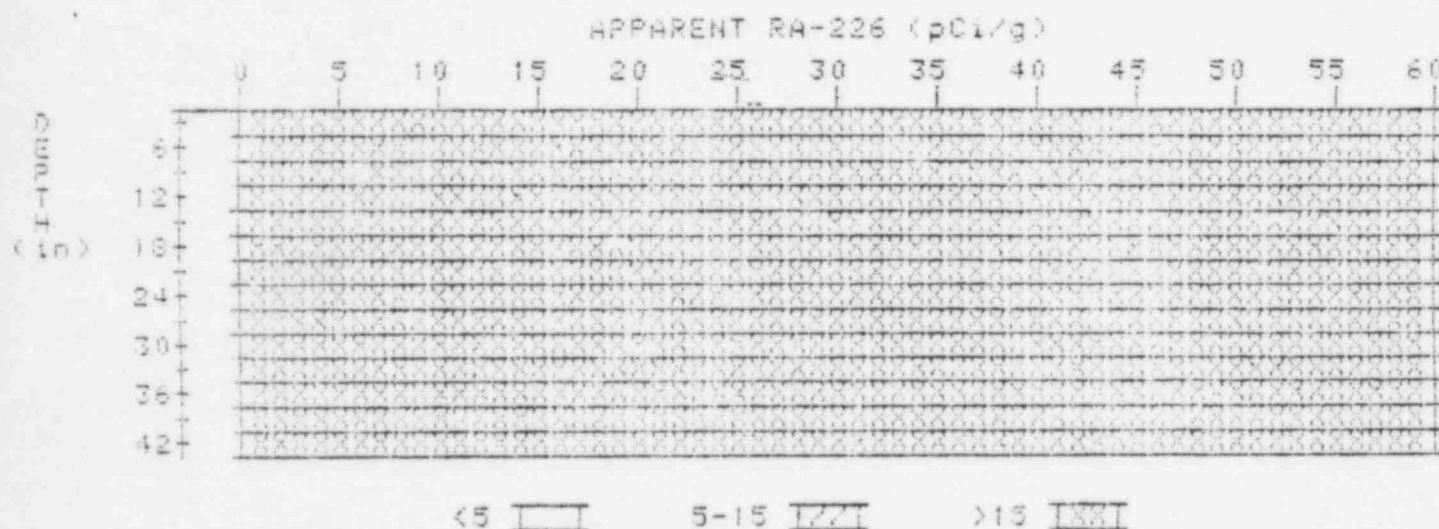
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-13036-RS

HOLE NUMBER: 5

LOCATION: 139260



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	88.8	88.8
6	119.3	138.9
9	138.8	153.7
12	149.9	160.6
15	155.0	161.2
18	156.6	160.7
21	155.9	159.1
24	153.4	157.9
27	148.4	155.7
30	139.3	150.7
33	123.8	116.9
36	112.2	120.0
39	96.2	114.0
42	70.2	70.2

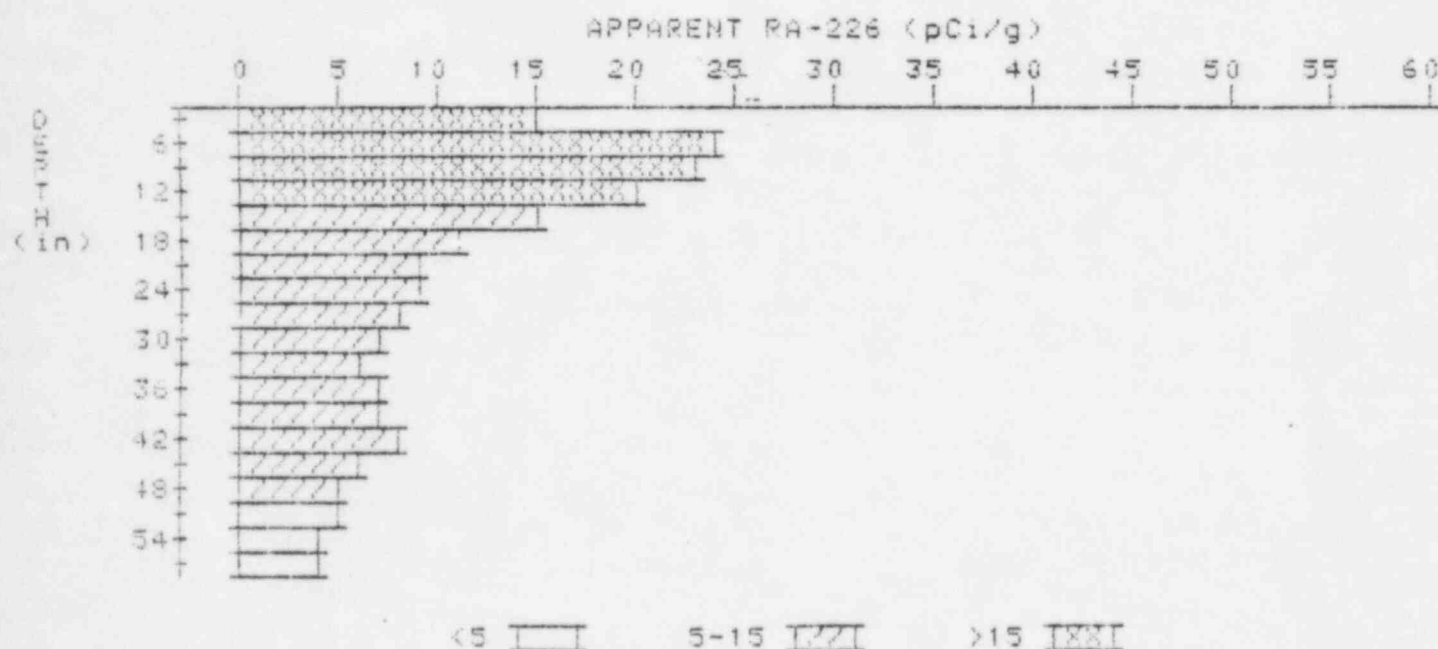
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-13036-RS

HOLE NUMBER: 6

LOCATION: 144245



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	15.1	15.1
6	18.6	23.8
9	19.2	22.9
12	17.7	20.0
15	14.9	14.5
18	12.3	11.1
21	10.4	9.0
24	9.3	9.1
27	8.3	7.9
30	7.6	7.0
33	7.0	6.3
36	6.9	6.7
39	6.9	7.2
42	6.7	7.6
45	5.9	5.7
48	5.2	5.0
51	4.6	4.6
54	4.0	3.6

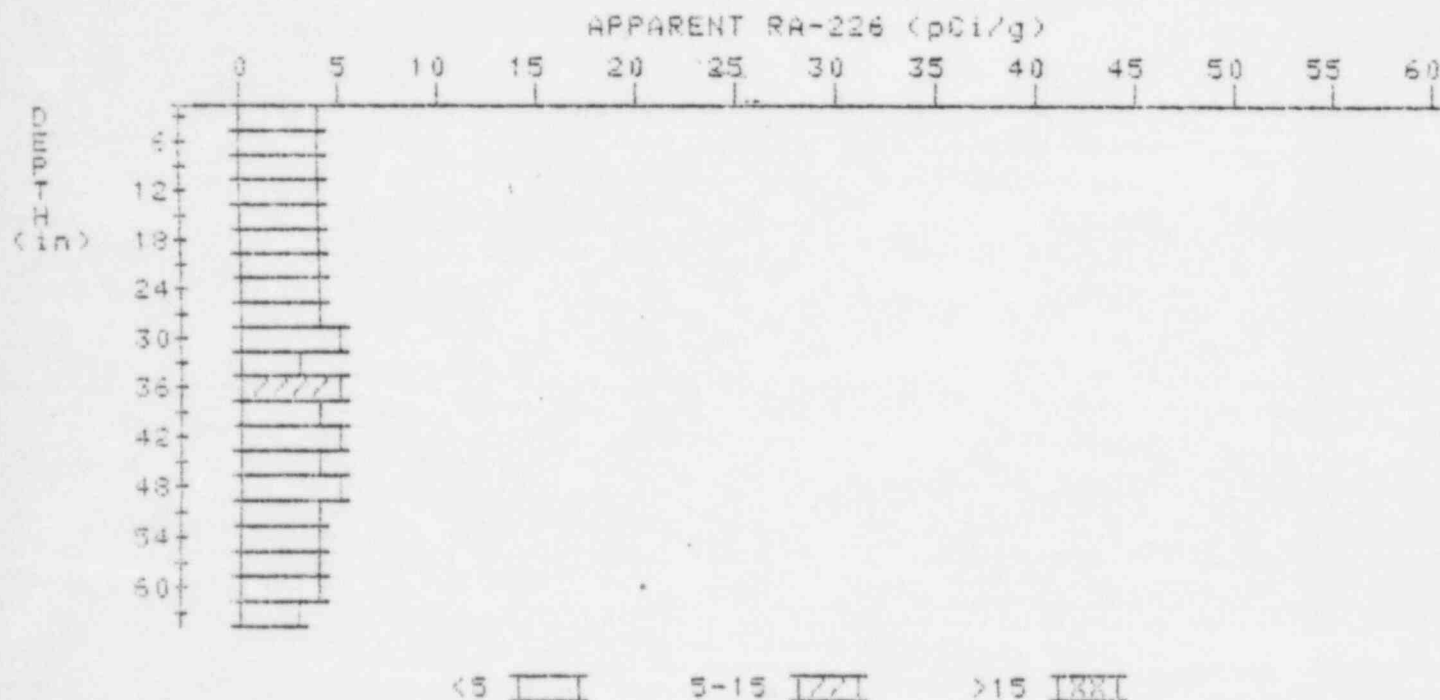
57

3.6

3.6

# APPARENT RADIUM-226 CONCENTRATION 12 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13036-R6  
HOLE NUMBER: 12  
LOCATION: 171265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.9	3.9
6	4.0	4.2
9	4.0	3.3
12	4.1	4.3
15	4.0	3.6
18	4.1	4.1
21	4.2	4.4
24	4.2	4.0
27	4.3	4.5
30	4.3	4.9
33	4.0	2.0
36	4.4	3.1
39	4.4	4.4
42	4.4	4.6
45	4.3	4.1
48	4.3	4.7
51	4.1	3.7

54  
57  
60  
63

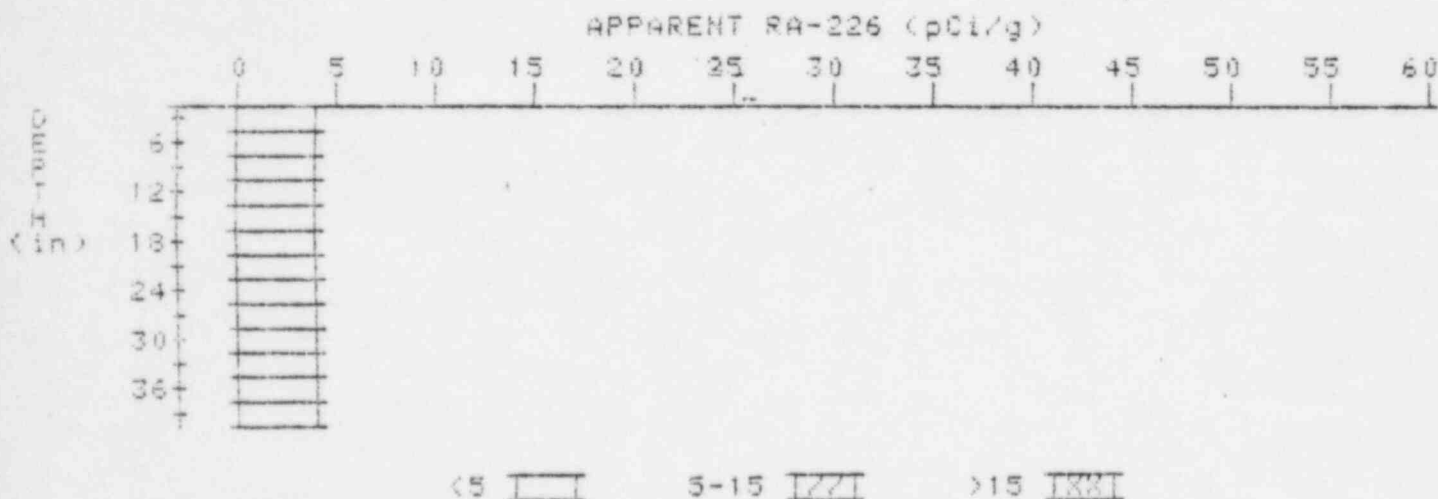
4.1  
3.9  
3.7  
3.4

4.5  
3.9  
3.9  
3.4



# APPARENT RADIUM-226 CONCENTRATION 15 DECONVOLUTION GRAPH

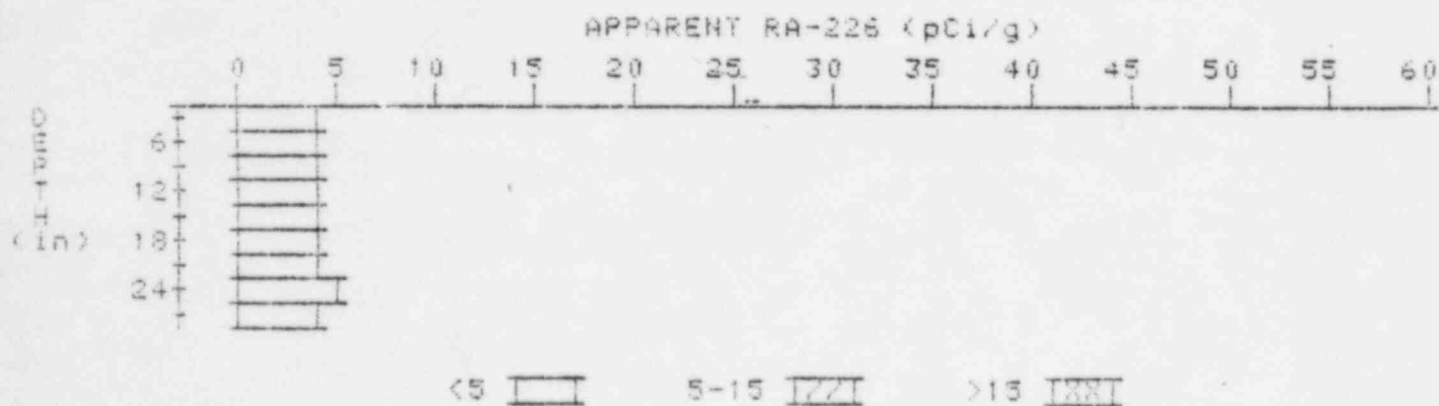
PROPERTY NUMBER: GJ-13036-R9  
HOLE NUMBER: 15  
LOCATION: 197264



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.8	4.0
9	4.0	4.4
12	4.0	3.9
15	4.1	4.1
18	4.2	4.4
21	4.2	4.2
24	4.2	4.0
27	4.3	4.5
30	4.3	4.5
33	4.2	4.2
36	4.1	4.1
39	4.0	4.0

# APPARENT RADIUM-226 CONCENTRATION 17 DECONVOLUTION GRAPH

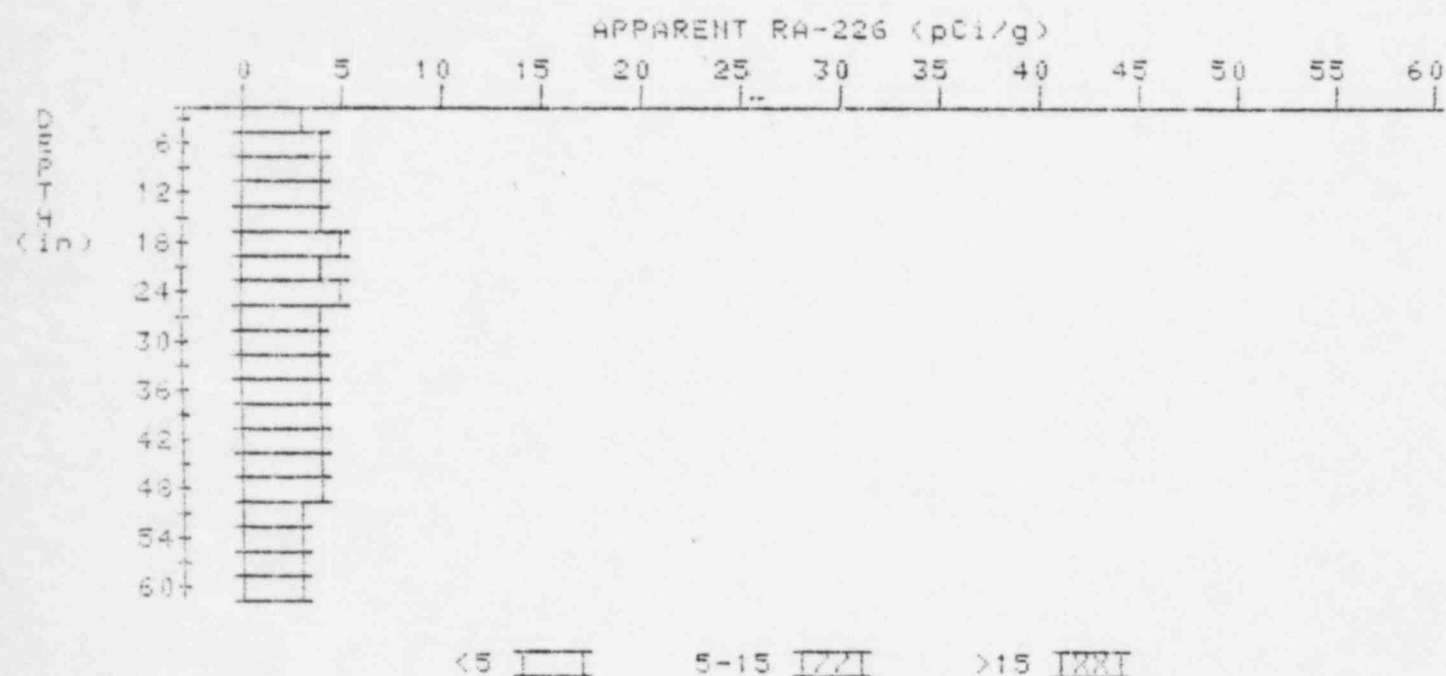
PROPERTY NUMBER: GJ-13036-RS  
HOLE NUMBER: 17  
LOCATION: 199254



Depth (in)	Apparent Radium-226 (pCi/g) Underconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.0	4.0
6	4.1	4.3
9	4.1	3.9
12	4.2	4.2
15	4.3	4.5
18	4.3	4.1
21	4.4	4.4
24	4.5	4.9
27	4.4	4.4

# APPARENT RADIUM-226 CONCENTRATION 18 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13036-RS  
HOLE NUMBER: 18  
LOCATION: 215265

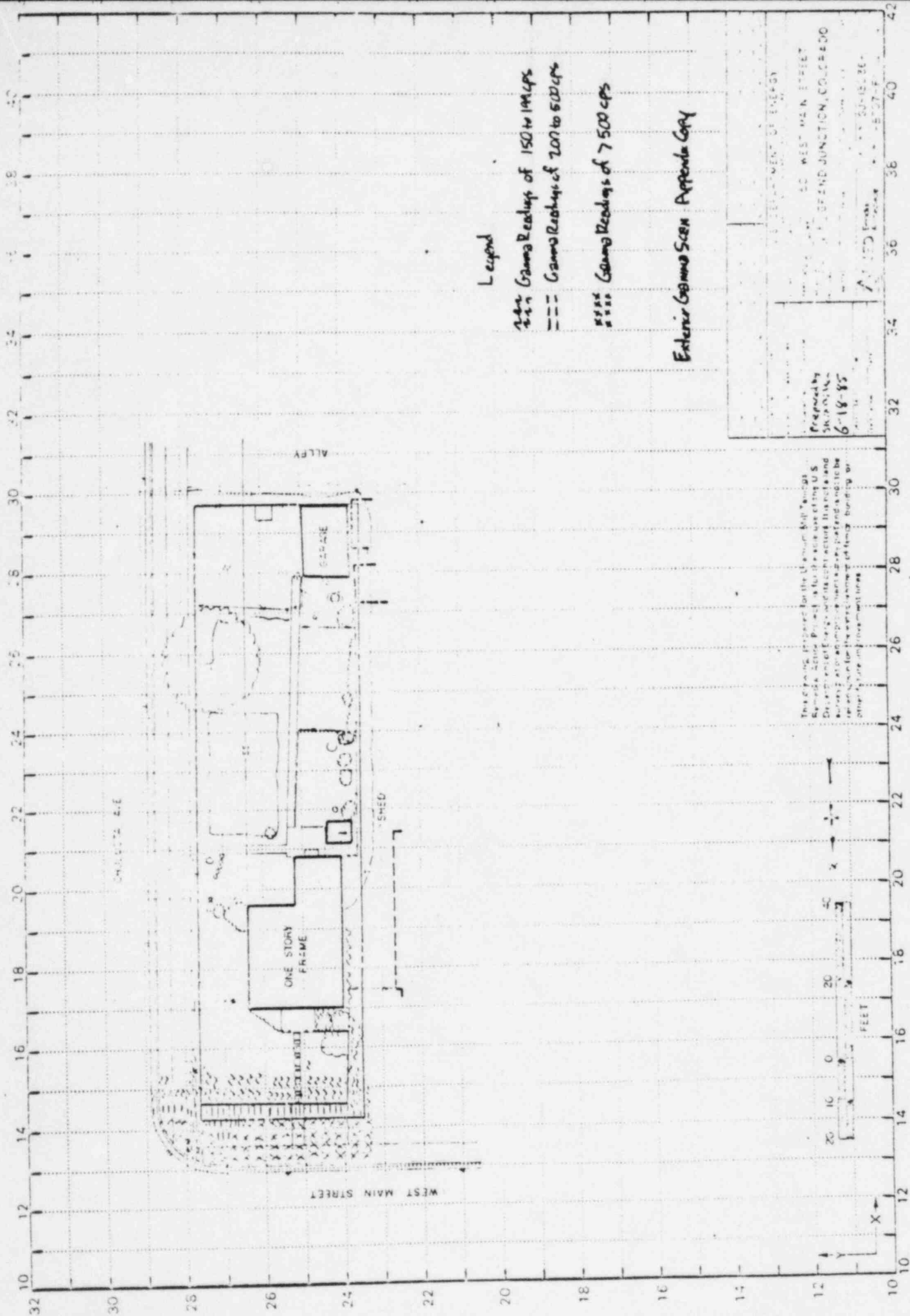


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.7	3.9
9	4.0	4.4
12	4.1	4.1
15	4.2	4.2
18	4.3	4.7
21	4.2	3.8
24	4.3	4.7
27	4.2	4.2
30	4.1	4.1
33	4.0	3.8
36	4.0	4.2
39	3.9	4.1
42	3.7	3.5
45	3.6	3.6
48	3.5	3.7
51	3.3	2.4
54	3.3	3.3

57  
60

3.3  
3.2

3.5  
3.2



This drawing prepared for the U.S. Atomic Energy Commission  
 by the U.S. Atomic Energy Commission  
 Division of Environmental Health and Safety  
 Office of Environmental Health and Safety  
 Office of Environmental Health and Safety  
 Office of Environmental Health and Safety

Prepared by  
 S. A. H. N.  
 6-18-85

DEPARTMENT OF ENERGY

30 WEST MAIN STREET  
 GRAND JUNCTION, COLORADO

U.S. Atomic Energy Commission  
 Office of Environmental Health and Safety  
 Office of Environmental Health and Safety  
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