RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-06551-RS
ADDRESS: 624 NORTH 15TH STREET

SEPTEMBER 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 September 10, 1985

REA06551:REA-714

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-06551-RS, is a single-family residence located at 624 North 15th 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 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, 33 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action is $5,230. Remedial action on this property will take approximately 8 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 624 North 15th Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 9,000 sf (0.21 acres)

Legal Description: Lots 7 through 9 inclusive, Block 9 of the Slocomb Addition, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 1 mile(s) north 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:	Single-family residence
South:	Single-family residence
East:	Alley
West:	North 15th Street (asphalt)

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 840 sf
Construction Date:	1946
Construction:	Wood-frame with stucco siding
Foundation:	Concrete wall on spread footing
Footing Depth:	Not determined
Basement:	Yes - full
Crawl Space:	None
Condition:	Good

Other Structures:

Type:	Carport
Size:	Approximately 474 sf
Construction:	Wood-frame

Foundation:	6" concrete slab-on-grade
Condition:	Good
Type:	Shed 1
Size:	Approximately 40 sf
Construction:	Wood-frame
Foundation:	6" concrete slab-on-grade
Condition:	Good
Type:	Shed 2
Size:	Approximately 87 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-grade
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-06551-RS on August 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 the historical information available for this property was conducted to determine the areas of potential contamination identified during previous radiologic assessments.

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 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): 40 uR/h

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

3.2.2 Interior Findings

Background Readings: 15 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 survey results are shown in Appendix Figure 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; the locations and types of these investigations 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)

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: Concrete
Direction From Primary Structure: East
Other Directions: Concrete slab of Shed 1
Total Depth of Contamination: Estimated at 12 inches
Other (height or thickness): 6-inch-thick concrete
Comments: The depth of contamination is based on data collected in Area E. The material underlying the concrete is contaminated; the concrete is not.
Approximate Square Footage: 10

(Area B) Surface Material: Concrete
Direction From Primary Structure: Northwest
Other Directions: Driveway west of the city sidewalk
Total Depth of Contamination: 12 inches
Other (height or thickness): 6-inch-thick concrete
Comments: The material underlying the concrete is contaminated; the concrete is not.
Approximate Square Footage: 45

(Area C) Surface Material: Concrete
Direction From Primary Structure: Northeast
Other Directions: East portion of the driveway
Total Depth of Contamination: 15 inches
Other (height or thickness): 6-inch-thick concrete
Comments: The material underlying the concrete is contaminated; the concrete is not.
Approximate Square Footage: 312

(Area D) Surface Material: Lawn
Direction From Primary Structure: East
Other Directions: South of the carport
Total Depth of Contamination: 6 inches
Comments: This area consists of 2 small deposits.
Approximate Square Footage: 29

(Area E) Surface Material: Concrete
Direction From Primary Structure: East
Other Directions: Concrete slab of the carport
Total Depth of Contamination: 12 inches
Other (height or thickness): 6-inch-thick concrete
Comments: The material underlying the concrete is contaminated; the concrete is not.
Approximate Square Footage: 341

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-06551-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 $5,230.

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

The owner wants the slab replaced with 6" concrete as it now exists. 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
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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

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

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
2	125249	00	DS	1.7		*	West of the primary structure
3	126260	00	DS	8.3		*	West portion of
		03	TC	6.5		*	the driveway
		06	TC	7.9		*	DC = 12 inches
		09	TC	7.3		*	Based on the
		12	TC	5.8		*	deconvolution graph
		15	TC	4.8		*	
		18	TC	4.3		*	
		21	TC	4.2		*	
		24	TC	4.1		*	
		27	TC	3.9		*	
		30	TC	4.0		*	
		33	TC	3.7		*	
		36	TC	3.8		*	
		39	TC	3.8		*	
4	130260	00	DS	1.4		*	City sidewalk
5	169227	03	TC	2.8		*	Water line
		06	TC	3.0		*	West foundation
		09	TC	3.2		*	DC = 0 inches
		12	TC	3.4		*	
		15	TC	3.4		*	
		18	TC	3.5		*	
		21	TC	3.6		*	
		24	TC	3.6		*	
		27	TC	3.7		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
		36	TC	3.6		*	
		39	TC	3.5		*	
		42	TC	3.5		*	
		45	TC	3.5		*	
		48	TC	3.4		*	
		51	TC	3.5		*	
		54	TC	3.5		*	
		57	TC	3.6		*	
		60	TC	3.6		*	
		63	TC	3.6		*	
		66	TC	3.5		*	
		69	TC	3.5		*	
		72	TC	3.6		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
6	180250	00	DS	<1.0		*	North of the primary structure
7	195219	03	TC	2.6		*	South foundation
		06	TC	3.0		*	DC = 0 inches
		09	TC	3.3		*	
		12	TC	3.5		*	
		15	TC	3.6		*	
		18	TC	3.7		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
8	195260	00	DS	1.7		*	
9	199256	00	DS	2.2		*	East edge of the
		03	TC	3.1		*	gravel driveway
		06	TC	3.6		*	DC = 0 inches
		09	TC	4.0		*	
		12	TC	4.1		*	
		15	TC	4.1		*	
		18	TC	4.2		*	
		21	TC	4.2		*	
		24	TC	4.4		*	
		27	TC	4.4		*	
		30	TC	4.4		*	
		33	TC	4.3		*	
		36	TC	4.3		*	
		39	TC	4.1		*	
10	203225	00	DS	2.0		*	Gas line
		13	DS	<1.0		*	
11	204234	00	DS	1.3		*	Sewer line
		03	TC	2.8		*	Background
		06	TC	3.0		*	West foundation
		09	TC	3.3		*	DC = 0 inches
		12	TC	3.6		*	
		15	TC	3.6		*	
		18	TC	3.7		*	
		21	TC	3.8		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
11	204234	24	TC	3.9		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
		39	TC	3.9		*	
		42	TC	3.9		*	
		45	TC	3.9		*	
		48	TC	3.9		*	
		51	TC	3.9		*	
		54	TC	3.9		*	
		57	TC	3.9		*	
		60	TC	3.9		*	
		63	TC	3.9		*	
		66	TC	3.8		*	
		69	TC	3.8		*	
		72	TC	3.8		*	
		75	TC	3.8		*	
		78	TC	3.9		*	
		81	TC	3.8		*	
		84	TC	3.6		*	
		87	TC	3.5		*	
		90	TC	3.3		*	
		93	TC	3.3		*	
		96	TC	3.2		*	
		99	TC	3.2		*	
		102	TC	3.2		*	
12	205245	00	DS	<1.0		*	Sidewalk east of the primary structure
13	205256	00-06	SS			4.2	Concrete core
		06-12	SS			153.0	
		00	DS	32.7		*	Concrete driveway
		03	TC	27.8		*	Northeast of the
		06	TC	52.3		*	primary structure
		09	TC	67.8		*	DC = 15 inches
		12	TC	57.9		*	Based on the
		15	TC	36.1		*	deconvolution graph
		18	TC	20.4		*	
		21	TC	12.2		*	
		24	TC	8.8		*	
		27	TC	7.4		*	
		30	TC	6.5		*	
		33	TC	6.0		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
13	205256	36	TC	5.8		*	
		39	TC	5.8		*	
		42	TC	5.8		*	
		45	TC	5.2		*	
		48	TC	4.9		*	
		51	TC	4.7		*	
		54	TC	4.6		*	
14	210260	00	DS	23.0		*	North side of the concrete driveway
15	214241	00	DS	3.2		*	Lawn south of the
		06	DS	1.9		*	driveway
16	220242	00	DS	3.4		*	In the carport
17	228202	00	DS	2.1		*	Southeast in the
		06	DS	1.3		*	garden area
18	228248	00-06	SS			3.0	Concrete core
		00	DS	9.0		*	In the carport
		03	TC	12.1		*	DC = 12 inches
		06	TC	14.4		*	Based on the
		09	TC	13.5		*	deconvolution graph
		12	TC	9.5		*	
		15	TC	7.4		*	
		18	TC	6.3		*	
		21	TC	5.6		*	
		24	TC	5.3		*	
		27	TC	5.1		*	
		30	TC	5.0		*	
		33	TC	5.0		*	
		36	TC	4.9		*	
		39	TC	4.7		*	
		42	TC	4.5		*	
		45	TC	4.3		*	
		48	TC	4.1		*	
19	230240	00	DS	1.9		*	Lawn south of the carport
20	230260	00	DS	<1.0		*	North edge of the carport slab

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
21	234240	00	DS	3.3		*	Lawn south
		06	DS	2.6		*	of the carport
22	236242	00	DS	1.1		*	In the carport
23	238250	00	DS	7.7		*	In the carport

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 = 08-13-85
Team Leader = TC

RADRPT V85.1<850619.1456> Table 3.2

Radium Concentrations at Interior Locations

DOE ID #GJ-06551-RS 624 North 15th Street

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
1		00	DS	10.7		*	Shed 1

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 = 08-13-85
Team Leader = TC

Table 3.3
Summary of Interior Gamma Exposure Rates
DOE ID No. GJ-06551-RS 624 North 15th Street

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)
Basement	*	*	*	*	15-16	*
Crawl Space	-	-	-	12	15-17	16
Shed 1	07	16-19	17	07	14-23	18
Shed 2	*	*	*	*	15-16	*

* Walking gamma scans were performed to confirm the absence of interior contamination.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-06551-RS

AREA	CALCULATIONS(ft)		SF		DEPTH(ft)		CF		CUBIC YARDS		
EXTERIOR											
	Concrete										
A*	4 x 10	=	40	x	0.5	=	20				
B	15 x 3	=	45	x	0.5	=	23				
C	4.5 x 16	=	72								
	17 x 12	=	204								
	12 x 3	=	36								
			312	x	0.5	=	156				
E	23.8 x 19.9	=	474	x	0.5	=	237				
	Volume of Concrete					=	436	=	436/27	=	16
	Contaminated Fill										
A	2 x 5	=	10	x	0.5	=	5				
B	15 x 3	=	45	x	0.5	=	23				
C	4.5 x 16	=	72								
	17 x 12	=	204								
	12 x 3	=	36								
			312	x	0.8	=	250				
D	7 x 2	=	14								
	5 x 3	=	15								
			29	x	0.5	=	15				

* Note: Shed 1 in Area A is portable and shall be considered as exterior involvement.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-06551-RS

AREA	CALCULATIONS(ft)			SF		DEPTH(ft)		CF				CUBIC YARDS
E	20 x	11	=	220								
	11 x	11	=	121								
				341	x	0.5	=	171				
	Volume of Fill						=	464	=	464/27	=	17
	TOTAL VOLUME - EXTERIOR										=	33

See Appendix Figures 3.4a and 3.4b For Areas

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-06551-RS Page 1 of 1

EXTERIOR		
Remove identified residual radioactive material		
15 cy @ $14.50/cy (machine-open)		$ 218
2 cy @ $44/cy (manual-open)		88
Remove/replace shed		
Lump sum		75
Shore and support carport		
70 lf @ $3/lf		210
Remove/replace 6" concrete slab		
871 sf @ $3.25/sf		2,831
Replace roadbase		
16 cy @ $11.50/cy		184
Replace topsoil		
1 cy @ $9.50/cy		10
Replace sod		
29 sf @ $.50/sf		15
	TOTAL EXTERIOR	$ 3,631
	TOTAL INTERIOR	0
	ACCESS CONTROL	200
	SUBTOTAL	$ 3,831
	CONTINGENCY @ 5%	192
	SUBTOTAL	$ 4,023
	CONTRACTOR OVERHEAD & PROFIT @ 30%	1,207
	GRAND TOTAL	$ 5,230

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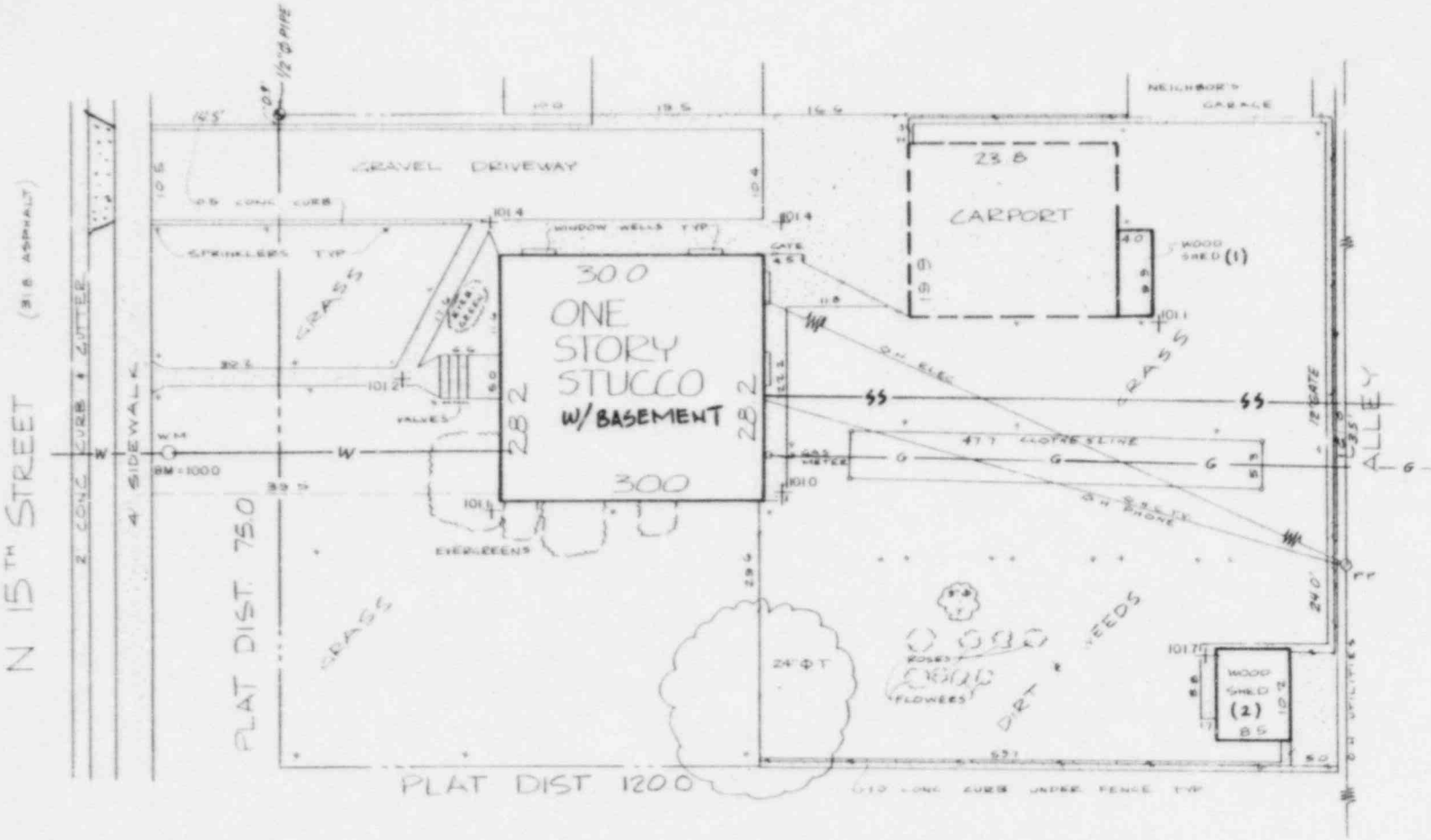
FIGURE 2.1
VICINITY MAP
GRAND JUNCTION, COLORADO



LOTS 7 TO 9 INC BLK 9 SLOCOMB ADD
GRAND JCT MESA COUNTY COLO

0 5 0 10 20
FEET

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 GJ0655RS
ADDRESS 624 N 15TH ST GRAND JUNCTION, COLO	ALLIED Nuclear Technologies Bendix Field Engineering Corporation
SURV GDE/8585 DRAFT TJ/8785	OF 2
DRAWING NO 3C 870 F-1	SHEET 1 OF 1

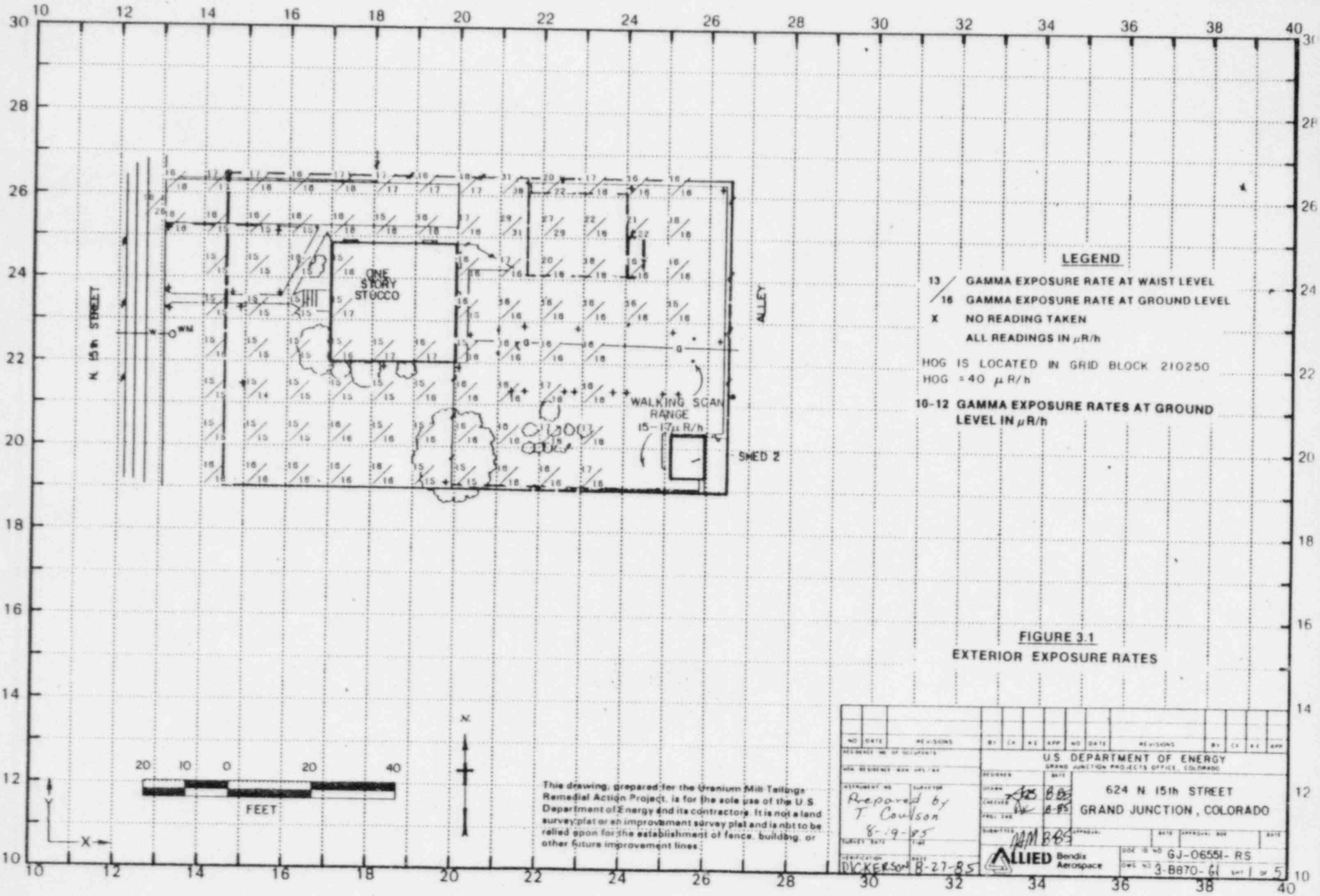


FIGURE 3.1

EXTERIOR EXPOSURE RATES

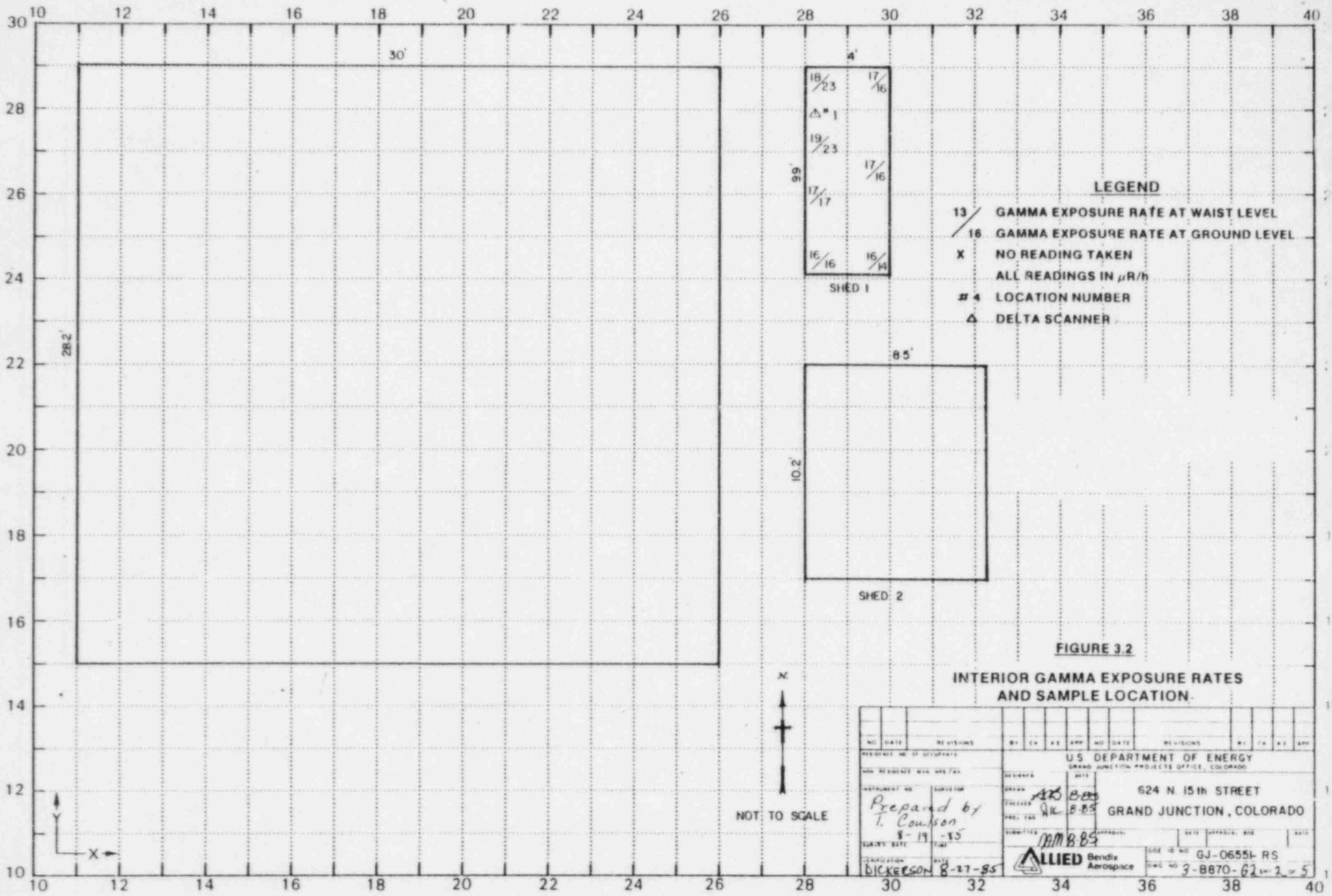


FIGURE 3.2

INTERIOR GAMMA EXPOSURE RATES AND SAMPLE LOCATION

U.S. DEPARTMENT OF ENERGY	GRAND JUNCTION PROJECTS OFFICE, COLORADO
Prepared by T. Coulson 8-19-85	624 N. 15th STREET GRAND JUNCTION, COLORADO
DICKERSON 8-27-85	ALLIED Bendix Aerospace
	GJ-0655L-RS
	3-B870-G2 SH. 2 OF 5

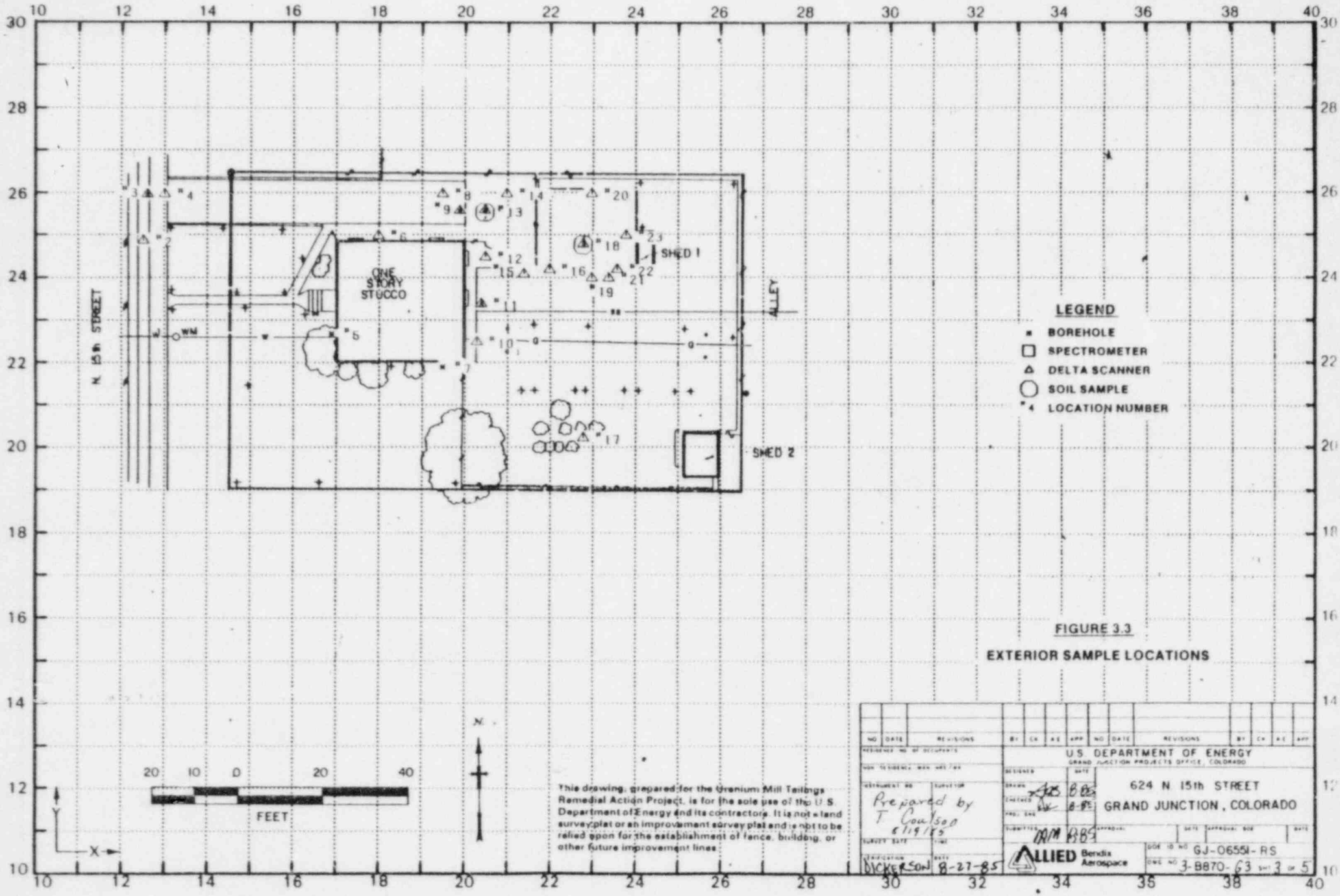


FIGURE 3.3

EXTERIOR SAMPLE LOCATIONS

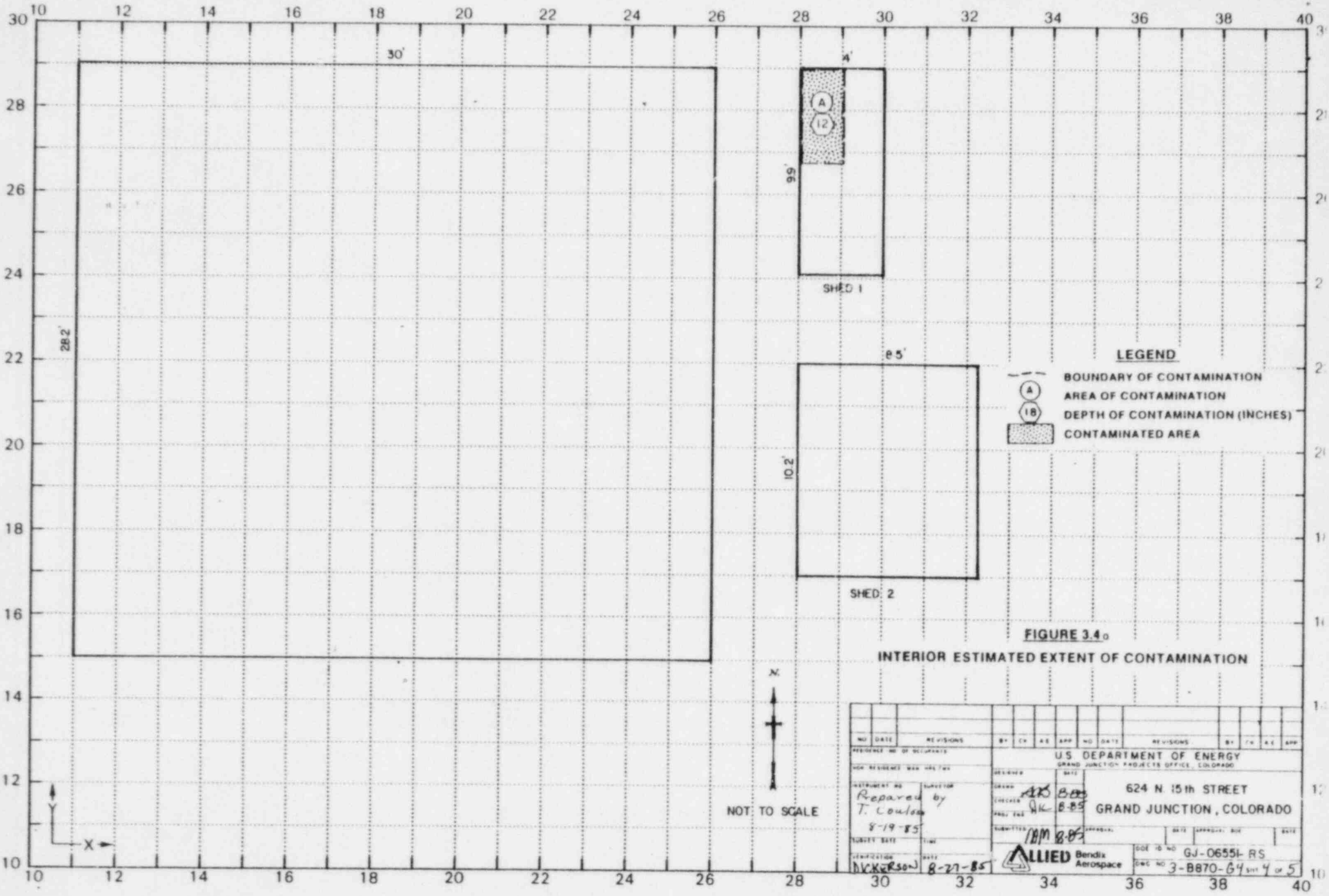


FIGURE 3.4o

INTERIOR ESTIMATED EXTENT OF CONTAMINATION

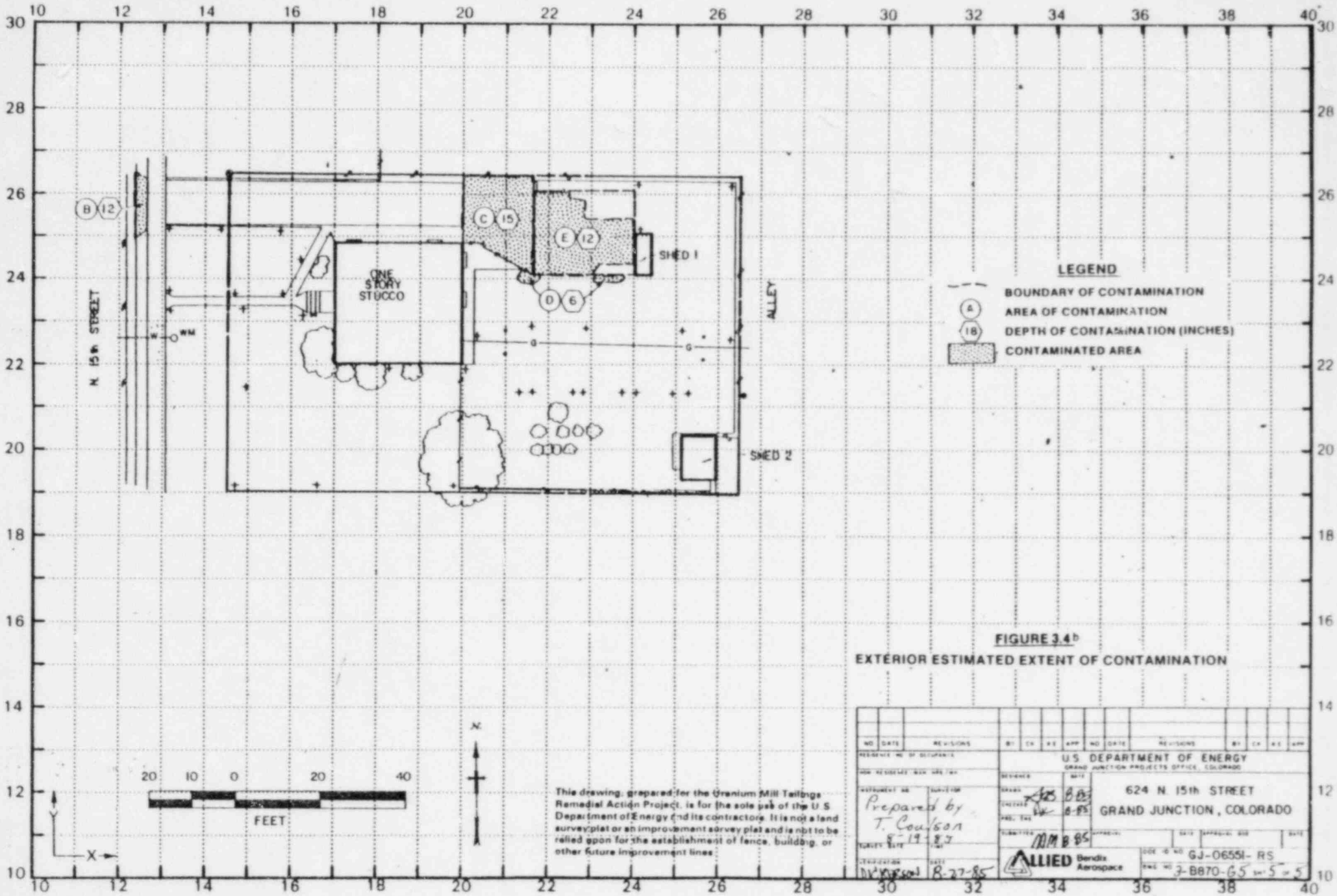


FIGURE 3.4[b]

EXTERIOR ESTIMATED EXTENT OF CONTAMINATION

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: August 13, 1985

To: Files

From: Terry Coulson

Subject: Team Leader Notes - GJ-06551-RS

Address: 624 North 15th Street

Owner: Olive Lane Blackburn

Occupancy: One

Team Members

T. Coulson (Team Leader)	P. Hardy
V. Young	M. Gilfillan
H. Lucero	V. Rothman

Instruments

See Equipment Operational Summary sheet

According to Oak Ridge National Laboratory (ORNL), the concrete portion of the driveway, the carport, and the concrete apron to the driveway are contaminated. The contaminated apron (grid point 126260) showed readings of 250 counts per second (cps). Readings of 250 cps were also noted over the corehole. At grid location 205256 (driveway) readings of 450 cps on the concrete, and 600 cps over the hole were noted. At grid point 228248 (carport) readings of 250 cps on the concrete and 275 cps over the hole were noted.

Mrs. Blackburn (owner) is concerned that the concrete be replaced with 6-inch slabs, as this is what the original slabs are.

A walking scan was performed in the southeast corner of the lot.

The house has half a basement, the other side is an accessible crawl space. These areas were scanned.

The sewer line was found extending out to the alley from the rear of the house. The water and gas lines were easily recognized.

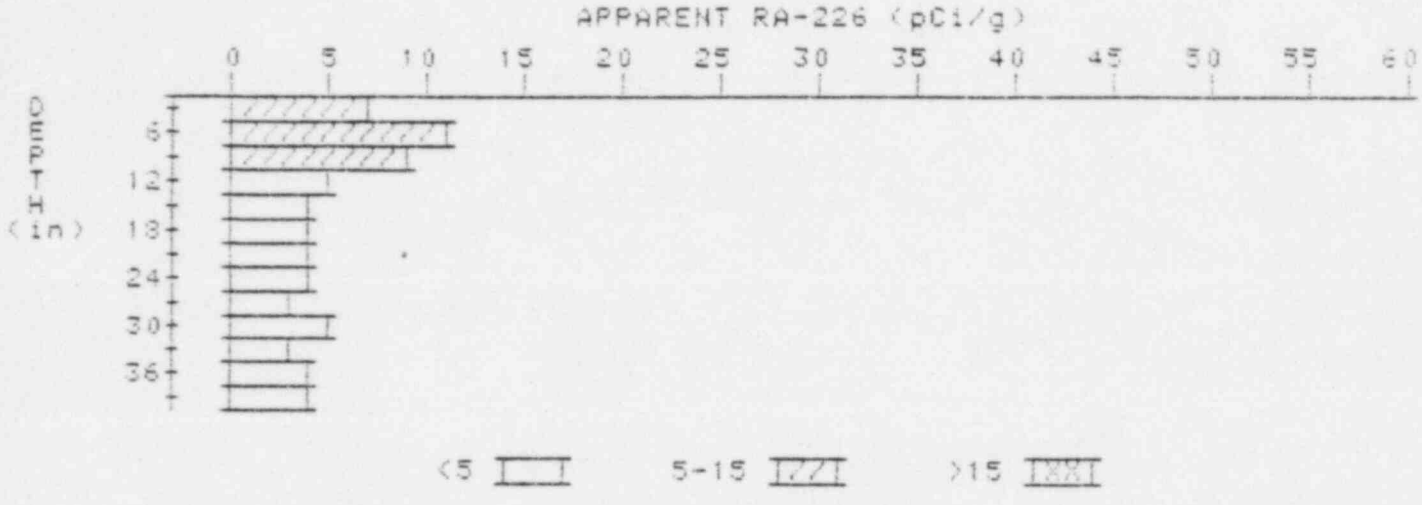
The downhole scintillometer was not used at this property.

The survey was completed by 12:00 PM. All team members were alpha scanned before leaving the property.

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 3
LOCATION: 126260



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.5	6.5
6	7.9	11.5
9	7.3	8.9
12	5.8	4.9
15	4.8	3.9
18	4.3	3.6
21	4.2	4.2
24	4.1	4.3
27	3.9	3.4
30	4.0	4.7
33	3.7	3.0
36	3.8	4.0
39	3.8	3.8

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 5
LOCATION: 169227

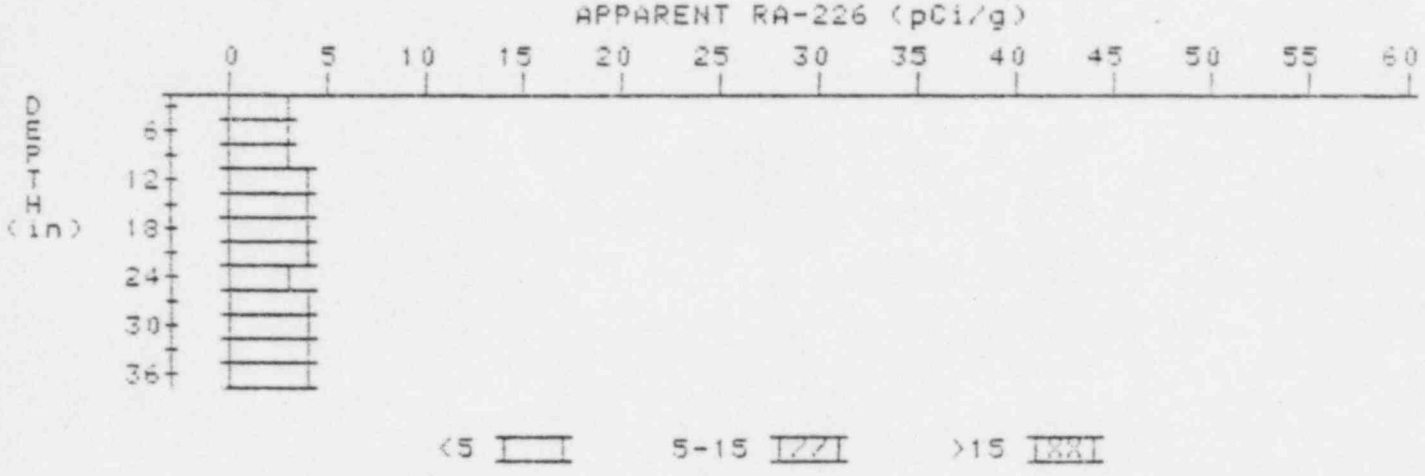
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	3.0	3.0
9	3.2	3.2
12	3.4	3.8
15	3.4	3.2
18	3.5	3.5
21	3.6	3.8
24	3.6	3.4
27	3.7	3.7
30	3.8	4.2
33	3.7	3.7
36	3.6	3.6
39	3.5	3.3
42	3.5	3.5
45	3.5	3.7

48	3.4	3.0
51	3.5	3.7
54	3.5	3.3
57	3.6	3.8
60	3.6	3.6
63	3.6	3.8
66	3.5	3.3
69	3.5	3.3
72	3.6	3.6

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 7

PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 7
LOCATION: 195219



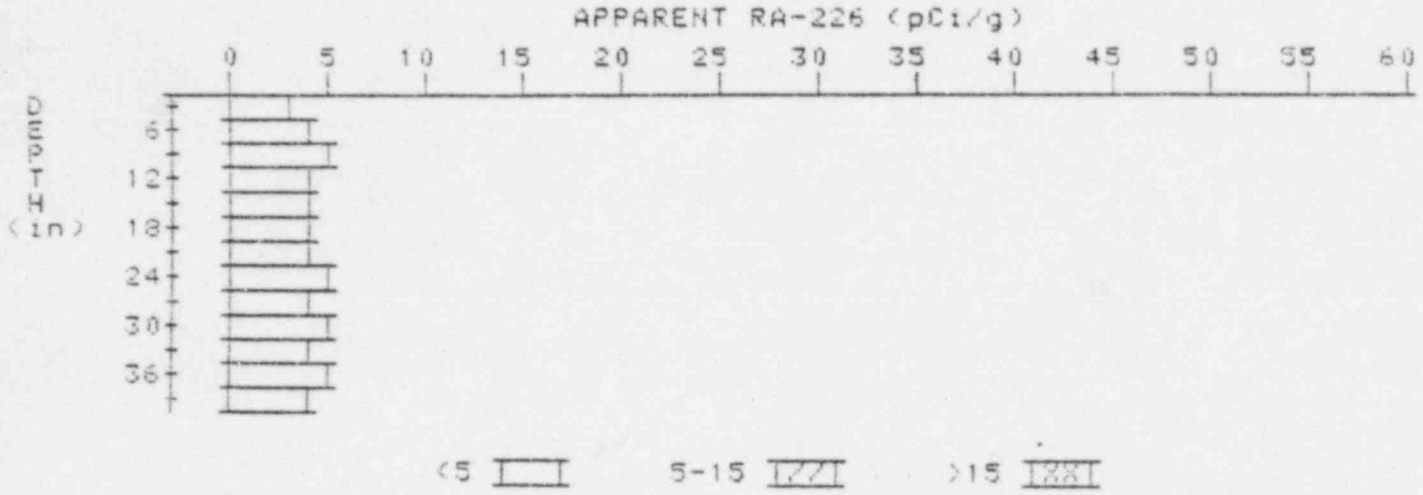
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.6	2.6
6	3.0	3.2
9	3.3	3.5
12	3.5	3.7
15	3.6	3.6
18	3.7	3.7
21	3.8	4.0
24	3.8	3.4
27	4.0	4.4
30	4.0	4.0
33	4.0	4.0
36	4.0	4.0

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

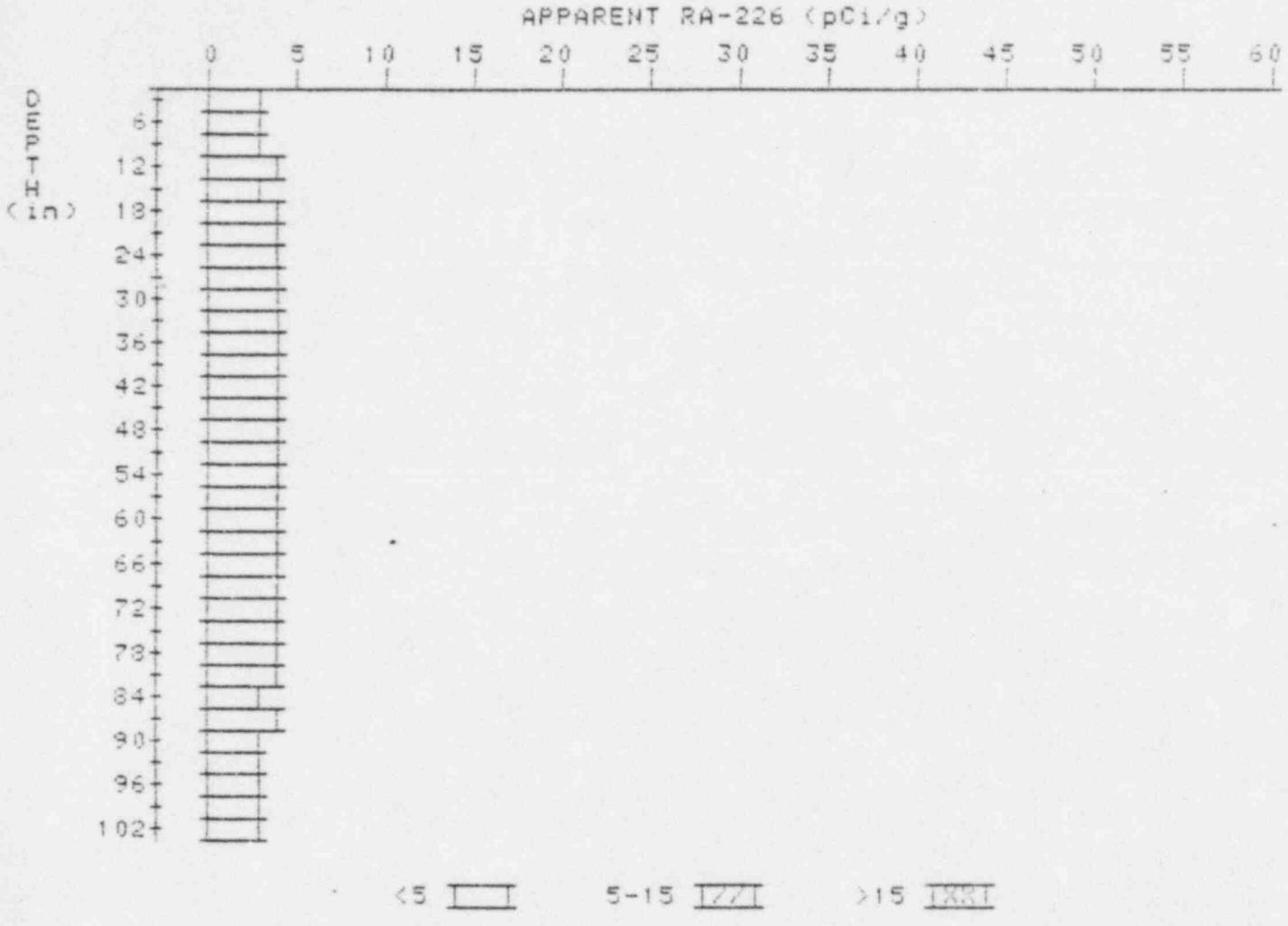
PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 9
LOCATION: 199256



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.6	3.8
9	4.0	4.5
12	4.1	4.3
15	4.1	3.9
18	4.2	4.4
21	4.2	3.8
24	4.4	4.8
27	4.4	4.4
30	4.4	4.6
33	4.3	4.1
36	4.3	4.7
39	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 11
LOCATION: 204234



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	3.0	2.8
9	3.3	3.3
12	3.6	4.1
15	3.6	3.4
18	3.7	3.7
21	3.8	3.8

24	3.9	3.9
27	4.0	4.2
30	4.0	4.0
33	4.0	4.0
36	4.0	4.2
39	3.9	3.7
42	3.9	3.9
45	3.9	3.9
48	3.9	3.9
51	3.9	3.9
54	3.9	3.9
57	3.9	3.9
60	3.9	3.9
63	3.9	4.1
66	3.8	3.6
69	3.8	3.8
72	3.8	3.8
75	3.8	3.6
78	3.9	4.3
81	3.8	4.0
84	3.6	3.4
87	3.5	3.7
90	3.3	2.9
93	3.3	3.5
96	3.2	3.0
99	3.2	3.2
102	3.2	3.2

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 13

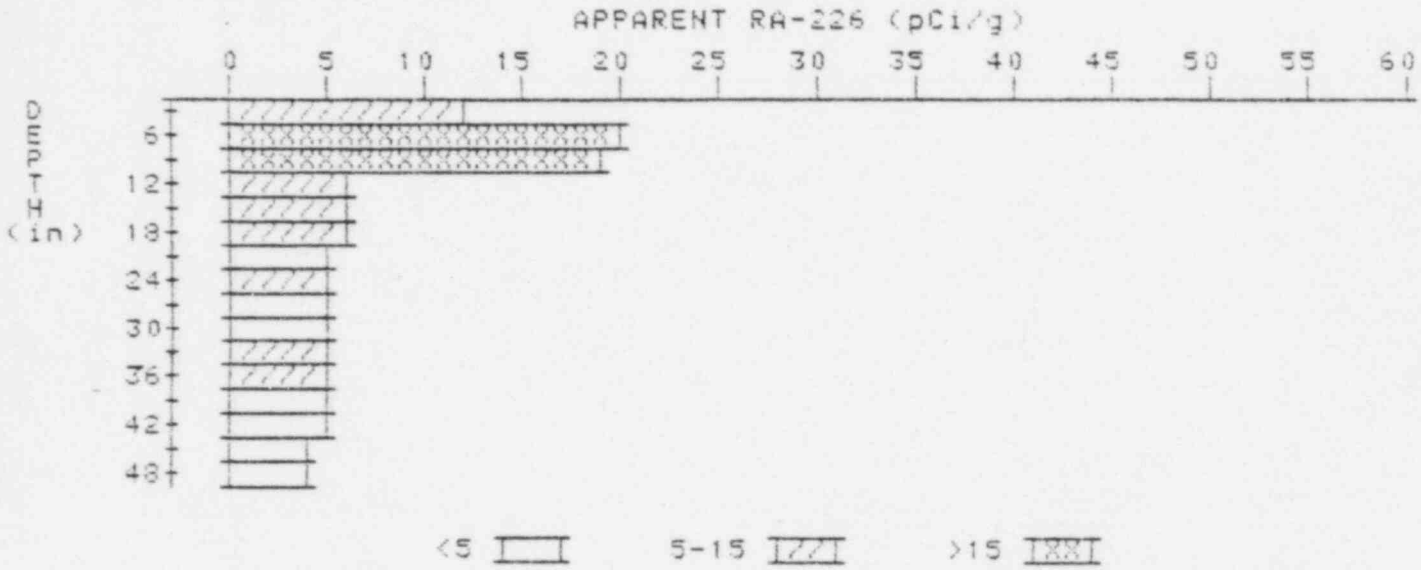
PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 13
LOCATION: 205256

Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	27.8	27.8
6	52.3	68.3
9	67.8	113.0
12	57.9	79.1
15	36.1	25.3
18	20.4	7.1
21	12.2	3.7
24	8.8	5.2
27	7.4	6.5
30	6.5	5.8
33	6.0	5.5
36	5.8	5.4
39	5.8	5.8
42	5.8	6.9
45	5.2	4.7
48	4.9	4.7
51	4.7	4.5
54	4.6	4.6

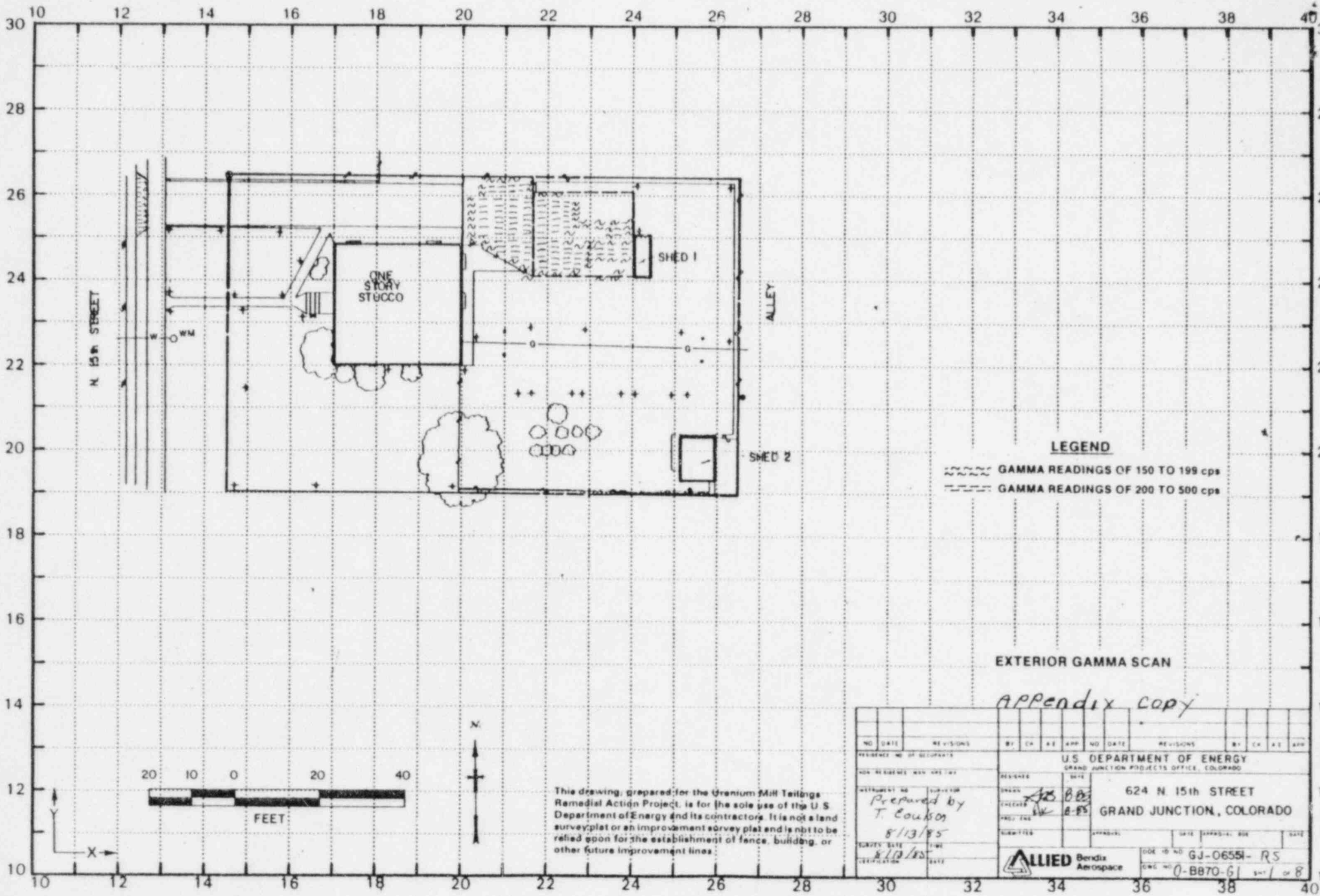
DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 18

PROPERTY NUMBER: GJ-06551-RS
HOLE NUMBER: 18
LOCATION: 229248



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	12.1	12.1
6	14.4	20.1
9	13.5	19.0
12	9.5	6.1
15	7.4	5.6
18	6.3	5.6
21	5.6	4.9
24	5.3	5.1
27	5.1	4.9
30	5.0	4.8
33	5.0	5.2
36	4.9	5.1
39	4.7	4.7
42	4.5	4.5
45	4.3	4.3
48	4.1	4.1



EXTERIOR GAMMA SCAN

Appendix Copy

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	REVISIONS	BY	CK	AE	APP

NO	DATE	REVISIONS	BY	CK	AE	APP

RESIDENCE NO. OF OCCUPANTS

NON-RESIDENCE WORK SPECIFIC

RESIDENCE — DATE

DRAWN — DATE 8/13/95

CHECKED — DATE 8-15

PROJ. ENG. — DATE

SUBMITTED — APPROVAL — DATE — APPROVAL BOX — DATE

U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION PROJECTS OFFICE, COLORADO

624 N. 15th STREET
GRAND JUNCTION, COLORADO

Prepared by T. Coulson 8/13/95

SURVEY DATE 8/10/95 — TIME — DATE

LOCATION

ALLIED Bendix Aerospace

DOE I.D. NO. GJ-0655H-RS

DWG. NO. 0-B870-G1 SHT 1 OF 8