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MARTIN MARIETTA

Determination of the Probability for Radioactive Materials on Properties in Monticello, Utah

M. J. Wilson
J. W. Crutcher

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DEPARTMENT OF ENERGY

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HEALTH AND SAFETY RESEARCH DIVISION

Waste Management Research and Development Programs
(Activity No. EX 20 10 40 1; 0000320)

**Determination of the Probability for Radioactive
Materials on Properties in
Monticello, Utah**

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POLLUTANT ASSESSMENTS GROUP

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ABSTRACT

In 1978, under the authority of the Atomic Energy Act, the U.S. Department of Energy (DOE) established the Surplus Facilities Management Program (SFMP) to manage the maintenance and surveillance of numerous DOE-owned, radioactively contaminated facilities that have been declared surplus and to conduct a program leading to the ultimate disposition of those facilities. The mill site at Monticello, Utah, built by the U.S. government in 1942 and operated until January 1, 1960, was declared surplus and accepted into SFMP in 1981.

Throughout the mill's operation, area residents obtained tailings from the mill and used them as fill material and as aggregate in mortar and concrete. Radioactive material also migrated into the environment by wind erosion of the tailings pile. Under direction from DOE, the Oak Ridge National Laboratory's (ORNL's) Grand Junction, Colorado-based Pollutant Assessments Group developed 5- and 7-pCi/g lines (based on concentrations of ²²⁶Ra in soil) to define the boundaries of windblown contamination from the Monticello Mill site. Because radiological survey data indicated that some properties outside the windblown area exceed DOE guidelines for remedial action, ORNL was directed to provide detailed sample analysis data for those properties and to prepare a statistical plan to estimate the number of unassessed properties outside the windblown boundaries that may require remedial action. This report presents that statistical plan and the conclusion that 21% of Monticello properties outside the lines of windblown contamination may be eligible for SFMP inclusion.

INTRODUCTION

In 1978, under the authority of the Atomic Energy Act, the U.S. Department of Energy (DOE) established the Surplus Facilities Management Program (SFMP) to manage the maintenance and surveillance of numerous DOE-owned, radioactively contaminated facilities that have been declared surplus and to conduct a program leading to the ultimate disposition of those facilities. The primary responsibility of SFMP is to protect public health and the environment from potentially harmful radioactive contamination contained within or derived from DOE-owned facilities. Management of SFMP is directed by the DOE Office of Environmental Restoration and Waste Management, Washington, D.C.

The mill site at Monticello, Utah, was built in 1942 by the U.S. government to provide vanadium during World War II. Various government agencies operated the mill until 1947. In 1948 the Atomic Energy Commission (AEC), DOE's predecessor, obtained the mill and operated it under contract through 1959 for the purpose of producing both uranium and vanadium. During the AEC era, the mill processed approximately one million tons of uranium ore. Because uranium and vanadium were the only substances extracted in the milling process, other constituents of the ore remained in the tailings at the time of disposal. Throughout the mill's operation, area residents used these tailings as fill material and as aggregate in mortar and concrete. On January 1, 1960, mill operations were terminated. During 1974 and 1975, the ore stockpiles were removed from the site, and the mill foundations were buried. In 1981 the mill site was declared surplus and accepted into SFMP; the site is now awaiting remedial action to bring its condition up to current decontamination and reclamation standards.

Prior to mill site remediation, Monticello properties surrounding the site and designated privately owned are being assessed for inclusion in the SFMP. Oak Ridge National Laboratory (ORNL) was directed by DOE in July 1988 to assess the radiological condition of privately owned properties in Monticello that have been identified as possibly containing Monticello mill-related materials. Properties containing Monticello mill-related materials and with associated radiation levels that exceed U.S. Environmental Protection Agency (EPA) and DOE standards (Appendix A) are eligible for cleanup under SFMP.

WINDBLOWN CONTAMINATION

In addition to the distribution of radioactive material through the use of mill tailings for fill and construction materials, wind erosion of the tailings pile has also contributed to the migration of radioactive material. Under direction from DOE, ORNL's Grand Junction, Colorado-based Pollutant Assessments Group (PAG) defined the boundaries of the windblown contamination from the Monticello mill site (Fig. 1). The value of the concentration of ^{226}Ra (one of the ^{238}U progeny for which DOE and EPA guidelines have been established and for which samples are analyzed) was conservatively set at

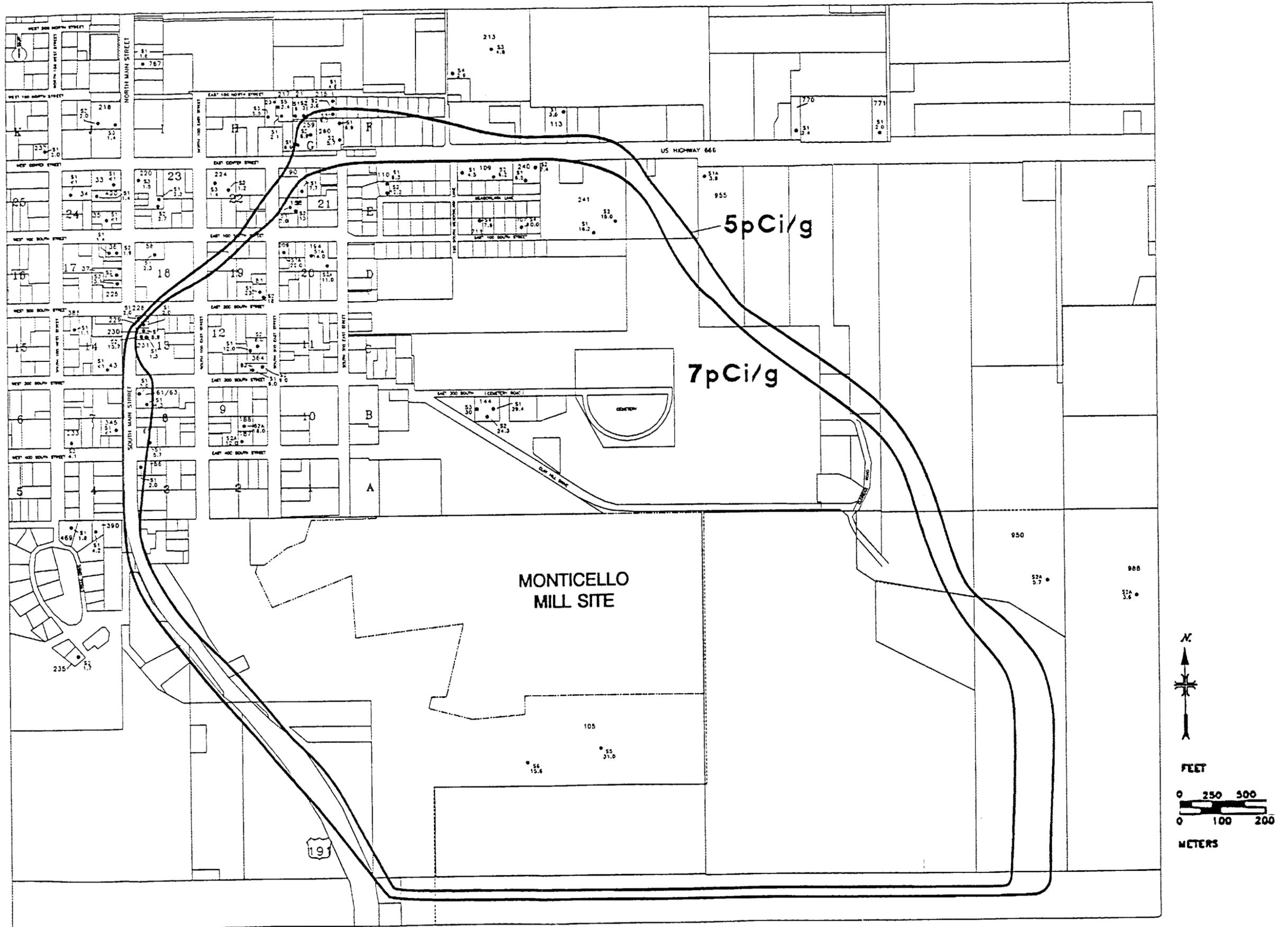


Fig. 1. The 5- and 7-pCi/g windblown lines for contamination established for the Monticello, Utah, mill site and windblown sampling locations.

approximately 5 pCi/g (3 pCi/g above background of approximately 2 pCi/g) for defining the boundaries of this first "windblown line." Following establishment of this 5-pCi/g windblown line, DOE requested that ORNL define boundaries to estimate the extent of those concentrations of ^{226}Ra that were 7 pCi/g (5 pCi/g above background).

The 5-pCi/g line identified the boundary where windblown contamination decreases. The 7-pCi/g line showed the area where the contamination may potentially exceed DOE guidelines. The area between the two boundaries would be expected to show radiation levels slightly above background and, therefore, was subject to survey.

Although a technical explanation of the methodology used to establish these two boundaries of windblown contamination is beyond the scope of this report, a brief summary is offered. Topographical maps were studied, and a conceptual model of windblown contamination was developed, based on wind direction, wind velocity, and turbulence patterns. Property surveys documenting windblown contamination were reviewed, and these locations were added to the model. To further define the boundaries of contamination, a wind rose diagram was derived from a 1982-1984 meteorological survey (UNC 1989), and samples were taken at locations determined from that diagram. Sampling locations used to define the windblown contamination lines and ^{226}Ra concentrations found at these locations are shown in Fig. 1.

CONTAMINATION OUTSIDE WINDBLOWN BOUNDARIES

Historical radiological survey data indicated that some properties outside the windblown area exceeded DOE guidelines as a result of the presence of small point sources of uranium ore and areas where mill tailings were used as fill and construction material. Thus, ORNL was directed by DOE to provide detailed sample analysis data for those properties and to prepare a statistical plan to estimate the number of unassessed properties outside the windblown boundaries that may require remedial action. This report presents the results of that statistical plan.

OBJECTIVE

The objective of this study was to determine the probability that a property which contained Monticello mill-related residual radioactive material in excess of the guidelines would not be assessed under the current protocol. These properties are outside the boundary of the potential 7-pCi/g windblown line established by ORNL in September 1989 (Fig. 1). Results of this study may be used to predict the potential percentage of unassessed properties in Monticello that contain radioactive contamination that exceeds SFMP or EPA guidelines and will require remedial action. It should be noted that the potential percentage of properties exhibiting elevated radiation levels may include non-Monticello mill-related contamination. Examples of radioactive contamination not resulting from Monticello mill site activities include contamination originating from the Dry Valley Mill site and ore samples acquired by area residents as "collectors' items." When possible, the existence of non-Monticello mill-related contamination will be documented in the survey by a statement from the property owner, and these properties will not be included

for remedial action under SFMP. However, in some instances documentation of contamination origin may not be possible, or the contamination may be a combination of Monticello mill-related and non-Monticello mill-related. When these cases are encountered, it is the policy of DOE to take the conservative approach of including these properties for remedial action if they exceed the guidelines given in Appendix A.

STATISTICAL STUDY

SAMPLE DESIGN

To provide a statistical view of the potential existence of radioactive materials on properties in the vicinity of the Monticello mill site, ORNL randomly selected properties to survey. Consent to access the properties was obtained from the landowners, screening surveys were performed, soil samples were collected and analyzed, and reports were issued on each vicinity property.

Assumptions made prior to selecting the design include:

1. The project area would be limited to the vicinity inside the city of Monticello boundaries; therefore, adjacent agricultural fields would not be candidate properties.

This assumption narrowed the sample populations to smaller parcels of land, enabling a more expedient survey and increasing the chance of detecting contamination in a more densely populated area, where risk associated with radioactivity is greater.

2. Property definitions provided by the city of Monticello map would be sufficiently accurate for the purpose of this study; therefore, the plat map delineating the exact parcel definitions would not be used.

This assumption provided an expedient method for comprehensive selection of properties. Exact parcel definitions would have necessitated tedious, labor-intensive numbering. Therefore, the approximate boundaries of the comprehensive map were used.

3. The time frame for the study would be approximately four months, and the study results would be dispatched to DOE for immediate use in projecting the number of vicinity properties requiring remedial action, a data item pertinent to budget planning.

This assumption, and the fact that the Monticello Vicinities Properties (MVP) Project is nearing completion, formed the basis for expediting the surveys and the overall plan.

Because we wished to maintain as high a confidence interval as possible while staying within the limitations of our short time frame, the level of accuracy chosen for this study was a 90% confidence interval. Our projections showed that a lower confidence interval would not significantly decrease the sample number or the time frame of the study, but could conceivably compromise accuracy.

A survey population was developed for the study by selecting properties in Monticello that meet the following criteria:

- The property is outside the 7-pCi/g windblown line (Fig. 1). (Properties intersected by the windblown line were considered to be inside the line.)
- The property is defined on the comprehensive map of Monticello. Property boundaries in the city are roughly defined by the lines shown on the comprehensive map of Monticello. Properties outside the city limits were not considered in the study because they consist of agricultural or public lands that exceed 20 acres and present too large a parcel to be surveyed in a reasonable time limit. (It should be noted that the property boundaries defined on the comprehensive map do not necessarily show the accurate legal plat description.) The size of the properties is not homogeneous and exhibits variation in size and land use. Sizes range from less than one acre to approximately ten acres.

The size of the sample population is 376 properties. These properties were numbered from 1 to 376, and a sample set was randomly selected from them, using an electronic random number generator.

The randomly selected sample set consisted of 18 properties. Preliminary sampling of these 18 properties for windblown contamination potential indicated that 13 (72%) had radiation levels that exceeded SFMP guidelines, and 5 (28%) had radiation levels that fell below SFMP guidelines.

The objective of further sampling was to determine what proportion of the total Monticello properties outside the windblown line (population, 376 properties), which were previously unaddressed, have radiation levels that exceed SFMP guidelines. The procedure used to design the best estimate of sample size is based on a 90% confidence level (Snedecor and Cochran 1967). The equation is:

$$n' = \frac{2.7pq}{L^2}$$

where

n' = sample size,
 p = proportion exceeding guidelines,
 q = proportion below guidelines,
 L = acceptable error (10%).

Note: L is the allowable error in the sample mean, and we are willing to take a 10% chance that the error will exceed L ($x \pm L$).

Therefore,

$$n' = \frac{2.7(0.72)(0.28)}{(0.10)^2} = 54.43 .$$

The sample size was further defined by using the finite population correction as follows:

$$n = \frac{n'}{1 + \frac{n'}{N}}$$

where n = corrected sample size for finite population,
 n' = preliminary sample size,
 N = population.

Thus,
$$n = \frac{54.43}{1 + \frac{54.43}{376}} = 47.55 .$$

Therefore, on the basis of this statistical analysis, 48 of the 376 properties that compose the sample population were randomly selected for radiological surveying. The properties included in the sample set are shown in Fig. 2.

SURVEY PROCEDURE

The radiological surveys performed on the sample set were in accordance with radiological survey procedures developed by the ORNL-GJ Pollutant Assessments Group (Little et al. 1986). The surveys covered the entirety of the land parcel. Gamma exposure rates were recorded and mapped. Soil samples were collected at each property from locations exhibiting elevated gamma levels, or from locations exhibiting general background if no elevated gamma exposure rates were detected. Using a gamma spectrometer, the soil samples were then analyzed for ^{226}Ra , ^{40}K , and ^{232}Th . Each sample was thoroughly described in the field for petrologic makeup, color, texture, and content.

RESULTS

Survey reports were prepared for each of the 48 properties and transmitted to DOE. These reports are included as Appendix B. Results of the study are summarized in Fig. 3. Table 1 gives the source of contamination and the remedial action status for each of the 48 properties. Table 2 summarizes the data presented in Fig. 3 and Table 1 by providing the percentage for each status classification given in Table 1 and by categorizing the type of radioactive material found and the percentage of properties containing that material.

There are approximately 328 (376 - 48) properties outside the windblown lines that have not been addressed at this time. Since 21% of the randomly selected properties exceed applicable guidelines and have material related to mill activities, it can be estimated that approximately 69 properties (21% of the 328) remain that would potentially be included for remedial action under SFMP-MVP.

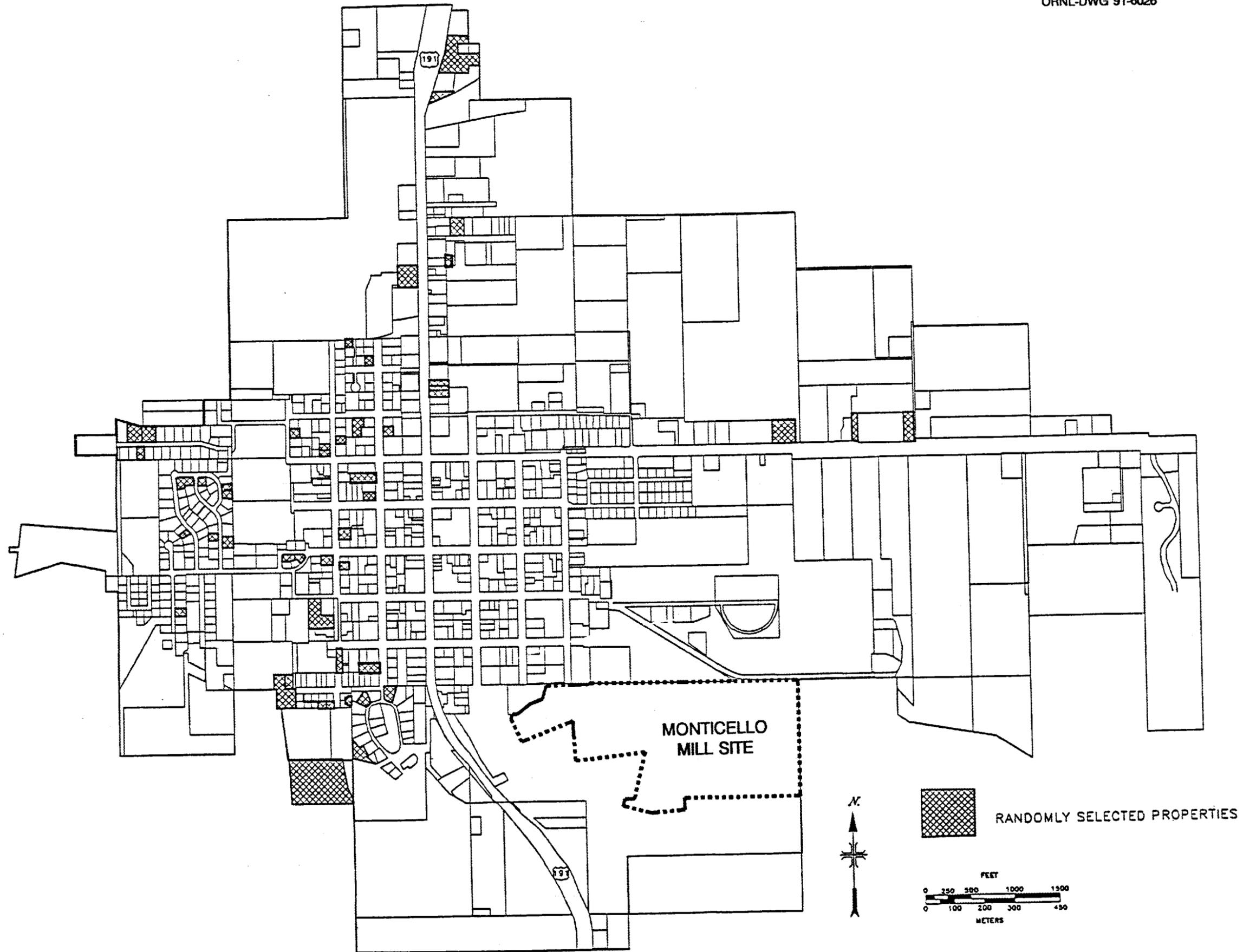


Fig. 2. The 48 Monticello, Utah, properties randomly selected for statistical study.

PROPERTY LOCATION NUMBER	DRE	DRE FILL	BRICK MORTAR	TAILINGS	OTHER	FIREPLACE/WOODSTOVE	INDOORS	EXCLUSION	NO ELEVATED GAMMA	SPILLOVER	EXCEEDS GUIDELINES	COMMENTS
MS00274	*			*							*	
MS00275		*					*			*	*	
MS00282				*						*	*	
MS00286				*					*		*	
MS00316				*					*		*	
MS00335									*		*	
MS00396	*	*									*	
MS00403									*		*	
MS00463									*		*	
MS00464	*										*	
MS00468								*	*		*	PET. WOOD
MS00469	*							*	*		*	
MS00470					*		*	*	*		*	RADIUM DIAL
MS00471									*		*	
MS00472									*		*	
MS00473									*		*	
MS00474									*		*	
MS00475						*	*		*		*	RDC
MS00476		*							*		*	
MS00477									*		*	
MS00479									*		*	
MS00480	*			*				*	*		*	
MS00481	*							*	*		*	
MS00482			*			*	*		*		*	RDC
MS00483									*		*	
MS00484				*					*		*	
MS00485				*					*		*	
MS00486									*		*	
MS00487					*			*	*		*	OLD MINE TARP
MS00488									*		*	
MS00489	*										*	
MS00490						*	*	*	*		*	
MS00491			*					*	*		*	DRY VALLEY
MS00492	*							*	*		*	
MS00495								*	*		*	
MS00496	*							*	*		*	REMOVED
MS00498				*				*	*		*	
MS00500									*		*	
MS00501									*		*	
MS00502					*			*	*		*	BRICK PILE DRY VALLEY
MS00724			*			*	*	*	*		*	
MS00728									*		*	
MS00766									*		*	
MS00767					*			*	*		*	PT. SOURCE
MS00768	*				*				*		*	CINDER BLOCKS
MS00770									*		*	
MS00771									*		*	
MS00778									*		*	AEC DUMP

Fig. 3. Categorization by property number and type of residual material for the 48 randomly selected Monticello, Utah, properties.

Table 1. Analytical summary of the 48 Monticello, Utah, properties outside the boundaries of windblown contamination, randomly chosen for statistical study

Property location No.	Source of contamination	Status
MS00274	Ore and tailings	Exceeds guidelines
MS00275	Ore fill	Exceeds guidelines
MS00282	Tailings	Exceeds guidelines
MS00286		No elevated gamma
MS00316	Tailings	Exceeds guidelines
MS00335		No elevated gamma
MS00396	Ore and ore fill	Exceeds guidelines
MS00403		No elevated gamma
MS00463		No elevated gamma
MS00464	Ore	Exceeds guidelines
MS00468	Petrified wood	Exclusion
MS00469	Ore	Exclusion
MS00470	Radium dial	Exclusion
MS00471		No elevated gamma
MS00472		No elevated gamma
MS00473		No elevated gamma
MS00474		No elevated gamma
MS00475	Fireplace/woodstove	Requires RDC measurement
MS00476	Ore fill	Exceeds guidelines
MS00477		No elevated gamma
MS00479		No elevated gamma
MS00480	Ore and tailings	Exclusion
MS00481	Ore	Exclusion
MS00482	Brick/mortar, fireplace/woodstove	Requires RDC measurement
MS00483		No elevated gamma
MS00484		No elevated gamma
MS00485	Tailings	Exceeds guidelines
MS00486		No elevated gamma

Table 1 (continued)

Property location No.	Source of contamination	Status
MS00487	Old mine tarp	Exclusion
MS00488		No elevated gamma
MS00489	Ore	Exceeds guidelines
MS00490	Fireplace/woodstove	Exclusion
MS00491		No elevated gamma
MS00492	Ore	Exclusion
MS00495		No elevated gamma
MS00496	Ore, removed	Exclusion
MS00498	Tailings	Exclusion
MS00500		No elevated gamma
MS00501		No elevated gamma
MS00502	Brick pile	Exclusion
MS00724	Brick/mortar, fireplace/woodstove, Dry Valley	Exclusion
MS00728		No elevated gamma
MS00766		No elevated gamma
MS00767	Point source	Exclusion
MS00768	Ore, cinder blocks	Exceeds guidelines
MS00770		No elevated gamma
MS00771		No elevated gamma
MS00778		No elevated gamma

Table 2. Statistical summary of the 48 Monticello, Utah, properties outside the boundaries of windblown contamination, randomly chosen for statistical summary

Classification	No. of properties	Percentage of sample size
Remedial action status		
No elevated gamma levels ^a	22	46
Exclusions	14	29
Exceeds DOE guidelines	10	21
Requires RDC measurement ^b	2	4
Total	48	100
Radioactive material^c		
Ore (ore or ore fill) material	10	21
Tailings material	6	13
Building material (brick/mortar, fireplace/woodstove)	5	10
Other (e.g., petrified wood, radium dial, old mine tarp, brick pile, point source, cinder blocks)	5	10

^aProperties MS00468 and MS00491 were counted as exclusions (see Table 1).

^bBased on ORNL-PAG procedures that require RDC measurement if gamma measurements are >20% above background but <20 $\mu\text{R/h}$ above background (i.e., a "gray" area). (Based on UMTRAP protocol.)

^cSome properties contain more than one type of material.

CONCLUSIONS

- The statistical results of this study were based on a worst-case scenario to estimate the maximum number of properties to be surveyed. That estimate is 328 properties.
- Actual mill tailings contamination represented 13% of the random properties, suggesting that further designation measures be taken prior to the close of the designation phase. A public relations effort that includes a property-owner mailing effort, public postings, and newspaper advertisements will be sufficient to ensure that most properties are assessed.
- Properties that contain residual radioactive material but may require further investigation to determine if they are Monticello mill-related and subject to SFMP guidelines include (1) those with building material-related contamination (10%) and (2) those requiring measurement of radon progeny concentrations, categorized as "RDC" (4%). Both of these categories may involve tailings from the Dry Valley Mill site. The category "indoors" (Fig. 3) contains both of these categories and represents 13% of the 48 randomly chosen properties. Therefore, based on this study, there is a potential for 41 additional properties in Monticello (13% of the 328 unassessed properties) to retain this type of material. Further study of the Dry Valley Mill site and the masonry contractor who built the majority of these structures should be undertaken to more accurately identify those properties solely contaminated with materials from this source for which SFMP has no authority. Since the type of contamination potentially present on these properties has the potential to produce indoor radon concentrations above EPA standards, it may be prudent to expedite this study so that appropriate action may be taken as soon as possible by the responsible agency.
- The results of this study may influence the language used in public relations. Fifty percent of the properties examined during the study had elevated gamma radiation levels, indicating that properties in Monticello have a high probability of containing residual radioactive material. Therefore, efforts should be made to communicate this effectively to the public in order to obtain maximum participation.

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Appendix A

**U.S. Department of Energy Guidelines
for Residual Radioactive Materials at Remote
Surplus Facilities Management Program (SFMP) Sites**

SFMP follows the U.S. Department of Energy's Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program (FUSRAP) and Remote Surplus Facilities Management Program Sites (Revision 2, March 1987). Pursuant to those guidelines the authorized limits being applied for the Monticello Vicinity Properties are:

Cleanup of Buildings

1. Indoor radon decay products shall not exceed 0.03 working levels (WL) in any case and, to the extent practicable, shall achieve 0.02 WL.
2. Indoor gamma radiation shall not exceed 20 μ R/h above background.

Cleanup of Land

1. Surface levels shall not exceed 5 pCi/g above background in any 15-cm surface layer over any 100-m² area.
2. Buried deposits shall not exceed 15 pCi/g above background in any 15-cm layer below the surface layer over any 100-m² area.
3. The "hot spot" criteria defined in the October 19, 1987, memo from G. R. Grandbouche, Project Engineer, to W. E. Murphie will be applied to independent verification.

Hot Spot Guideline

The method for determining hot spot limits, which is based on the 100-mrem/year dose limit described in the FUSRAP procedures manual, shall still be applicable for determining allowable concentrations. However, an alternative approach, more appropriate for field applications, may be used in place of the dose limit method and is recommended for general applications.

Alternative method

1. The alternative approach uses the following equation to calculate basic hot spot limits for Monticello: the following equation:

$$S_{hg} = S_g \times (100 \text{ m}^2/A)^{\frac{1}{2}} + 2$$

where

- S_{hg} = the hot spot limit in pCi/g
 S_g = the authorized limit for Monticello in pCi/g
 5 pCi/g for surface soil
 15 pCi/g for subsurface soil
 A = the area of the hot spot in m²

2. Areas less than 1 m² are to be averaged over the 1 m², and that average shall not exceed ten times the authorized limit.
3. Because the average authorized limit is considered adequate to protect the public for areas larger than 25 m², hot spot limits are used only for areas ≤25 m².
4. The hot spot guideline will be applied to hot spots on an individual basis.
5. Every reasonable effort will be made to identify and remove any source that has a concentration of a radionuclide exceeding 30 times the authorized limit, regardless of the area.

See Table A.1 for a listing of hot spot limits for the Monticello, Utah, area.

When samples are taken from an area for which hot spot limits apply, the average ²²⁶Ra concentration of the two samples is compared to the limit rather than the concentration of each sample being separately compared to the limit. Both net estimated area weighted average (NEAWA) concentration for ²²⁶Ra and hot spot limit are shown on the soil analysis work sheet.

Table A.1 Hot spot limits

Surface soils		Subsurface soils	
Area (m ²)	Limit (pCi/g)	Area (m ²)	Limit (pCi/g)
1.0	52.0	1.0	152.0
1.5	43.0	1.5	124.0
2.0	37.0	2.0	108.0
2.5	34.0	2.5	97.0
3.0	31.0	3.0	89.0
3.5	29.0	3.5	82.0
4.0	27.0	4.0	77.0
4.5	26.0	4.5	73.0
5.0	24.0	5.0	69.0
5.5	23.0	5.5	66.0
6.0	22.0	6.0	63.0
6.5	22.0	6.5	61.0
7.0	21.0	7.0	59.0
7.5	20.0	7.5	57.0
8.0	20.0	8.0	55.0
8.5	19.0	8.5	53.0
9.0	19.0	9.0	52.0
9.5	18.0	9.5	51.0
10.0	18.0	10.0	49.0
11.0	17.0	11.0	47.0
12.0	16.0	12.0	45.0
13.0	16.0	13.0	44.0
14.0	15.0	14.0	42.0
15.0	15.0	15.0	41.0
16.0	15.0	16.0	40.0
17.0	14.0	17.0	38.0
18.0	14.0	18.0	37.0
19.0	13.0	19.0	36.0
20.0	13.0	20.0	36.0
21.0	13.0	21.0	35.0
22.0	13.0	22.0	34.0
23.0	12.0	23.0	33.0
24.0	12.0	24.0	33.0
25.0	12.0	25.0	32.0

Appendix B

Survey Reports for the 48 Properties in
Monticello, Utah, Randomly Chosen
for the Statistical Plan

Location Number MS00274

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00274
216 WEST CENTER
MONTICELLO, UTAH 84535

Investigation Team

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March 1990

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managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00274

SIGNIFICANCE OF FINDINGS

A complete gamma radiation screening survey was performed on this property. Background gamma exposure rates ranged from 13-16 $\mu\text{R}/\text{h}$ outdoors and 14-17 $\mu\text{R}/\text{h}$ indoors. No readings above the background range were detected indoors.

Outdoors, one region of contamination was located (Region A, Figure 1). This region was 4.2 m^2 and had gamma readings ranging from 17-33 $\mu\text{R}/\text{h}$. Radionuclide analysis of soil sample S2A from Region A yielded a ^{226}Ra concentration of 27 pCi/g meeting the DOE Hot Spot guideline of 27 pCi/g.

One point source was located along the dripline of the front stoop reading 29 $\mu\text{R}/\text{h}$. The identity of this point source is unknown.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00274

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

Location Number: MS00274

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	850 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house with partial basement

Location Number: MS00274

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R}/\text{h}$
BACKGROUND + 20%:	17 $\mu\text{R}/\text{h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R}/\text{h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-33 $\mu\text{R}/\text{h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	33 $\mu\text{R}/\text{h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	29 $\mu\text{R}/\text{h}$
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 4.2 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R}/\text{h}$

Location Number: MS00274

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1A	A	0-15	26	4.2	1.0	N/A
S2A	A	0-15	27	4.2	1.0	27
S1B	A	15-30	27	4.2	<1	N/A
S2B	A	15-30	24	4.2	<1	N/A

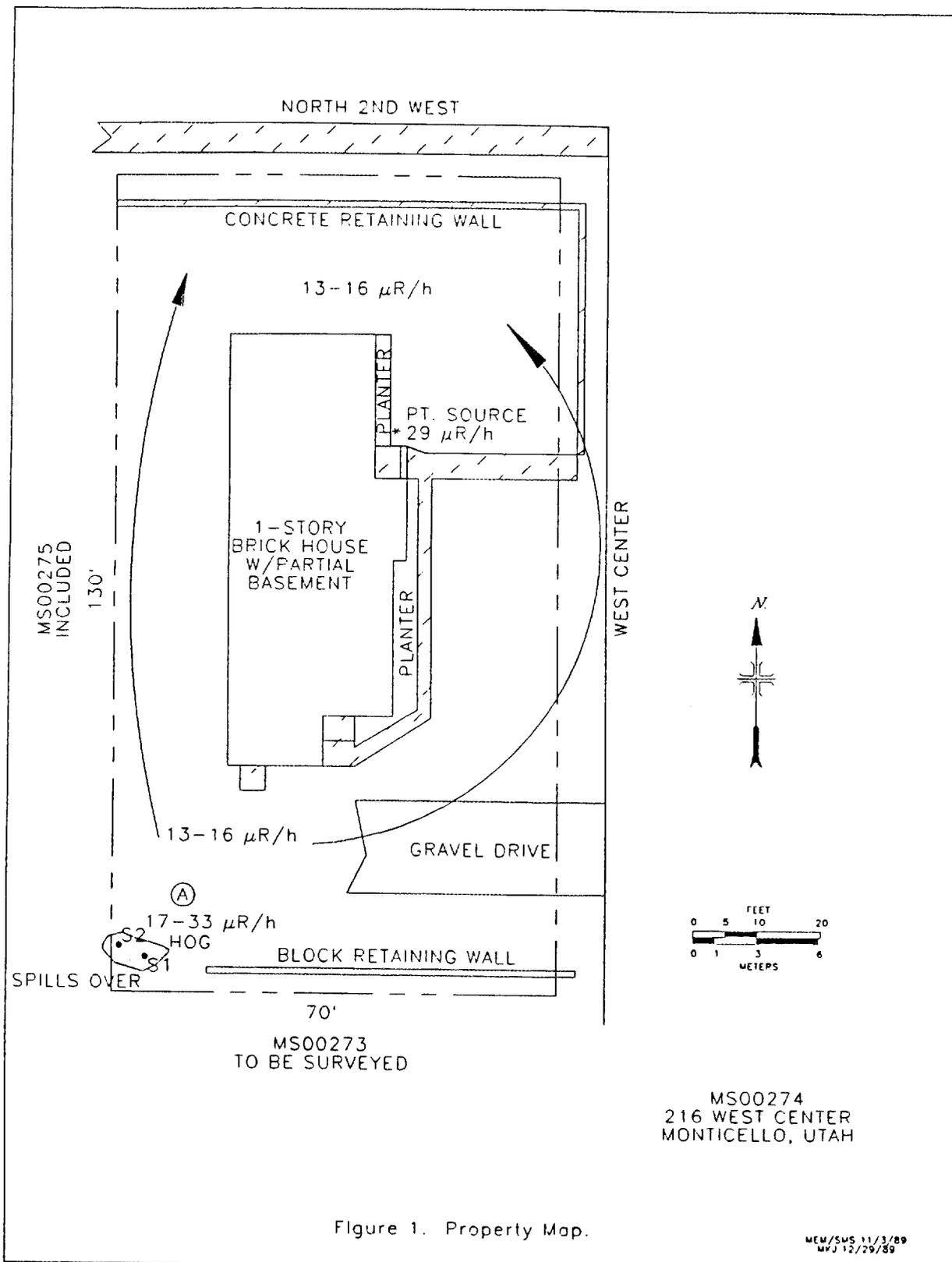


Figure 1. Property Map.

MEM/SMS 11/3/89
MVJ 12/29/89

Location Number MS00275

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00275
49 NORTH 2ND WEST STREET
MONTICELLO UT 84535

Investigation Team

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under Contract No. DE-AC05-84OR21400

Location Number: MS00275

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 13-14 $\mu\text{R}/\text{h}$ indoors and 13-16 $\mu\text{R}/\text{h}$ outdoors.

Four regions of elevated gamma exposure rates were found outdoors and labeled Region A, B, C, and D (Figure 1a). Soil samples taken from Region A yielded a net estimated area weighted average ^{226}Ra concentration of 22 pCi/g (Table 3). This value exceeds the DOE guidelines of 5 pCi/g for surface soils averaged over 100 m^2 .

One region of elevated gamma exposure rates was found indoors and labeled Region 1 (Figure 1b).

One point source was located in the northwest bedroom of the house. The source had a gamma exposure rate of 36 $\mu\text{R}/\text{h}$ and was of undetermined origin (Figure 1b).

Outdoors, Region D spills over from MS00274, which is an includable deposit on an adjoining property.

Information pertaining to surrounding properties is located on Figure 1a.

Location Number: MS00275

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is >25 $\mu\text{R}/\text{h}$ above background averaged over 100 m^2

^{226}Ra is >5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Spillover from includable deposit on an adjoining property

Location Number: MS00275

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	910 m^2
STRUCTURES ON PROPERTY:	1 Single story frame house with crawlspace and partial slab-on-grade 1 Shed, slab-on-grade

Location Number: MS00275

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-610 $\mu\text{R/h}$ B: 16-17 $\mu\text{R/h}$ C: 17-33 $\mu\text{R/h}$ D: 17-32 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	610 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: >100 m^2 B: 17 m^2 C: 1 m^2 D: 2 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: 37 $\mu\text{R/h}$ B: <1 $\mu\text{R/h}$ C: <1 $\mu\text{R/h}$ D: <1 $\mu\text{R/h}$

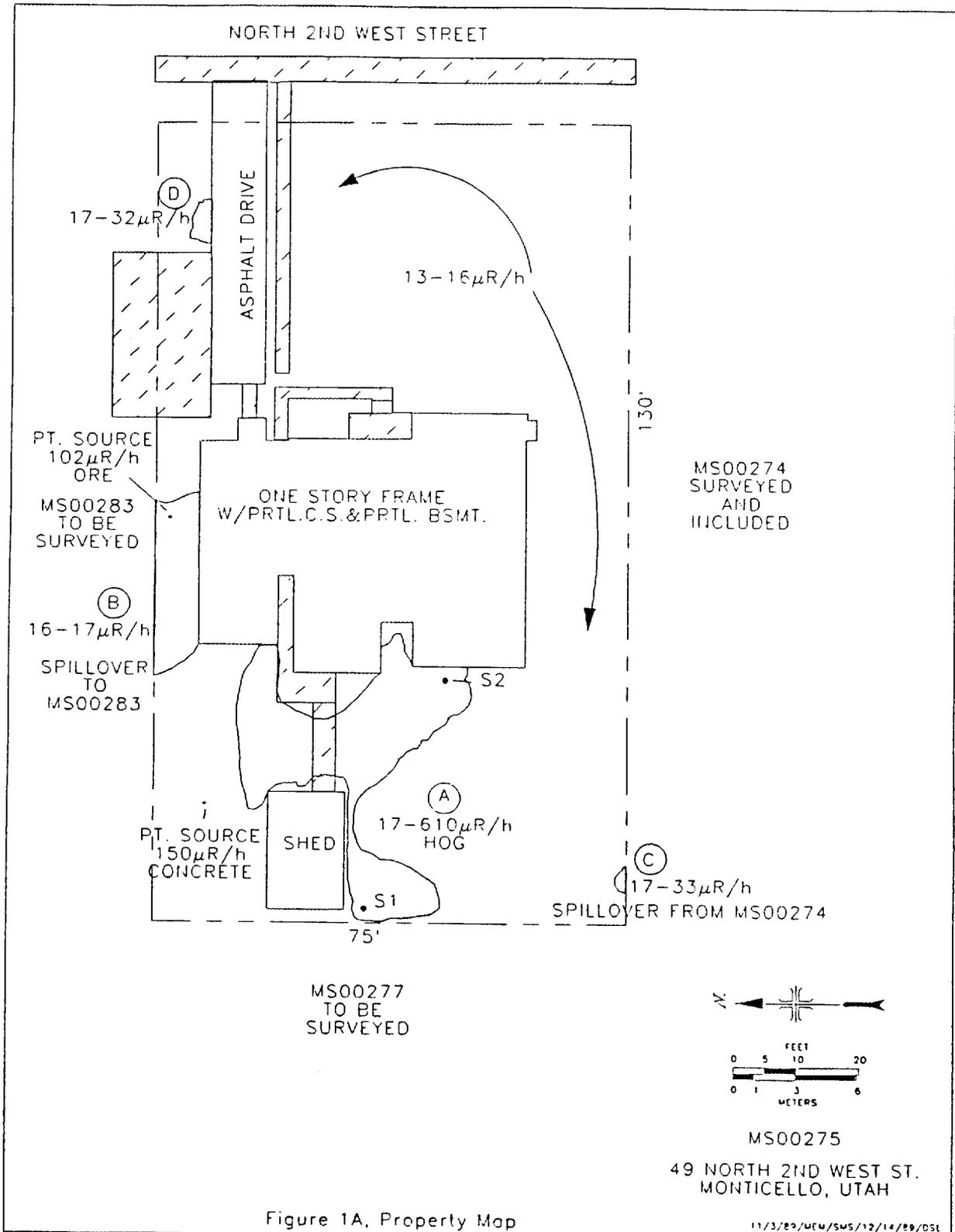
Location Number: MS00275

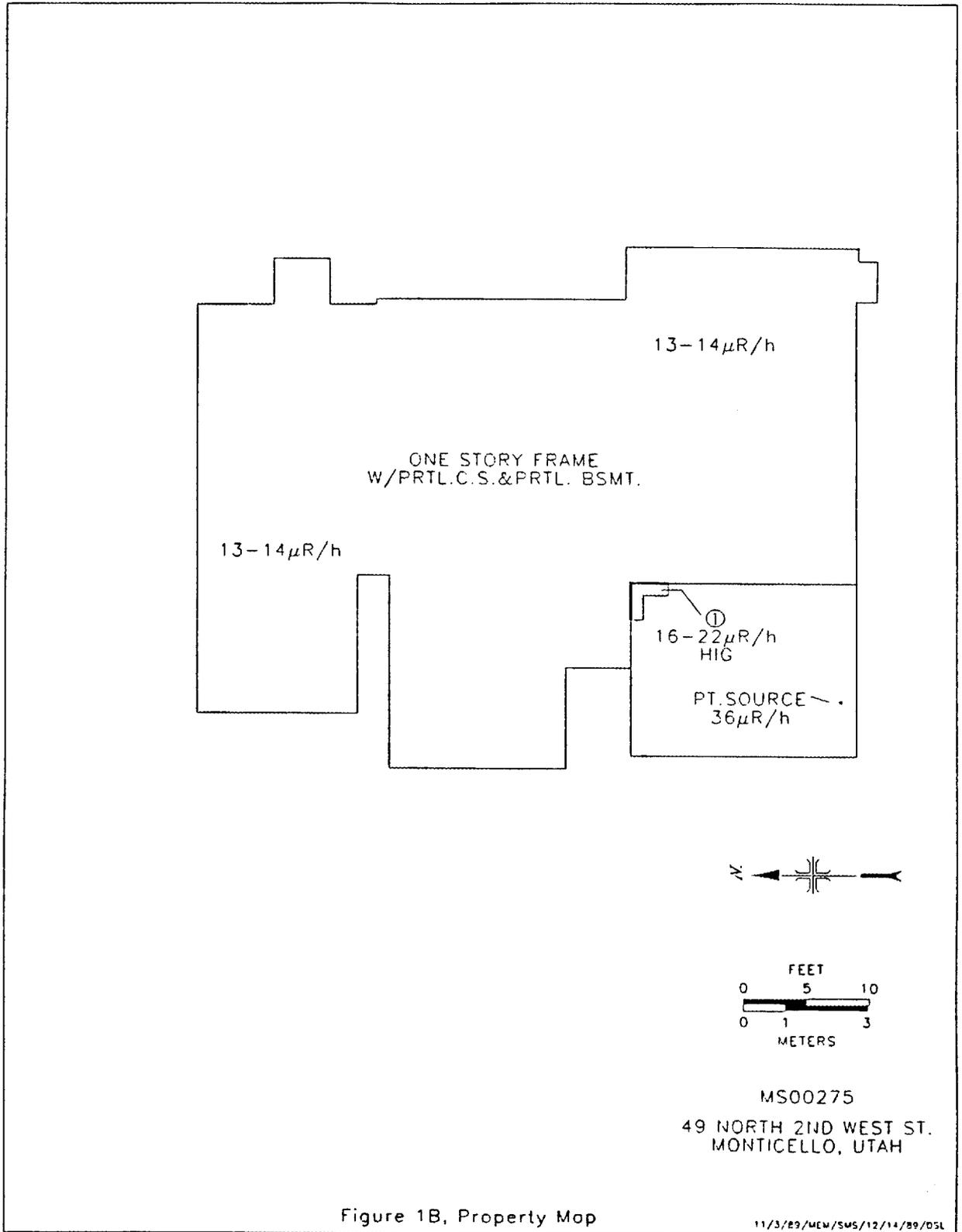
Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	5.1	>100	22	N/A
S2			42.0			





Location Number MS00282

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00282
64 NORTH 3RD WEST STREET
MONTICELLO UT 84535

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under Contract No. DE-AC05-84OR21400

Location Number: MS00282

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 12-14 $\mu\text{R}/\text{h}$ indoors and 14-16 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates was detected outdoors (Region A, Figure 1). Gamma exposure rates in Region A ranged from 17-31 $\mu\text{R}/\text{h}$. Soil samples taken from Region A yielded a net estimated area-weighted average ^{226}Ra concentration of 1.7 pCi/g. This value does not exceed the DOE inclusion criteria of 5 pCi/g for surface soil layers averaged over 100 m^2 . Radionuclide analysis of soil samples S1A and S2A yielded ^{226}Ra concentrations of 49.1 pCi/g and 18.2 pCi/g, respectively (see Table 3). The 49.1 pCi/g value exceeds the DOE Hot Spot guideline for an area of 5.5 m^2 (Table 3).

One point source averaging 29 $\mu\text{R}/\text{h}$ was also detected on the property (see Figure 1 for location). The source was of undetermined origin.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00282

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

Location Number: MS00282

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	1,200 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house with partial basement 1 Frame garage, slab-on-grade 1 Shed, slab-on-grade

Location Number: MS00282

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	15 $\mu\text{R/h}$
BACKGROUND + 20%:	18 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	14-16 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-31 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	31 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	29 $\mu\text{R/h}$
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 5.5 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R/h}$

Location Number: MS00282

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1A S2A	A	0-15	49. 18.	5.5	1.7	23
S1B S2B	A	15-25	29. 11.	5.5	<1	66

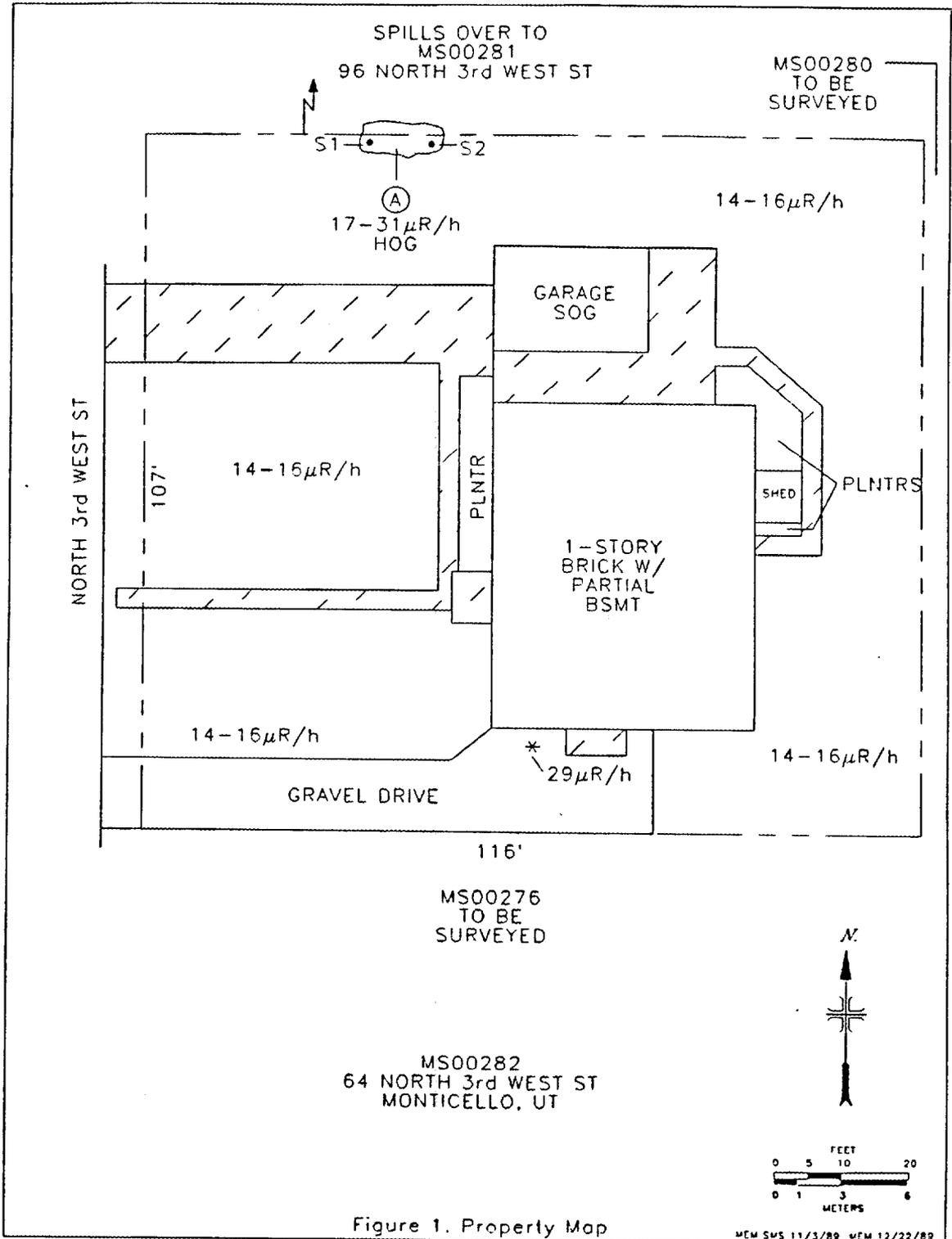


Figure 1. Property Map

Location Number MS00286

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00286
96 SOUTH 2ND WEST STREET
MONTICELLO UT 84535

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Location Number: MS00286

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ indoors and 12-16 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00286

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00286

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Church
TOTAL AREA OF PROPERTY:	740 m^2
STRUCTURES ON PROPERTY:	1 Single story brick building, slab-on-grade

Location Number: MS00286

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	12-16 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	16 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00286

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.4	>100	<1	N/A

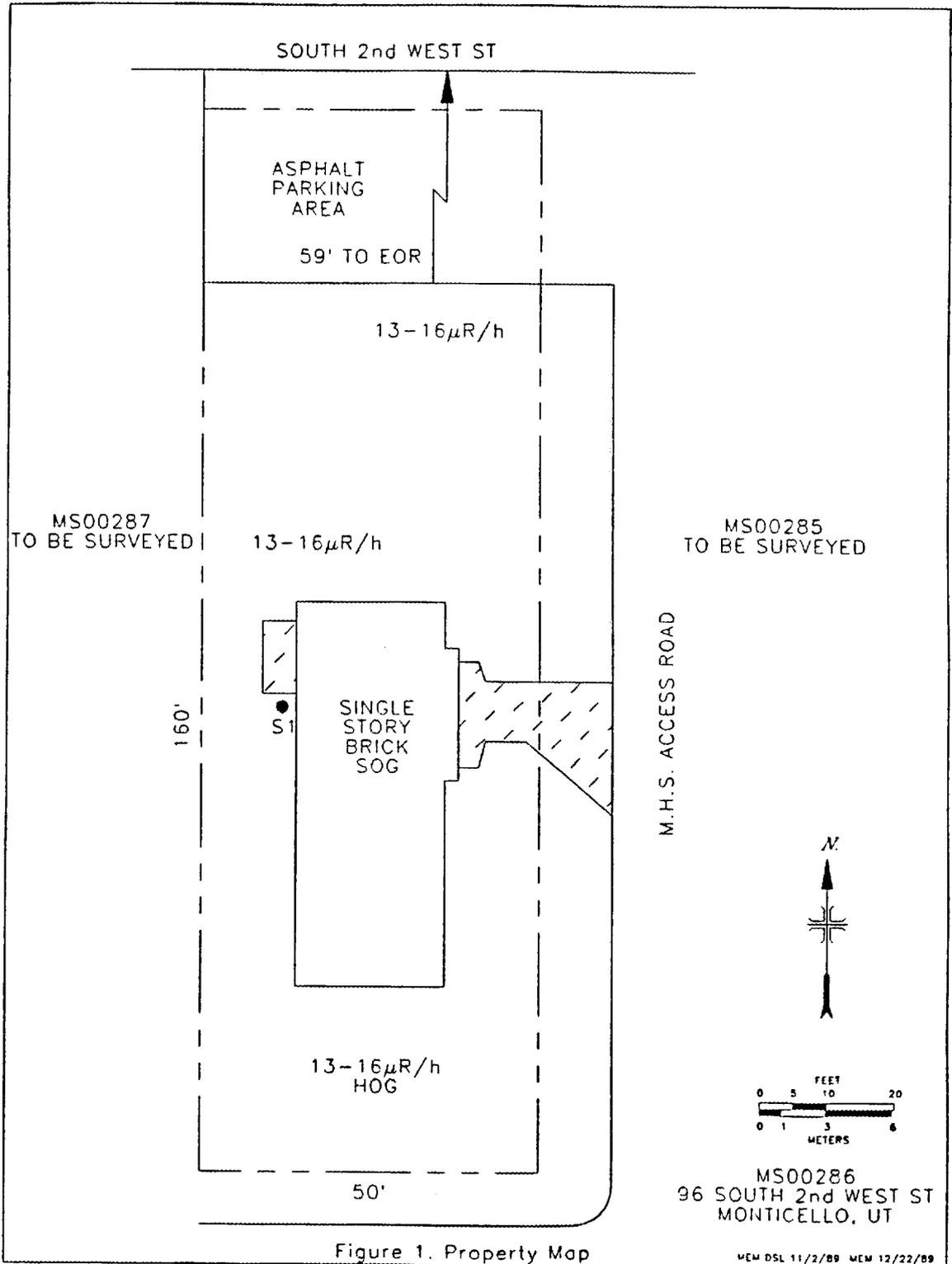


Figure 1. Property Map

MEM DSL 11/2/89 MEM 12/22/89

Location Number MS00316

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00316
364 SOUTH 2ND WEST STREET
MONTICELLO UT 84535

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Location Number: MS00316

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-14 $\mu\text{R}/\text{h}$ indoors and 13-16 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates was found and labeled Region A (Figure 1). Radionuclide analysis of soil sample S1B yielded a ^{226}Ra concentration of 340 pCi/g from Region A (Table 3). This value exceeds the DOE Hot Spot Guideline of 152 pCi/g for subsurface soils in a one meter square area.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00316

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

Location Number: MS00316

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	6,600 m ²
STRUCTURES ON PROPERTY:	1 Single story stucco house with crawlspace

Location Number: MS00316

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-28 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	28 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 1 m ²
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R/h}$

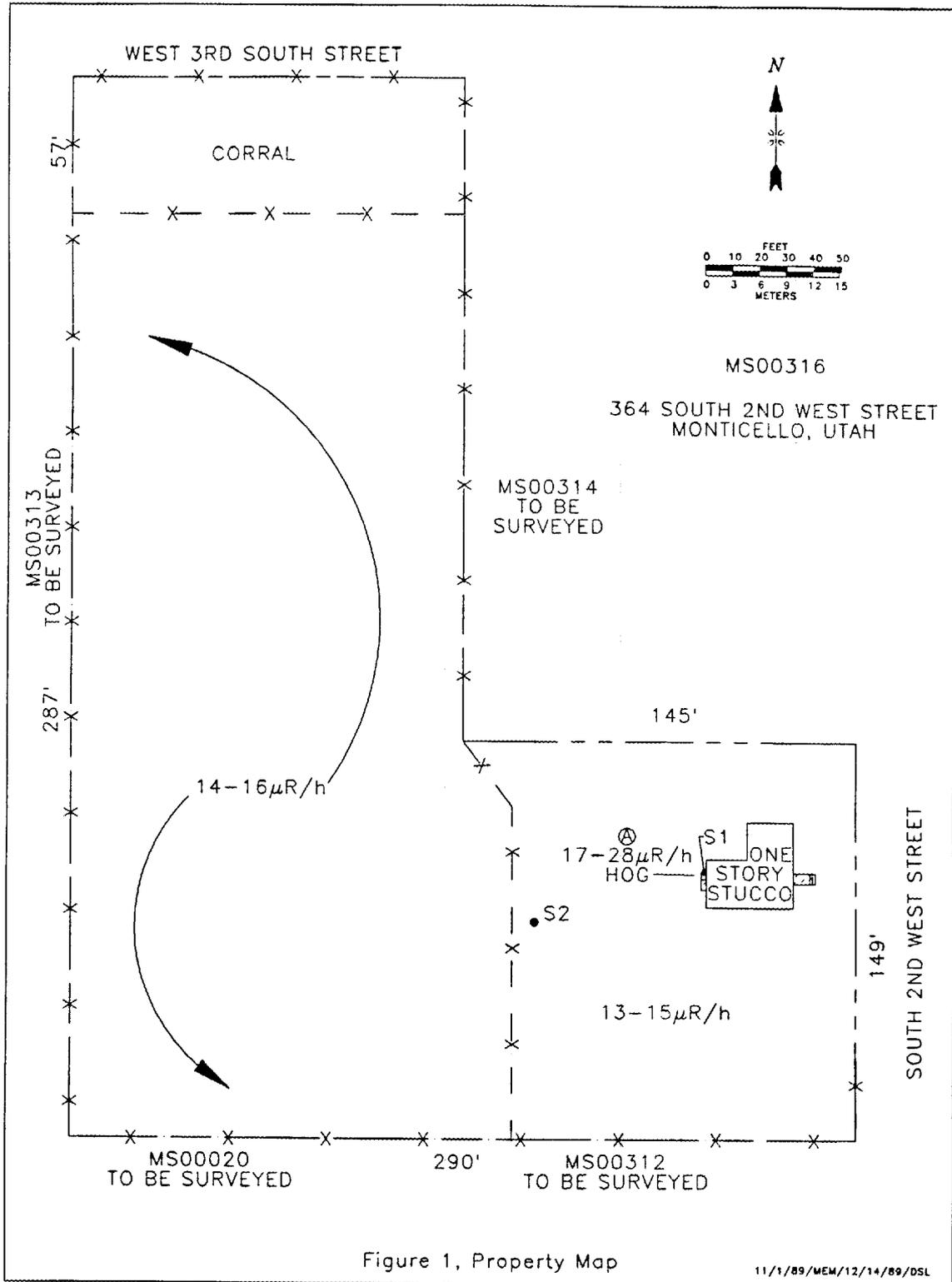
Location Number: MS00316

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1A	A	0-15	2.2	1	<1	>52
S1B	A	15-30	340	1	3.4	>152
S2	BKGD	0-15	2.8	>100	<1	N/A



Location Number MS00335

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00335
464 SOUTH 1ST WEST STREET
MONTICELLO UT 84535

Investigation Team

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February 1990

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Location Number: MS00335

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 11-15 $\mu\text{R}/\text{h}$ indoors and 13-15 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00335

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00335

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	1,800 m^2
STRUCTURES ON PROPERTY:	1 Two story frame house with partial basement 1 Frame garage, slab-on-grade 1 Metal shed, wood floor 1 Metal shed, dirt floor

Location Number: MS00335

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00335

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.4	>100	<1	N/A

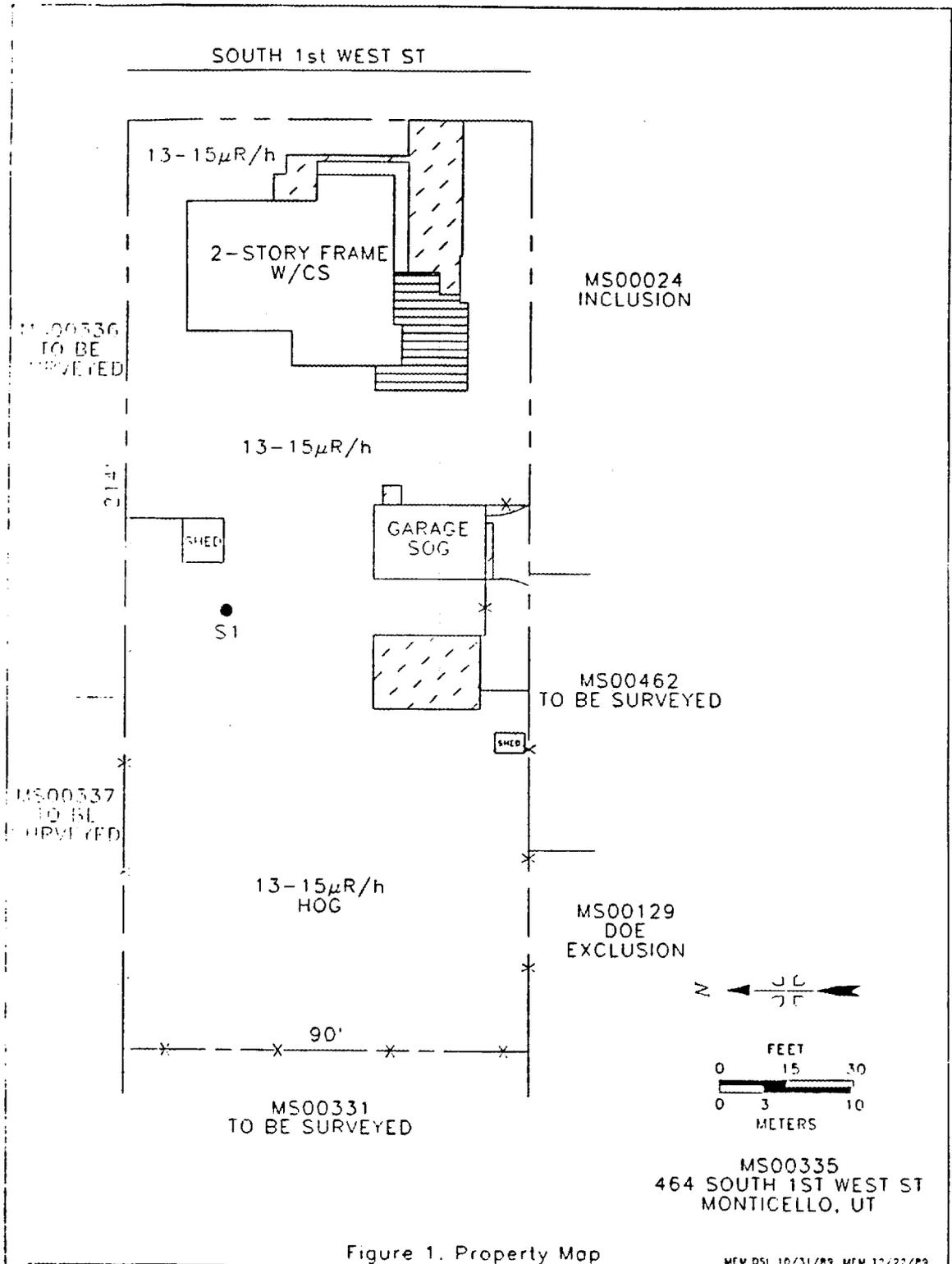


Figure 1. Property Map

MEM DSL 10/31/89, MEM 12/22/89

Location Number MS00396

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00396
196 WEST 3RD SOUTH
MONTICELLO, UTAH 84535

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Location Number: MS00396

SIGNIFICANCE OF FINDINGS

A complete gamma radiation screening survey was performed on this property. Background gamma exposure rates ranged from 10-16 $\mu\text{R}/\text{h}$ outdoors and 12-14 $\mu\text{R}/\text{h}$ indoors. No readings above the background range were detected indoors.

Outdoors, one region of contamination was located (Region A, Figure 1). This region was 1.8 m^2 and had gamma readings ranging from 17-114 $\mu\text{R}/\text{h}$. Radionuclide analysis of soil samples S1 and S2 from Region A yielded 132 pCi/g and 362 pCi/g exceeding the DOE Hot Spot guideline of >37 pCi/g.

Information regarding adjacent properties is provided in Figure 1.

Location Number: MS00396

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

Location Number: MS00396

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	770 m^2
STRUCTURES ON PROPERTY:	1 Single story frame house with crawl space

Location Number: MS00396

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE: 13 μ R/h

BACKGROUND + 20%: 16 μ R/h

BACKGROUND EXPOSURE RATE RANGE: 10-16 μ R/h

EXPOSURE RATE RANGE IN CONTAMINATED REGIONS: A: 17-114 μ R/h

HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION: 114 μ R/h

LOCATION OF HOG: Region A

POINT SOURCE *: None

ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION: A: 1.8 m²

NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**: A: <1 μ R/h

Location Number: MS00396

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	130	1.8	2.3	37
S2	A	0-2.5	360	1.8	1.1	37
S3	BKGD	0-15	1.9	>100	<1	N/A

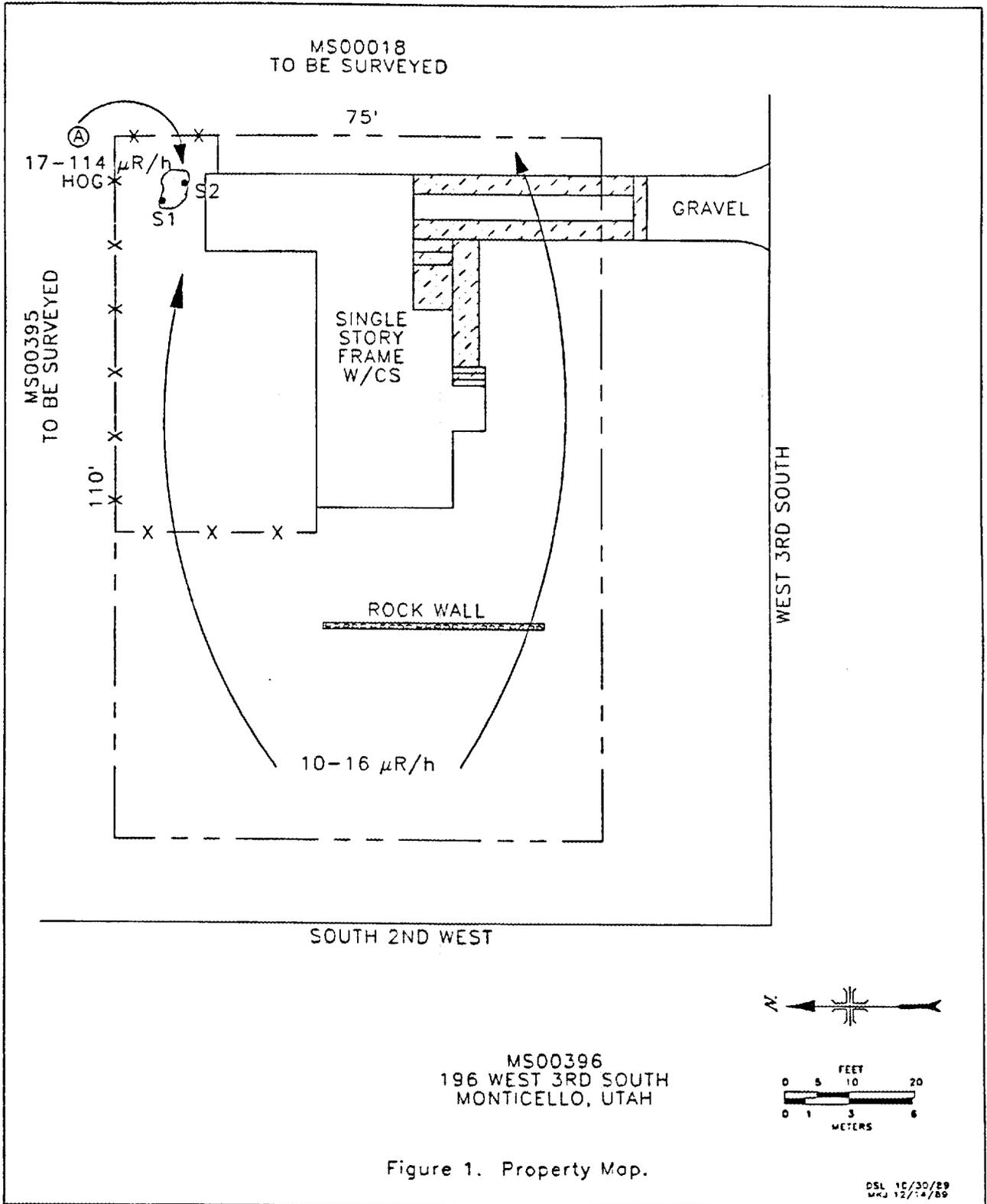


Figure 1. Property Map.

Location Number MS00403

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00403
164 SOUTH 2ND WEST STREET
MONTICELLO UT 84535

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February 1990

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Location Number: MS00403

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-14 $\mu\text{R}/\text{h}$ indoors and 13-15 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00403

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00403

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	1,300 m^2
STRUCTURES ON PROPERTY:	1 Single story brick and frame house with crawlspace 1 Shed, wood floor

Location Number: MS00403

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

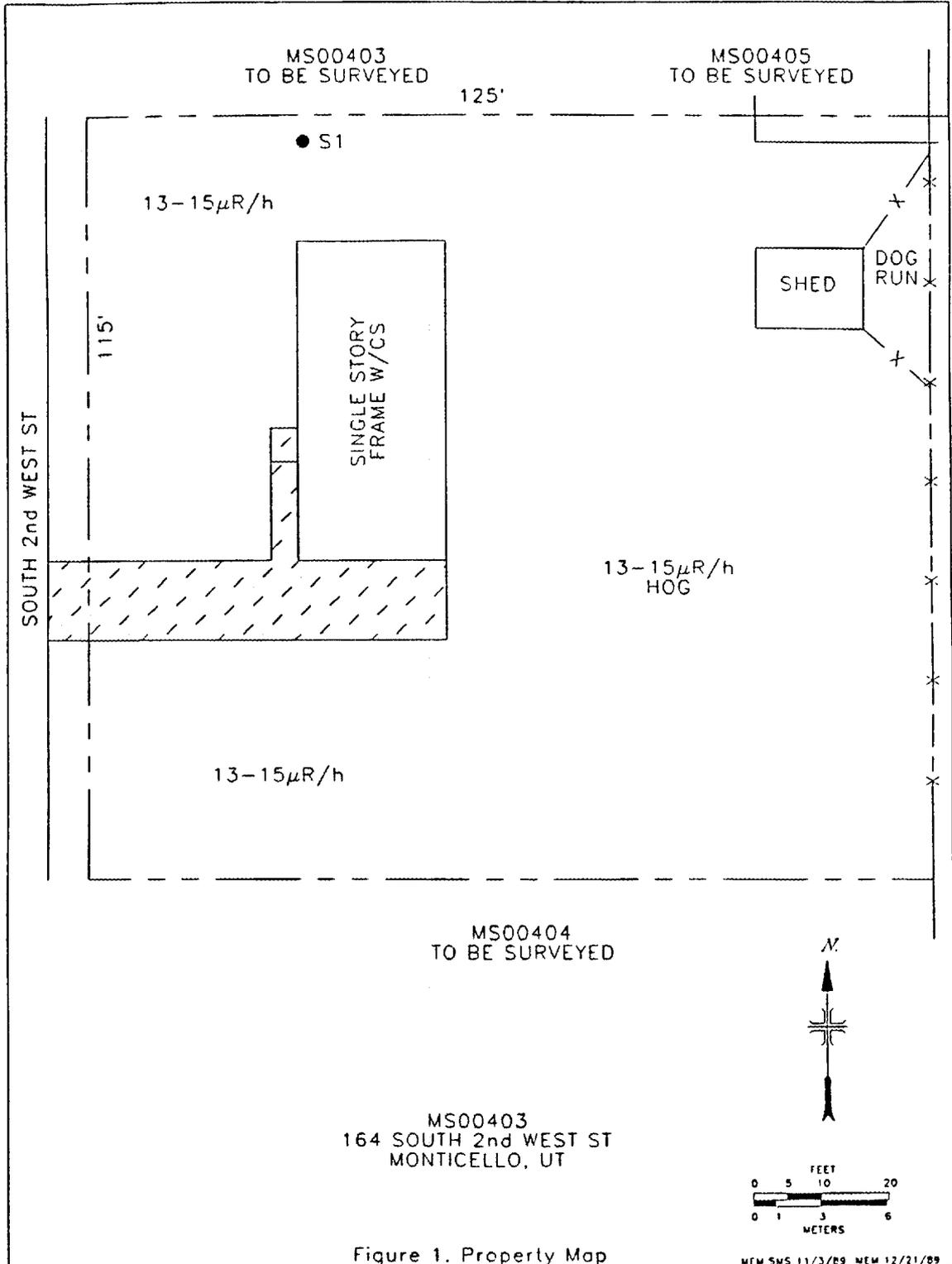
Location Number: MS00403

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	2.3	>100	<1	N/A



Location Number MS00463

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00463
116 NORTH 1ST WEST STREET
MONTICELLO UT 84535

Investigation Team

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M. J. Wilson - IVC Coordinator

M. E. Mumby

February 1990

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OAK RIDGE NATIONAL LABORATORY
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Grand Junction, Colorado 81502
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00463

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. No indoor scan was done as the property is a vacant lot. Background gamma exposure rates ranged from 13-14 $\mu\text{R}/\text{h}$. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties can be found on Figure 1.

Location Number: MS00463

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is <background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00463

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	1,100 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00463

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-14 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	14 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

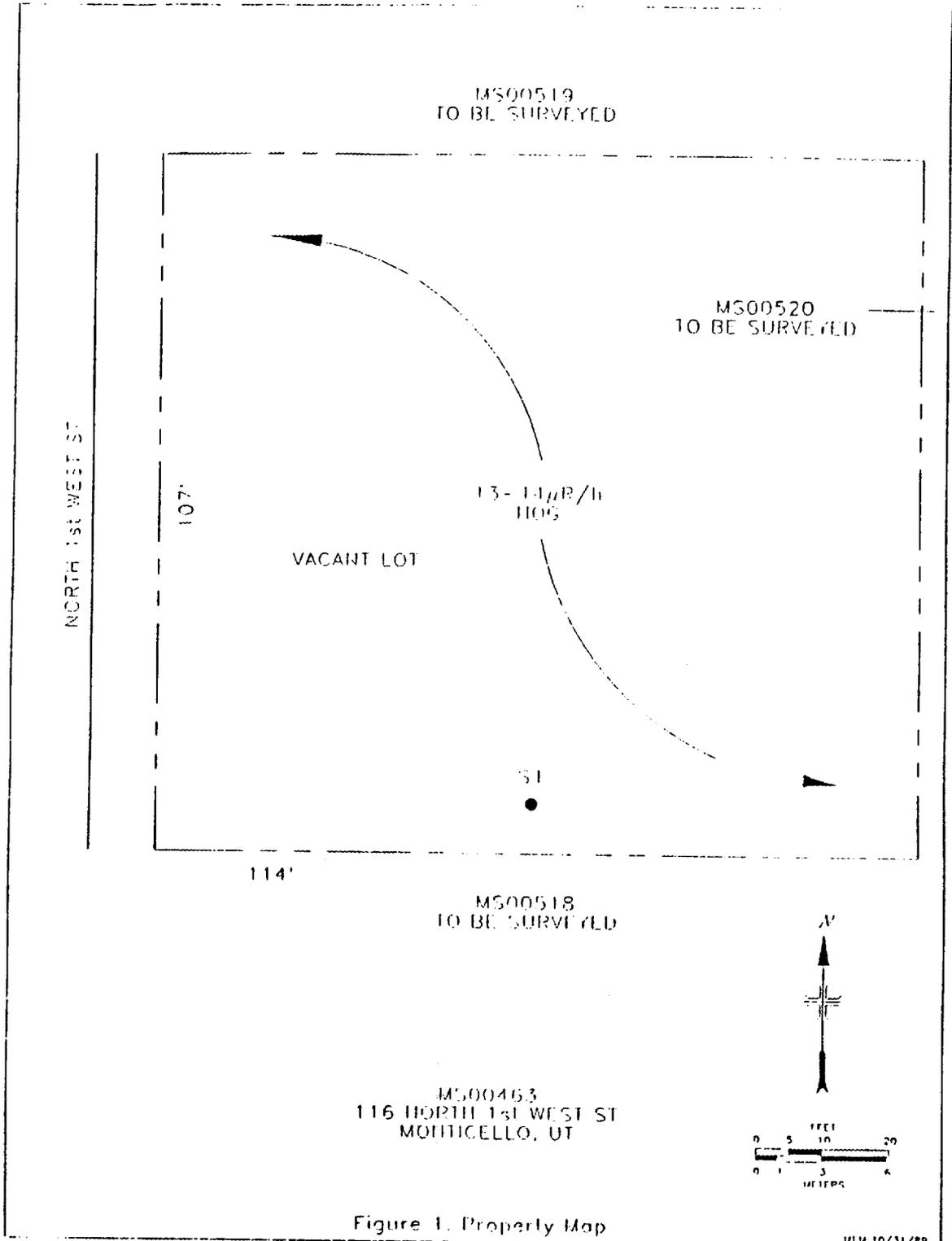
Location Number: MS00463

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.8	>100	<1	N/A



Location Number MS00464

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00464
147 WEST 1ST NORTH STREET
MONTICELLO UT 84535

Investigation Team

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Location Number: MS00464

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background exposure rates ranged from 12-14 $\mu\text{R}/\text{h}$ indoors and 13-15 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates was found outdoors and labeled Region A (Figure 1). Radionuclide analysis of soil sample S1 yielded ^{226}Ra concentration of 420 pCi/g from Region A (Table 3). This value exceeds the DOE Hot Spot Guidelines of 52 pCi/g for areas one meter square.

Multiple point sources of ore ranging from 28 $\mu\text{R}/\text{h}$ to 740 $\mu\text{R}/\text{h}$ were located throughout the property (Figure 1). Information pertaining to surrounding properties is located on Figure 1.

Location Number: MS00464

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

Location Number: MS00464

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	2000 m ²
STRUCTURES ON PROPERTY:	1 Single story brick house with crawlspace 2 Metal sheds, wood floor Location Number: MS00464

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 28-51 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	51 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	Multiple
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: <1 m ²
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R/h}$

Location Number: MS00464

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	420	1	4.2	52
S2	BKGD	0-15	1.6	>100	<1	N/A

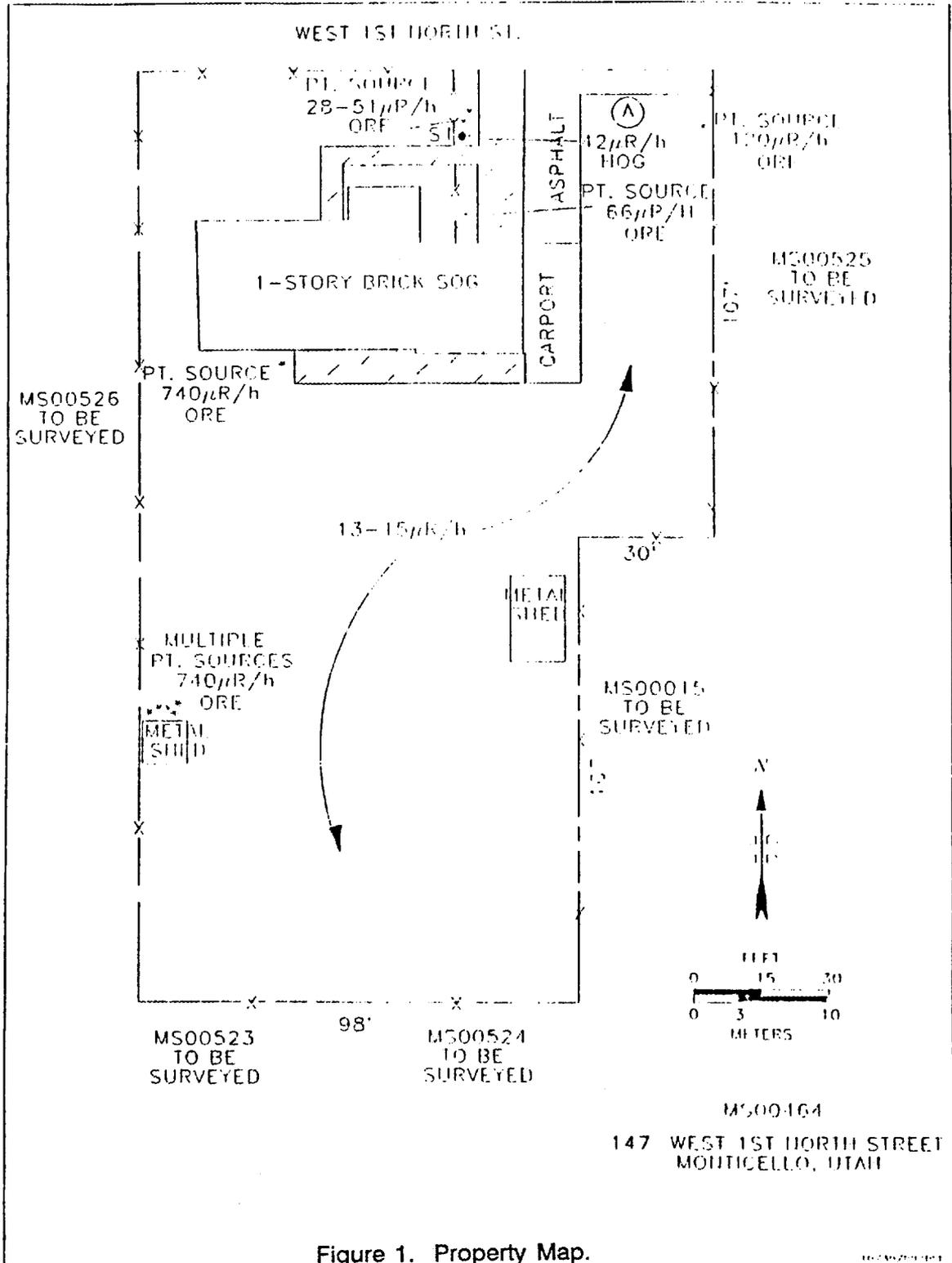


Figure 1. Property Map.

Location Number MS00468

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00468
297 WEST 2ND SOUTH STREET
MONTICELLO UT 84535

Investigation Team

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00468

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-17 $\mu\text{R}/\text{h}$ indoors and 13-16 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected indoors.

Two point sources, averaging 25-29 $\mu\text{R}/\text{h}$, were detected outdoors near the northern boundary of the property (see Figure 1). The point sources were identified as petrified wood. No regions of elevated gamma exposure rates were detected outdoors.

Information on adjacent properties can be found on Figure 1.

Location Number: MS00468

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00468

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	920 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house with crawlspace 1 Wood shed, slab-on grade

Location Number: MS00468

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-16 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	16 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	25, 29 μ R/h
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00468

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.3	>100	<1	N/A

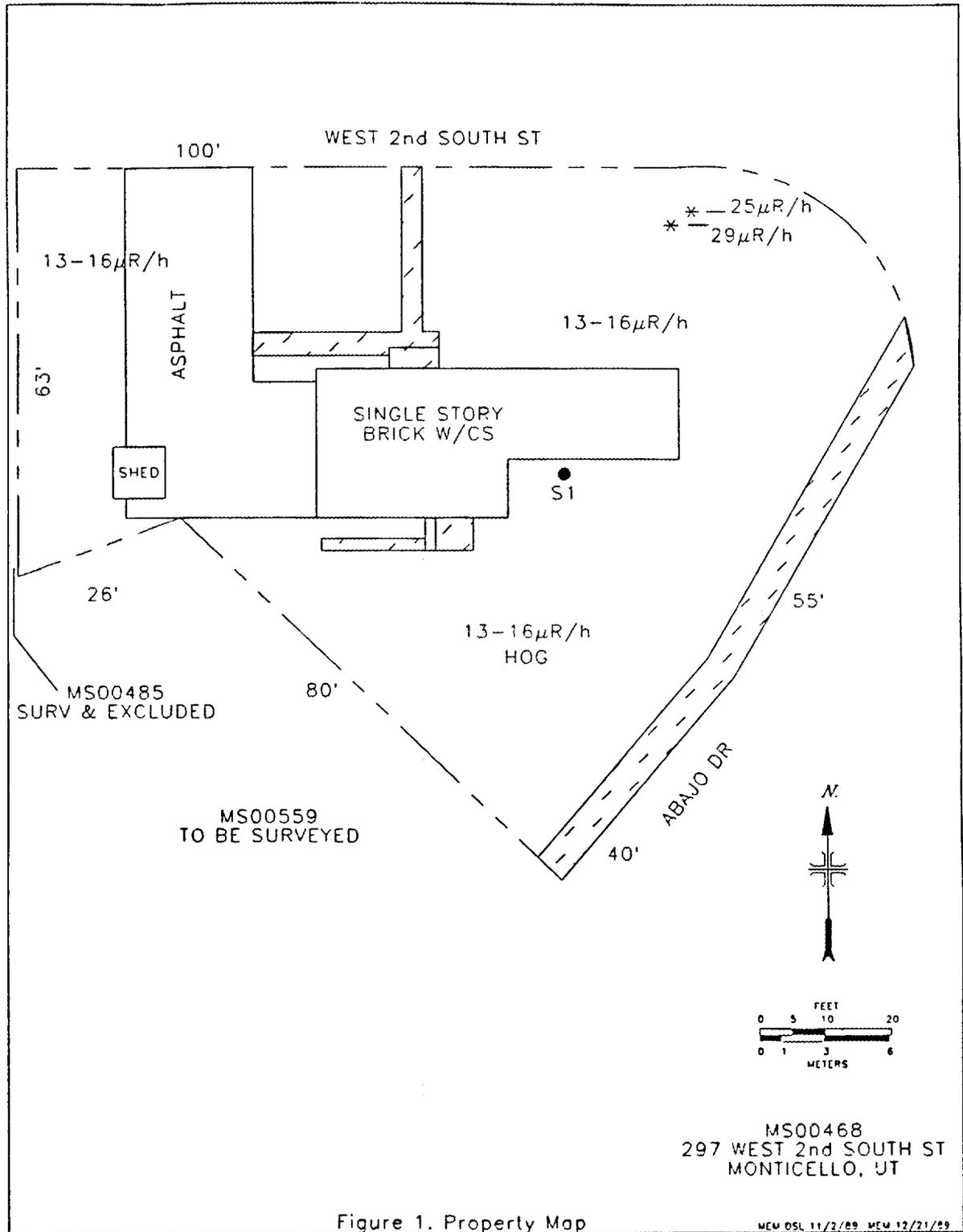


Figure 1. Property Map

MEM 05L 11/2/89 MEM 12/21/89

Location Number MS00469

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00469
517 SOUTH 100 WEST STREET
MONTICELLO UT 84535

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March 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00469

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at location MS00469. The indoor background gamma exposure rate range was 12-14 $\mu\text{R}/\text{h}$. On ore sample reading 660 $\mu\text{R}/\text{h}$ was located on a table in Shed #1. The ore sample was not Monticello mill related. No other elevated gamma exposure rates were found in the house or sheds.

The outdoor background gamma exposure rate range was 12-14 $\mu\text{R}/\text{h}$. No elevated gamma rates were found outdoors.

Information pertaining to surrounding properties is located on Figure 1.

Location Number: MS00469

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00469

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	2400 m^2
STRUCTURES ON PROPERTY:	1 Single story frame house with crawl space 1 Shed, concrete block floor 1 Shed, dirt floor

Location Number: MS00469

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00469

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.8	>100	<1	N/A

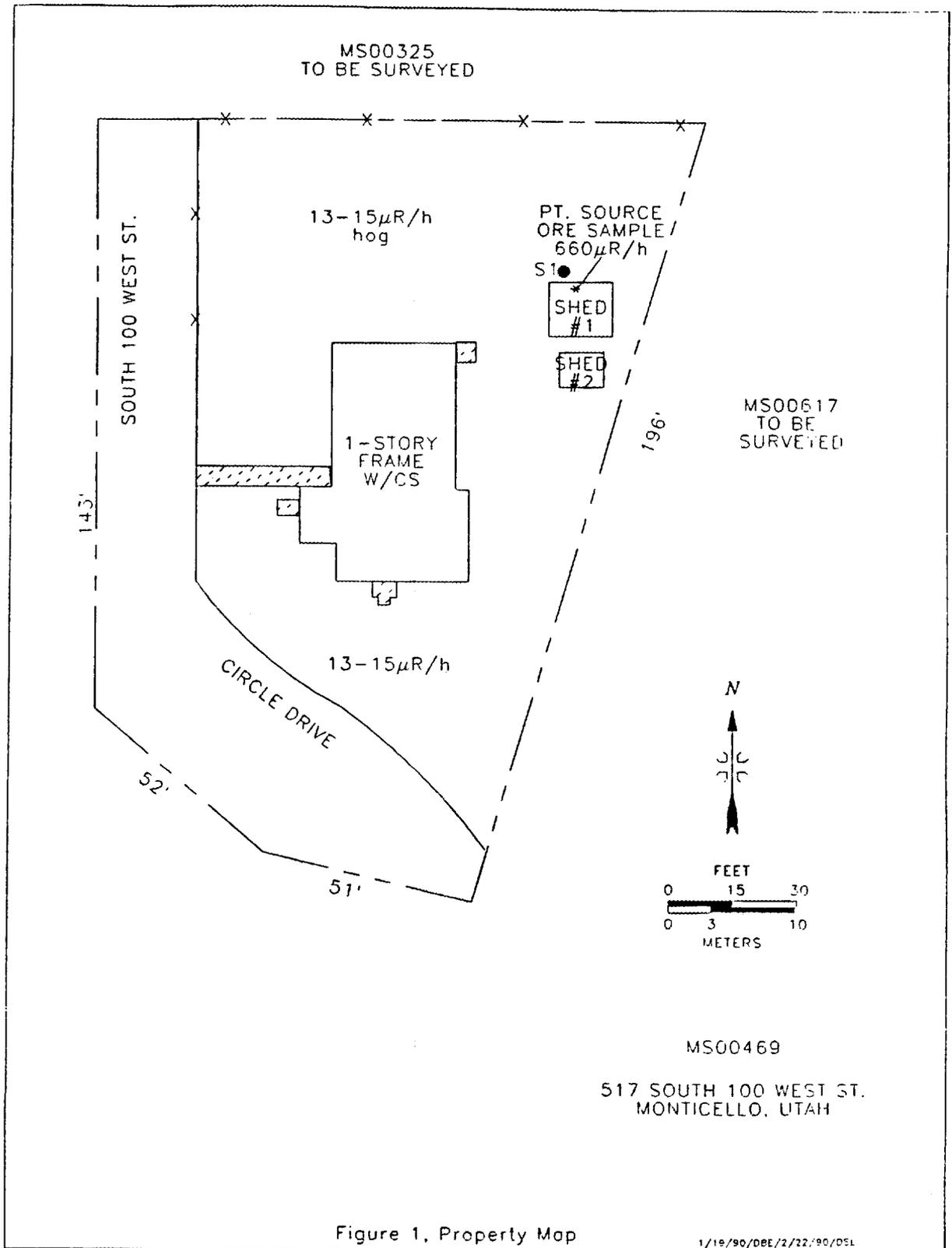


Figure 1, Property Map

Location Number MS00470

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00470
120 WEST 200 NORTH STREET
MONTICELLO UT 84535

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under Contract No. DE-AC05-84OR21400

Location Number: MS00470

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at location MS00470. The indoor background gamma exposure rate range was 13-16 $\mu\text{R}/\text{h}$. A radium dial compass was found downstairs, which read 880 $\mu\text{R}/\text{h}$. No other elevated gamma exposure rates were found indoors.

The outdoor gamma exposure rate range was 12-15 $\mu\text{R}/\text{h}$. No elevated gamma exposure rates were found outdoors.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00470

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00470

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	1,200 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house with partial basement

Location Number: MS00470

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R}/\text{h}$
BACKGROUND + 20%:	17 $\mu\text{R}/\text{h}$
BACKGROUND EXPOSURE RATE RANGE:	12-15 $\mu\text{R}/\text{h}$
HIGHEST OUTDOOR GAMMA (HOG):	15 $\mu\text{R}/\text{h}$
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R}/\text{h}$

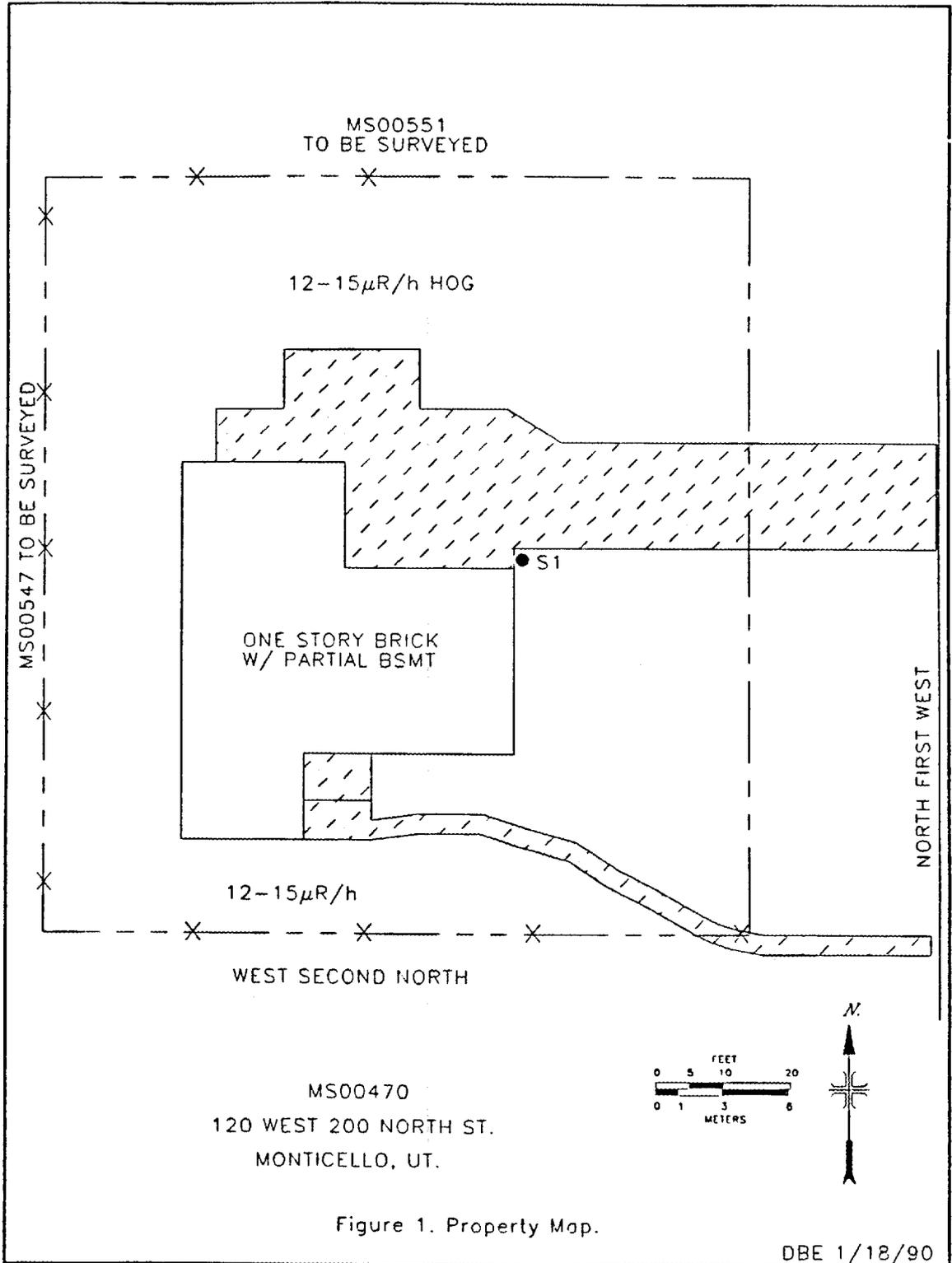
Location Number: MS00470

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.7	>100	<1	N/A



Location Number MS00471

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00471
49 PARK VIEW DRIVE
MONTICELLO UT 84535

Investigation Team

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D. B. Ertel

February 1990

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00471

SIGNIFICANCE OF FINDINGS

A complete gamma screening of location MS00471 found no elevated gamma anomalies. The outdoor background gamma exposure rate range was 13-15 $\mu\text{R/h}$, and the indoor background gamma exposure rate range was 13-16 $\mu\text{R/h}$.

A background soil sample taken from this property had a ^{226}Ra concentration of less than 2 pCi/g.

Location Number: MS00471

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m²

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m²

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00471

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	880 m ²
STRUCTURES ON PROPERTY:	1 Two story frame house 1 Shed, dirt floor

Location Number: MS00471

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00471

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.3	>100	<1	N/A

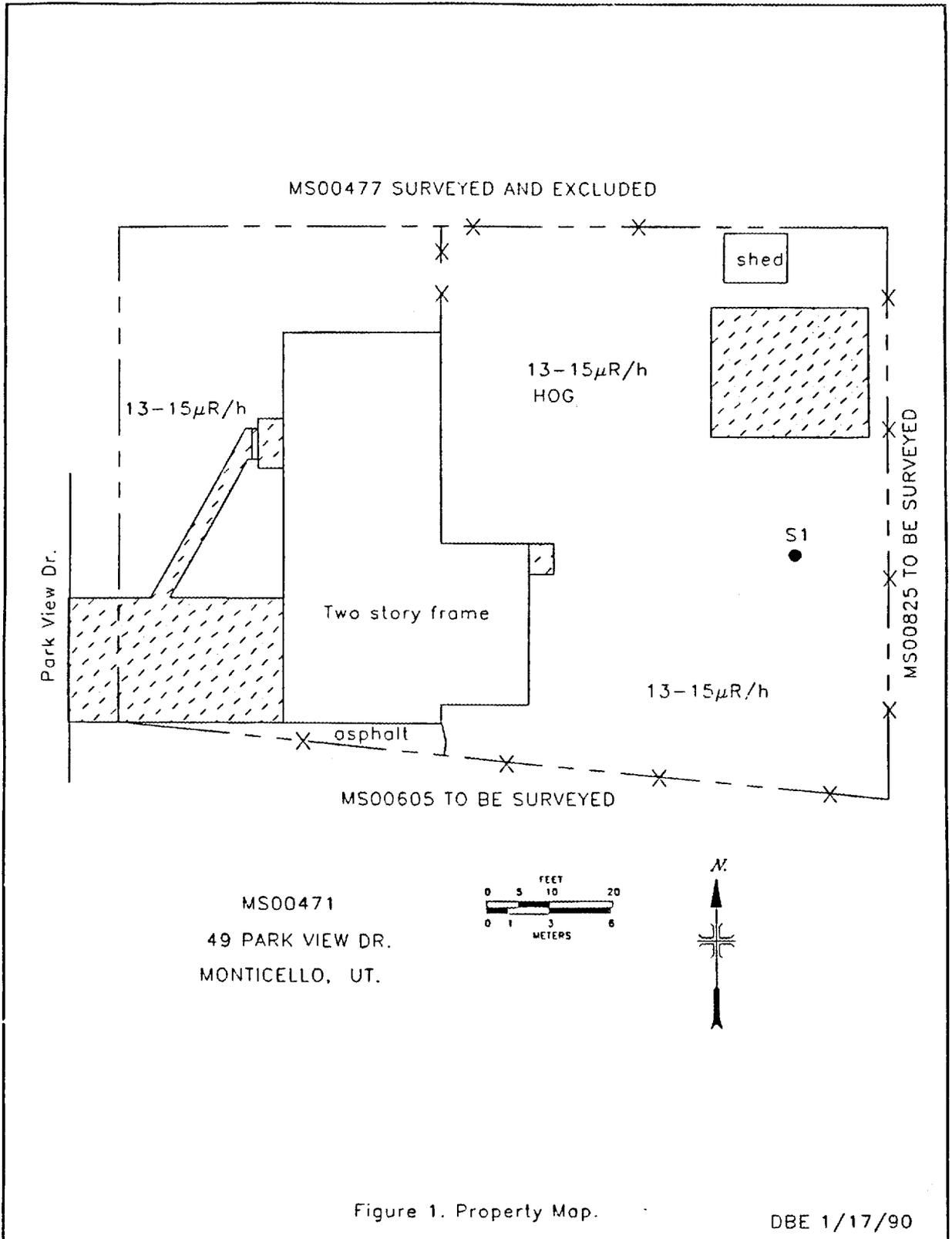


Figure 1. Property Map.

DBE 1/17/90

Location Number MS00472

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00472
216 BLUE MOUNTAIN DRIVE
MONTICELLO UT 84535

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00472

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 12-14 $\mu\text{R/h}$ indoors and 13-15 $\mu\text{R/h}$ outdoors. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00472

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00472

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	890 m^2
STRUCTURES ON PROPERTY:	1 Single story brick and stucco house with crawlspace 1 Wood shed, slab-on-grade 1 Wood shed, wood floor

Location Number: MS00472

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00472

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.3	>100	<1	N/A

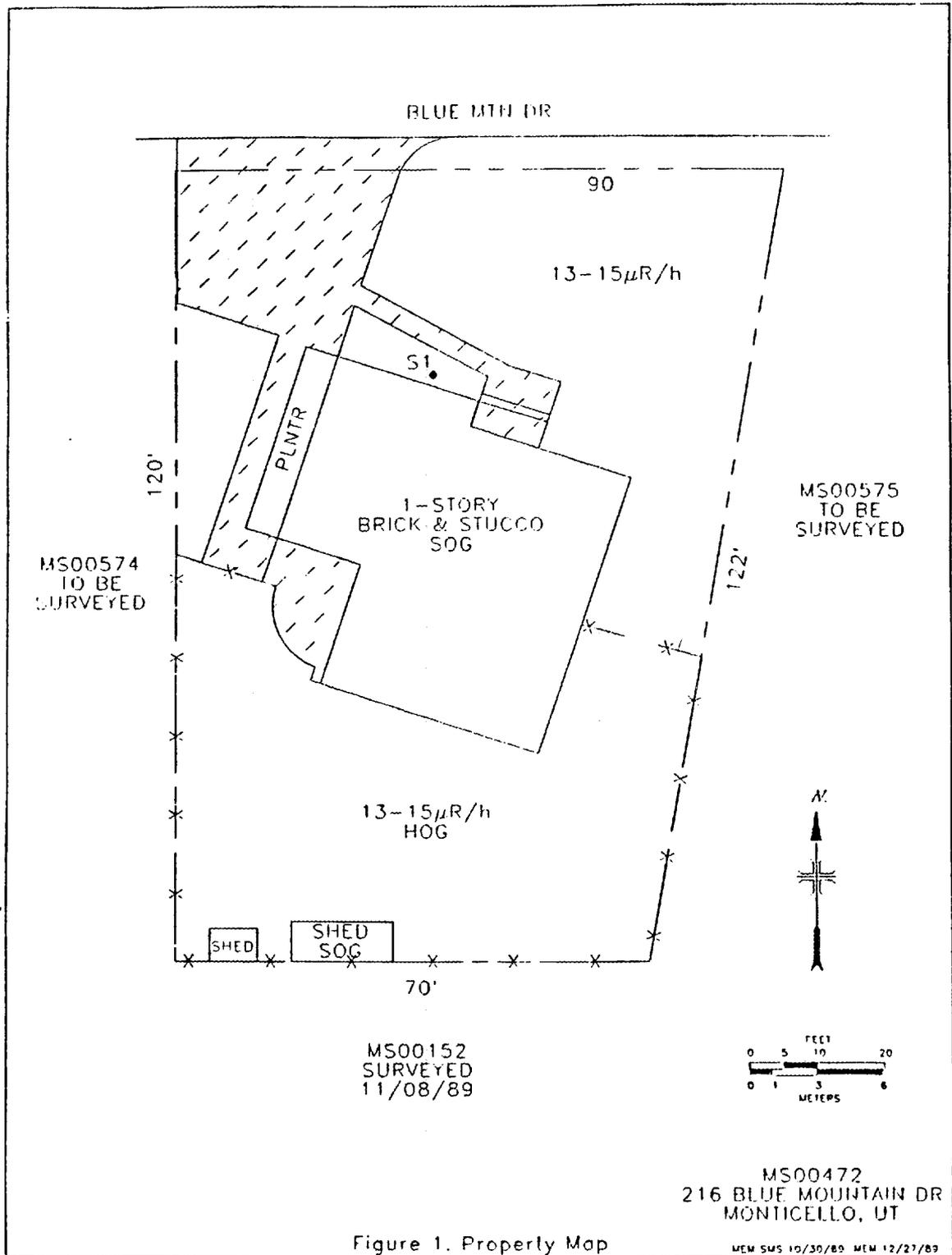


Figure 1. Property Map

Location Number MS00473

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00473
LOWER GOLF COURSE ROAD
MONTICELLO UT 84535

Investigation Team

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Location Number: MS00473

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-15 $\mu\text{R}/\text{h}$ indoors and 13-15 $\mu\text{R}/\text{h}$ outdoors.

No region of elevated gamma exposure rates were detected anywhere on this property.

One point source was found east of the house. The point source had a gamma exposure rate of 17 $\mu\text{R}/\text{h}$ and was a pile of bricks.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00473

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00473

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	3,600 m^2
STRUCTURES ON PROPERTY:	1 Single story frame house with walkout basement

Location Number: MS00473

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG):	15 $\mu\text{R/h}$
LOCATION OF HOG:	General
POINT SOURCE *:	17 $\mu\text{R/h}$
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R/h}$

Location Number: MS00473

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	2.3	>100	<1	N/A

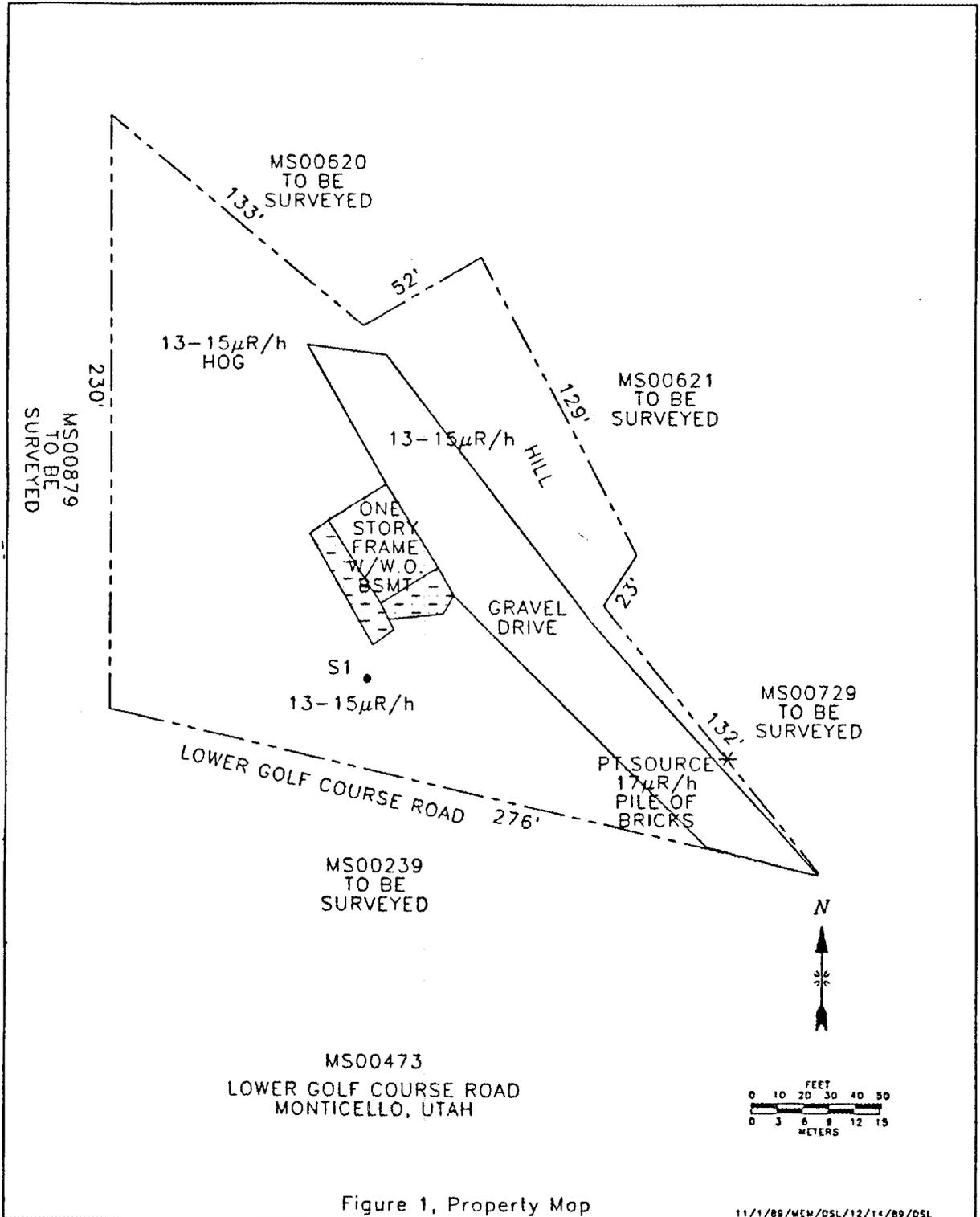


Figure 1, Property Map

11/1/89/MLM/DSL/12/14/89/DSL

Location Number MS00474

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00474
152 NORTH MAIN STREET
MONTICELLO UT 84535

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Location Number: MS00474

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rate ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors. There are no structures on this property.

No regions of elevated gamma exposure rates were detected anywhere on this property.

Information pertaining to surrounding properties is located on Figure 1.

Location Number: MS00474

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00474

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	1,100 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00474

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

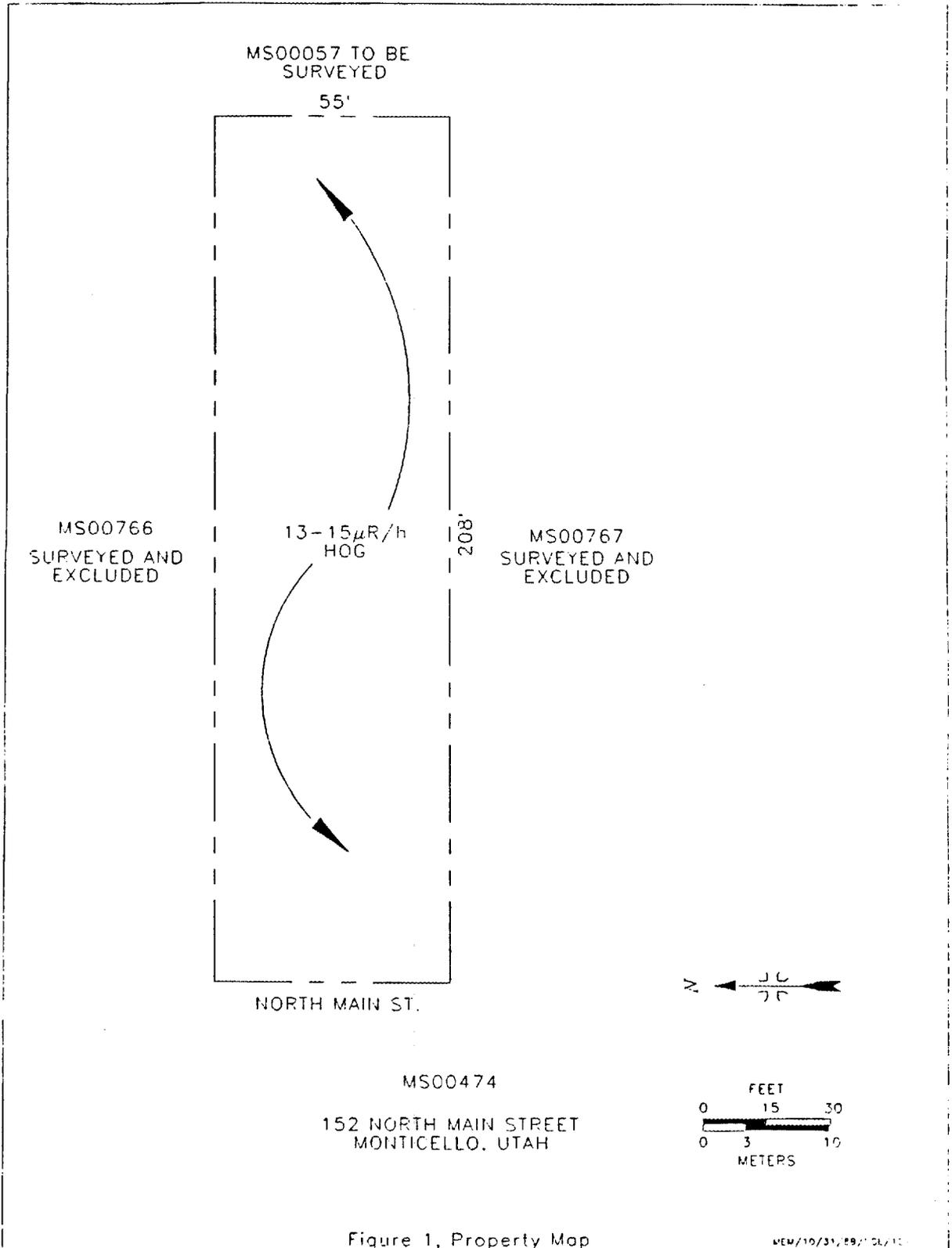
Location Number: MS00474

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.7	>100	<1	N/A



Location Number MS00475

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00475
32 NORTH 2ND WEST STREET
MONTICELLO, UT 84535

Investigation Team

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March 1990

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Grand Junction, Colorado 81502
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00475

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ both indoors and outdoors. Two regions of elevated gamma exposure rates were found indoors and labeled Regions 1 and 2 (Figure 1b, Table 2). Region 1 is a brick wood stove base with brick walls on the south and west sides. Evidence gathered from previous properties surveyed supported the fact that the mortar was elevated and not the brick. Region 2 is the surroundings living areas of the house which receive emanation from the elevated mortar.

RDC cups were placed in the lower level of the house in Region 1. Data will be in a supplemental report upon completion of the RDC measurements.

No elevated regions were located anywhere on the property outdoors.

Information regarding adjacent properties is provided on Figure 1a.

Location Number: MS00475

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

PENDING RESULTS OF RDC MEASUREMENTS

Location Number: MS00475

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	~1000 m ²
STRUCTURES ON PROPERTY:	1 Single story frame house with basement 1 Metal shed, dirt floor 1 Wood shed, dirt floor

Location Number: MS00475

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG):	15 $\mu\text{R/h}$
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R/h}$

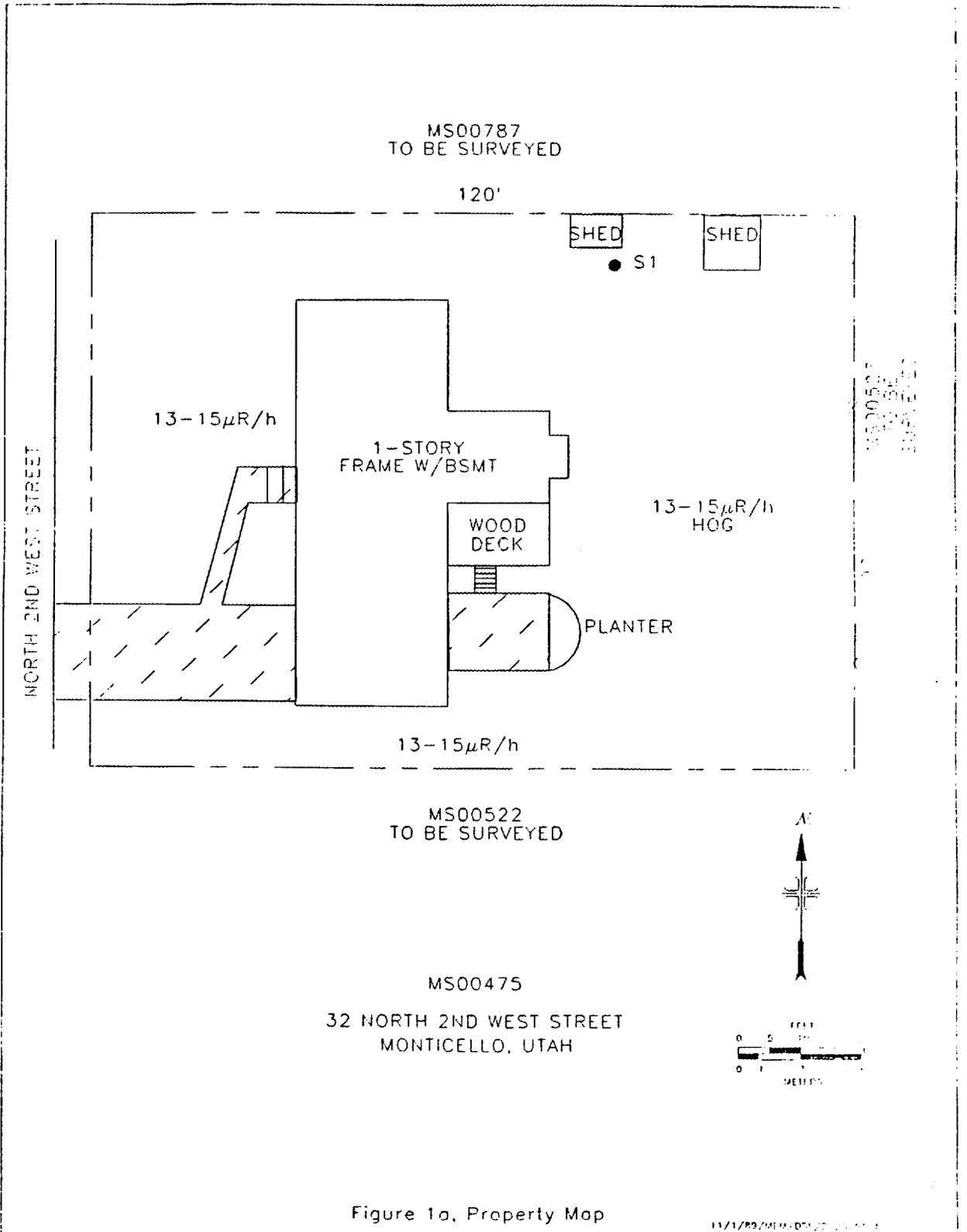
Location Number: MS00475

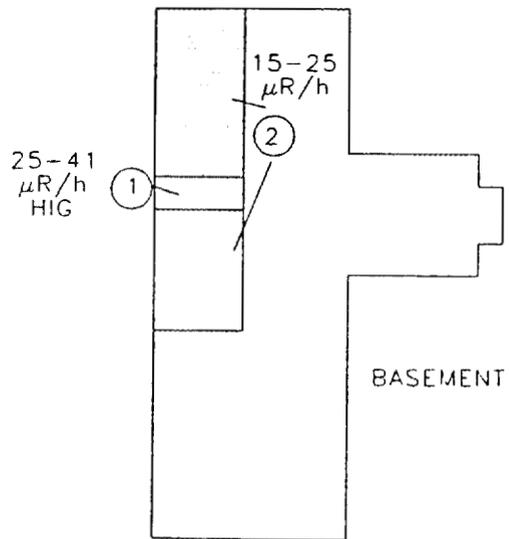
Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area- Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.5	>100	<1	N/A





MS00475

32 NORTH 2ND WEST STREET
MONTICELLO, UTAH



Figure 1b, Property Map

11/25/2011 11:11:11

Location Number MS00476

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00476
64 SOUTH 1ST WEST STREET
MONTICELLO UT 84535

Investigation Team

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00476

SIGNIFICANCE OF FINDINGS

A complete gamma radiation screening was done on this property. The general background gamma exposure rates ranged from 11-14 $\mu\text{R/h}$ indoors and 13-15 $\mu\text{R/h}$ outdoors.

One region of elevated gamma exposure rates was found outdoors and labeled Region A (Figure 1). Soil samples taken from Region A yielded a net estimated area-weighted average ^{226}Ra concentration of 6.4 pCi/g (Table 3). This value exceeds the DOE guidelines of 5 pCi/g for surface soils averaged over 100 m^2 . Radionuclide analysis of soil samples S1 and S2 yielded ^{226}Ra concentrations of 360 pCi/g and 130 pCi/g from Region A (Table 3). These values exceed the DOE Hot Spot Guideline of >34 pCi/g for an area 2.5 m^2 .

Information pertaining to surrounding properties area located on Figure 1.

Location Number: MS00476

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is $>$ the Hot Spot Guideline

^{226}Ra is >5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00476

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	2,800 m^2
STRUCTURES ON PROPERTY: with partial basement	1 Single story stucco house 1 Shed, wood floor

Location Number: MS00476

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-95 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	95 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 2.5 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1.0 $\mu\text{R/h}$

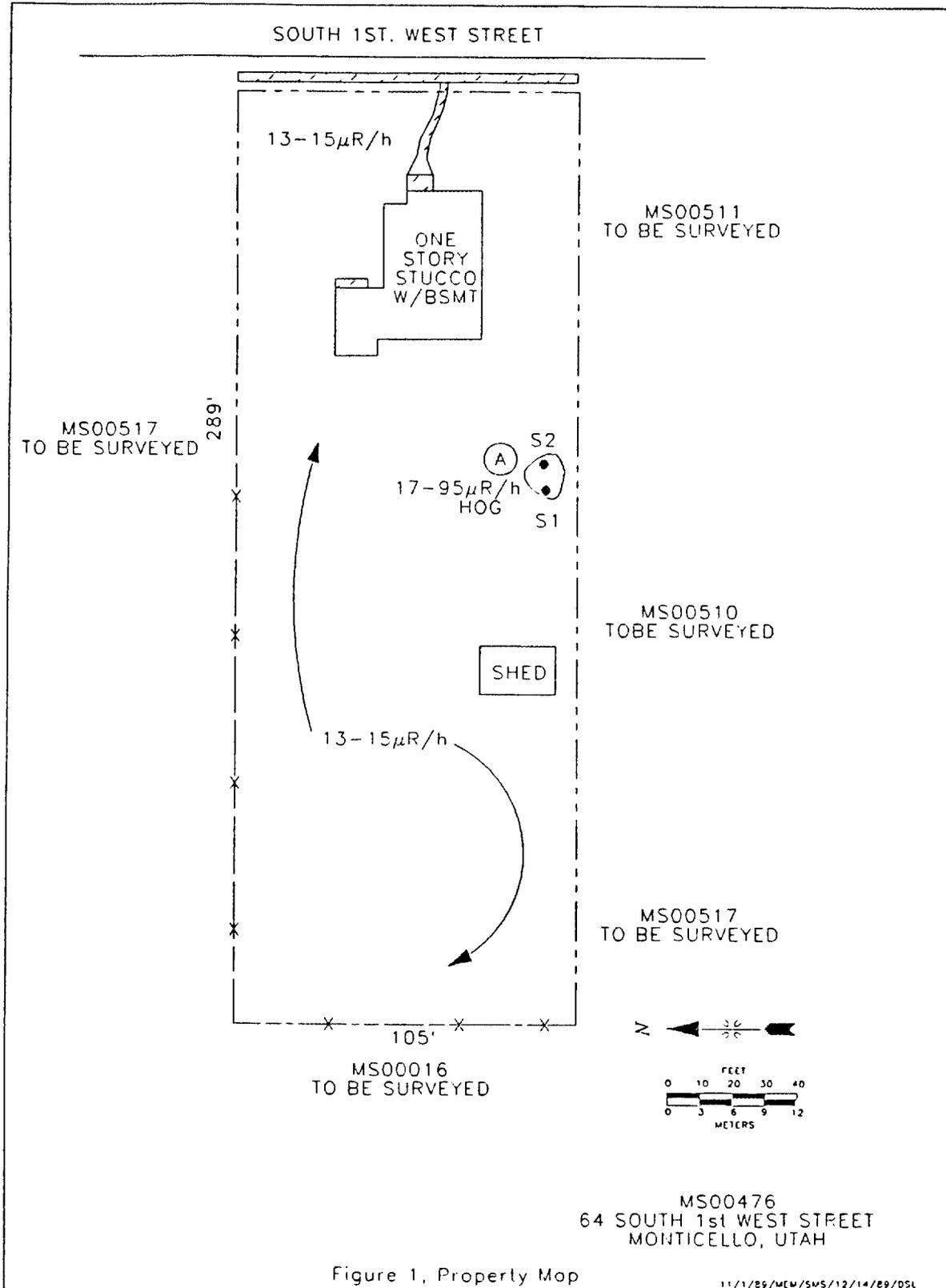
Location Number: MS00476

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	360	2.5	6.4	>34
S2			130			



Location Number MS00477

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00477
33 PARKVIEW DRIVE
MONTICELLO UT 84535

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00477

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-14 $\mu\text{R/h}$ indoors and 13-14 $\mu\text{R/h}$ outdoors.

No regions of elevated gamma exposure rates were detected anywhere on this property.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00477

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00477

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	970 m^2
STRUCTURES ON PROPERTY:	1 Single story brick and frame house with walkout basement 1 Metal shed, wood floor

Location Number: MS00477

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-14 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	14 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00477

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.5	>100	<1	N/A

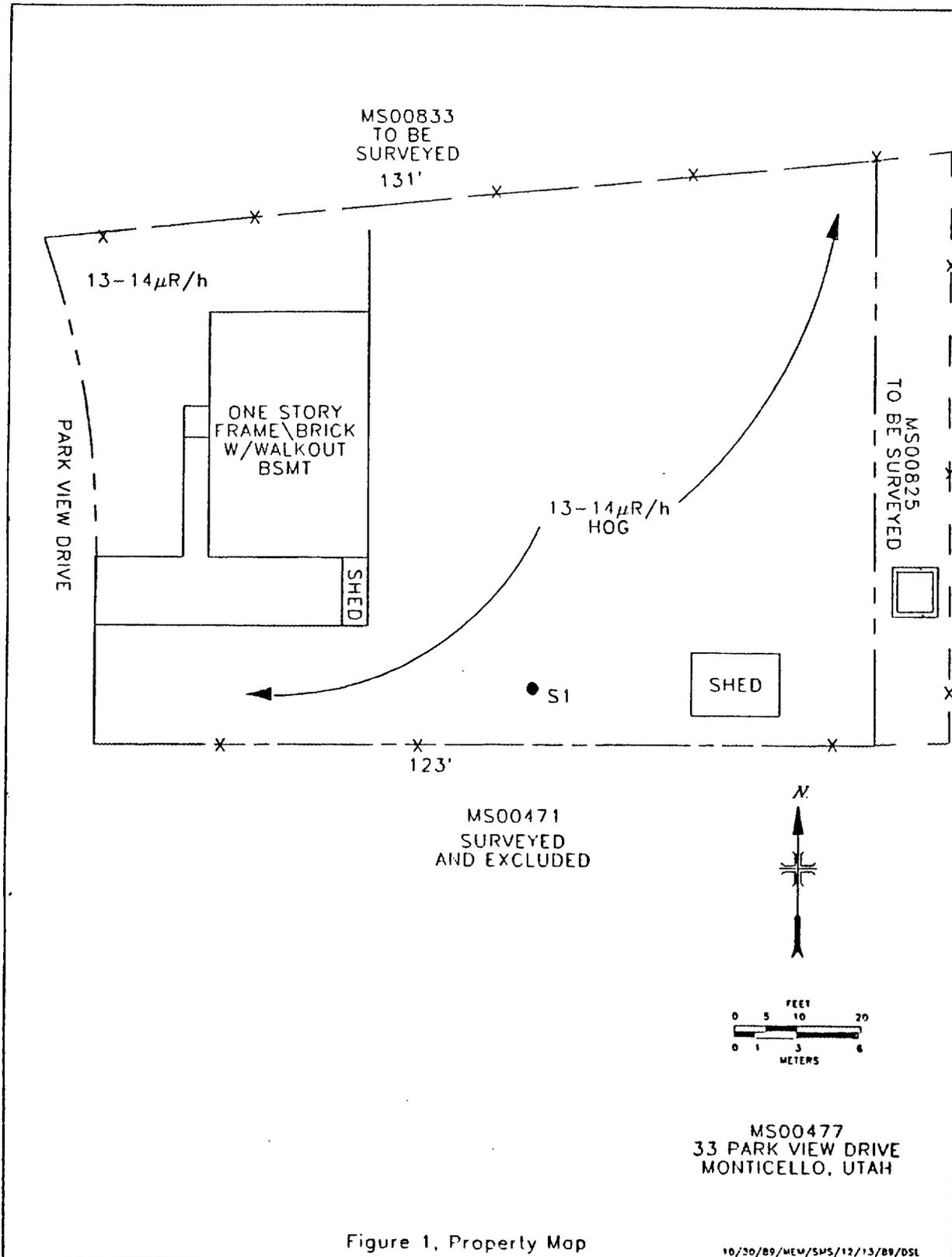


Figure 1, Property Map

Location Number MS00479

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00479
17 MOUNTAIN VIEW DRIVE
MONTICELLO UT 84535

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Location Number: MS00479

SIGNIFICANCE OF FINDINGS

A complete gamma radiation screening was done on this property. The general background gamma exposure rates ranged from 13-16 $\mu\text{R/h}$ indoors and 13-14 $\mu\text{R/h}$ outdoors.

No regions of elevated gamma exposure rates were found anywhere on the property.

Gamma exposure rates of 17 $\mu\text{R/h}$ were detected in the bricks on the exterior of the building and the bricks on the interior fireplace. These elevated readings are from natural occurring radiation inherent in the brick.

Information pertaining to surrounding properties is located on Figure 1.

Location Number: MS00479

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00479

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	680 m^2
STRUCTURES ON PROPERTY:	1 Single story brick and frame house with partial basement

Location Number: MS00479

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-14 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	17 μ R/h
LOCATION OF HOG:	17 μ R/h on contact with exterior bricks
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

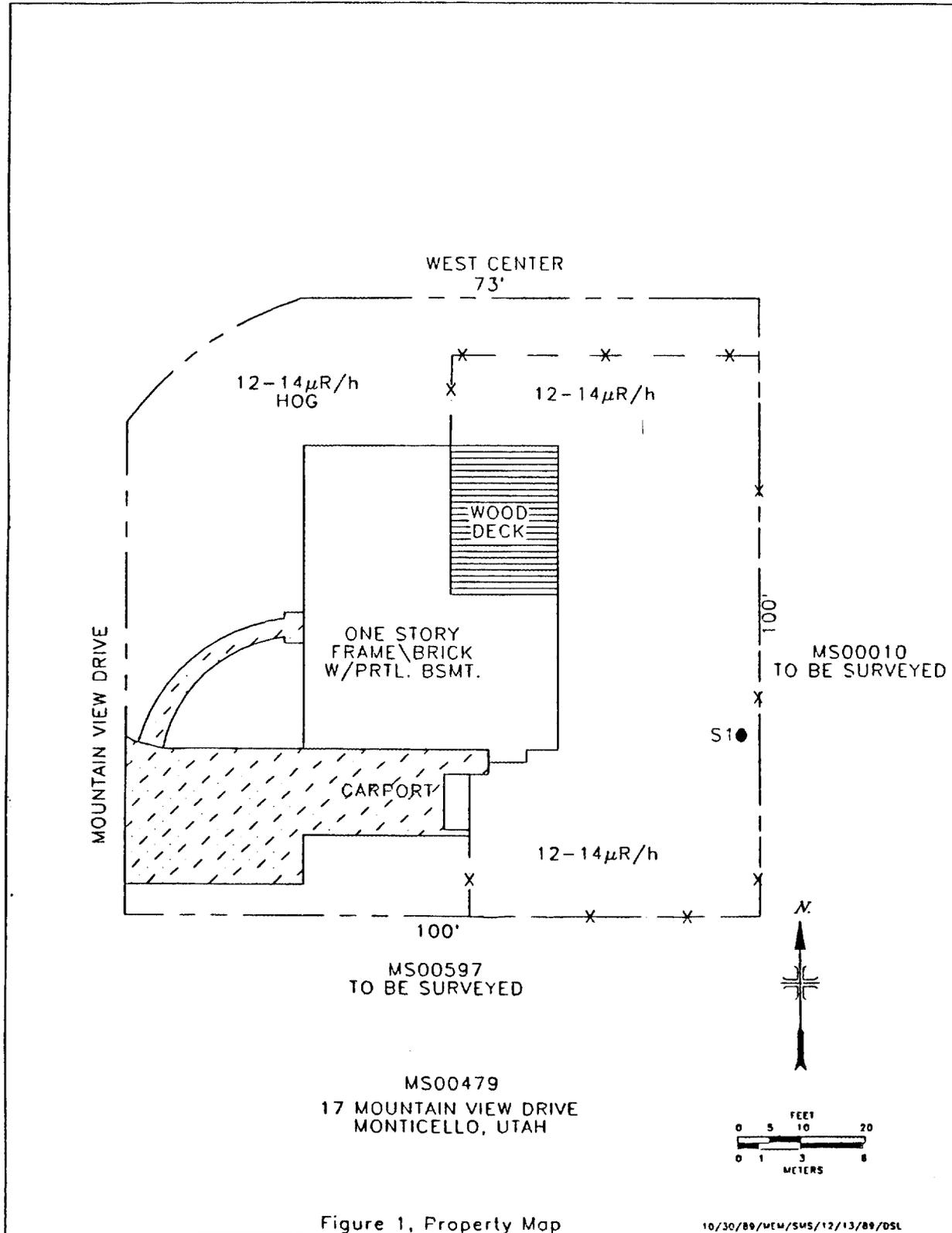
Location Number: MS00479

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.3	>100	<1	N/A



Location Number MS00480

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00480
397 EAST SILVERSTONE LANE
MONTICELLO UT 84535

Investigation Team

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00480

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-16 $\mu\text{R/h}$ indoors and 13-16 $\mu\text{R/h}$ outdoors.

One region of elevated gamma exposure rates was found outdoors and labeled Region A (Figure 1). Radionuclide analysis of soil samples from Region A did not exceed background levels averaged over 100 m^2 .

Multiple ore samples and dinosaur bone point sources were located in the rock garden with ranges from 28-880 $\mu\text{R/h}$ (Figure 1), and are not Monticello mill related.

Information pertaining to surrounding properties is located on Figure 1.

Location Number: MS00480

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

^{226}Ra is < 15 pCi/g above background in subsurface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00480

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	1,100 m^2
STRUCTURES ON PROPERTY:	1 Two story frame and rock house with basement

Location Number: MS00480

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 29 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	29 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	Multiple
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 2 m ²
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R/h}$

Location Number: MS00480

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	7.5	2	<1	37

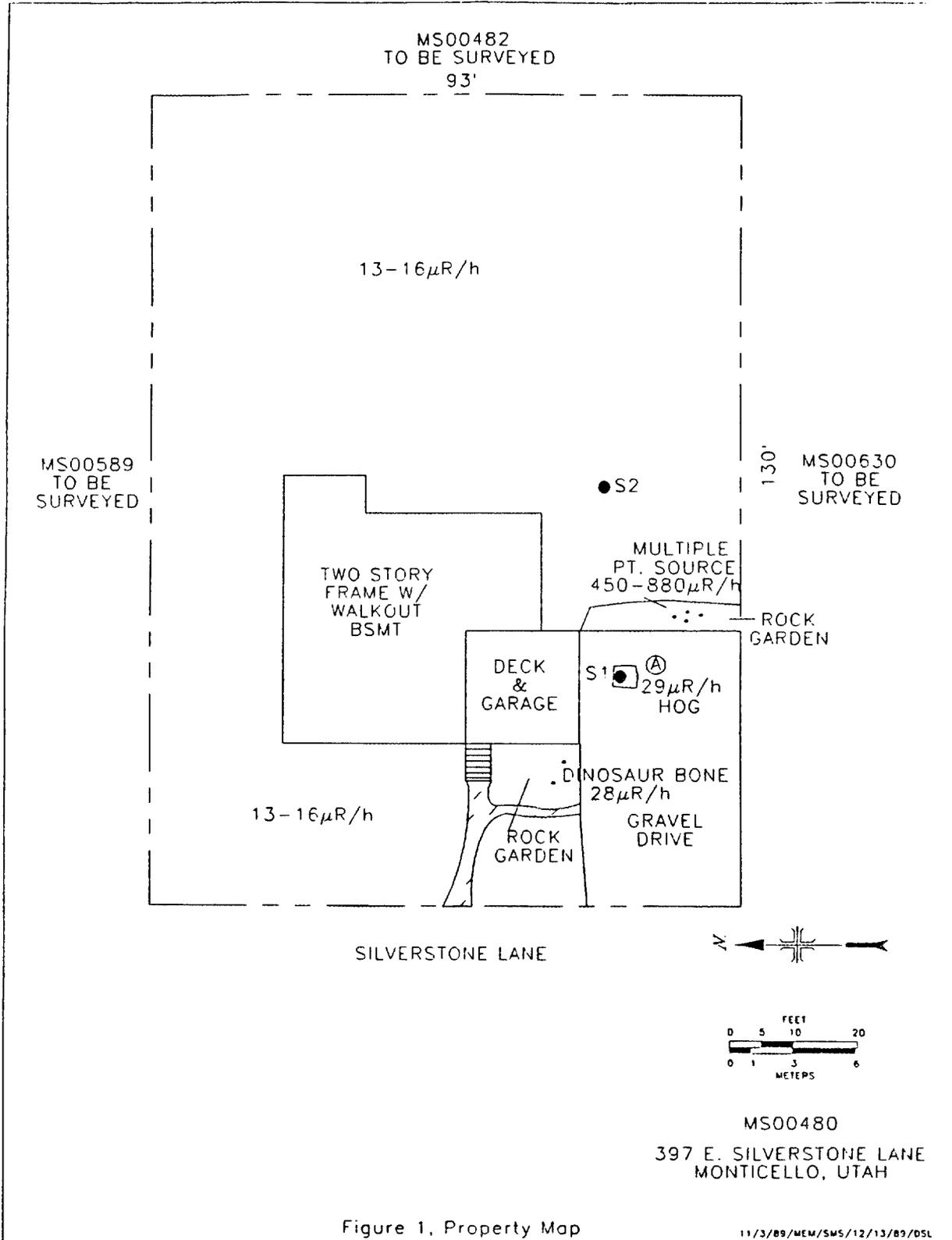


Figure 1, Property Map

Location Number MS00481

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00481
233 LOWER URANIUM DRIVE
MONTICELLO UT 84535

Investigation Team

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January 1990

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for the
U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00481

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-14 $\mu\text{R}/\text{h}$ indoors and 13-15 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates were detected and labeled Region A (Figure 1). Radionuclide analysis of soil samples from Region A did not exceed background levels averaged over 100 m^2 .

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00481

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

^{226}Ra is < 15 pCi/g above background in subsurface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00481

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	640 m^2
STRUCTURES ON PROPERTY:	1 Single story frame house with crawlspace

Location Number: MS00481

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 26 μ R/h
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	26 μ R/h
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: <1 m ²
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 μ R/h

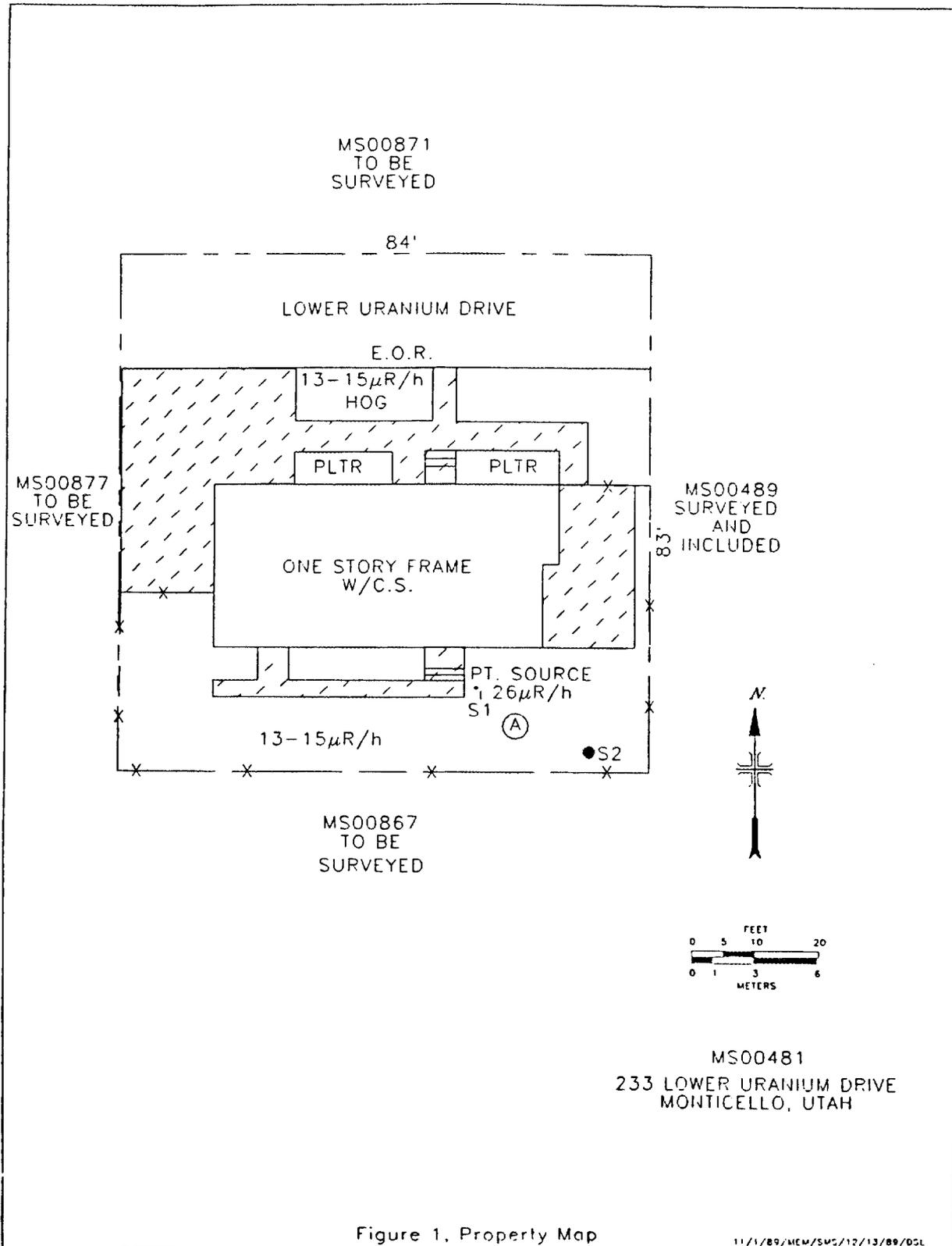
Location Number: MS00481

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1A	A	0-15	6.	1	<1	52
S2A			2.1			
S1B	A	15-30	2.2	1	<1	52
S2B			1.3			



Location Number MS00482

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00482
564 OAK CREST DRIVE
MONTICELLO, UTAH 84535

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March 1990

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00482

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 14-15 $\mu\text{R/h}$ indoors and 13-15 $\mu\text{R/h}$ outdoors. Four regions of elevated gamma exposure rates were found indoors and labeled Regions 1, 2, 3, and 4 (Figure 1b, Table 2). Regions 1 and 2 are brick wood stove bases with surrounding brick walls. A brick was sampled and the net estimated area-weighted average ^{226}Ra concentration was less than background, supporting evidence that the mortar is elevated. Regions 3 and 4 are surrounding living areas which receive emanation from the elevated mortar.

Outdoors, one region of elevated gamma exposure rates was found and labeled Region A (Figure 1a). Region A consists of brick siding on the lower four feet of the house.

Information regarding adjacent properties is provided on Figure 1a.

RDC cups were placed in the lower level of the house in Region 1. Data will be in a supplemental report upon completion of the RDC measurements.

Location Number: MS00482

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

PENDING RESULTS OF RDC MEASUREMENTS

Location Number: MS00482

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	2,800 m ²
STRUCTURES ON PROPERTY:	1 Two story frame and brick house with basement 1 Shed, slab-on-grade

Location Number: MS00482

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R}/\text{h}$
BACKGROUND + 20%:	17 $\mu\text{R}/\text{h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R}/\text{h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 36-51 $\mu\text{R}/\text{h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	51 $\mu\text{R}/\text{h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 75 m^2 - total area A: 25 m^2 - total area of mortar
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: 23 $\mu\text{R}/\text{h}$ - total area A: 7.5 $\mu\text{R}/\text{h}$ - mortar only

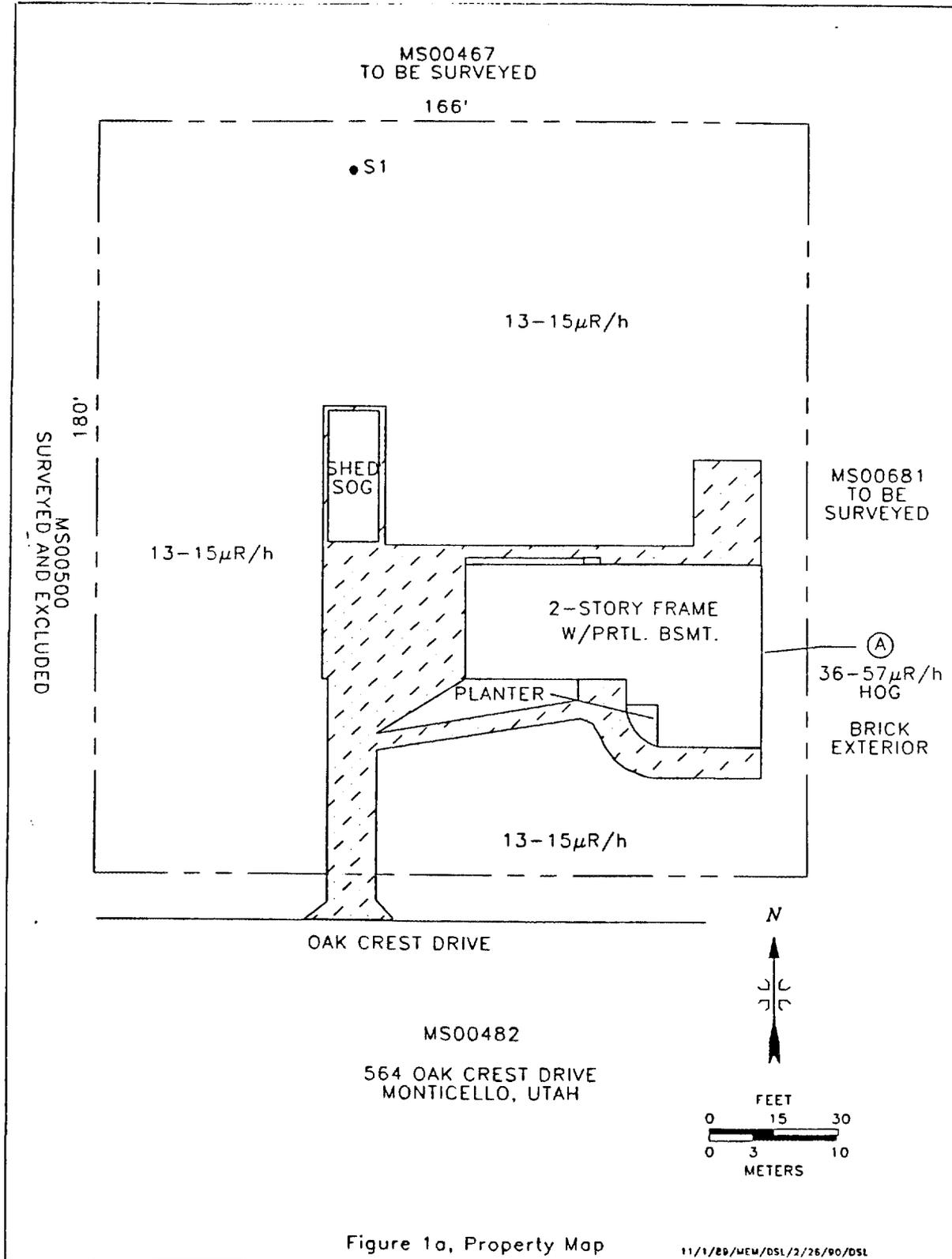
Location Number: MS00482

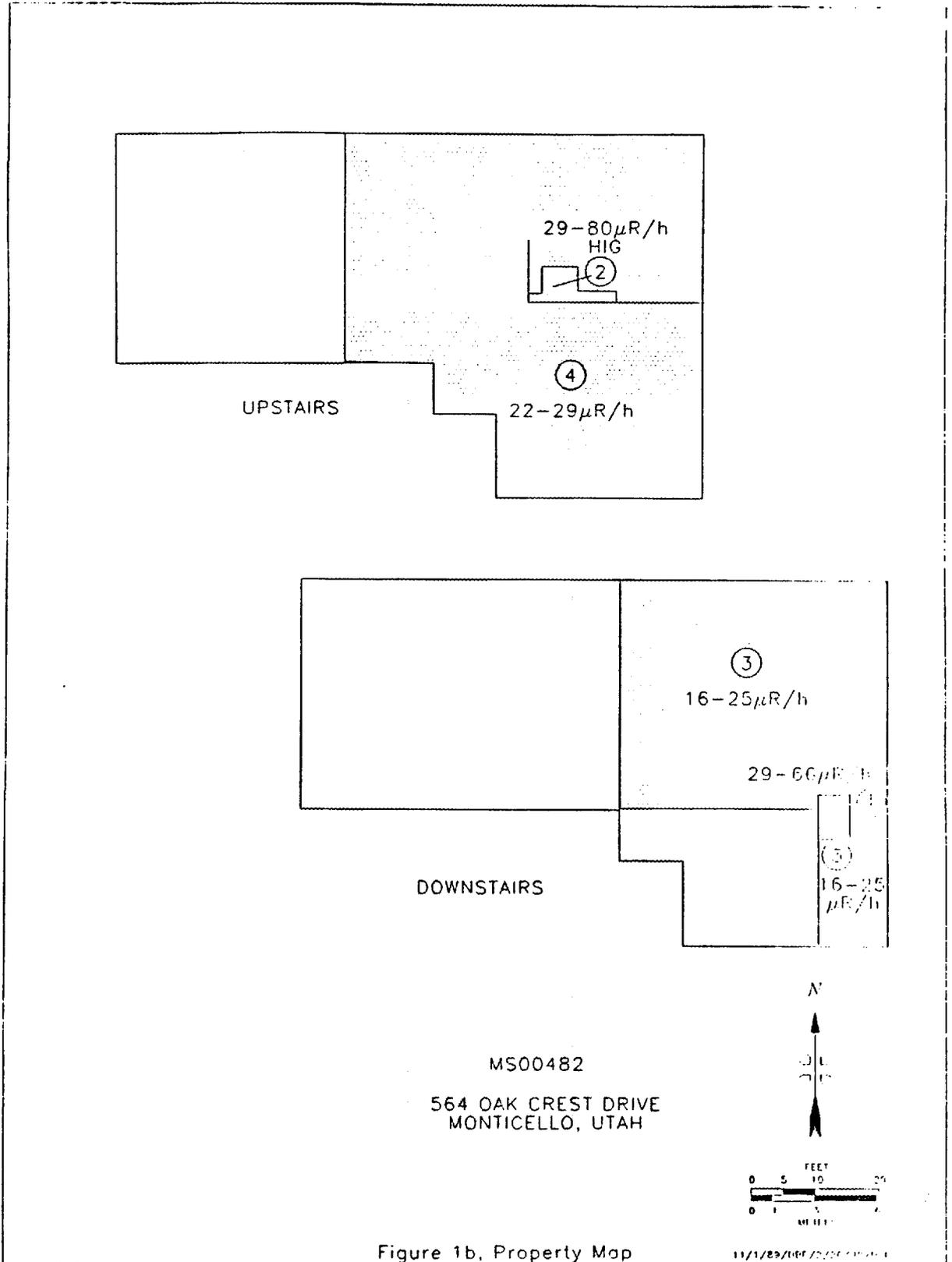
Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.4	>100	<1	N/A
S2	BRICK	N/A	1.6	N/A	<1 Indicates Elevated Mortar	N/A





Location Number MS00483

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00483
480 NORTH MAIN STREET
MONTICELLO, UTAH 84535

Investigation Team

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00483

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was performed on this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors and 12-14 $\mu\text{R}/\text{h}$ indoors. This property consists of an open lot with one shed. No regions above the background range were located anywhere on the property.

Properties adjacent to MS00483 and their status are shown on Figure 1.

Location Number: MS00483

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00483

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	510 m^2
STRUCTURES ON PROPERTY:	1 Shed

Location Number: MS00483

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00483

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.7	>100	<1.0	N/A

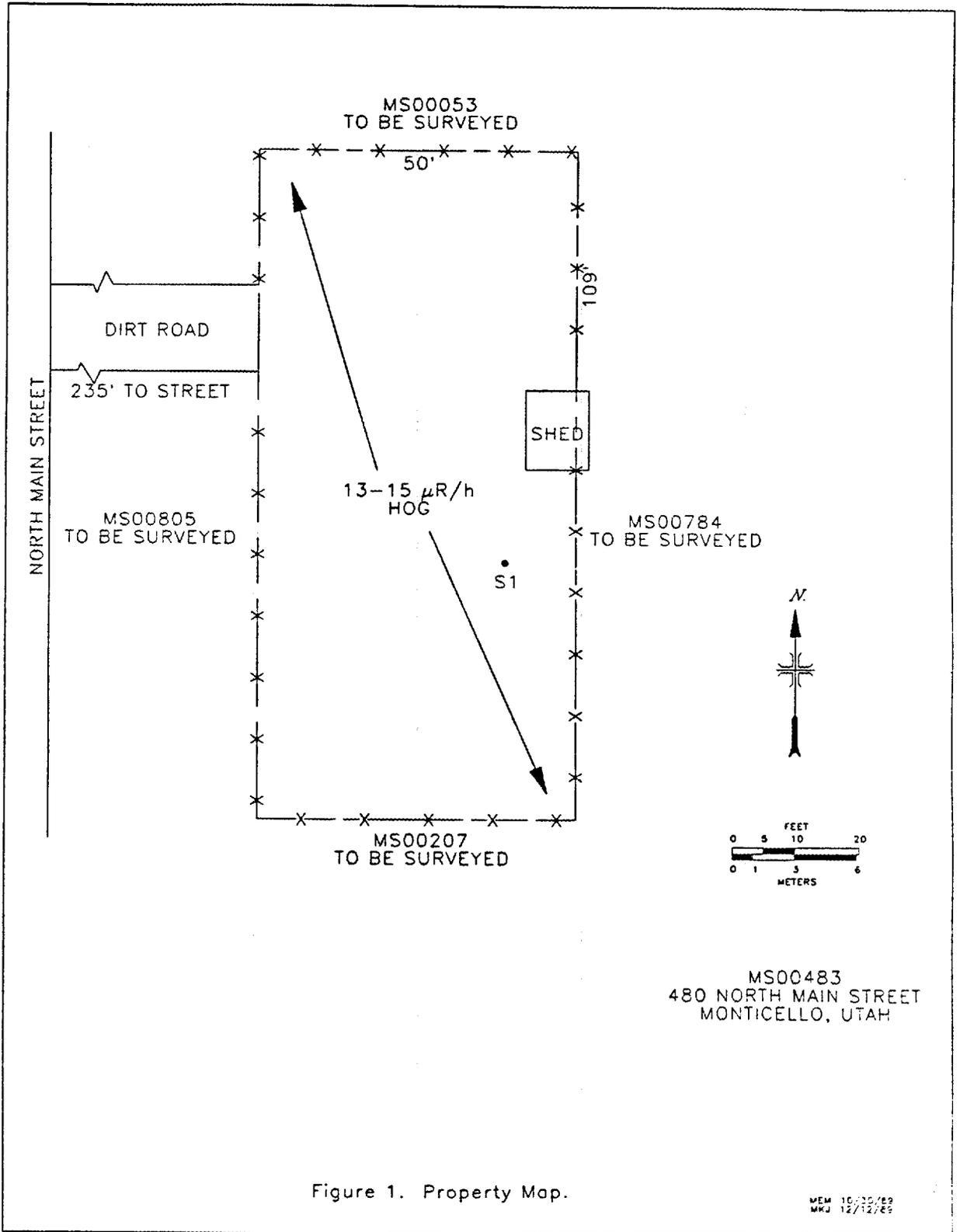


Figure 1. Property Map.

MEM 10/30/89
MKJ 12/12/89

Location Number MS00484

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00484
17 BLUE MOUNTAIN DRIVE
MONTICELLO UT 84535

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under Contract No. DE-AC05-84OR21400

Location Number: MS00484

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 12-15 $\mu\text{R}/\text{h}$ indoors and 13-14 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00484

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m²

²²⁶Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m²

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00484

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	2,900 m ²
STRUCTURES ON PROPERTY:	1 Single story brick house, slab-on-grade 1 Metal shed, slab-on-grade

Location Number: MS00484

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R}/\text{h}$
BACKGROUND + 20%:	17 $\mu\text{R}/\text{h}$
BACKGROUND EXPOSURE RATE RANGE:	13-14 $\mu\text{R}/\text{h}$
HIGHEST OUTDOOR GAMMA (HOG):	14 $\mu\text{R}/\text{h}$
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R}/\text{h}$

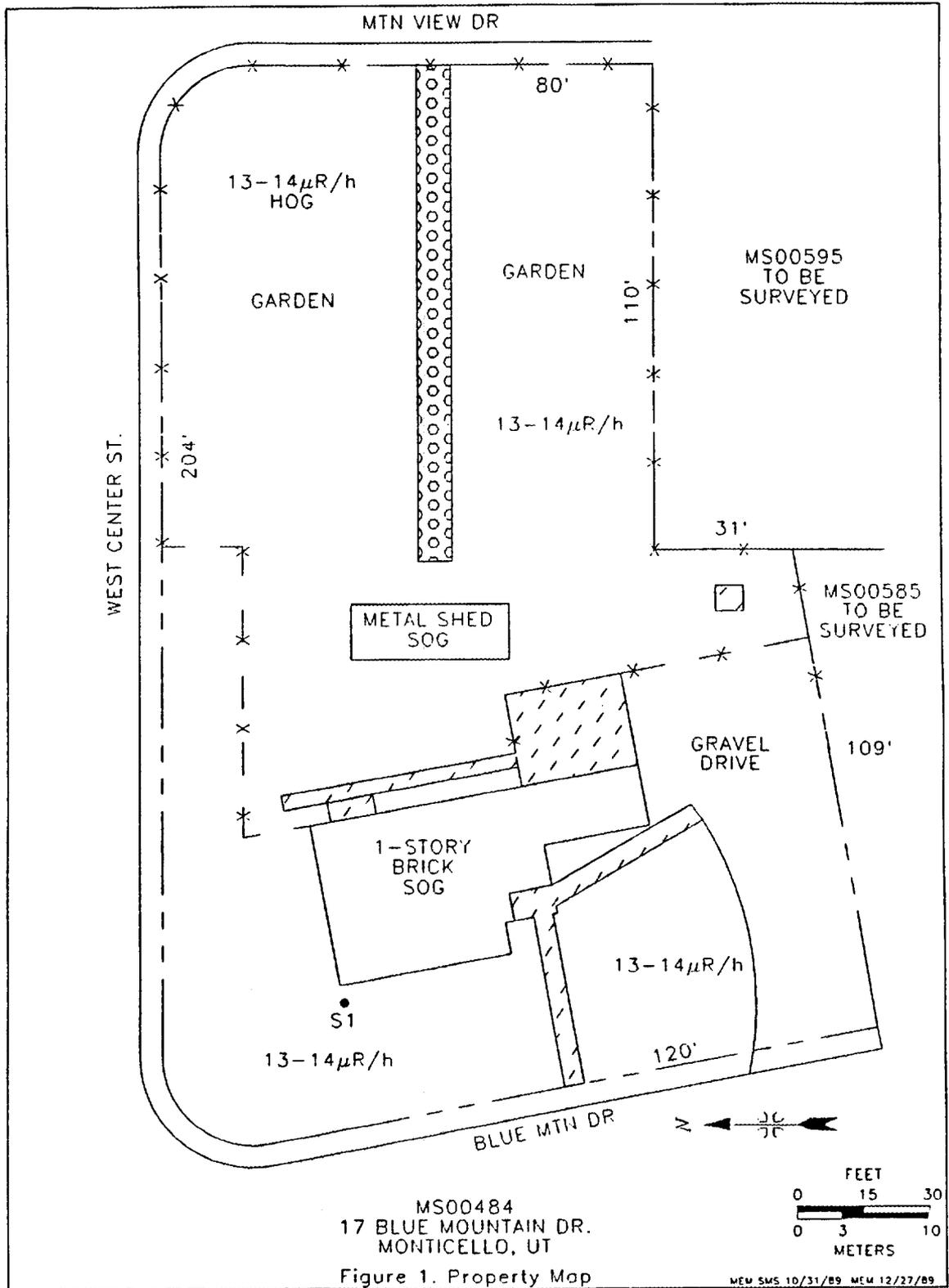
Location Number: MS00484

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.1	>100	<1	N/A



Location Number MS00485

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00485
333 WEST 2ND SOUTH STREET
MONTICELLO UT 84535

Investigation Team

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M. E. Mumby

February 1990

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MARTIN MARIETTA ENERGY SYSTEMS, INC.
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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00485

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-16 $\mu\text{R}/\text{h}$ indoors and outdoors. No regions of elevated gamma exposure rates were detected indoors.

One point source was located outdoors near the northwest corner of the property (Figure 1). Gamma exposure rates averaged 50 mR/h. The point source was determined to be a piece of extremely high grade uranium ore and was removed at the owner's request. No residual contamination above background levels remained after removal of the ore. No regions of elevated gamma exposure rates were detected outdoors.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00485

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m²

²²⁶Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m²

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00485

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	1,000 m ²
STRUCTURES ON PROPERTY:	1 Single story brick house with crawlspace

Location Number: MS00485

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG):	16 $\mu\text{R/h}$
LOCATION OF HOG:	General
POINT SOURCE *:	50 mR/h
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R/h}$

Location Number: MS00485

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.1	>100	<1	N/A
S2			1.2			

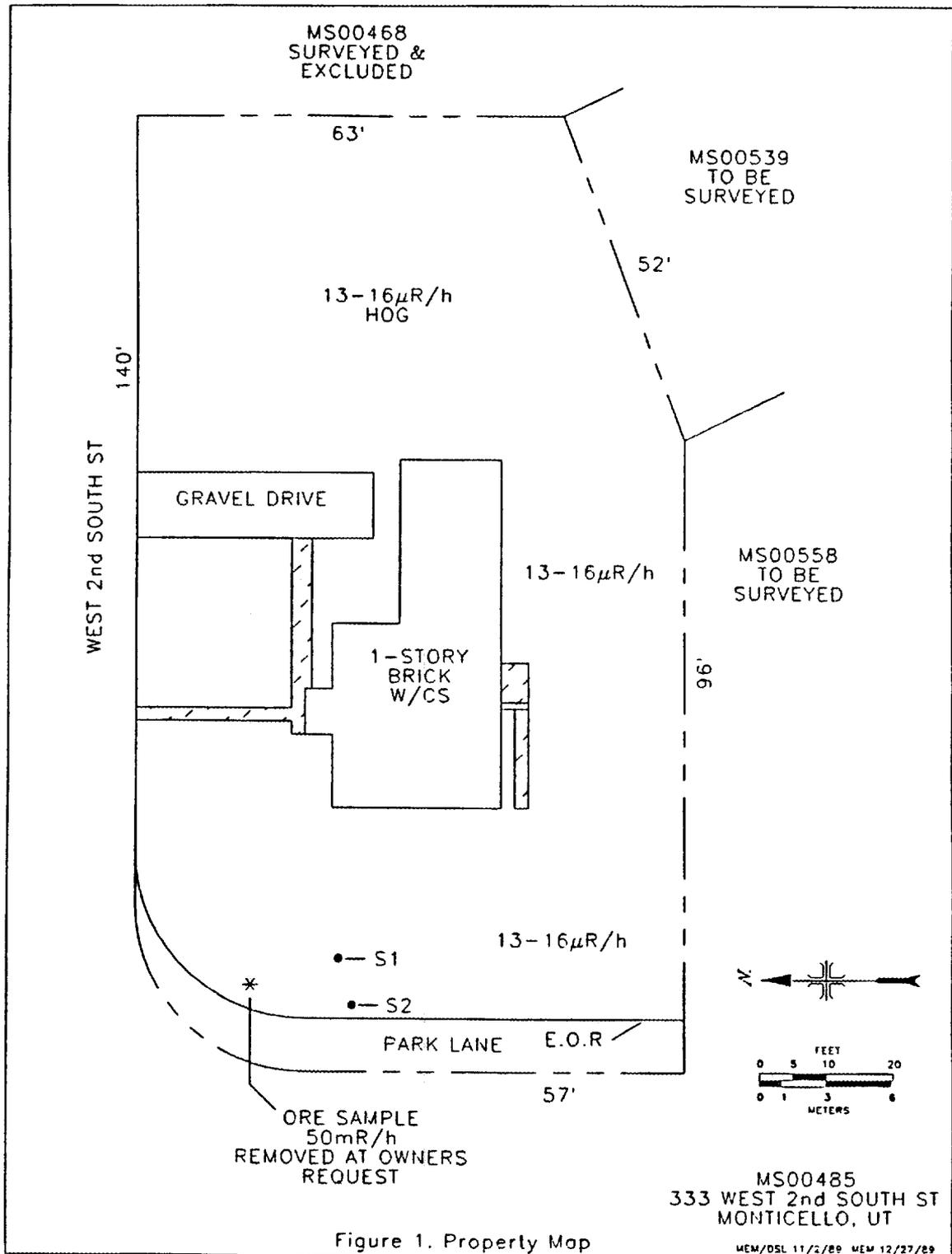


Figure 1. Property Map

Location Number MS00486

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00486
GOLF COURSE ROAD
MONTICELLO, UTAH 84535

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00486

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was performed at this property. Gamma exposure rates ranged from 15-16 $\mu\text{R/h}$. No readings above the background range were located on the property. This property consists of a vacant lot, therefore, no indoor measurements were taken.

Information regarding the status of adjacent properties is shown on Figure 1.

Location Number: MS00486

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00486

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	26,000 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00486

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	16 μ R/h
BACKGROUND + 20%:	19 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	15-16 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	16 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

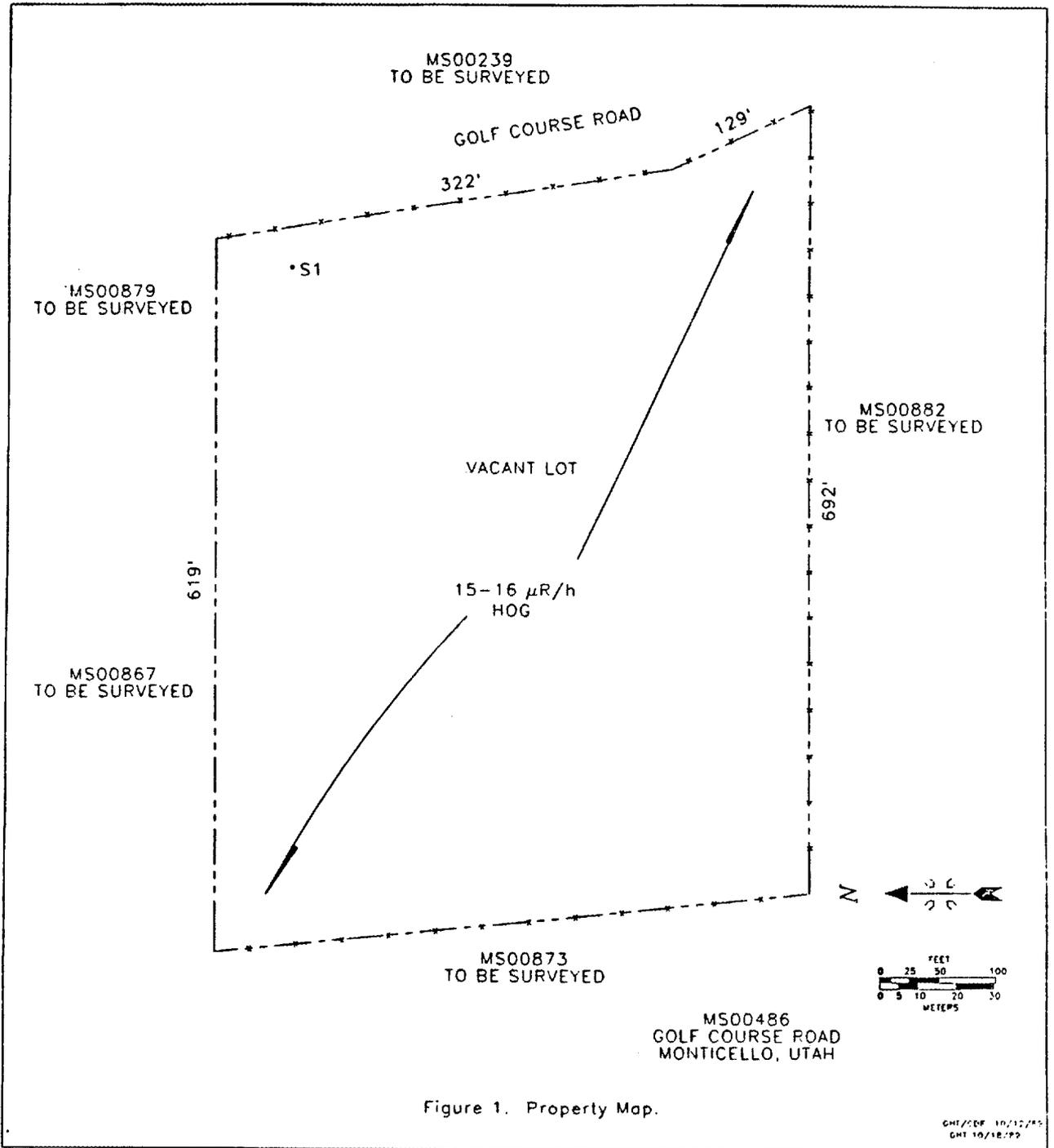
Location Number: MS00486

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.5	>100	<1	N/A



Location Number MS00487

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00487
A0012000037A HAYES COURT
MONTICELLO, UTAH 84535

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Location Number: MS00487

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was performed on this property. Background gamma exposure rates ranged from 13-14 $\mu\text{R}/\text{h}$ outdoors and 12-14 $\mu\text{R}/\text{h}$ indoors. No regions of contamination were located on this property.

A reading of 17 $\mu\text{R}/\text{h}$ was located east of the quonset hut. This reading was from an old tarp that the owner stated was from the mine.

Status of adjacent properties is shown on Figure 1.

Location Number: MS00487

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00487

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	810 m^2
STRUCTURES ON PROPERTY:	1 Quonset hut

Location Number: MS00487

Table 2. Radiological Screening Survey Results

<u>Outdoor Screening Data</u>	
BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-14 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	17 μ R/h
LOCATION OF HOG:	Old tarp east of the quonset hut
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00487

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.4	>100	<1.5	N/A

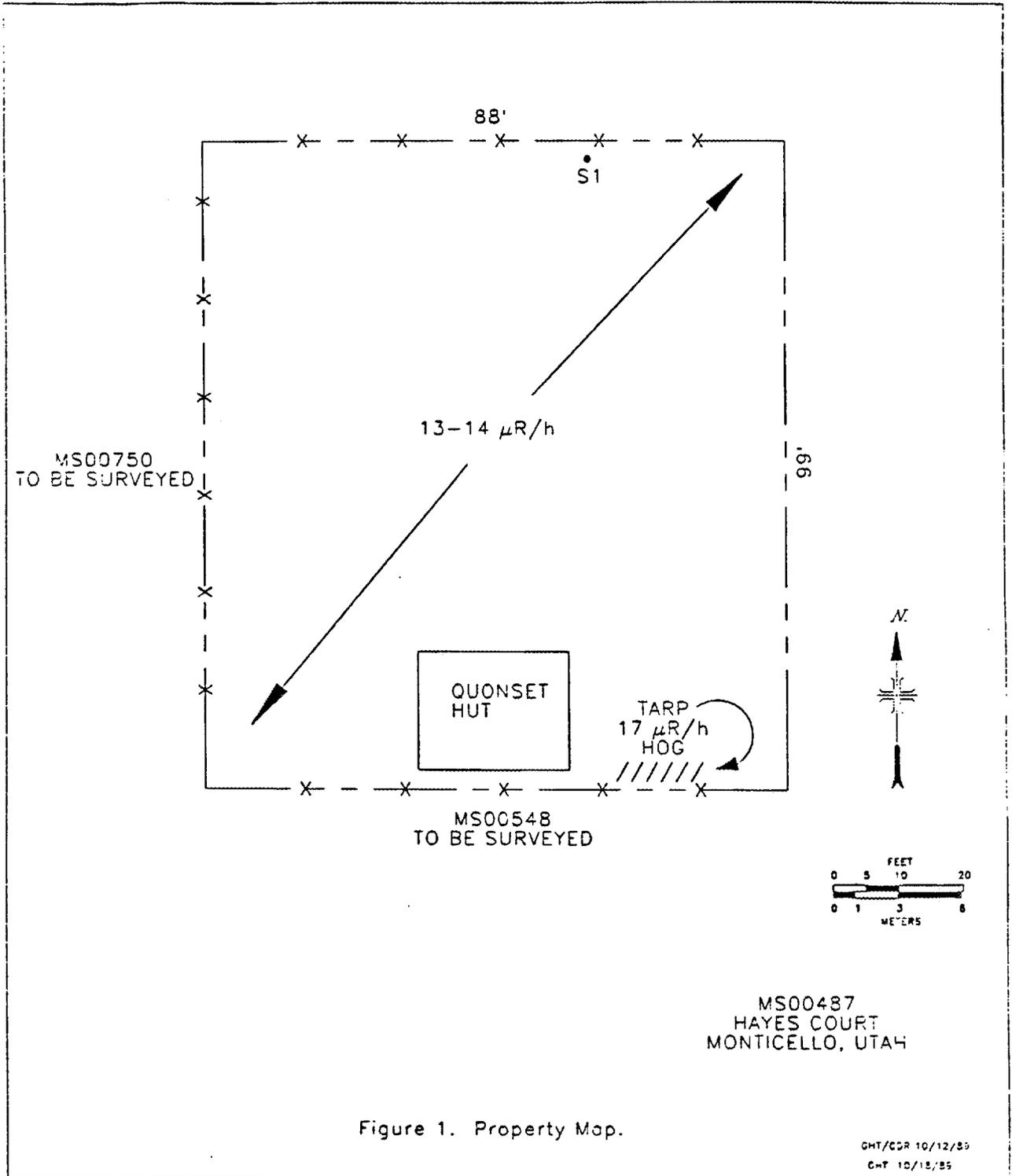


Figure 1. Property Map.

GHT/CDR 10/12/89
CMT 10/18/89

Location Number MS00488

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00488
SOUTH 200 WEST STREET
A000000Q004A
MONTICELLO, UTAH 84535

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under Contract No. DE-AC05-84OR21400

Location Number: MS00488

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. This property consists of a city street. Background gamma exposure rates ranged from 12-15 $\mu\text{R}/\text{h}$. No readings above the background range were located on the property.

Information concerning the status of the adjacent properties is shown on Figure 1.

Location Number: MS00488

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is <background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00488

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	City Street
TOTAL AREA OF PROPERTY:	1,200 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00488

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	12-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	East side of property
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00488

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.9	>100	<1	N/A

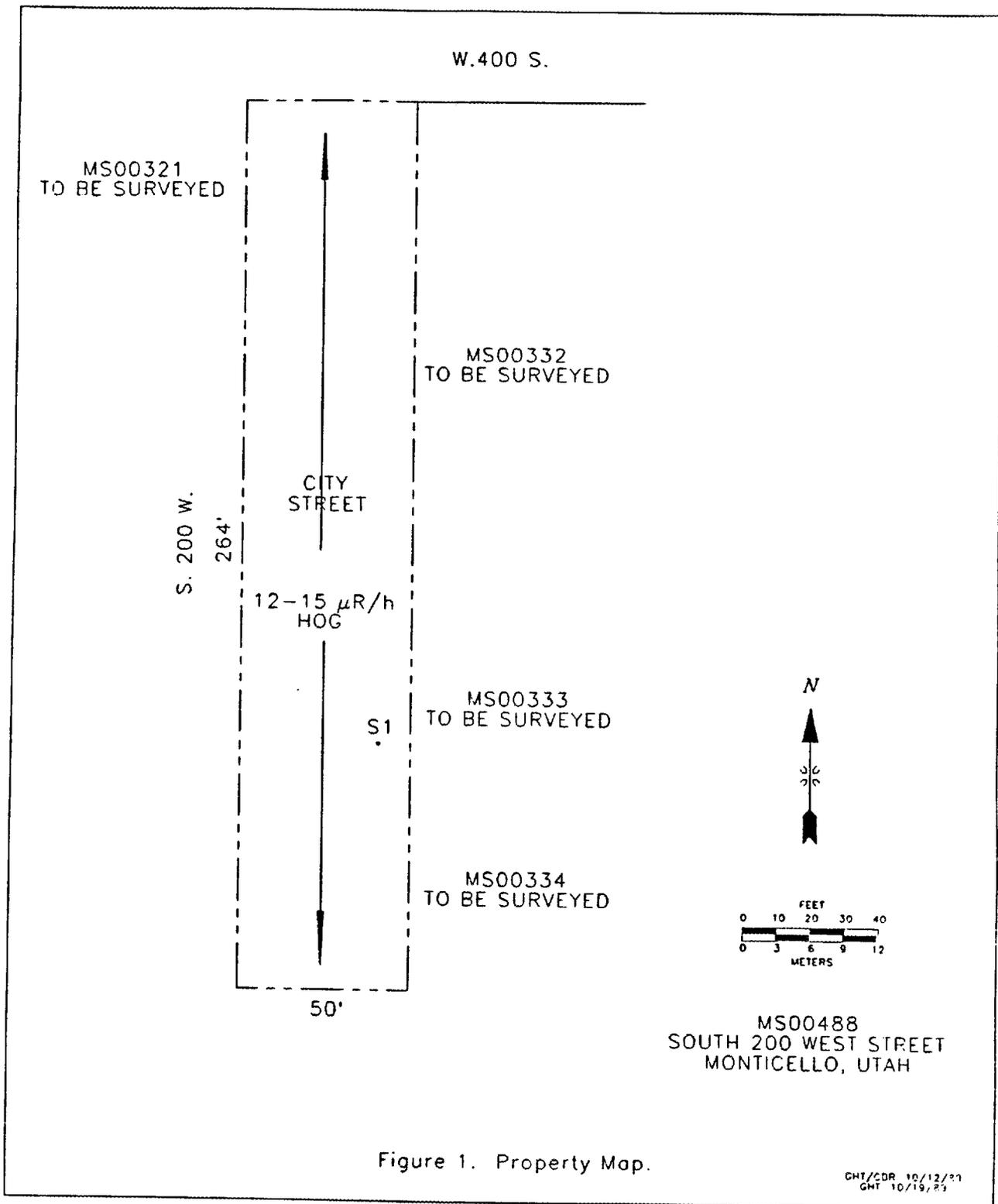


Figure 1. Property Map.

CHT/CDR 10/12/21
GHT 10/19/23

Location Number MS00489

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00489
217 LOWER URANIUM DRIVE
MONTICELLO UT 84535

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Location Number: MS00489

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-14 $\mu\text{R}/\text{h}$ indoors and 13-16 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates was found outdoors and labeled Region A (Figure 1). A soil sample taken from Region A yielded a net estimated area-weighted average ^{226}Ra concentration of 13 pCi/g (Table 3). This value exceeds the DOE criteria of 5 pCi/g for surface soils averaged over 100 m^2 .

Radionuclide analysis of soil sample S1 yielded ^{226}Ra concentration of 1300 pCi/g from Region A (Table 3). This value exceeds the DOE Hot Spot Guideline of 52 pCi/g for areas of 1 m^2 or less. A reading of 17 $\mu\text{R}/\text{h}$ was found at the point where the down spout empties onto the ground on the south side of the house.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00489

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

^{226}Ra is >5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00489

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Single family residence
TOTAL AREA OF PROPERTY:	650 m^2
STRUCTURES ON PROPERTY:	1 Single story house with crawlspace

Location Number: MS00489

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 150 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	150 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	17 $\mu\text{R/h}$
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 1 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: 1.4 $\mu\text{R/h}$

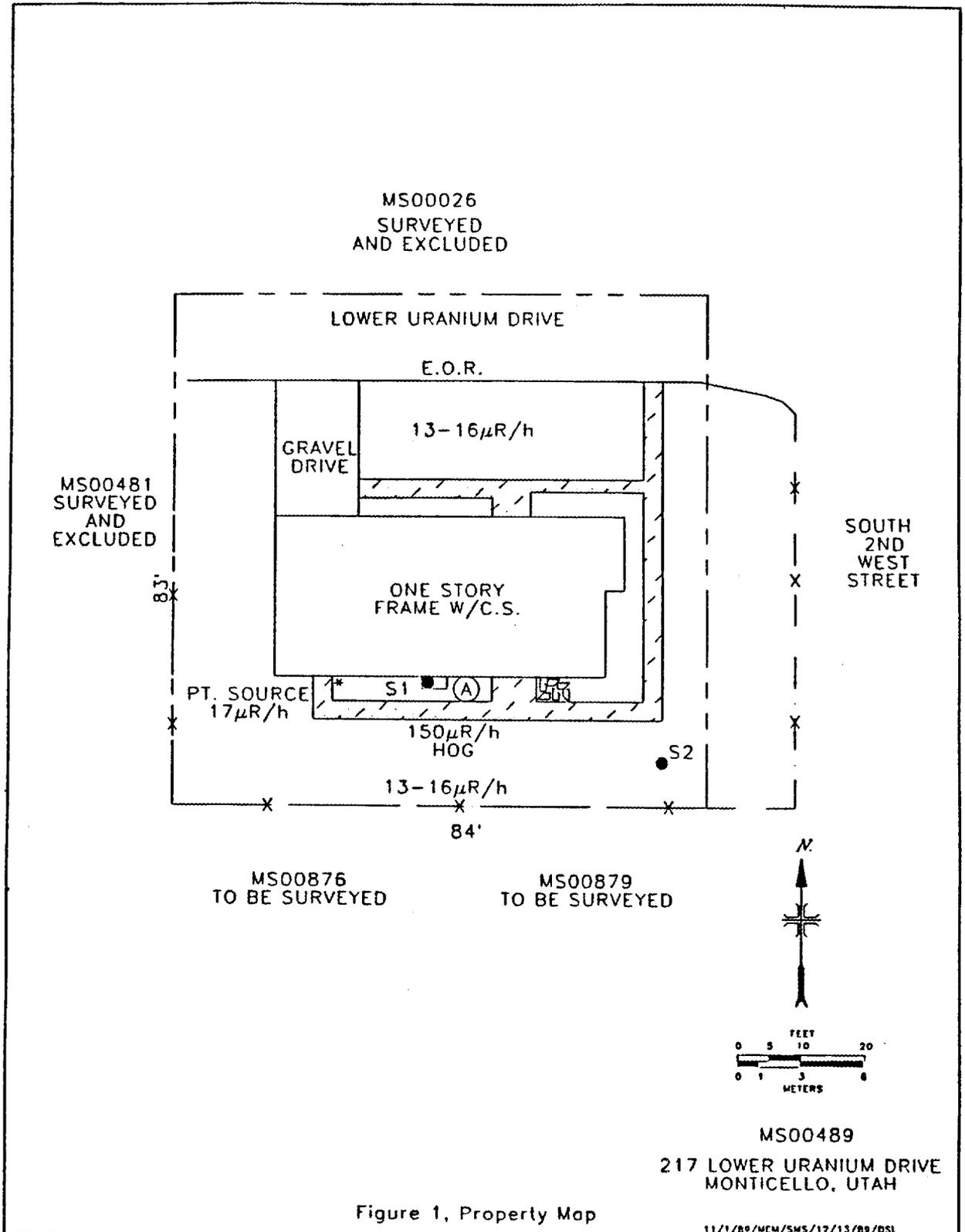
Location Number: MS00489

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	1320	1	13.0	52
S2	BKGD	0-15	2.2	>100	<1.0	N/A



Location Number MS00490

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00490
96 SOUTH 1ST WEST STREET
MONTICELLO, UTAH 84535

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under Contract No. DE-AC05-84OR21400

Location Number: MS00490

SIGNIFICANCE OF FINDINGS

A complete gamma radiation screening was done on this property. The general background exposure rates ranged from 12-16 $\mu\text{R}/\text{h}$ indoors and 14-17 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates was detected indoors and labeled Region 1 (Figure 1b). No regions of elevated gamma exposure rates were detected outdoors (Figure 1a).

Region 1 consists of a brick wood stove base with a brick wood holder. The mortar appears to have had tailings used in it. The net estimated area-weighted average gamma exposure rate for Region 1 does not exceed 20% of background.

Information pertaining to surrounding properties is located on Figure 1a.

Location Number: MS00490

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00490

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	1300 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house with crawlspace 1 Shed, slab-on-grade 1 Shed, metal floor

Location Number: MS00490

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	16 μ R/h
BACKGROUND + 20%:	19 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	14-17 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	17 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

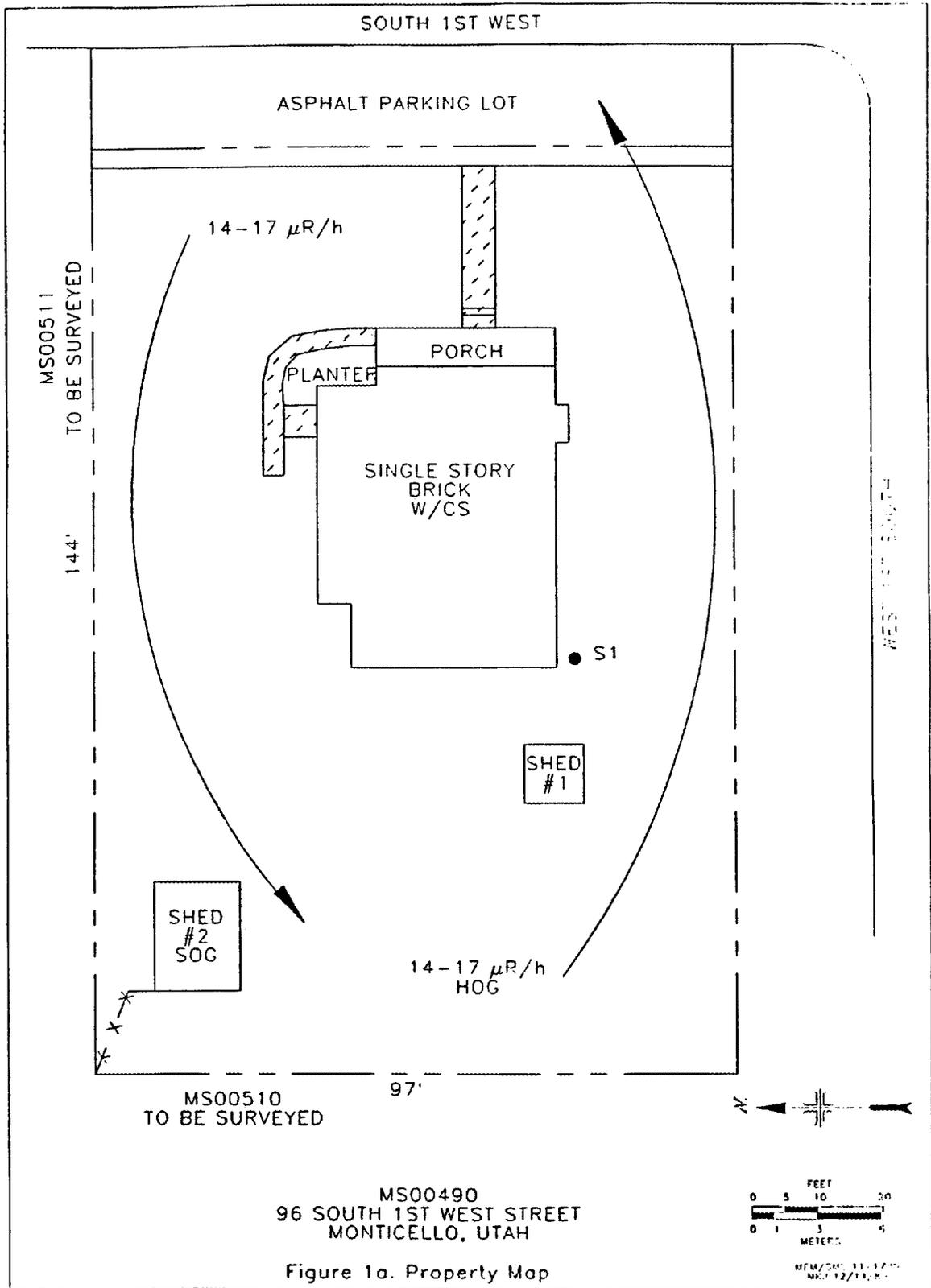
Location Number: MS00490

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.8	>100	<1	N/A



MS00490
96 SOUTH 1ST WEST STREET
MONTICELLO, UTAH

Figure 1a. Property Map

Location Number MS00491

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00491
248 MOUNTAIN VIEW DRIVE
MONTICELLO, UTAH 84535

Investigation Team

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M. K. Jensen

February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00491

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. Background gamma exposure rates ranged from 12-14 $\mu\text{R/h}$ outdoors and 12-13 $\mu\text{R/h}$ indoors. All gamma readings on this property fell within the background range.

Status of adjacent properties are shown on Figure 1.

Location Number: MS00491

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00491

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	900 m^2
STRUCTURES ON PROPERTY:	1 Single story rock and frame house with partial basement 1 Metal shed, slab-on-grade

Location Number: MS00491

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	13 μ R/h
BACKGROUND + 20%:	16 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	12-14 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	14 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00491

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.3	100	<1	N/A

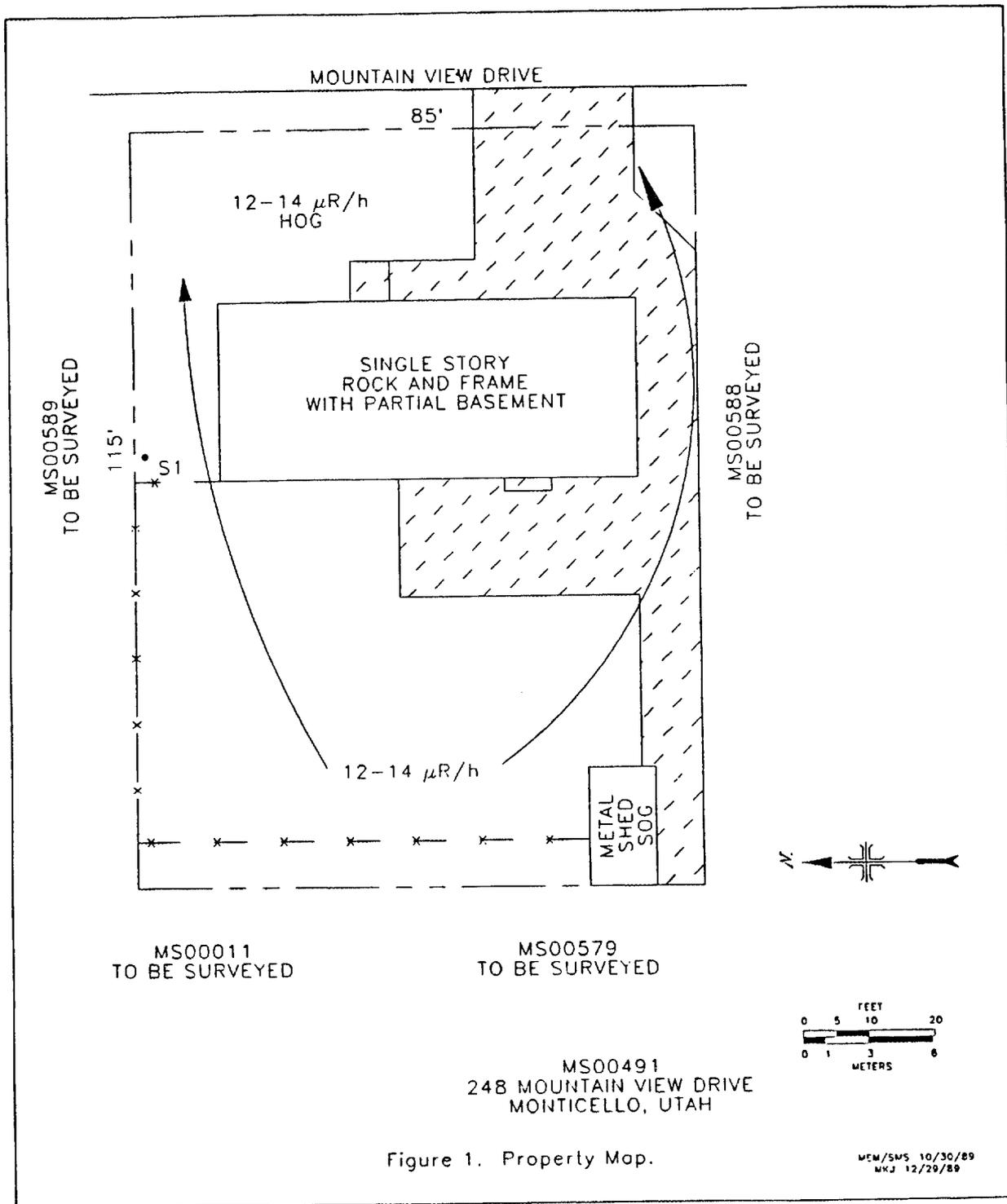


Figure 1. Property Map.

Location Number MS00492

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00492
433 NORTH MAIN STREET
MONTICELLO UT 84535

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Location Number: MS00492

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 12-16 $\mu\text{R}/\text{h}$ indoors and 12-15 $\mu\text{R}/\text{h}$ outdoors.

One region of elevated gamma exposure rates were found outdoors and labeled Region A (Figure 1). Radionuclide analysis of soil samples from Region A did not exceed DOE guidelines.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00492

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

^{226}Ra is < 15 pCi/g above background in subsurface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00492

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Commercial retail store
TOTAL AREA OF PROPERTY:	5,800 m^2
STRUCTURES ON PROPERTY:	1 Single story block gas station, slab-on-grade

Location Number: MS00492

Table 2. Radiological Screening Survey Results

<u>Outdoor Screening Data</u>	
BACKGROUND EXPOSURE RATE:	14 $\mu\text{R}/\text{h}$
BACKGROUND + 20%:	17 $\mu\text{R}/\text{h}$
BACKGROUND EXPOSURE RATE RANGE:	12-15 $\mu\text{R}/\text{h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-19 $\mu\text{R}/\text{h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	19 $\mu\text{R}/\text{h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 1 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R}/\text{h}$

Location Number: MS00492

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1A	A	0-15	2.0	1	<1	52
S1B	A	15-30	31	1	<1	152
S1C	A	30-45	42	1	<1	152
S2	BKGD	0-15	1.0	>100	<1	N/A

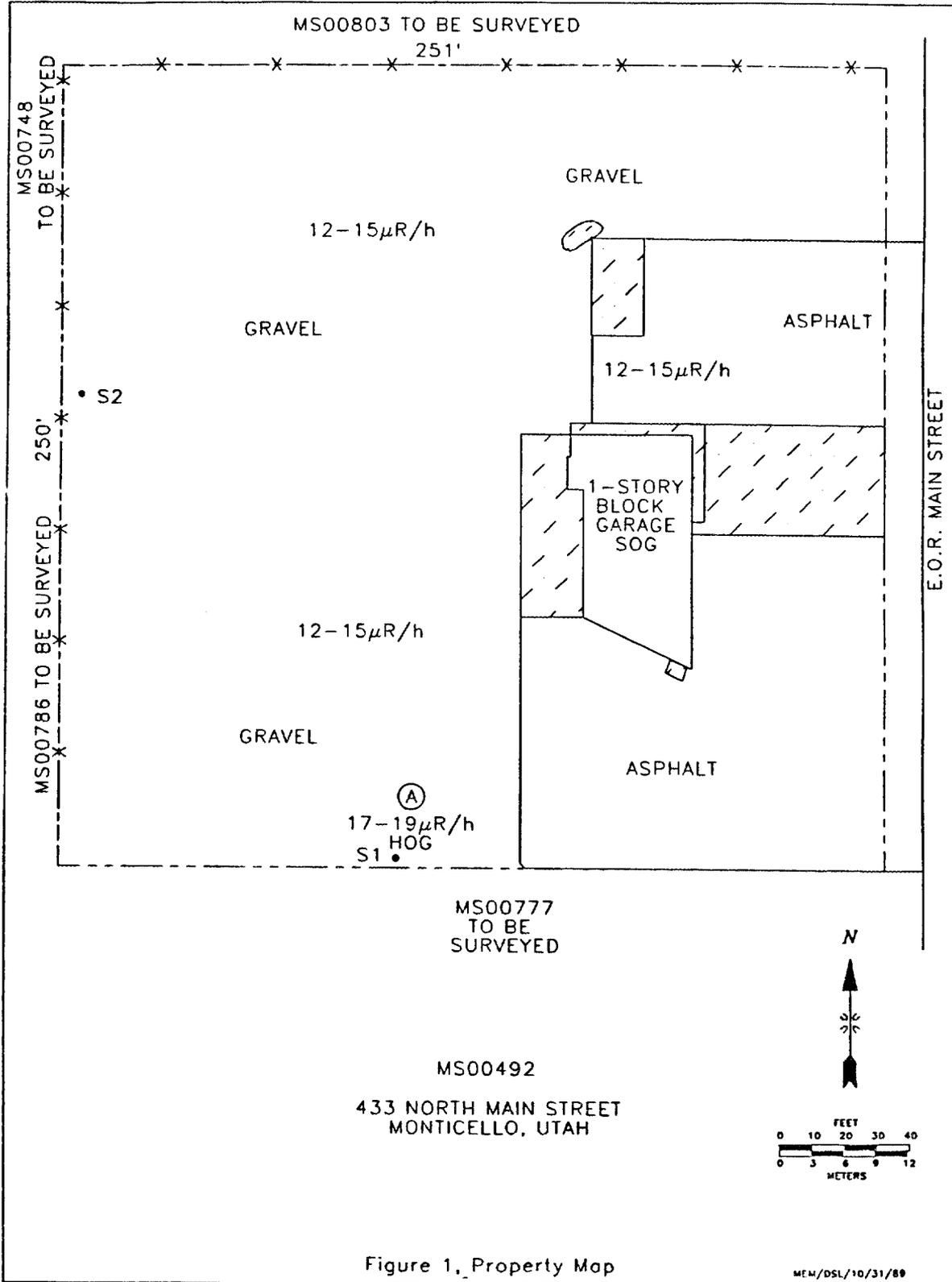


Figure 1, Property Map

Location Number MS00495

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00495
575 OAK CREST DRIVE
MONTICELLO, UTAH 84535

Investigation Team

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M. K. Jensen

February 1990

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Grand Junction, Colorado 81502
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00495

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors and 13-14 $\mu\text{R}/\text{h}$ indoors. All gamma readings on this property fell within the background range.

Status of adjacent properties are shown on Figure 1.

Location Number: MS00495

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00495

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	1,300 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house with basement
	Location Number: MS00495

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG):	15 $\mu\text{R/h}$
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R/h}$

Location Number: MS00495

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.4	100	<1	N/A

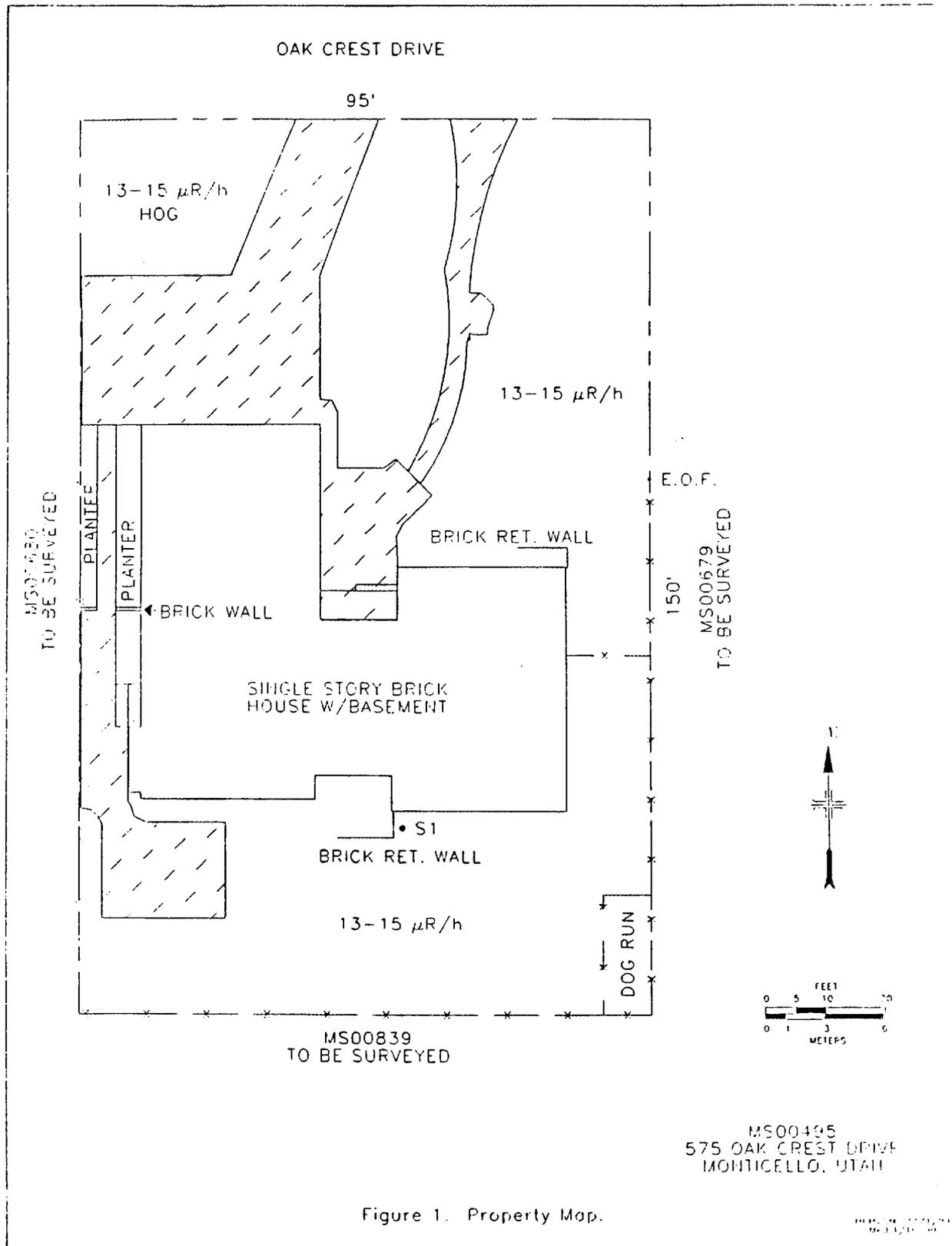


Figure 1. Property Map.

Location Number MS00496/MS00778

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00496/MS00778
332 URANIUM DRIVE
MONTICELLO, UTAH 84535

Investigation Team

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March 1990

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00496/MS00778

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. Background gamma exposure rates ranged from 13-16 $\mu\text{R/h}$ outdoors and 12-14 $\mu\text{R/h}$ indoors. All gamma readings on this property fell within the background range.

One point source was located in the front yard and removed, leaving a gamma exposure rate of 19 $\mu\text{R/h}$.

Status of adjacent properties is shown on Figure 1.

Location Number: MS00496/MS00778

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00496/MS00778

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	7,700 m^2
STRUCTURES ON PROPERTY:	1 Single story concrete block house, slab-on-grade 1 Wood shed, slab-on-grade

Location Number: MS00496/MS00778

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-16 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	16 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	19 μ R/h after removal
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00496/MS00778

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
MS00496						
S1	Bkgd	0-15	1.4	100	<1	N/A
MS00778						
S1	Bkgd	0-15	1.6	100	<1	N/A

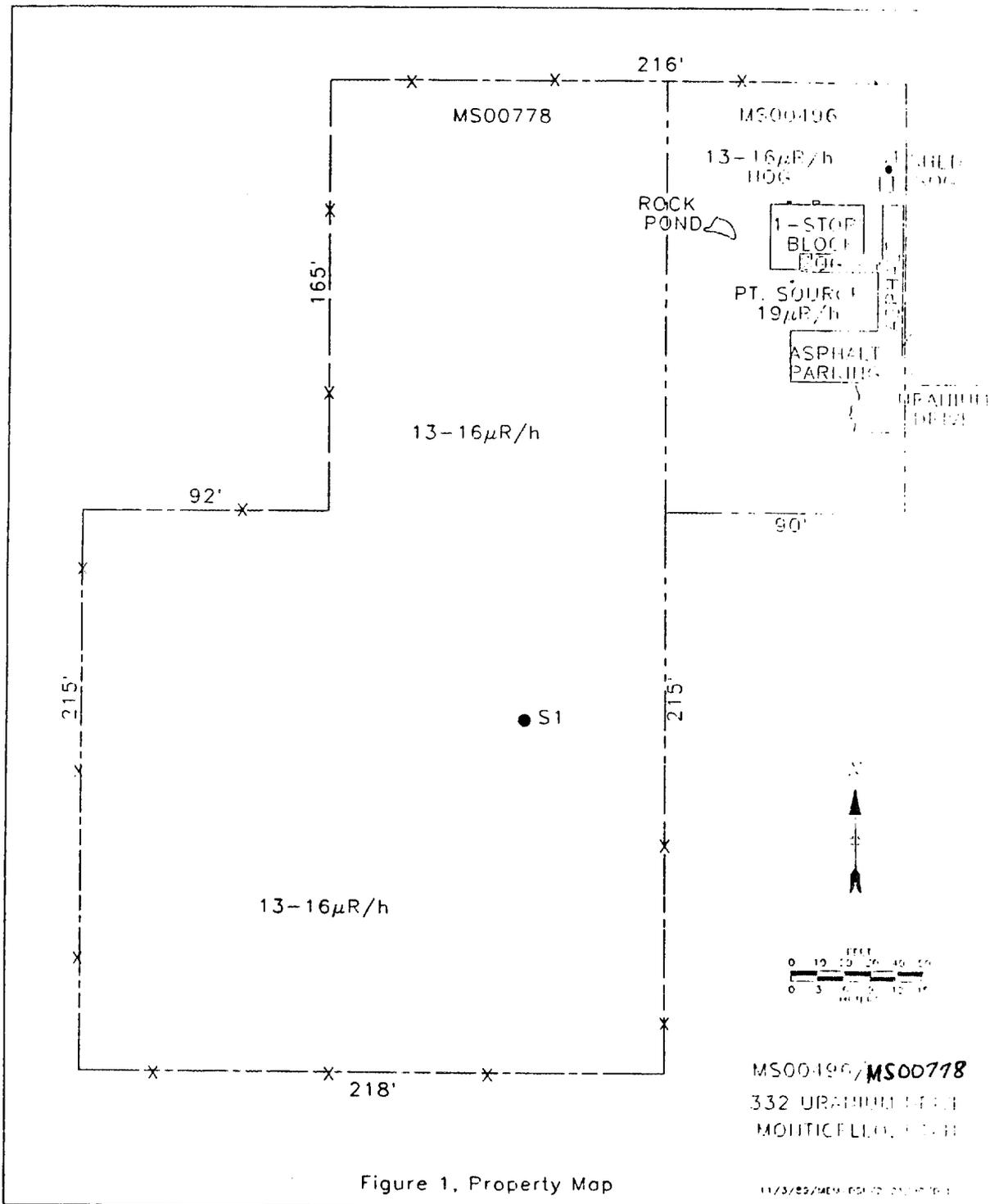


Figure 1, Property Map

MS00196/MS00778
332 URANIUM MINE
MONTICELLO, TN

11/3/85/MEH

Location Number MS00498

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00498
181 WEST 5TH SOUTH
MONTICELLO, UTAH 84535

Investigation Team

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00498

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was performed on this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors and 12-14 $\mu\text{R}/\text{h}$ indoors. No readings above the background range were located indoors.

Outdoors, one region of contamination was located (Region A, Figure 1). Soil samples taken from Region A yielded a net estimated area-weighted average ^{226}Ra concentration of <1 pCi/g averaged over 100 m^2 .

One point source was located in the front yard and removed, leaving a gamma exposure rate of 19 $\mu\text{R}/\text{h}$.

Information regarding adjacent properties is provided in Figure 1.

Location Number: MS00498

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is $<$ background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is $<$ the acceptable difference or 20% above background in all rooms

Location Number: MS00498

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	460 m^2
STRUCTURES ON PROPERTY:	1 Single story frame house, slab-on-grade 1 Shed

Location Number: MS00498

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 17-29 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	29 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: 4.6 m^2
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R/h}$

Location Number: MS00498

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	A	0-15	17	4.6	<1	N/A
S2			14			
S3	Bkgd	0-15	2.1	>100	<1	N/A

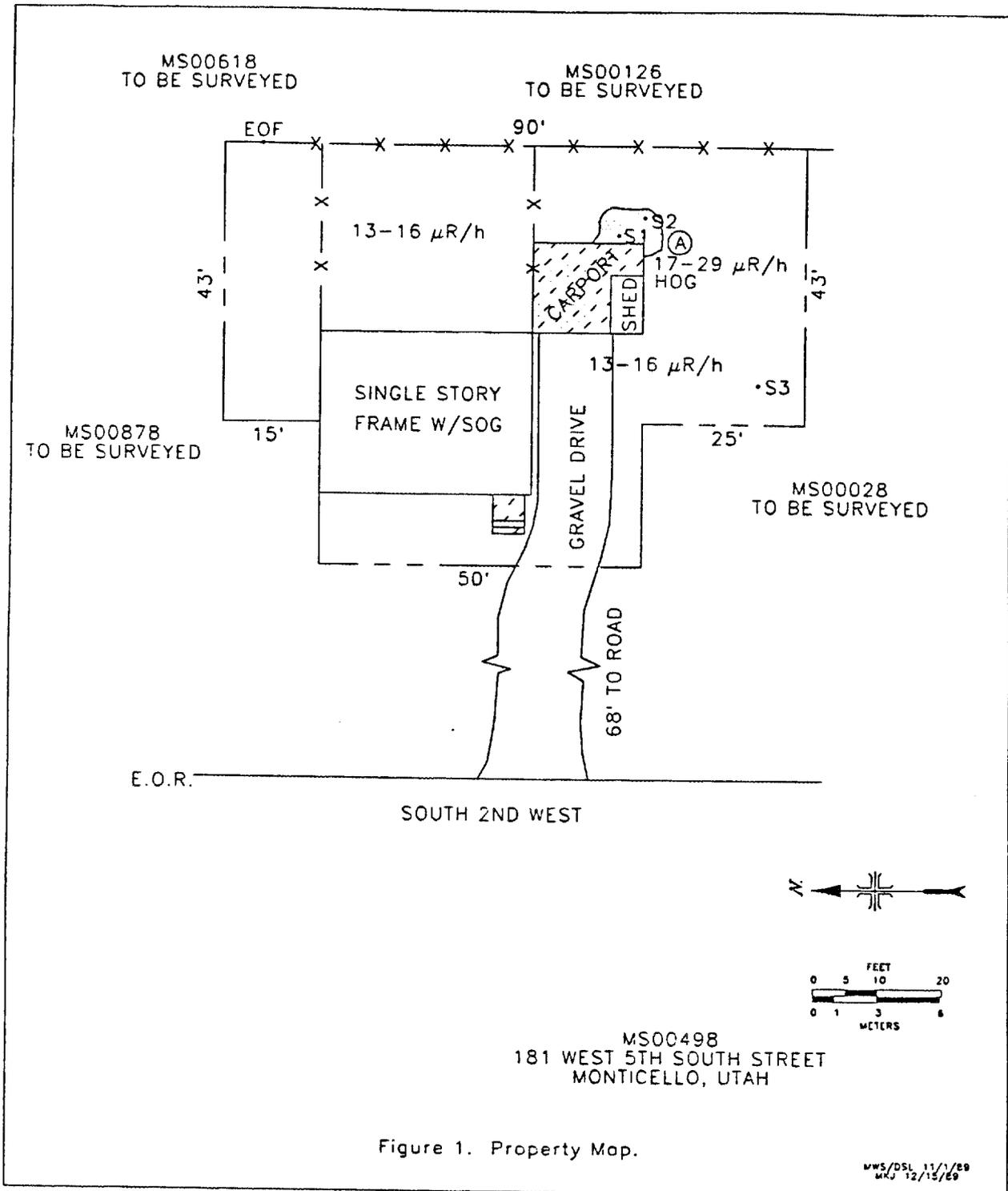


Figure 1. Property Map.

Location Number MS00500

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00500
580 OAK CREST DRIVE
MONTICELLO, UTAH 84535

Investigation Team

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under Contract No. DE-AC05-84OR21400

Location Number: MS00500

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors and 12-14 $\mu\text{R}/\text{h}$ indoors. All gamma readings on this property fell within the background range.

Status of adjacent properties are shown on Figure 1.

Location Number: MS00500

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m²

²²⁶Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m²

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00500

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	3,100 m ²
STRUCTURES ON PROPERTY:	1 Single story brick house with walk out basement

Location Number: MS00500

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG):	15 $\mu\text{R/h}$
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R/h}$

Location Number: MS00500

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.2	100	<1	N/A

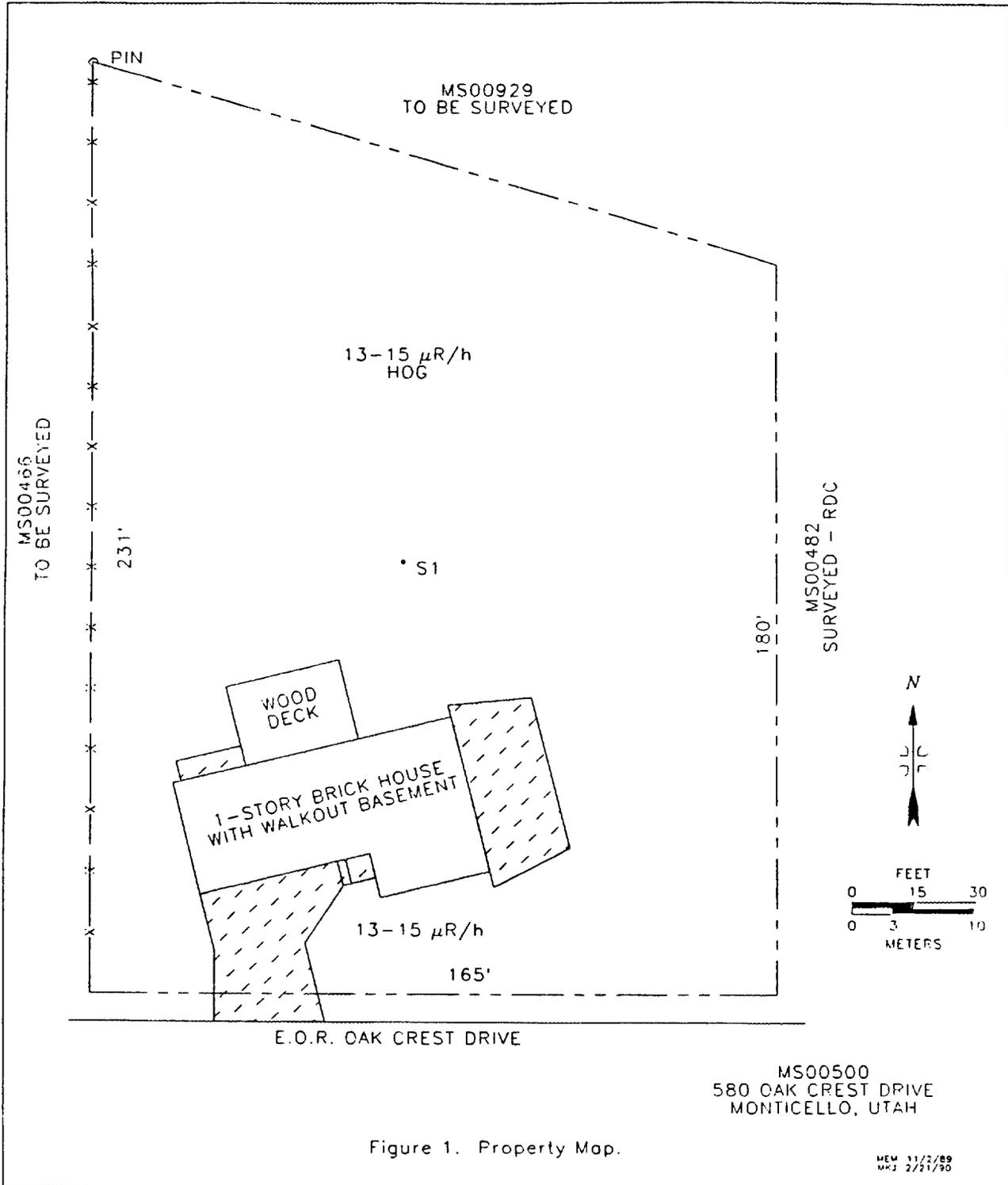


Figure 1. Property Map.

HEW 11/2/89
MJJ 2/21/90

Location Number MS00501

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00501
249 MOUNTAIN VIEW DRIVE
MONTICELLO, UTAH 84535

Investigation Team

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March 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00501

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors and 12-14 $\mu\text{R}/\text{h}$ indoors. All gamma readings on this property fell within the background range.

Status of adjacent properties is shown on Figure 1.

Location Number: MS00501

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m²

²²⁶Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m²

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00501

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	1,600 m ²
STRUCTURES ON PROPERTY:	1 Single story brick house with basement 1 Shed

Location Number: MS00501

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00501

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	1.3	100	<1	N/A

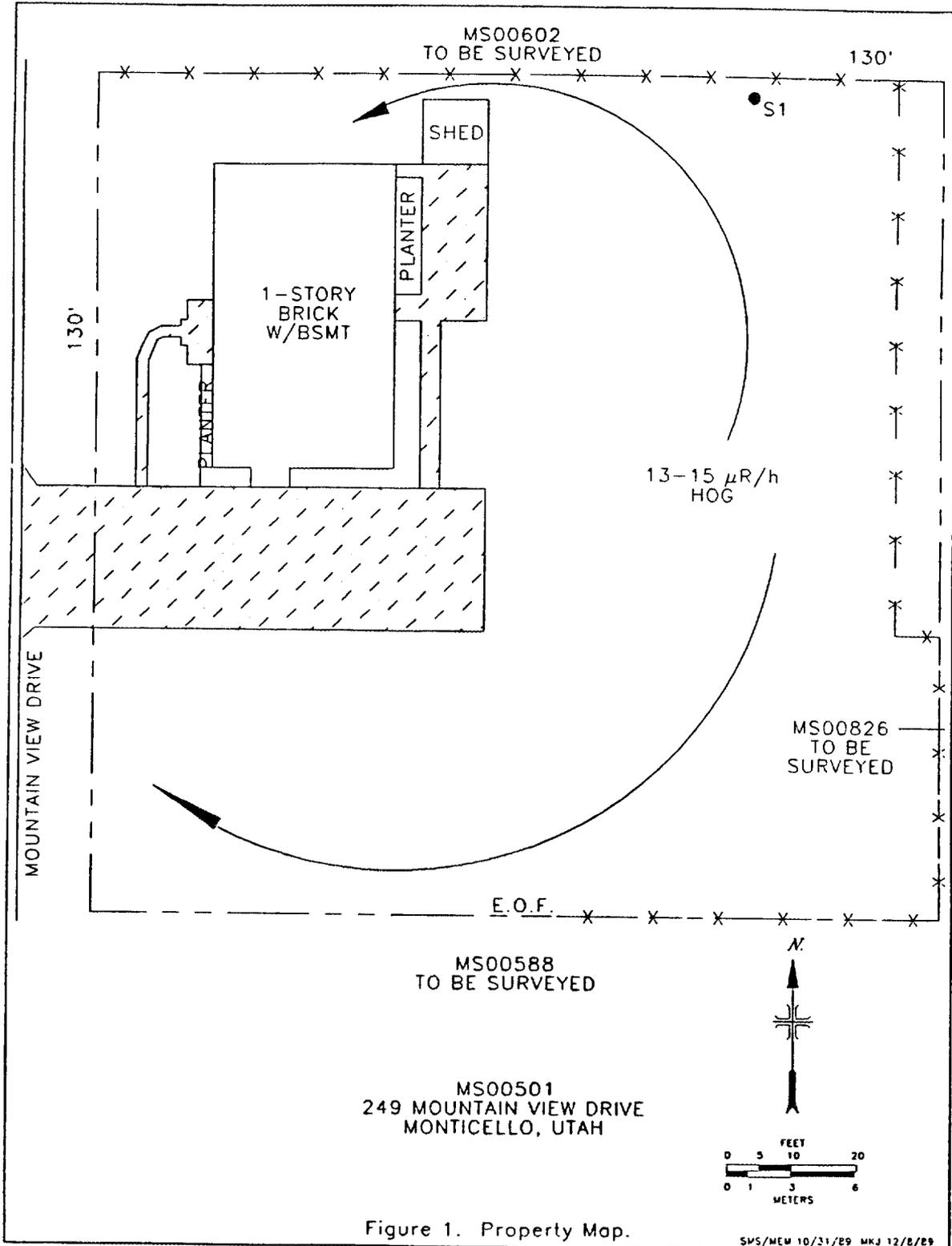


Figure 1. Property Map.

Location Number MS00502

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00502
480 OAK CREST DRIVE
MONTICELLO, UTAH 84535

Investigation Team

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00502

SIGNIFICANCE OF FINDINGS

A complete gamma screening survey was conducted at this property. Background gamma exposure rates ranged from 13-16 $\mu\text{R}/\text{h}$ outdoors and 12-17 $\mu\text{R}/\text{h}$ indoors. No regions of contamination were located. A reading of 20 $\mu\text{R}/\text{h}$ was located on contact with the brick. This was determined to be natural radiation inherent in brick material and not a direct result of mill tailings contamination.

The status of adjacent properties is shown on Figure 1.

Location Number: MS00502

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00502

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential, simple
TOTAL AREA OF PROPERTY:	1,700 m^2
STRUCTURES ON PROPERTY:	1 Single story brick house, slab-on-grade 1 Shed, slab-on-grade

Location Number: MS00502

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-16 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	20 μ R/h
LOCATION OF HOG:	On contact with brick
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00502

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.2	>100	<1.5	N/A

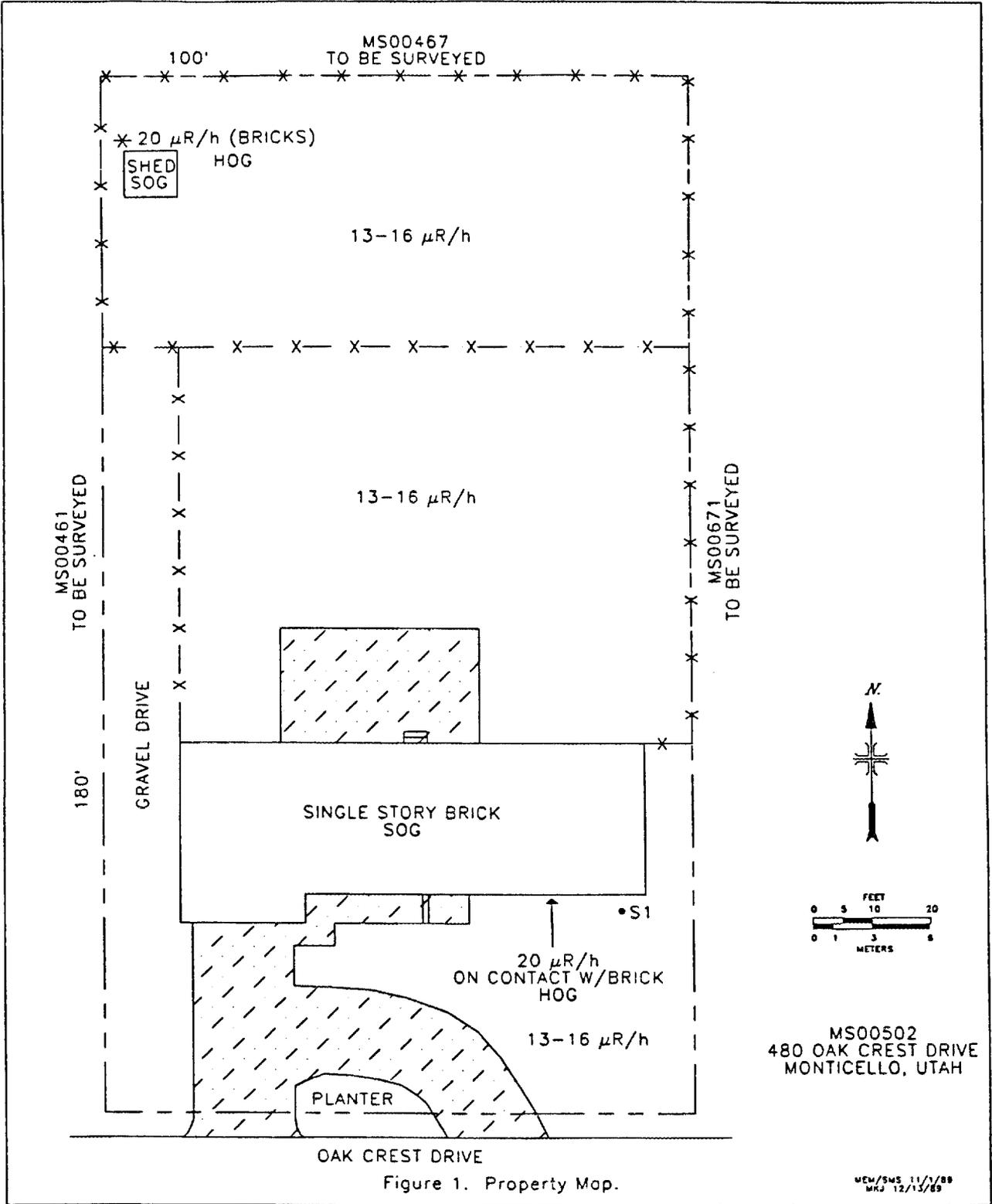


Figure 1. Property Map.

MS00502
480 OAK CREST DRIVE
MONTICELLO, UTAH
NEW/SMS 11/1/88
MKJ 12/13/89

Location Number MS00724

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00724
45 EAST 5TH NORTH STREET
MONTICELLO UT 84535

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February 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00724

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors and 12-15 $\mu\text{R}/\text{h}$ indoors. Indoors, one region of elevated gamma exposure rates was detected (see Figure 1b). Gamma exposure rates ranged from 19-25 $\mu\text{R}/\text{h}$. It was determined that the elevated readings were emanating from a brick stand used for support of a wood burning stove. Close examination of the stand revealed that the elevated readings were associated with the mortar used in its construction. The net estimated area-weighted average gamma exposure rate for Region 1 was $<1 \mu\text{R}/\text{h}$ which does not exceed 20% of background levels when averaged over 9.3 m^2 .

No regions of elevated gamma exposure rates were detected outdoors.

Information regarding adjacent properties is provided in Figure 1a.

Location Number: MS00724

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is $<$ background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is $<$ the acceptable difference or 20% above background in all rooms

Location Number: MS00724

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Residential simple
TOTAL AREA OF PROPERTY:	3,100 m^2
STRUCTURES ON PROPERTY:	1 Two story stucco house with partial crawlspace 1 Metal shed

Location Number: MS00724

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

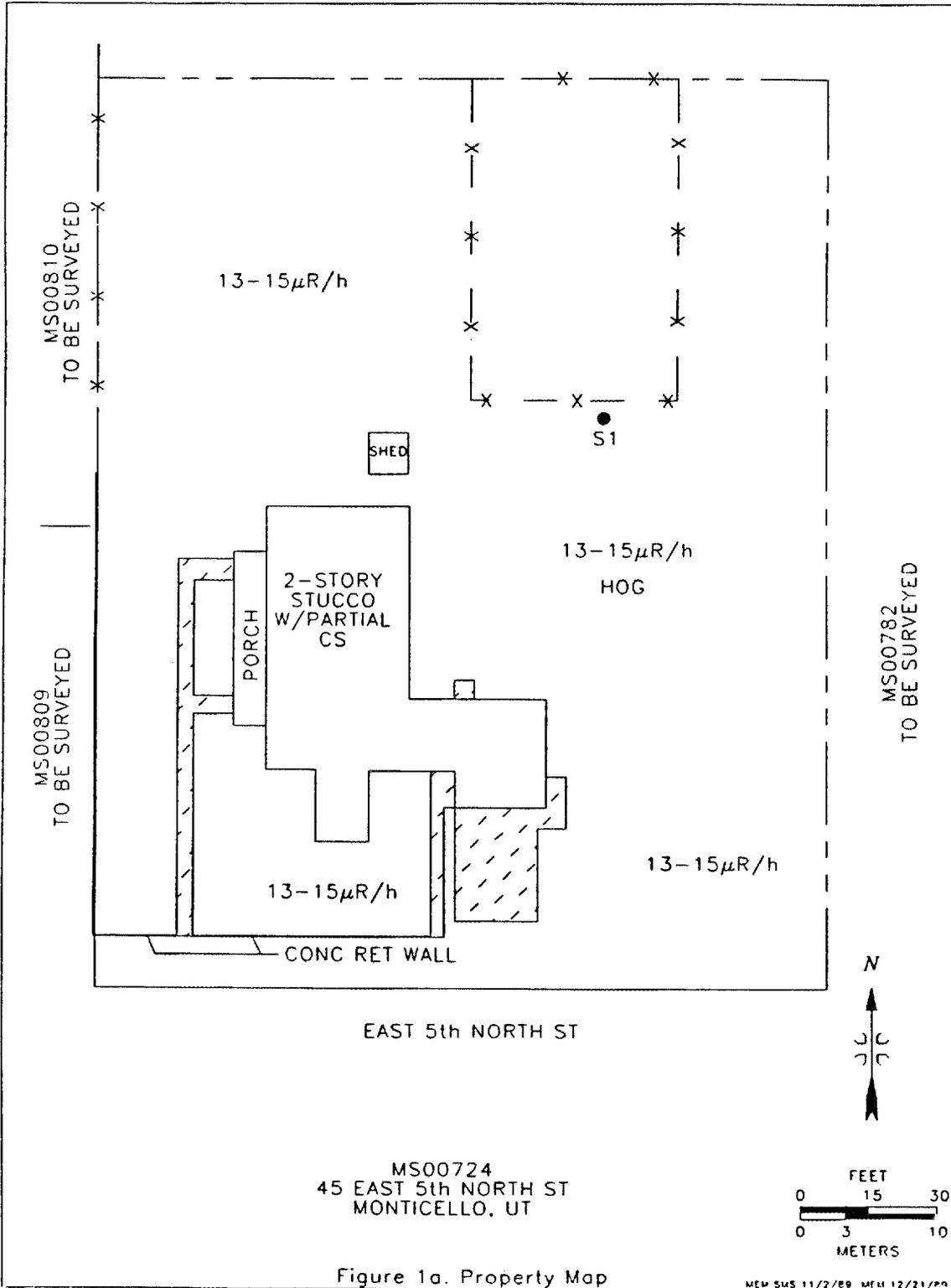
Location Number: MS00724

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.3	>100	<1	N/A



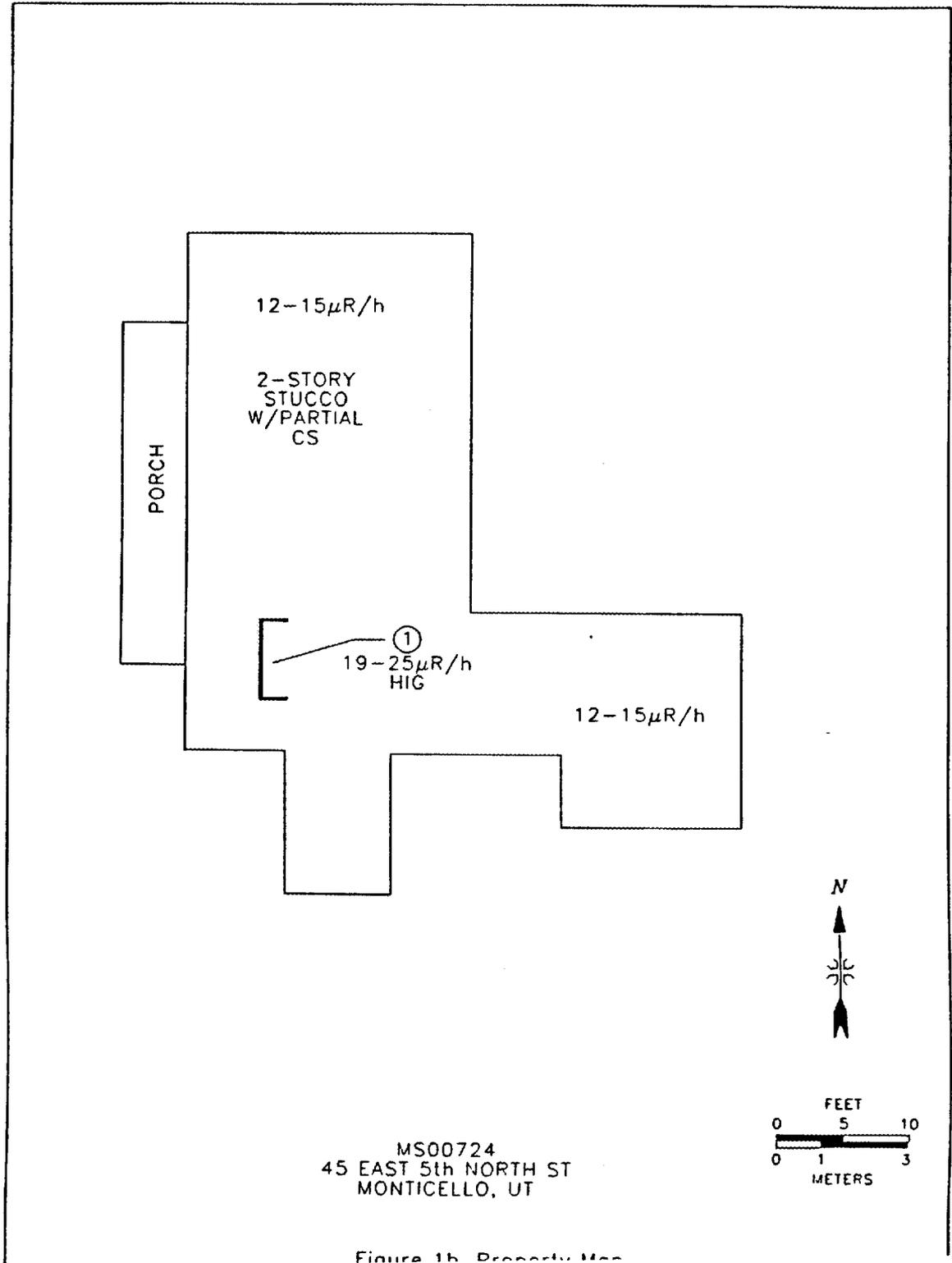


Figure 1b. Property Map

Location Number MS00728

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00728
A33230250609
NORTH MAIN STREET
MONTICELLO, UTAH 84535

Investigation Team

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March 1990

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under Contract No. DE-AC05-84OR21400

Location Number: MS00728

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-17 $\mu\text{R}/\text{h}$. No indoor scan was done since the property is a vacant lot.

No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is shown on Figure 1 (sheet 1 of 2 and sheet 2 of 2).

Location Number: MS00728

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is <background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00728

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	-12,000 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00728

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	15 μ R/h
BACKGROUND + 20%:	18 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-17 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	17 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00728

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	Bkgd	0-15	.75	>100	<1	N/A

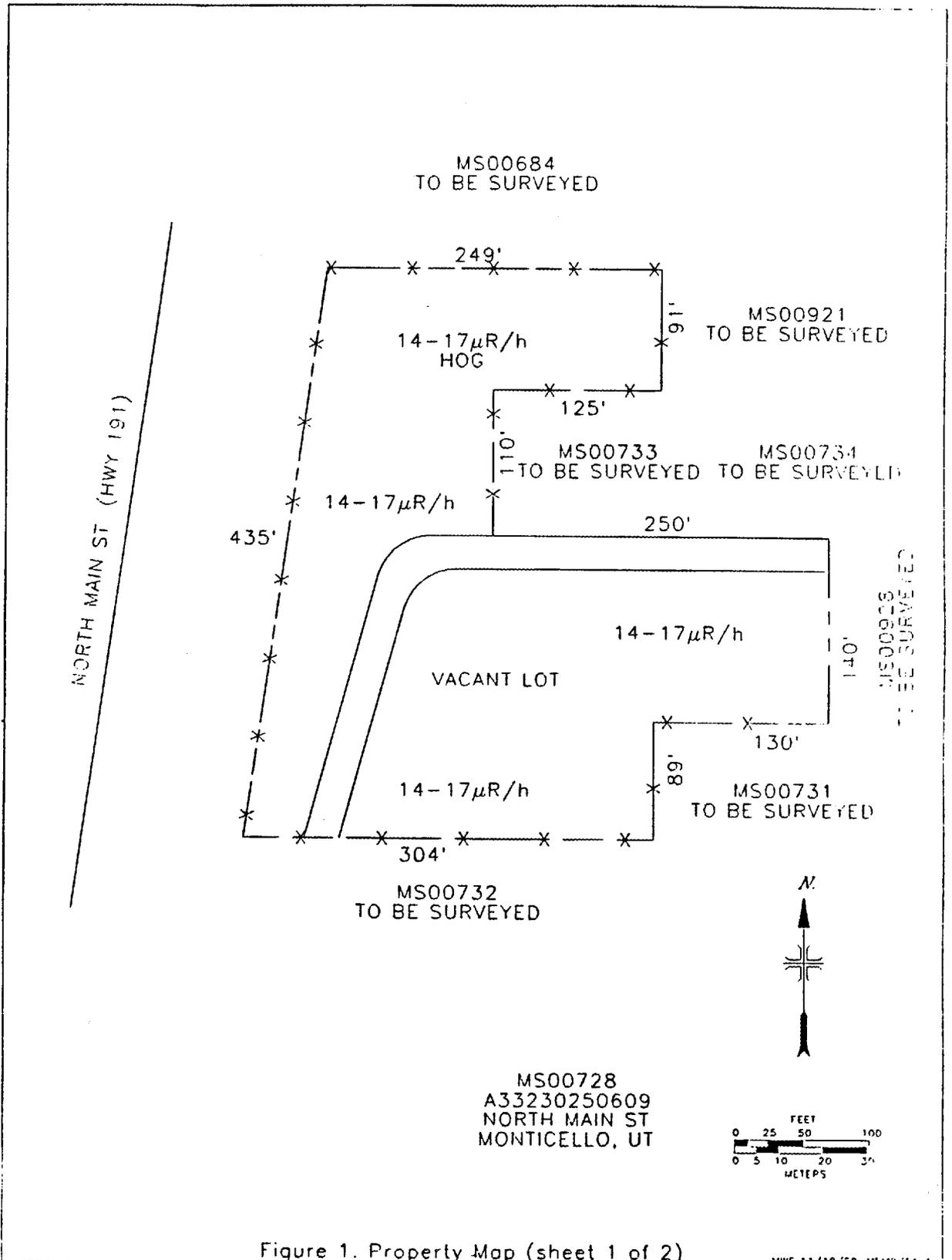


Figure 1. Property Map (sheet 1 of 2)

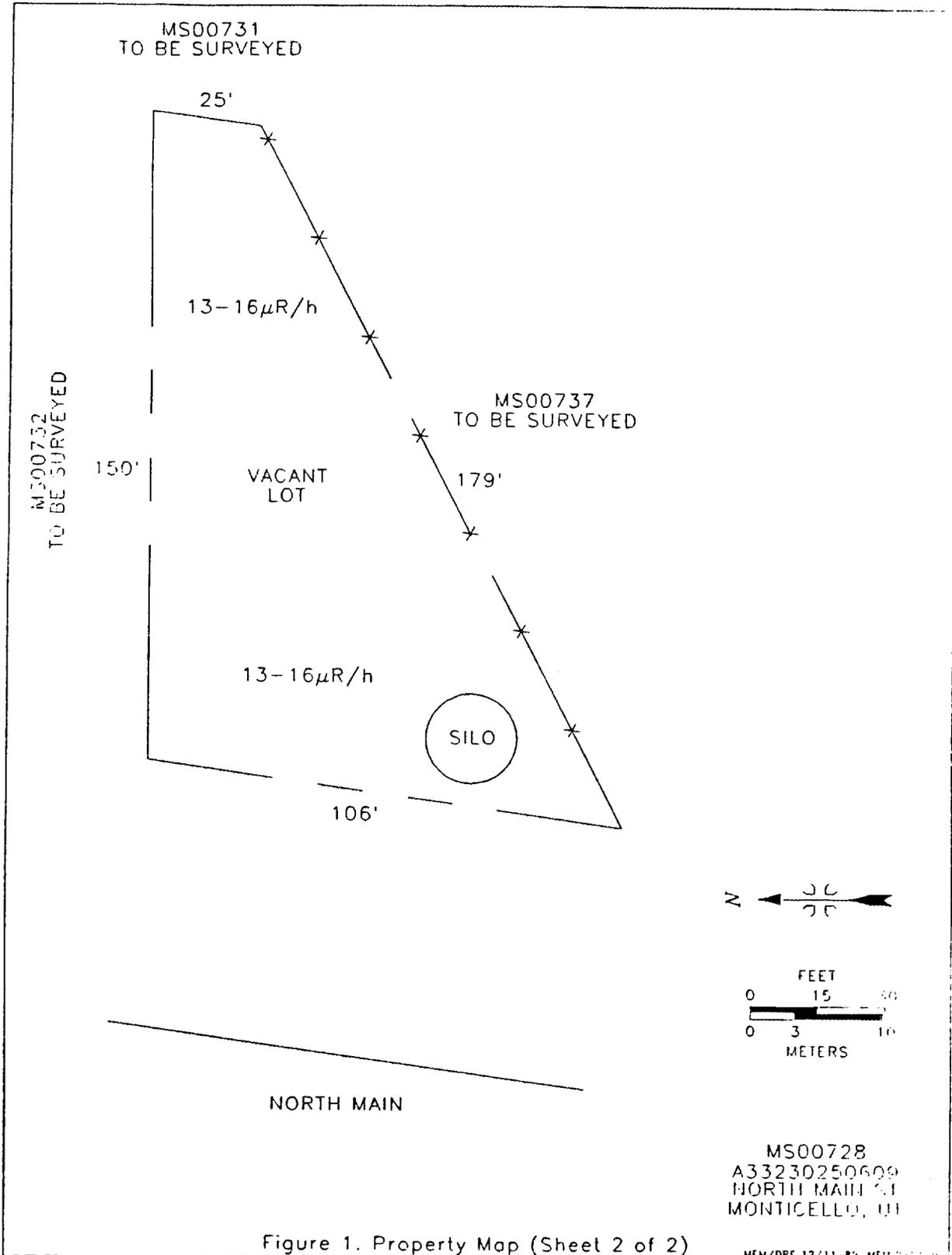


Figure 1. Property Map (Sheet 2 of 2)

Location Number MS00766

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00766
164 NORTH MAIN STREET
MONTICELLO UT 84535

Investigation Team

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D. S. List

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00766

SIGNIFICANCE OF FINDINGS

A complete gamma radiation scan was done on this property. The general background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors. There are no structures on this property.

No regions of elevated gamma exposure rates were detected anywhere on this property.

Information pertaining to surrounding properties is located on Figure 1.

Location Number: MS00766

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00766

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	1,100 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00766

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

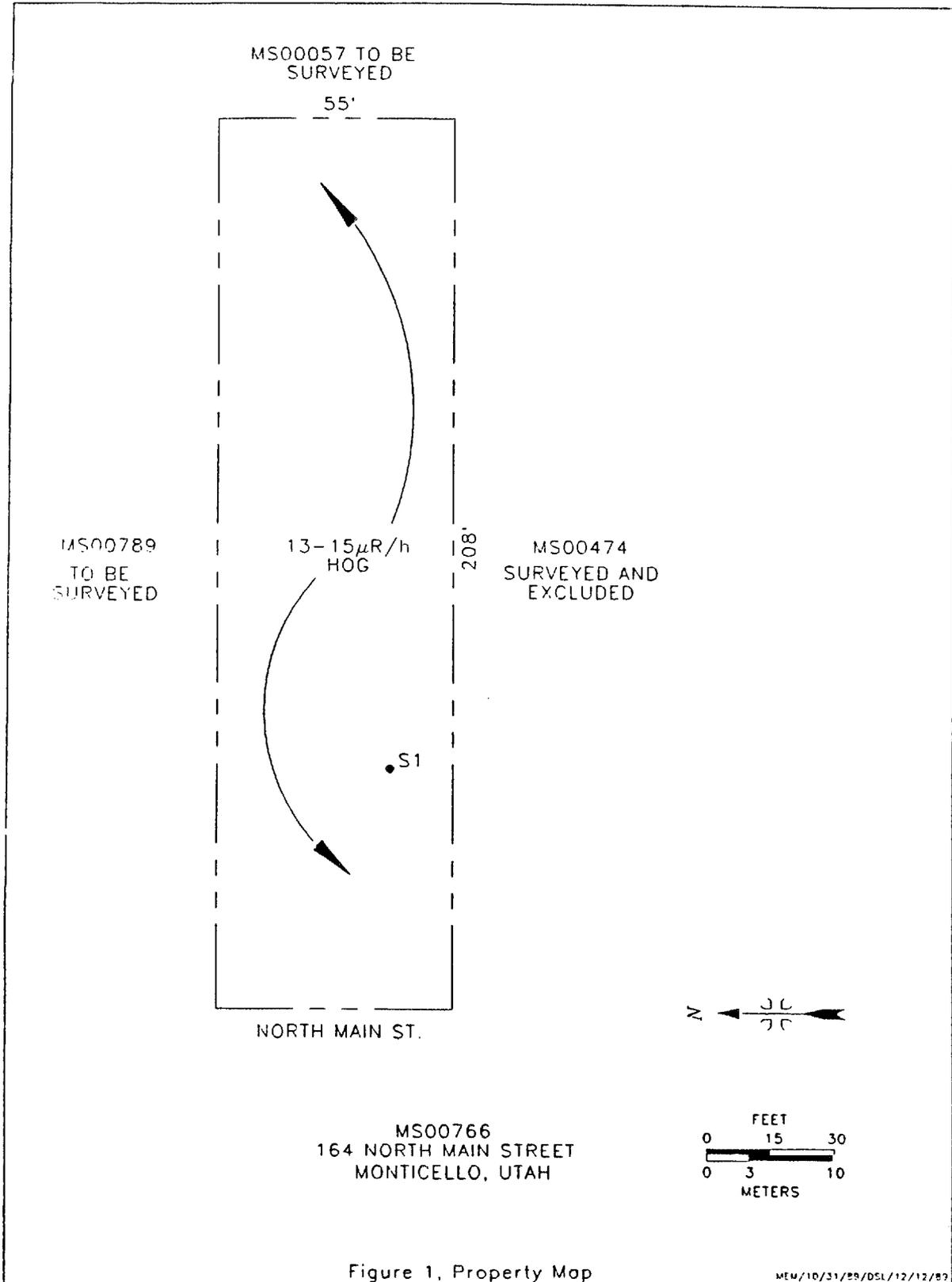
Location Number: MS00766

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.2	>100	<1	N/A



Location Number MS00767

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00767
148 NORTH MAIN STREET
MONTICELLO UT 84535

Investigation Team

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C. A. Little - Pollutant Assessment Group Leader
M. W. Smuin - IVC Coordinator

D. S. List

January 1990

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Grand Junction, Colorado 81502
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00767

SIGNIFICANCE OF FINDINGS

A complete gamma radiation screening was done on this property. The general background gamma exposure rate ranged from 13-15 $\mu\text{R}/\text{h}$ outdoors. There were no structures on this property, only an old foundation which was to be removed.

No regions of elevated gamma exposure rates were found anywhere on the property. One point source was located under the concrete in the old foundation (Figure 1). The point source was of undetermined origin.

The old foundation was removed within two weeks from the time of survey for the construction of a new motel.

Information pertaining to surrounding properties are located on Figure 1.

Location Number: MS00767

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is <background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00767

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant lot
TOTAL AREA OF PROPERTY:	1,400 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00767

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R}/\text{h}$
BACKGROUND + 20%:	16 $\mu\text{R}/\text{h}$
BACKGROUND EXPOSURE RATE RANGE:	13-15 $\mu\text{R}/\text{h}$
HIGHEST OUTDOOR GAMMA (HOG):	15 $\mu\text{R}/\text{h}$
LOCATION OF HOG:	General
POINT SOURCE *:	445 $\mu\text{R}/\text{h}$
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 $\mu\text{R}/\text{h}$

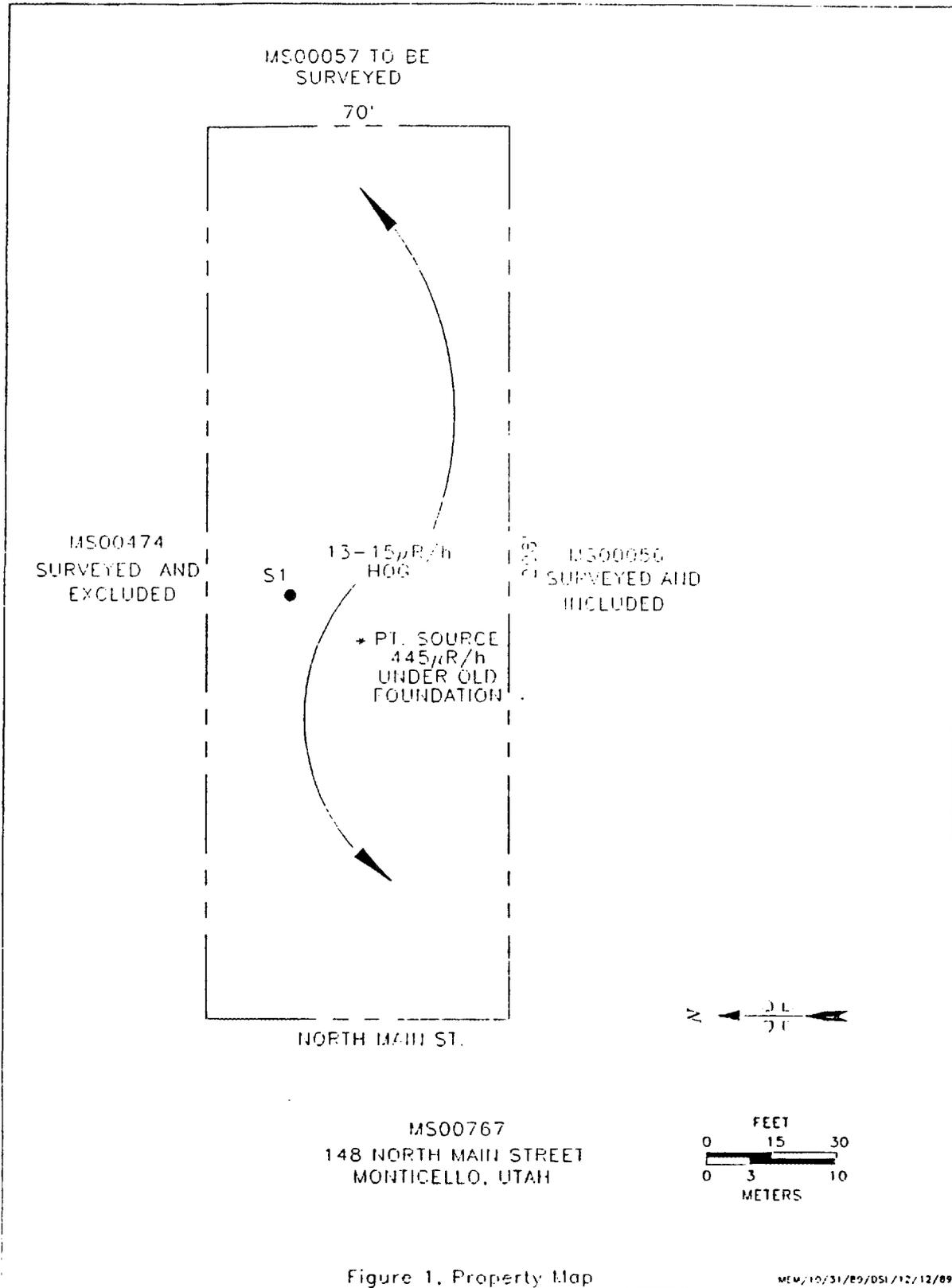
Location Number: MS00767

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	^{226}Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m^2	Net Estimated Area- Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	1.6	>100	<1	N/A



Location Number MS00768

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00768
PARCEL # A33230306605 (EAST HIGHWAY 666)
MONTICELLO UT 84535

Investigation Team

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M. E. Mumby

January 1990

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00768

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 12-13 $\mu\text{R}/\text{h}$ indoors and 13-16 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected indoors.

One region of elevated gamma exposure rates was detected outdoors which consisted of a steel pipe (Region A, Figure 1). Gamma exposure rates in Region A averaged 58 $\mu\text{R}/\text{h}$. Radionuclide analysis of soil sample S3 from inside the pipe yielded a ^{226}Ra concentration of 105 pCi/g (Table 3). This value exceeds the DOE Hot Spot guideline of 52 pCi/g for areas $<1 \text{ m}^2$. The owner of the property stated the pipe was not from the Monticello Mill Site.

One area of elevated gamma exposure rates was also detected outdoors. This area occurred in a pile of cinder blocks recently shipped to the location from Salt Lake City. Gamma exposure rates ranged from 19-25 $\mu\text{R}/\text{h}$. As a precaution a soil sample (S2) was taken from under the pile to see if there was possible soil contamination. One of the cinder blocks (S1) was also collected, crushed and analyzed as well. Radionuclide analysis of S1 and S2 yielded ^{226}Ra concentrations of 2.5 and 2.8 pCi/g, respectively. These values are barely above background levels for soil in the Monticello area which average 2 pCi/g when no contamination is present. Hence it was determined that the elevated gamma readings were naturally occurring radiation inherent in the cinder blocks and not a direct result of mill tailings contamination.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00768

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [x] EXCEED [] DO NOT EXCEED THE DOE GUIDELINES BELOW:

^{226}Ra is > the Hot Spot Guideline

Location Number: MS00768

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Storage yard and equipment shops
TOTAL AREA OF PROPERTY:	6,500 m^2
STRUCTURES ON PROPERTY:	1 Single story quonset hut, slab-on-grade 1 Single story metal garage, slab-on-grade

Location Number: MS00768

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 $\mu\text{R/h}$
BACKGROUND + 20%:	17 $\mu\text{R/h}$
BACKGROUND EXPOSURE RATE RANGE:	13-16 $\mu\text{R/h}$
EXPOSURE RATE RANGE IN CONTAMINATED REGIONS:	A: 58 $\mu\text{R/h}$
HIGHEST OUTDOOR GAMMA (HOG) IN CONTAMINATED REGION:	58 $\mu\text{R/h}$
LOCATION OF HOG:	Region A
POINT SOURCE *:	None
ESTIMATED AREA OF OUTDOOR CONTAMINATION BY REGION:	A: <1 m ²
NET ESTIMATED AREA-WEIGHTED AVERAGE BY REGION**:	A: <1 $\mu\text{R/h}$

Location Number: MS00768

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	CINDER BLOCK	N/A	2.5	N/A	N/A	N/A

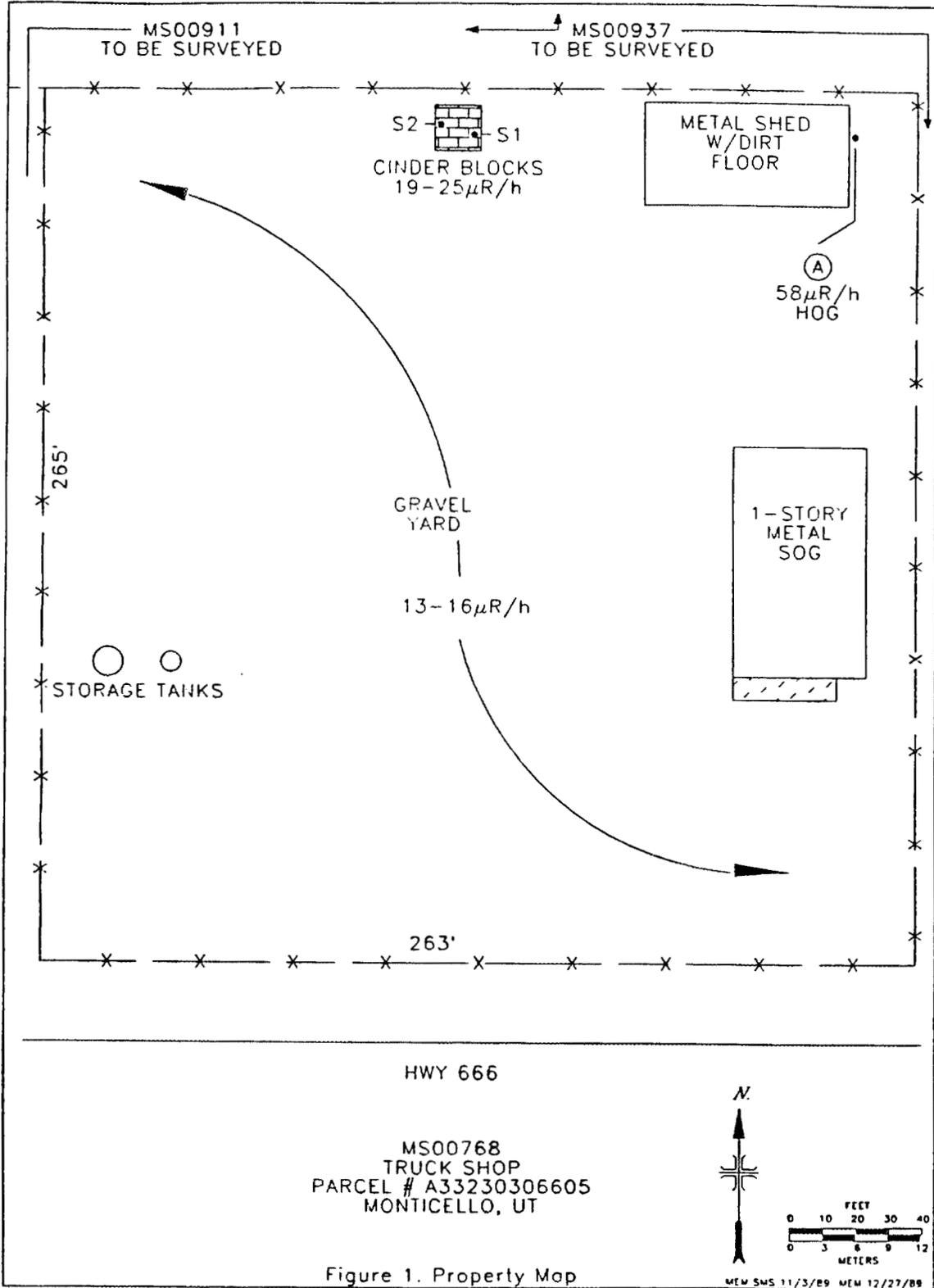


Figure 1. Property Map

Location Number MS00770

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00770
937 EAST HIGHWAY 666
MONTICELLO UT 84535

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February 1990

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U.S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

Location Number: MS00770

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 12-15 $\mu\text{R}/\text{h}$ indoors and 13-15 $\mu\text{R}/\text{h}$ outdoors. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00770

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH [] EXCEED [x] DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is < background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is < 5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Indoor gamma is < the acceptable difference or 20% above background in all rooms

Location Number: MS00770

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Commercial simple
TOTAL AREA OF PROPERTY:	2,100 m^2
STRUCTURES ON PROPERTY:	1 Single story brick and frame, slab-on-grade 1 Shed, wood floor

Location Number: MS00770

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00770

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	2.4	>100	<1	N/A

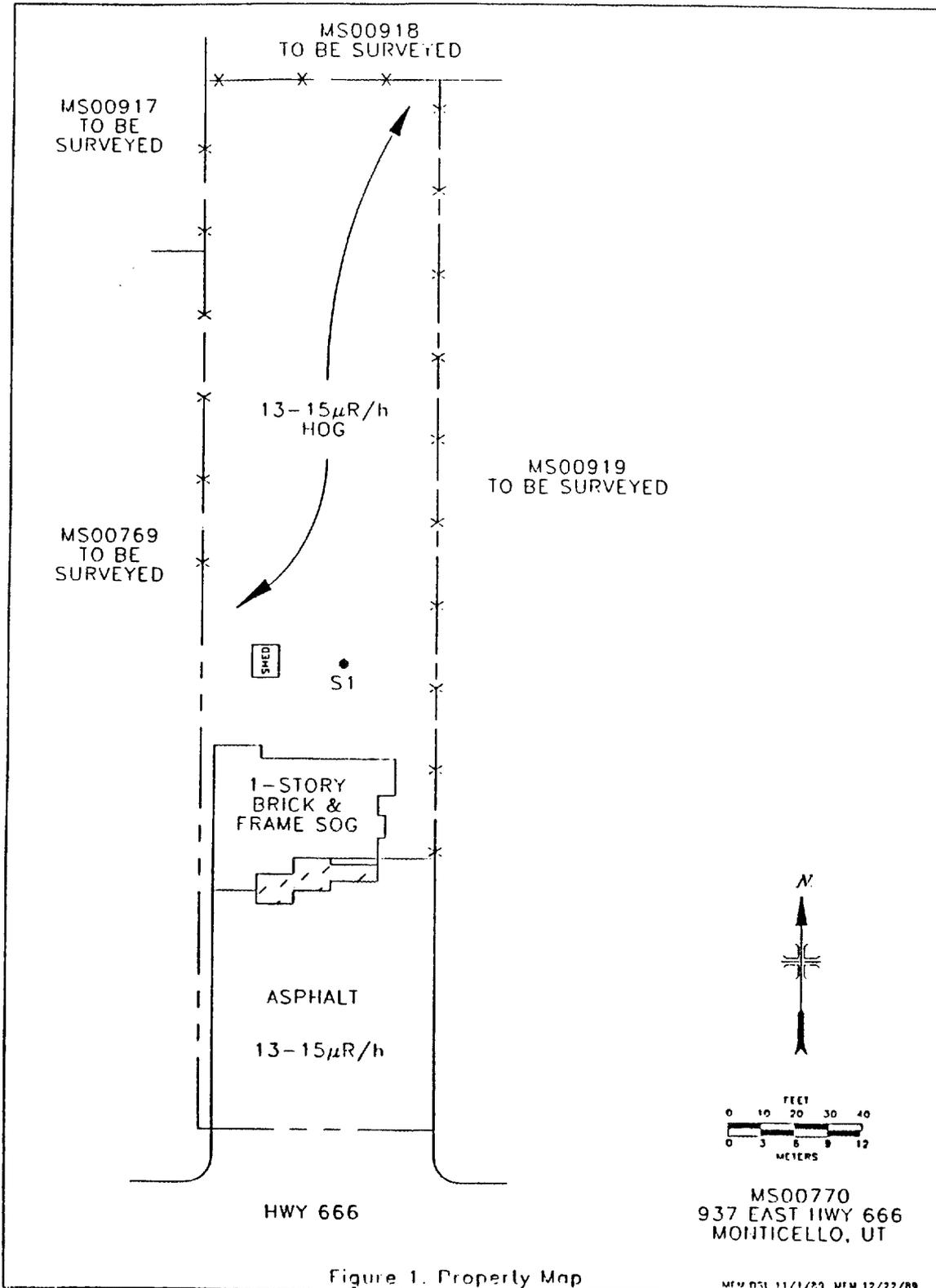


Figure 1. Property Map

MEM 051 11/1/22 MEM 12/22/89

Location Number MS00771

HEALTH AND SAFETY RESEARCH DIVISION

REPORT OF RADIOLOGICAL SURVEY AT LOCATION MS00771
PARCEL # A33240308410 (EAST CENTER)
MONTICELLO UT 84535

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under Contract No. DE-AC05-84OR21400

Location Number: MS00771

SIGNIFICANCE OF FINDINGS

A complete gamma screening was performed on this property. Background gamma exposure rates ranged from 13-15 $\mu\text{R}/\text{h}$. No indoor scan was done as the property is a vacant lot. No regions of elevated gamma exposure rates were detected anywhere on the property.

Information regarding adjacent properties is provided on Figure 1.

Location Number: MS00771

FINDINGS

SITE CONTAINS RADIATION LEVELS WHICH EXCEED DO NOT EXCEED THE DOE GUIDELINES BELOW:

Outdoor gamma is <background plus the acceptable difference or 20% averaged over 100 m^2

^{226}Ra is <5 pCi/g above background in surface 15 cm soil layer averaged over 100 m^2

Location Number: MS00771

Table 1. Location Information

Property Information

PROPERTY CLASSIFICATION:	Vacant Lot
TOTAL AREA OF PROPERTY:	3,400 m^2
STRUCTURES ON PROPERTY:	None

Location Number: MS00771

Table 2. Radiological Screening Survey Results

Outdoor Screening Data

BACKGROUND EXPOSURE RATE:	14 μ R/h
BACKGROUND + 20%:	17 μ R/h
BACKGROUND EXPOSURE RATE RANGE:	13-15 μ R/h
HIGHEST OUTDOOR GAMMA (HOG):	15 μ R/h
LOCATION OF HOG:	General
POINT SOURCE *:	None
NET ESTIMATED AREA-WEIGHTED AVERAGE**:	0 μ R/h

Location Number: MS00771

Table 3. Extended Survey Results

Outdoor Extended Data

Soil Sample Summary

Soil Sample Number	Region Sampled	Sample Depth (cm)	²²⁶ Ra Concentration (pCi/g) (Canalysis)	Representative (biased) Sampling Area m ²	Net Estimated Area-Weighted Average* (pCi/g, CAW)	Hot Spot Guideline** (pCi/g)
S1	BKGD	0-15	2.0	>100	<1	N/A

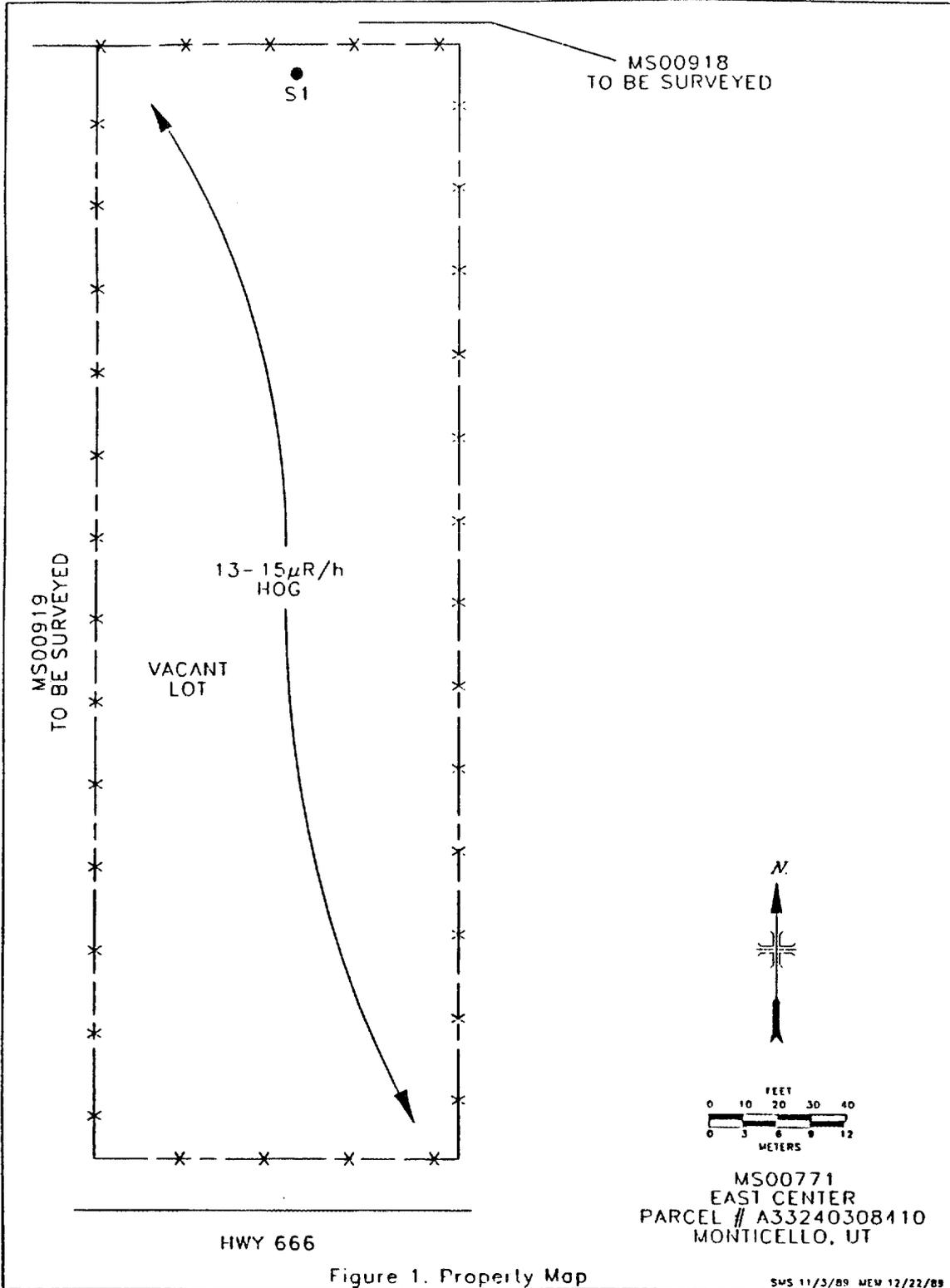


Figure 1. Property Map

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