

**NOTE:**  
**SUPPLEMENTAL**  
**STANDARDS**

WM-39

040wm039470E

**DEPARTMENT OF ENERGY**  
**ALBUQUERQUE OPERATIONS OFFICE**  
**CONTRACT NO. DE-AC04-83AL18796**

# **Radiological and Engineering Assessment**

Vicinity Property No. DU-059S Rev. 1

Vicinity Property No. DU-059S Rev. 1

**Remedial Actions  
Contractor  
for the  
Uranium Mill Tailings  
Remedial Actions  
Project**



**MK-FERGUSON COMPANY**  
A MORRISON KNUDSEN COMPANY

*ULFO-6*  
**NRC FILE CENTER COPY**

9707090100 900209  
PDR WASTE  
WM-39 PDR

90-0315

Radiological and Engineering Assessment: Property DU-059S Rev. 1

ADDRESS: State Highway 160 and OWNER'S NAME: United Bank of Durango  
Roosa Avenue  
Durango, CO 81301 OWNER'S ADDRESS: (IF DIFFERENT)

1063 Main Avenue

TENANTS NAME: \_\_\_\_\_ Durango CO, 81301

TELEPHONE NUMBER \_\_\_\_\_ TELEPHONE NUMBER \_\_\_\_\_  
(if available) (if available)

PROPERTY DATA:

Structures and utilities are shown on Drawing DU-059-010.

Property Use: Single Residence \_\_\_\_\_; Commercial \_\_\_\_\_; School \_\_\_\_\_

Multiple Residence \_\_\_\_\_; Vacant Lot \_\_\_\_\_; Church \_\_\_\_\_; Open Land X

Age of structures: Less than 50 years old N/A;  
Greater than 50 years old N/A (attach form \_\_\_\_\_)

Adjacent included/spillover vicinity properties:

North - V.P. # DU-053  
South - V.P. # N/A  
East - V.P. # N/A  
West - V.P. # DU-095, DU-096

Interior Involvement: Yes N/A; No N/A

Major Structural N/A; Minor Structural N/A; Dislocation N/A

SUMMARY

Three separate phases of activity have occurred on this property. For simplicity the data from each phase has been divided into different sections.

The first phase was the initial Radiological and Engineering Assessment (Section I). In this phase the material on the flat portions of the property was characterized in depth and a preliminary characterization was performed on the steep slopes. From this preliminary characterization MK-Ferguson/CNSI believed that the steep slopes could be verified to be in compliance with EPA standards without remediation.

Phase II involved the remediation of all accessible flat and sloping portions of the property (Section II).



In Phase III verification of the steep slopes was undertaken (Section III). Results from this survey made it apparent that some portions of the slopes were contaminated in excess of EPA standards.

Due to the excessive cost involved relative to the long-term Health benefits, a recommendation to apply for Supplemental Standards on this portion of the property has been proposed. In discussions with the Department of Energy and the Colorado Department of Health, this recommendation has been proposed for their consideration.

All the text from this point forward refers to the data from Section III.

#### RADIOLOGICAL DATA:

##### Gamma Exposure Rate Survey

###### Survey Method

Outdoor gamma surveys were conducted in accordance with the RAC Procedure 011. These surveys were conducted over the steep slopes on the property.

###### Survey Results

Surface gamma readings on the slopes range from 14 to 38 micro R/hr (Tables 3.1 and 3.2). This may be compared with the background for the Durango site of 14 micro R/hr.

##### Borehole Survey

No boreholes were augered due to the steepness of the slopes.

##### Soil Samples

Soil samples on the east slopes of the property were collected at 50' x 100' grid points. Contamination in excess of EPA Standards was found in 10 of 33 surface sample (Table 3.3) On the south and west slopes 33' x 33' grids were laid out and verification type soil samples were collected. Contamination in excess of EPA standards was found in 48 of 223 of these samples (Table 3.4). Drawings DU-059-015 and DU-059-031 show the location of soil samples.

##### Estimated Extent of Contamination

Sporadic contamination exists on all slopes, see Drawing DU-059-035 for location of contamination on the slopes and proposed areas of Supplemental Standards. Depth of contamination is 6".

Recommended Remedial Action

MK-Ferguson recommends the application of Supplemental Standards to those areas where contamination is present in excess of EPA Standards. Please see Appendix C for DOE and STATE comments/concurrence.

Cost estimates for two options of remedial action for not applying Supplemental Standards (hand excavation and two dozer wench line) are provided in Section 3, Tables 4.1 and 4.2 respectfully.

JUSTIFICATION CHECKLIST FOR  
APPLICATION OF SUPPLEMENTAL STANDARDS

Application of Supplemental Standards (SS) is in accordance with 40 CFR 192.22, Subpart (x) (check appropriate Subpart):

- ☐ a) Risk injury to worker/public
- ☐ b) Environmental harm
- ☒ c) High cost relative to long-term benefits
- ☐ d) High cost of cleaning up building relative to benefits
- ☐ e) No known remedial action
- ☐ f) Radionuclides other than Ra-226 exist

Brief Condition Description and Justification:

Wind blown contamination is present on portions of the steep slopes of this property. From conversations with the owners representative, the property is for sale and will most likely be developed for commercial use. All the flat areas and accessible portions of the slopes, where development could occur, have been remediated to meet EPA Standards. However, due to the steepness of the slopes where contamination in excess of EPA Standards remains development is not probable.

If the contamination is left in place relative health risks are minimal. If a person spent 8 hours a day 5 days a week for 50 weeks in the area of maximum gamma exposure rate (37 micro R/hr), he would receive about 75 millirem of gamma exposure in one year. This is about 15% of the amount allowed the general public (10 CFR 20.105).

JUSTIFICATION CHECKLIST FOR  
APPLICATION OF SUPPLEMENTAL STANDARDS

Additional cost without application of Supplemental Standards = \$614,300.00 for Option I and \$618,000.00 for Option II (further breakdown provided in Section 3, Tables 4.1 and 4.2 of this REA).

Yes	No	If Supplemental Standards are Applied:
X		1. Open Land?
	N/A	2. Occupied Building?
	N/A	3. If yes to No. 2, is contaminated area beneath or within 10 feet of a building?
X		4. Anticipated change of land use within the next 5 years?
	X	5. If yes to No. 4, then will land use produce health risk? (See explanation under Brief Conditions Description and Justification).
	X	6. Is contamination in a habitable area?
X		7. Have owners comments been solicited? (Attach comments or record of teleconference). (See Appendix B).

Estimated volume of contaminated material to remain = 4,083 (cy).

Contaminated area to remain = 24,418 (sy).

Range for contaminated areas = 12 to 37 (micro r/hr) [at 3 feet above surface].

Range Ra-226 concentration in soil in contaminated area = 0.8 to 18.8 (pCi/g).

If tailings are below or within 10 feet of the structure, radon daughter concentration = N/A (WL).



Engineering Assessment

Estimated quantities are shown in Section 3, Tables 4.1 and 4.2.

Occupant relocation: Required \_\_\_\_\_; Not Required   X  .

Remedial Action Options (Complex Properties Only)

N/A

DU-059

Section I

Initial Radiological and

Engineering Assessment

Tables and Drawings

### Section I Summary

The data in Section I is all the radiological data from the initial characterization. Table 3.1 is borehole data which was used to determine the aerial extent and depth of contamination. Table 3.2 is an interior survey on the house that was demolished. Table 3.3 is the soil sample data. There are also three drawings in Section I. Drawing DU-059-010 is the Site Plan, DU-059-015 shows the extent of contamination on the property from the radiological data in the tables and DU-059-020 shows proposed areas of excavation.

Section I of Appendix A is the field data.

Table 3.1  
OUTDOOR GAMMA AND BOREHOLE SURVEY  
Property DU-059

BOREHOLE	LOCATION	CONTAMINATION DEPTH	MICRO R/hr
1	N50800E50000	None	17
2	N50800E50050	0-6	17
3	N50800E50150	Surface	21
4	N50800E50250	Surface	21
5	N50800E50300	Surface	20
6	N50700E50300	None	19
7	N50700E50250	Surface	21
8	N50700E50150	Surface	22
9	N50700E50050	None	16
10	N50700E50000	None	18
11	N50600E50050	0-6"	23
12	N50600E50250	Surface	22
13	N50600E50300	0-6"	21
14	N50500E50300	None	16
15	N50500E50250	Surface	21
16	N50500E50150	0-6"	22
17	N50500E50000	None	18
18	N50400E50100	None	19



Table 3.1 Cont'd.  
OUTDOOR GAMMA AND BOREHOLE SURVEY  
Property DU-059

BOREHOLE	LOCATION	CONTAMINATION DEPTH	MICRO R/hr
19	N50400E50150	None	18
20	N50400E50250	0-12"	22
21	N50400E50300	0-6"	23
22	N50300E50300	0-6"	24
23	N50300E50250	None	19
24	N50300E50150	None	20
25	N50200E50200	Surface	21
26	N50200E50250	Surface	20
27	N50200E50300	0-6"	24
28	N50100E50350	0-6"	23
29	N50100E50300	0-15"	25
30	N50100E50250	0-6"	28
31	N50000E50250	0-6"	22
32	N50000E50300	0-6"	21
33	N50000E50350	0-12"	26
34	N49900E50350	0-6"	22
35	Not Drilled		
36	Not Drilled		

Table 3.1 Cont'd.  
OUTDOOR GAMMA AND BOREHOLE SURVEY  
Property DU-059

BOREHOLE	LOCATION	CONTAMINATION DEPTH	MICRO R/hr
37	N49840E50360	0-18"+	34
38	N49840E50338	0-15"	38
39	N49833E50300	0-9"	37
40	N49904E50325	0-12"	33
41	N49887E50325	0-6"	29
42	N49890E50310	0-6"	31
43	N49875E50310	0-6"	25
44	N49875E50285	0-6"	29
45	N49884E50280	0-6"	26
46	N49908E50280	0-6"	27
47	N49915E50280	0-9"	26
48	N49910E50270	0-12"	29
49	N49875E50260	0-9"	36
50	N49899E50260	0-9"	30
51	N49925E50255	0-9"	34
52	N49965E50255	0-6"	26
53	N49963E50294	None	20
54	N50850E50250	Surface	22

+Depth of contamination not reached.

Table 3.1 Cont'd.  
OUTDOOR GAMMA AND BOREHOLE SURVEY  
Property DU-059

BOREHOLE	LOCATION	CONTAMINATION DEPTH	MICRO R/hr
55	N50715E50150	Surface	22
56	N50720E50150	None	18
57	N50700E50155	0-6"	20
58	N50695E50150	None	19
59	N50700E50145	None	20
60	N50665E50065	0-6"	23
61	N50665E50060	0-6"	19
62	N50670E50065	0-6"	20
63	N50670E50000	None	18
64	N50600E50045	None	18
65	N50550E50055	0-6"	23
66	N50550E50045	None	18
67	N50500E50060	0-6"	22
68	N50450E50080	0-6"	23
69	N50450E50070	None	16
70	N50400E50110	0-6"	25
71	N50395E50150	0-6"	23
72	N50350E50120	None	19
73	N50350E50130	0-6"	21

Table 3.1 Cont'd.  
OUTDOOR GAMMA AND BOREHOLE SURVEY  
Property DU-059

BOREHOLE	LOCATION	CONTAMINATION DEPTH	MICRO R/hr
74	N50300E50160	0-6"	25
75	N50250E50180	0-6"	28
76	N50250E50170	None	20
77	N50200E50190	0-6"	20
78	N50250E50310	0-6"	24
79	N50350E50300	0-6"	24
80	N50600E50290	0-6"	22
81	N50855E50250	None	17
82	N50855E50175	0-6"	22
83	N50860E50175	None	17
84	N50850E50150	Surface	21
85	N50855E50150.	None	16
86	N50850E50145	None	19
87	N50800E50155	Surface	21
88	N50750E50140	None	19
89	N50750E50150	Surface	21
90	N50800E50305	0-6"	22
91	N50850E50300	Surface	23
92	N50855E50300	None	1



Table 3.2  
INTERIOR GAMMA SURVEY  
Property DU-059

LOCATION	RATE (Micro R/hr)
----------	-------------------

Room 1

South Wall	21
West Wall	19
Floor	19
Ceiling	22

Room 2

South Wall	19
East Wall	18
Floor	18
Ceiling	22

Room 3

West Wall	19
North Wall	19
Floor	18
Ceiling	21

Room 4

North Wall	20
East Wall	19
Floor	18
Ceiling	19

Room 5

South Wall	19
West Wall	19
North Wall	17
Floor	19
Ceiling	19

Room 6

South Wall	22
East Wall	24
Floor	18
Ceiling	22

Table 3.2 Cont'd.  
INTERIOR GAMMA SURVEY  
Property DU-059

LOCATION	RATE (Micro R/hr)
----------	-------------------

Room 7

North Wall	18
East Wall	19
West Wall	17
Floor	18
Ceiling	22

Room 8

South Wall	19
West Wall	19
Floor	18
Ceiling	20

Room 9

South Wall	19
East Wall	17
Floor	18
Ceiling	20

Room 10

North Wall	17
West Wall	19
Floor	18
Ceiling	19

Room 11

North Wall	17
East Wall	18
Floor	18
Ceiling	19

Room 12

North Wall	17
East Wall	21
West Wall	16
South Wall	19
Floor	17
Ceiling	20

Table 3.2 Cont'd.  
INTERIOR GAMMA SURVEY  
Property DU-059

LOCATION	RATE (Micro R/hr)
<u>Room 13</u>	
North Wall	14
East Wall	14
West Wall	16
Floor	14
Ceiling	17
<u>Room 14</u>	
South Wall	18
East Wall	20
Floor	16
Ceiling	20
<u>Room 15</u>	
North Wall	17
East Wall	21
West Wall	16
Floor	18
Ceiling	20
<u>Room 16</u>	
North Wall	19
West Wall	19
South Wall	19
Floor	16
Ceiling	19
<u>Room 17</u>	
North Wall	16
East Wall	15
West Wall	19
South Wall	17
Floor	15
Ceiling	19

Table 3.2 Cont'd.  
INTERIOR GAMMA SURVEY  
Property DU-059

LOCATION	RATE (Micro R/hr)
----------	-------------------

Room 18

North Wall	14
East Wall	12
South Wall	15
Floor	14
Ceiling	15

Room 19

East Wall	16
West Wall	16
South Wall	15
Floor	15
Ceiling	17

Room 20

North Wall	17
East Wall	15
West Wall	19
Floor	18
Ceiling	17

Room 21

North Wall	15
South Wall	12
Floor	15
Ceiling	14

Room 22

North Wall	12
East Wall	16
South Wall	14
Floor	14
Ceiling	14



Table 3.2 Cont'd.  
INTERIOR GAMMA SURVEY  
Property DU-059

LOCATION	RATE (Micro R/hr)
<u>Room 23</u>	
North Wall	17
East Wall	16
West Wall	16
Floor	16
Ceiling	14
<u>Room 24</u>	
West Wall	16
South Wall	16
Floor	15
Ceiling	14
<u>Room 25 (Crawl Space)</u>	
North End	14
East End	13
West End	12
South End	16
Floor	12
Ceiling	12

Table 3.3  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8894	N50200E50000	5.09	0-6"
DU-SS-8895	N50600E50450	3.51	0-6"
DU-SS-8896	N49700E50400	24.6	0-6"
DU-SS-8897	N50800E50400	1.77	0-6"
DU-SS-8898	N49900E50100	6.20	0-6"
DU-SS-8899	N49600E50400	3.51	0-6"
DU-SS-8900	N49700E50300	2.40	6-12"
DU-SS-8901	N50700E50350	1.37	0-6"
DU-SS-8902	N49600E50550	4.55	0-6"
DU-SS-8903	N50100E50200	7.51	0-6"
DU-SS-8904	N49600E50550	2.58	6-12"
DU-SS-8905	N49600E50450	3.05	6-12"
DU-SS-8906	N49900E50100	6.16	0-6"
DU-SS-8907	N49700E50250	2.31	0-6"
DU-SS-8908	N50000E50350	11.8	0-6"
DU-SS-8909	N49600E50400	3.79	6-12"
DU-SS-8910	N49600E50550	4.75	6-12"
DU-SS-8911	N49700E50400	2.80	6-12"
DU-SS-8876	N50300E50050	13.1	0-6"
DU-SS-8877	N49800E50350	2.41	6-12"

Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8878	N49900E50450	6.78	0-6"
DU-SS-8879	N50500E50350	5.04	6-12"
DU-SS-8880	N49800E50400	0.820	6-12"
DU-SS-8881	N50800E50350	1.43	6-12"
DU-SS-8882	N50400E50400	2.57	6-12"
DU-SS-8883	N49700E50300	1.72	0-6"
DU-SS-8884	N49800E50200	6.68	6-12"
DU-SS-8885	N50600E50400	2.72	0-6"
DU-SS-8886	N50600E50400	1.54	6-12"
DU-SS-8887	N49700E50500	1.50	6-12"
DU-SS-8888	N49700E50450	1.54	6-12"
DU-SS-8889	N50800E50450	1.68	6-12"
DU-SS-8890	N49600E50550	1.91	6-12"
DU-SS-8891	N50700E50400	5.56	6-12"
DU-SS-8892	N49800E50100	1.22	0-6"
DU-SS-8893	N50000E50200	30.2	6-12"
DU-SS-8858	N50500E50400	5.67	0-6"
DU-SS-8859	N50500E50350	6.95	0-6"
DU-SS-8860	N50600E50350	1.15	6-12"
DU-SS-8861	N49900E50100	2.38	6-12"

Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8862	N50000E50500	7.72	0-6"
DU-SS-8863	N50400E50450	2.44	6-12"
DU-SS-8864	N49800E50450	1.46	0-6"
DU-SS-8865	N49700E50350	2.54	0-6"
DU-SS-8866	N50400E50450	4.27	0-6"
DU-SS-8867	N50100E50150	0.880	0-6"
DU-SS-8868	N50200E50450	1.58	6-12"
DU-SS-8869	N50200E50350	2.14	0-6"
DU-SS-8870	N49600E50450	2.20	0-6"
DU-SS-8871	N50000E50400	3.46	0-6"
DU-SS-8872	N50400E50400	6.56	0-6"
DU-SS-8873	N50400E50350	2.45	6-12"
DU-SS-8874	N50300E50400	2.05	6-12"
DU-SS-8875	N50300E50350	3.37	6-12"
DU-SS-8767	N49900E50250	4.64	6-12"
DU-SS-8768	N50000E50100	4.73	0-6"
DU-SS-8769	N50100E50200	3.67	6-12"
DU-SS-8770	N50800E50450	3.57	0-6"
DU-SS-8771	N49900E50100	2.26	6-12"
DU-SS-8772	N50100E50100	1.79	6-12"

Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8773	N49900E50500	1.44	6-12"
DU-SS-8774	N50400E50050	2.11	0-6"
DU-SS-8775	N50300E49950	1.26	0-6"
DU-SS-8776	N50400E50050	2.93	6-12"
DU-SS-8777	N49900E50050	1.13	6-12"
DU-SS-8778	N49800E50150	6.15	0-6"
DU-SS-8779	N50800E50400	1.92	6-12"
DU-SS-8780	N49800E50500	4.24	6-12"
DU-SS-8781	N49800E50050	8.27	0-6"
DU-SS-8782	N50200E50450	1.35	0-6"
DU-SS-8783	N50200E50100	3.65	0-6"
DU-SS-8784	N50200E50000	2.09	6-12"
DU-SS-8785	N49800E50450	1.71	6-12"
DU-SS-8786	N49800E50200	3.01	0-6"
DU-SS-8787	N50800E50350	4.47	0-6"
DU-SS-8788	N50700E50400	4.42	0-6"
DU-SS-8789	N49700E50450	1.03	0-6"
DU-SS-8790	N50400E50080	11.4	6-12"
DU-SS-8791	N49900E50050	1.84	6-12"
DU-SS-8792	N50100E50000	2.19	6-12"



Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8793	N50300E5000	2.17	6-12"
DU-SS-8794	N50000E50200	15.1	0-6"
DU-SS-8795	N49800E50150	1.62	6-12"
DU-SS-8796	N50700E50450	4.94	0-6"
DU-SS-8797	N50300E49950	3.55	6-12"
DU-SS-8798	N50000E50450	1.45	6-12"
DU-S. -8799	N50200E50150	9.07	0-6"
DU-SS-8800	N50000E50150	1.42	6-12"
DU-SS-8801	N49800E50250	4.41	6-12"
DU-SS-8802	N50000E50000	2.87	0-6"
DU-SS-8803	N50200E50050	1.73	6-12"
DU-SS-8804	N50100E50050	2.07	0-6"
DU-SS-8805	N49900E50250	5.73	0-6"
DU-SS-8806	N49800E50250	4.40	6-12"
DU-SS-8807	N50700E50450	2.42	6-12"
DU-SS-8808	N50300E50000	4.78	0-6"
DU-SS-8809	N50000E50350	5.82	6-12"
DU-SS-8810	N50200E50050	3.99	0-6"
DU-SS-8811	N50100E50150	1.14	6-12"
DU-SS-8812	N50100E50050	1.91	6-12"

Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8813	N50400E50350	7.84	0-6"
DU-SS-8814	N50100E50400	4.22	0-6"
DU-SS-8815	N50000E50150	1.72	0-6"
DU-SS-8816	N50200E50400	7.47	0-6"
DU-SS-8817	N49800E50100	.608	6-12"
DU-SS-8818	N50300E50050	4.35	6-12"
DU-SS-8819	N44900E50400	4.42	6-12"
DU-SS-8820	N50100E50450	1.06	6-12"
DU-SS-8821	N49800E50300	3.24	0-6"
DU-SS-8822	N49700E50500	0.973	0-6"
DU-SS-8823	N49800E50350	4.37	0-6"
DU-SS-8824	N50400E50000	9.55	0-6"
DU-SS-8825	N49900E50150	1.23	6-12"
DU-SS-8826	N50200E50350	1.27	6-12"
DU-SS-8827	N50000E50100	1.20	6-12"
DU-SS-8828	N50600E50350	1.93	0-6"
DU-SS-8829	N50300E50400	7.32	0-6"
DU-SS-8830	N49900E50150	2.96	0-6"
DU-SS-8831	N50100E50450	5.16	0-6"
DU-SS-8832	N49900E50200	1.71	6-12"

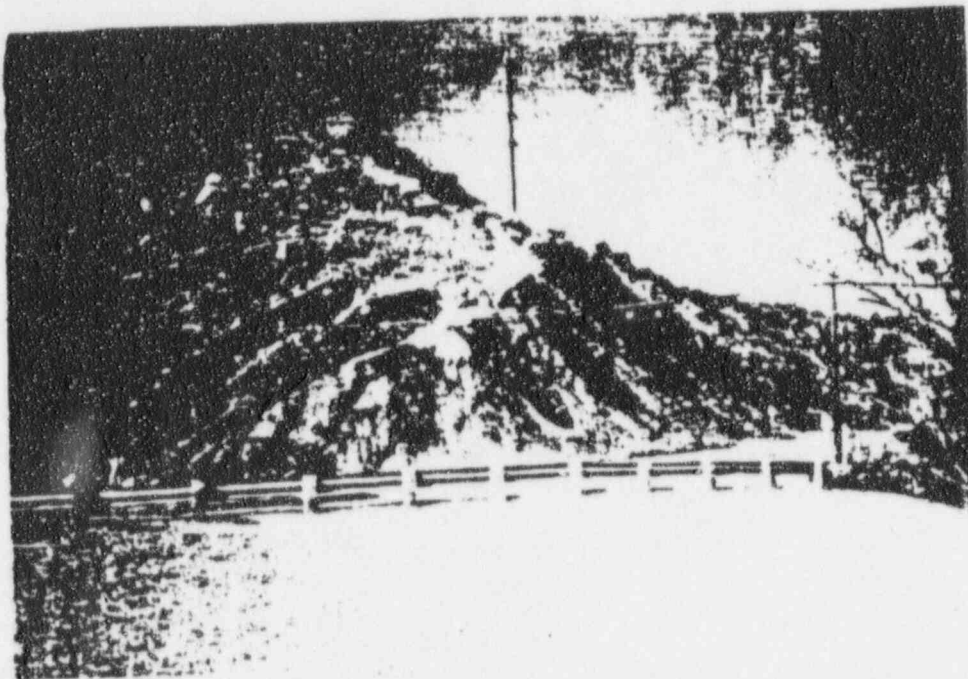
Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8833	N50000E50000	2.05	6-12"
DU-SS-8834	N50000E50400	1.37	6-12"
DU-SS-8835	N50100E50000	2.46	0-6"
DU-SS-8836	N50200E50100	2.13	6-12"
DU-SS-8837	N49900E50200	2.56	0-6"
DU-SS-8838	N50000E50050	4.37	0-6"
DU-SS-8839	N49800E50050	7.58	6-12"
DU-SS-8840	N49100E50250	1.20	6-12"
DU-SS-8841	N50700E50350	0.869	6-12"
DU-SS-8842	N49700E50350	2.13	6-12"
DU-SS-8843	N49800E50500	6.99	0-6"
DU-SS-8844	N50300E50450	3.26	6-12"
DU-SS-8845	N49800E50300	1.28	6-12"
DU-SS-8846	N50200E50400	4.45	6-12"
DU-SS-8847	N50300E50450	6.71	0-6"
DU-SS-8848	N49800E50400	2.13	0-6"
DU-SS-8849	N50300E50100	2.01	0-6"
DU-SS-8850	N50300E50350	3.28	0-6"
DU-SS-8851	N50100E50100	2.81	0-6"
DU-SS-8852	N50000E50450	1.72	0-6"

Radiological and Engineering Assessment: Property DU-059

Table 3.3 Cont'd.  
SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION	FINAL pCi/g	DEPTH
DU-SS-8853	N49900E50450	3.63	6-12"
DU-SS-8854	N49700E50550	.946	6-12"
DU-SS-8855	N49900E50400	9.36	0-6"
DU-SS-8856	N50500E50400	2.37	6-12"
DU-SS-8912	N49900E50500	5.36	0-6"
DU-SS-8913	N50300E50100	2.39	6-12"
DU-SS-8914	N50600E50450	3.55	6-12"
DU-SS-8915	N50000E50500	3.90	6-12"
DU-SS-8916	N49700E50550	2.57	0-6"
DU-SS-8917	N50000E50050	2.61	6-12"
DU-SS-8918	N50200E50150	5.59	6-12"
DU-SS-8613	Crawl Space Under the House	1.28	Room 23
DU-SS-8618	Crawl Space Under the House	0.582	Room 23
DU-SS-8614	N50325E50300	19.0	0-6"
DU-SS-8615	N50400E50325	22.2	0-6"
DU-SS-8616	N50300E50275	20.5	0-6"
DU-SS-8617	N50225E50275	11.2	0-6"
DU-SS-8619	N50550E50225	9.23	0-6"



Looking West at Face of Steep Slope Across Poosa Avenue



Looking West Along North Property Line

Figure 1 Property Photos



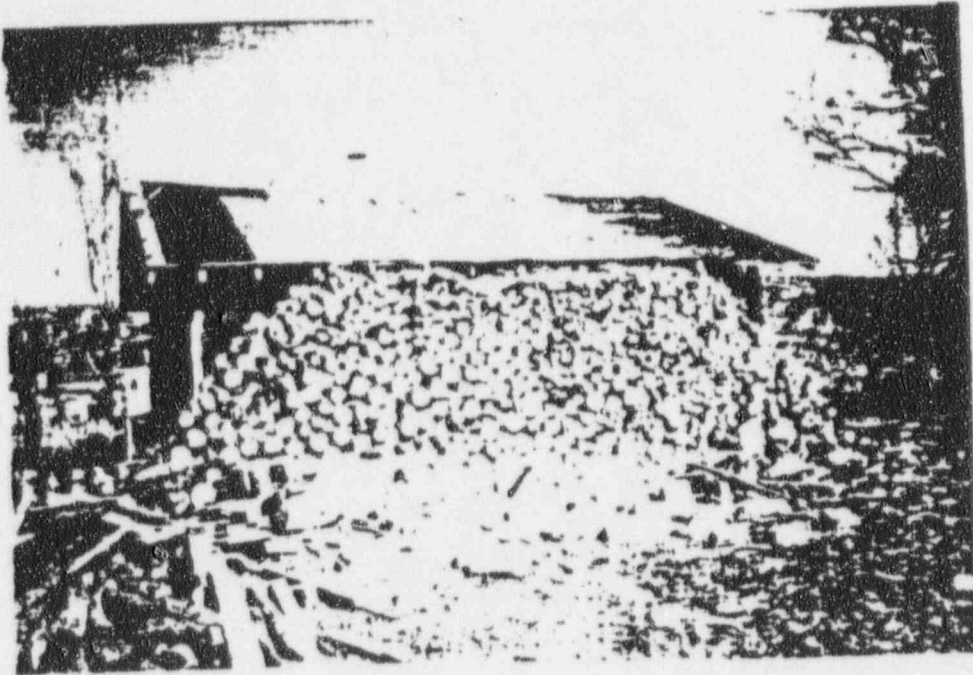


House, Looking Northeast

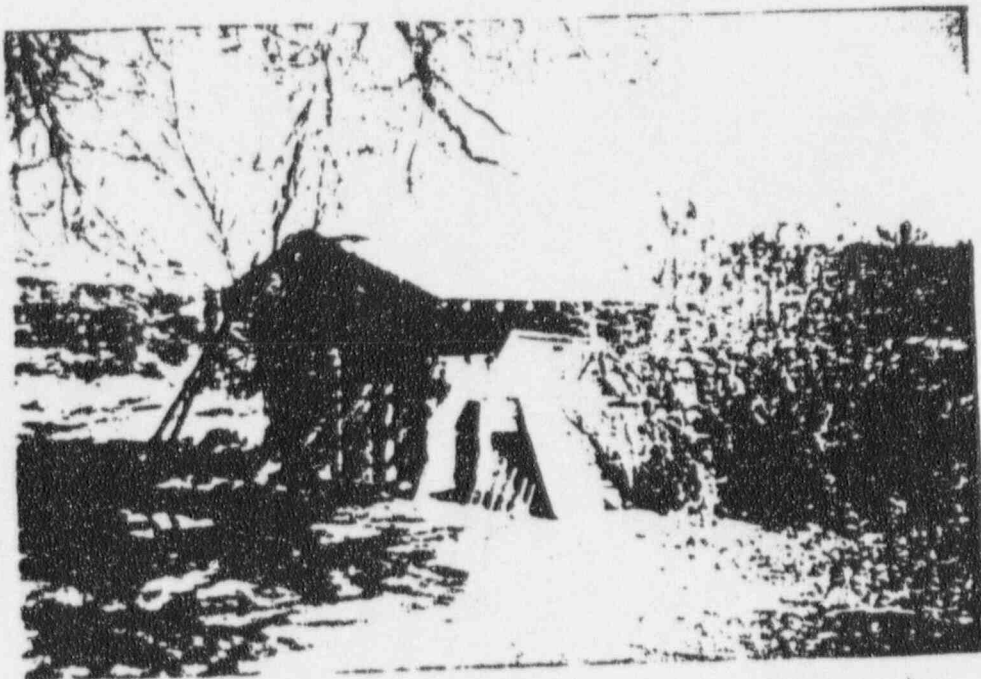


Shed and Wood Pile, Looking Southwest

Figure 2 Property Photos

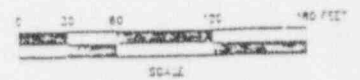
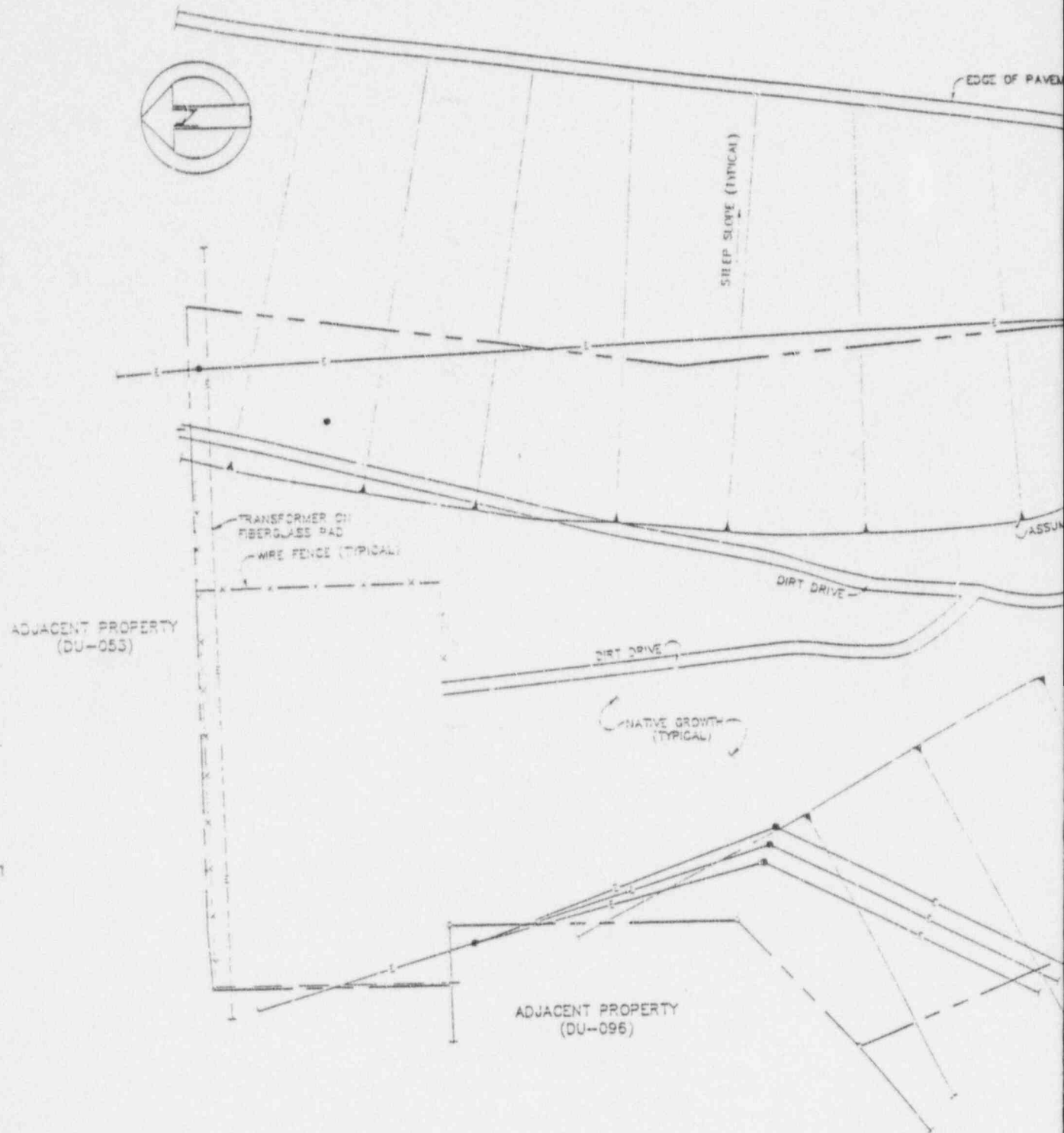


Shed and Wood Pile, Looking North



Small Shed, Looking North

Figure 3 Property Photos



ASSUMED TOE OF SLOPE (TYPICAL) ROOSA AVE

PROPOSED LINE (TYPICAL)

ABANDONED GAS METER CONNECTION

SHED

PUMPHOUSE

TREE

HOUSE

WOOD PILE - SHED

OUTHOUSE

ADJACENT PROPERTY (DU-095)

STEEP SLOPE (TYPICAL)

ASSUMED TOE OF SLOPE (TYPICAL)

U.S. ROUTE 160

PROPERTY LINE

FENCE LINE

METER

VALVE

PROPERTY PIN

POWER POLE

OVERHEAD SERVICE DENOTED BY SOLID LINE

UNDERGROUND SERVICE DENOTED BY DASHED LINE

# LEGEND

W	WATER LINE
G	GAS LINE
CM	GAS MAIN
S	SEWER LINE
SM	SEWER MAIN
STM	STORM SEWER
E	ELECTRICAL LINE
T	TELEPHONE LINE
TV	CABLE TV
	PROPERTY LINE
	FENCE LINE
⊙ G, W, or E	METER
⊙ G or W	VALVE
○	PROPERTY PIN
●	POWER POLE

OVERHEAD SERVICE DENOTED BY SOLID LINE  
UNDERGROUND SERVICE DENOTED BY DASHED LINE

## ANSTEC APERTURE CARD

Also Available on  
Aperture Card

9707090100-01

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

SITE PLAN  
DU-059

DURANGO, COLORADO  
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

NR

NR

NR

PROJECT NO. DE-AC04-83AL18794

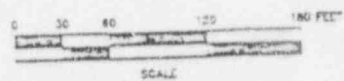


DRAWING NO. DU-059-010

FINAL REA SUBMITTAL

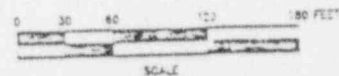
REVISIONS











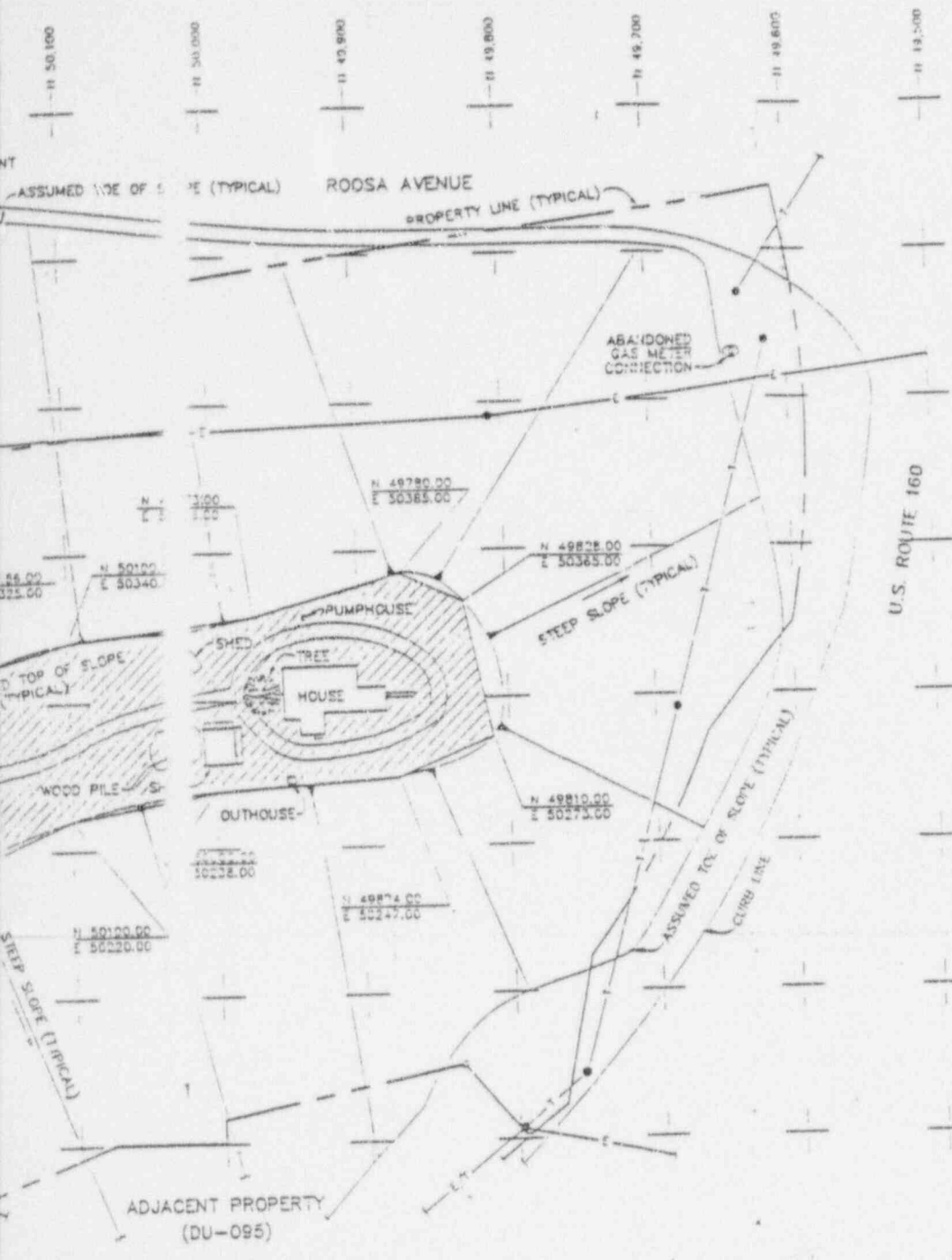
# LEGEND

— W —	WATER LINE
— G —	GAS LINE
— GM —	GAS MAIN
— S —	SEWER LINE
— SM —	SEWER MAIN
— STM —	STORM SEWER
— E —	ELECTRICAL LINE
— T —	TELEPHONE LINE
— TV —	CABLE TV
— — —	PROPERTY LINE
— — —	FENCE LINE
⊙ G.W. or E	METER
⊙ G.W. or E	VALVE
⊙	PROPERTY PIN
⊙	POWER POLE

OVERHEAD SERVICE DENOTED BY SOLID LINE  
UNDERGROUND SERVICE DENOTED BY DASHED LINE

## NOTES:

- THE LATEST REVISION OF THE FOLLOWING TECHNICAL SPECIFICATIONS APPLY TO THE REMEDIAL ACTION WORK REQUIRED FOR PROPERTY NO. DU-059.
  - SECTION 02110  
CLEARING AND GRUBBING
  - SECTION 02130  
CONTAMINATED MATERIAL REMOVAL
  - SECTION 02200  
EXCAVATION AND BACKFILL
- UTILITY LOCATIONS ARE FOR REFERENCE ONLY. SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- THE EXCAVATION LIMITS AND DEPTHS ARE BASED ON A LIMITED NUMBER OF BORINGS TAKEN DURING THE RADIOLOGICAL SURVEYS OF THIS PROPERTY. ADDITIONAL RADIOLOGICAL SURVEYS PERFORMED DURING REMEDIAL ACTION MAY REQUIRE MORE OR LESS EXCAVATION TO BE TAKEN FROM THE DESIGNATED AREAS. ALL CHANGES TO THE LIMITS AND DEPTHS OF EXCAVATION AS SHOWN ON THE DESIGN DRAWINGS SHALL BE AS DIRECTED BY THE CONTRACTOR'S REPRESENTATIVE.
- REMOVE WIRE FENCE AND WOOD PILE FROM AREA 'D' AS REQUIRED FOR EXCAVATION. REPLACE IN ORIGINAL LOCATION UPON COMPLETION OF OTHER WORK.
- EXCAVATE AREAS 'A' AND 'D' TO THE LIMITS INDICATED ON THIS DRAWING. TO A DEPTH OF 6 INCHES. CONTRACTOR'S REPRESENTATIVE WILL RESURVEY TO DETERMINE WHETHER ADDITIONAL EXCAVATION WILL BE REQUIRED.
- DURING EXECUTION OF OTHER WORK ON THIS PROPERTY, THE CONTRACTOR'S REPRESENTATIVE WILL IDENTIFY THE LIMITS OF SMALL AREAS OF CONTAMINATED MATERIAL ON THE STEEP SLOPES. THE SUBCONTRACTOR SHALL EXCAVATE AND REMOVE THIS MATERIAL AS DIRECTED BY THE CONTRACTOR'S REPRESENTATIVE.
- BACKFILL ALL AREAS WITH COMMON FILL AND REGRADE AS REQUIRED TO MATCH ORIGINAL CONTOURS AND AS DIRECTED BY CONTRACTOR'S REPRESENTATIVE. ACCESS DRIVES SHALL BE RESTORED TO PRE-WORK CONDITION.



**ANSTEC  
APERTURE  
CARD**

Also Available on  
Aperture Card

9707090100-03

## NOTE

NORTHEAST CORNER OF HOUSE IS  
LOCATED AT N 49952.12, E 50321.95.  
SOUTHEAST CORNER OF HOUSE IS  
LOCATED AT N 49901.13, E 50322.75

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

EXCAVATION AND RESTORATION PLAN  
DU-059

DURANGO, COLORADO  
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

APPROVED: NR DATE: USE PROJECT MANAGER DATE: DOE PROJECT ENGINEER DATE: NR

**MARK-FERGUSON**  
A MERRILL KNUSSEN COMPANY

PROJECT NO. DE-AC04-83AL1878

DRAWING NO. DU-059-020

NO.	DATE	REVISIONS
1		FINAL REA SUBMITTAL

DU-059

Section II

Remedial Action

Verification Data and As Built Drawings

### Section II Summary

This section contains three drawings. DU-059-020 is the As-built drawing and it shows the actual area that was excavated. DU-059-030 shows the locations of all the verification grids and DU-059-032 shows which soil sample came from each of those grids.

Appendix A, Section II contains the analysis results for all the verification soil samples.





# LEGEND

W	WATER LINE
G	GAS LINE
CM	GAS MAIN
S	SEWER LINE
SM	SEWER MAIN
STM	STORM SEWER
E	ELECTRICAL LINE
T	TELEPHONE LINE
TV	CABLE TV
—	PROPERTY LINE
—	FENCE LINE
⊙ G.W. or E	METER
⊙ G or W	VALVE
○	PROPERTY PIN
⊙	POWER POLE

OVERHEAD SERVICE DENOTED BY SOLID LINE  
UNDERGROUND SERVICE DENOTED BY DASHED LINE

## NOTES:

- THE LATEST REVISION OF THE FOLLOWING TECHNICAL SPECIFICATIONS APPLY TO THE REMEDIAL ACTION WORK REQUIRED FOR PROPERTY NO. DU-059.
  - SECTION 02110  
CLEARING AND GRUBBING
  - SECTION 02130  
CONTAMINATED MATERIAL REMOVAL
  - SECTION 02200  
EXCAVATION AND BACKFILL
- UTILITY LOCATIONS ARE FOR REFERENCE ONLY. SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- THE EXCAVATION LIMITS AND DEPTHS ARE BASED ON A LIMITED NUMBER OF BORINGS TAKEN DURING THE RADIOLOGICAL SURVEYS OF THIS PROPERTY. ADDITIONAL RADIOLOGICAL SURVEYS PERFORMED DURING REMEDIAL ACTION MAY REQUIRE MORE OR LESS EXCAVATION TO BE TAKEN FROM THE DESIGNATED AREAS. ALL CHANGES TO THE LIMITS AND DEPTHS OF EXCAVATION AS SHOWN ON THE DESIGN DRAWINGS SHALL BE AS DIRECTED BY THE CONTRACTOR'S REPRESENTATIVE.
- REMOVE WIRE FENCE AND WOOD PILE FROM AREA 'D' AS REQUIRED FOR EXCAVATION. REPLACE IN ORIGINAL LOCATION UPON COMPLETION OF OTHER WORK.
- OWNER REMOVED ALL THE EXISTING BUILDINGS EXCEPT THE PUMPHOUSE PRIOR TO START OF REMEDIAL ACTION.
- EXCAVATED AREA "D" TO THE LIMITS INDICATED ON THIS DRAWING TO AN AVERAGE DEPTH OF 6 INCHES.
- EXCAVATED AREA "D1" TO THE LIMITS INDICATED ON THIS DRAWING TO AN AVERAGE DEPTH OF 12 INCHES.
- BACKFILL ALL AREAS WITH COMMON FILL AND GRADE TO MATCH ORIGINAL CONTOURS AS DIRECTED BY CONTRACTOR'S REPRESENTATIVE. TOP WITH NATIVE SEED, MULCH AND FERTILIZER. RESTORE ACCESS DRIVES TO PRE-WORK CONDITION.

NOTE: NORTHEAST CORNER OF ABANDONED FOUNDATION IS LOCATED AT N49952.12, E 50321.95.  
SOUTHEAST CORNER OF ABANDONED FOUNDATION IS LOCATED AT N49901.13, E 50322.75.

**ANSTEC  
APERTURE  
CARD**

Also Available on  
Aperture Card

AS-BUILT DRAWING

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

EXCAVATION AND RESTORATION PLAN  
DU-059

DURANGO, COLORADO  
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

DATE: NR DOI PROJECT MANAGER: NR DATE: NR DOI PROJECT ENGINEER: NR

**MK-FERGUSON**  
A MORRISON-KNUDSEN COMPANY

PROJECT NO. DE-AC04-83AL18796  
DRAWING NO. DU-059-020

NO.	DATE	REVISIONS	BY	CHKD	APP'D	APP'D	APP'D	APP'D
2	10-15-85	AS-BUILT DRAWING	CRW	SM	REC	SSO	SSO	-
1	7-28-85	REVISED NOTES	DJK	EDP	PMV	SSO	SSO	-
0	4-1-85	ISSUED FOR CONSTRUCTION	RE	SSO	SSO	SSO	SSO	-
NO	DATE	REVISIONS	BY	CHKD	APP'D	APP'D	APP'D	APP'D



EDGE OF PAVEMENT

STEEP SLOPE (TYPICAL)

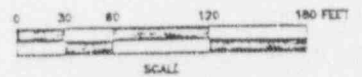
TRANSFORMER ON  
FIBERGLASS PAD

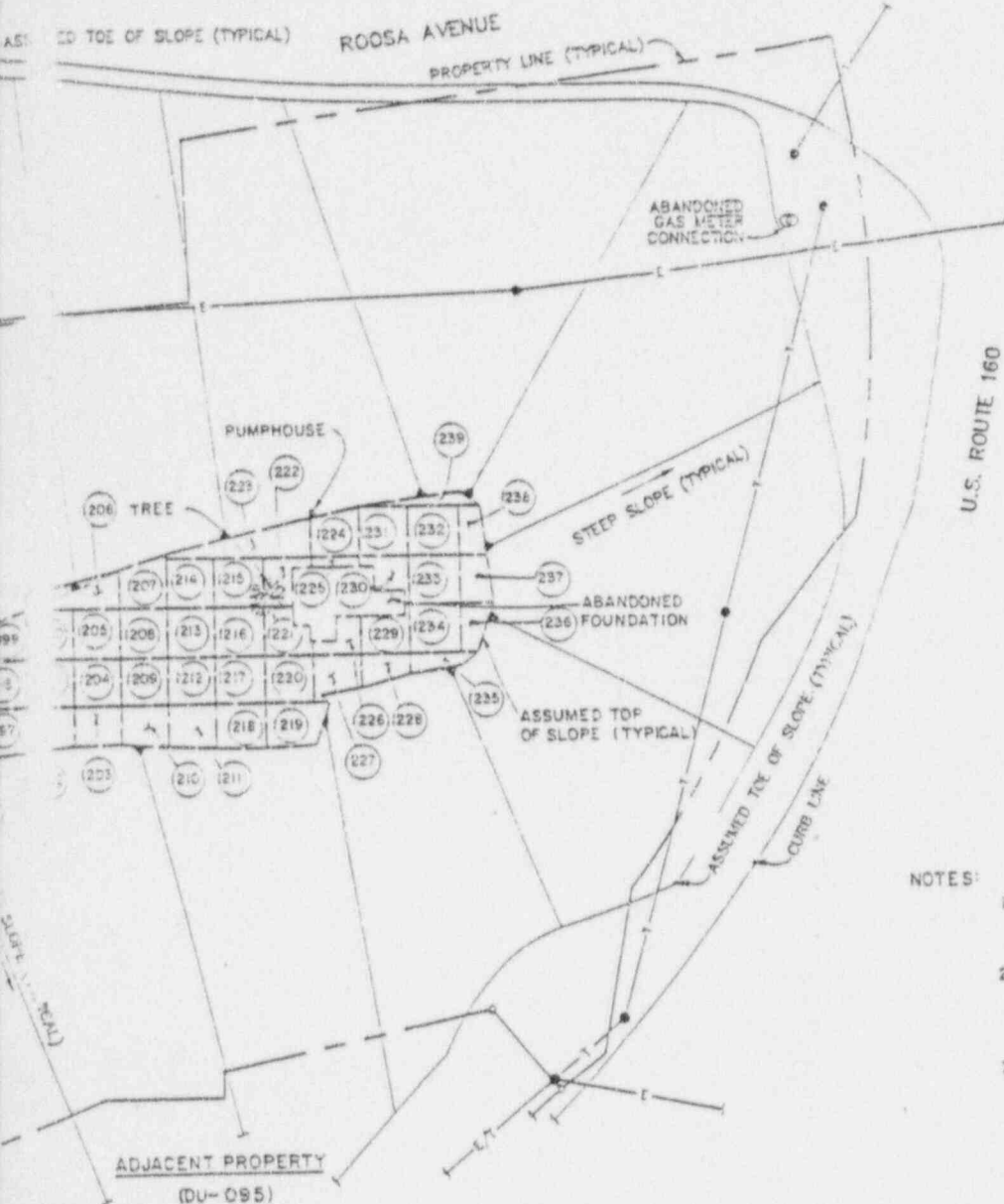
DIRT DRIVE

ADJACENT PROPERTY  
(DU-053)

ADJACENT PROPERTY  
(DU-096)

NATIVE GROWTH  
(TYPICAL)





# ANSTEC APERTURE CARD

Also Available on  
Aperture Card

## NOTES:

1. SEE DRAWING DU-059-031 FOR REMAINING CERTIFICATION RADIOLOGICAL PLAN.
2. SEE DRAWING DU-059-032 FOR VERIFICATION SOIL SAMPLE NUMBERS PERTAINING TO THIS DRAWING.
3. SEE DRAWING DU-059-034 FOR SUPPLEMENTAL STANDARDS PERTAINING TO DU-059.

9707090100-05

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

DESIGNED	BY	CERTIFICATION RADIOLOGICAL PLAN			
CHECKED	BY	DU-059			
REVIEWED	BY	DURANGO, COLORADO			
RECOMMENDED	BY	URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT			
APPROVED	DATE	DOE PROJECT MANAGER	DATE	DOE PROJECT ENGINEER	DATE
NR		NR		NR	
PROJECT NO.		DE-AC04-63AL18796			
DRAWING NO.		DU-059-030			





# VERIFICATION SO

LOCATION	SOIL SAMPLE NUMBER	LOCATION	SOIL SAMPLE NUMBER	LOCATION	SOIL SAMPLE NUMBER
1.	D-SV-10439	44.	D-SV-10489	88.	D-SV-10544
2.	D-SV-10440	45.	D-SV-10490	89.	D-SV-10545
3.	D-SV-10441	46.	D-SV-10491	90.	D-SV-10546
4.	D-SV-10442	47.	D-SV-10492	91.	D-SV-10547
5.	D-SV-10443	48.	D-SV-10493	92.	D-SV-10551
6.	D-SV-10444	49.	D-SV-10494	93.	D-SV-10556
7.	D-SV-10445	50.	D-SV-10495	94.	D-SV-10557
8.	D-SV-10446	51.	D-SV-10496	95.	D-SV-10558
9.	D-SV-10447	52.	D-SV-10497	96.	D-SV-10559
10.	D-SV-10448	53.	D-SV-10498	97.	D-SV-10560
11.	D-SV-10449	54.	D-SV-10499	98.	D-SV-10561
12.	D-SV-10450	55.	D-SV-10500	99.	D-SV-10562
13.	D-SV-10451	56.	D-SV-10501	100.	D-SV-10571
14.	D-SV-10452	57.	D-SV-10502		D-SV-10572
15.	D-SV-10453	58.	D-SV-10503	101.	D-SV-10573
16.	D-SV-10454	59.	D-SV-10504	102.	D-SV-10574
17.	D-SV-10455	60.	D-SV-10505	103.	D-SV-10575
18.	D-SV-10456		D-SV-10506	104.	D-SV-10576
19.	D-SV-10457	61.	D-SV-10507	105.	D-SV-10577
20.	D-SV-10458	62.	D-SV-10508	106.	D-SV-10578
	D-SV-10459	63.	D-SV-10509	107.	D-SV-10567
21.	D-SV-10460	64.	D-SV-10510		D-SV-10593
22.	D-SV-10461	65.	D-SV-10511	108.	D-SV-10594
23.	D-SV-10462	66.	D-SV-10512	109.	D-SV-10595
24.	D-SV-10463	67.	D-SV-10513	110.	D-SV-10596
25.	D-SV-10464	68.	D-SV-10514	111.	D-SV-10597
26.	D-SV-10465	69.	D-SV-10515	112.	D-SV-10598
27.	D-SV-10466	70.	D-SV-10516	113.	D-SV-10599
28.	D-SV-10467	71.	D-SV-10517	114.	D-SV-10560
29.	D-SV-10468	72.	D-SV-10518	115.	D-SV-10564
30.	D-SV-10469	73.	D-SV-10519	116.	D-SV-10565
31.	D-SV-10470	74.	D-SV-10520	117.	D-SV-10566
32.	D-SV-10471	75.	D-SV-10521	118.	D-SV-10567
33.	D-SV-10472	76.	D-SV-10522	119.	D-SV-10569
34.	D-SV-10473	77.	D-SV-10523	120.	D-SV-10568
35.	D-SV-10474	78.	D-SV-10524		D-SV-10570
36.	D-SV-10475	79.	D-SV-10525	121.	D-SV-10579
37.	D-SV-10476	80.	D-SV-10526	122.	D-SV-10580
38.	D-SV-10477		D-SV-10527	123.	D-SV-10581
39.	D-SV-10480	81.	D-SV-10528	124.	D-SV-10582
40.	D-SV-10484	82.	D-SV-10529	125.	D-SV-10583
	D-SV-10485	83.	D-SV-10536	126.	D-SV-10584
41.	D-SV-10486	84.	D-SV-10540	127.	D-SV-10585
42.	D-SV-10487	85.	D-SV-10541	128.	D-SV-10586
43.	D-SV-10488	86.	D-SV-10542	129.	D-SV-10600
		87.	D-SV-10543	130.	D-SV-10601
				131.	



# L SAMPLE

NUMBER	LOCATION	SOIL SAMPLE NUMBER	LOCATION	SOIL SAMPLE NUMBER	LOCATION	SOIL SAMPLE NUMBER
132.		D-SV-10602	174.	D-SV-10756	215.	D-SV-10776
133.		D-SV-10603	175.	D-SV-10656	216.	D-SV-10777
134.		D-SV-10604	176.	D-SV-10657	217.	D-SV-10778
135.		D-SV-10605	177.	D-SV-10658	218.	D-SV-10779
136.		D-SV-10606	178.	D-SV-10714	219.	D-SV-10780
137.		D-SV-10607	179.	D-SV-10715	220.	D-SV-10781
138.		D-SV-10608	180.	D-SV-10716		D-SV-10782
139.		D-SV-10619		D-SV-10717	221.	D-SV-10783
140.		D-SV-10620	181.	D-SV-10718	222.	D-SV-10784
		D-SV-10621	182.	D-SV-10719	223.	D-SV-10785
141.		D-SV-10622	183.	D-SV-10720	224.	D-SV-10786
142.		D-SV-10623	184.	D-SV-10721	225.	D-SV-10787
143.		D-SV-10624	185.	D-SV-10722	226.	D-SV-10788
144.		D-SV-10625	186.	D-SV-10723	227.	D-SV-10789
145.		D-SV-10626	187.	D-SV-10724	228.	D-SV-10790
146.		D-SV-10627	188.	D-SV-10725	229.	D-SV-10791
147.		D-SV-10628	189.	D-SV-10726	230.	D-SV-10792
148.		D-SV-10629	190.	D-SV-10727	231.	D-SV-10793
149.		D-SV-10630	191.	D-SV-10728	232.	D-SV-10794
150.		D-SV-10631	192.	D-SV-10729	233.	D-SV-10795
151.		D-SV-10632	193.	D-SV-10730	234.	D-SV-10796
152.		D-SV-10633	194.	D-SV-10730	235.	D-SV-10797
153.		D-SV-10634	195.	D-SV-10732	236.	D-SV-10798
154.		D-SV-10635	196.	D-SV-10733	237.	D-SV-10799
155.		D-SV-10636	197.	D-SV-10757	238.	D-SV-10800
156.		D-SV-10637	198.	D-SV-10758	239.	D-SV-10801
157.		D-SV-10638	199.	D-SV-10759	240.	D-SV-14982
158.		D-SV-10639	200.	D-SV-10760	241.	D-SV-14983
159.		D-SV-10640		D-SV-10761	242.	D-SV-14984
160.		D-SV-10750	201.	D-SV-10762	243.	D-SV-14985
		D-SV-10754	202.	D-SV-10763	244.	D-SV-14986
161.		D-SV-10644	203.	D-SV-10764	245.	D-SV-14987
162.		D-SV-10645	204.	D-SV-10765	246.	D-SV-14988
163.		D-SV-10646	205.	D-SV-10766	247.	D-SV-14989
164.		D-SV-10647	206.	D-SV-10767	248.	D-SV-14990
165.		D-SV-10648	207.	D-SV-10768	249.	D-SV-14991
166.		D-SV-10649	208.	D-SV-10769	250.	D-SV-14992
167.		D-SV-10650	209.	D-SV-10770	251.	D-SV-14993
168.		D-SV-10651	210.	D-SV-10771	252.	D-SV-14994
169.		D-SV-10652	211.	D-SV-10772	253.	D-SV-14995
170.		D-SV-10653	212.	D-SV-10773	254.	D-SV-14996
171.		D-SV-10755	213.	D-SV-10774	255.	D-SV-14997
172.		D-SV-10654	214.	D-SV-10775		D-SV-14998
173.		D-SV-10655				

**ANSTEC  
APERTURE  
CARD**

Also Available on  
Aperture Card

9707090100-06

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

DESIGNED/DRAWN CRW	VERIFICATION SOIL SAMPLE NUMBERS DU-059			
CHECKED				
REVIEWED				
RECOMMENDED				
APPROVED	DATE	CODE PROJECT MANAGER	DATE	SIDE PROJECT ENGINEER
NR		NR		NR
DURANGO, COLORADO URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT				
PROJECT NO. DE-ACO4-83AL18796				
DRAWING NO. DU-059-032				
MK-FERGUSON A MORRISON-KNUDSEN COMPANY				

NOTE:

1. SEE DRAWING DU-059-030 FOR  
VERIFICATION GRID LOCATION.

ISSUED FOR CERTIFICATION SURVEY	CRW
DRAWN FOR CARD APERTURE SURVEY	
APPROVED	

DU-059

Section III

Secondary Radiological and  
Engineering Assessment Data  
From Slopes

### Section III Summary

Section three contains the radiological data that was compiled from the steep slopes of the property. This data was used to determine the extent of contamination that will remain in place. Tables 3.1 and 3.2. show the exposure rates encountered on the slopes of the property. Table 3.3 is the soil sample data from the east slope and Table 3.4 is the soil sample data from the south and west slopes.

Three drawings are included in this section. DU-059-015 shows the location of the soil samples in Table 3.3. DU-059-031 shows the locations of the soil samples in Table 3.4. DU-059-035 shows the areas where contamination in excess of EPA standards will remain. These areas are where supplemental standards will apply.

Section III of Appendix A contains the field data for this section.

Table 3.1  
POINT OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
1	17	15
5	18	18
7	15	13
9	18	16
11	15	17
13	16	17
15	18	17
17	16	17
19	17	16
21	17	17
23	21	19
35	22	21
37	23	23
47	24	23
55	26	26
59	35	36
61	31	33
65	38	37

Table 3.2  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
1	18	18
2	19	18
3	19	19
4	19	20
5	17	17
6	16	17
7	19	18
8	18	18
9	18	18
10	19	18
11	18	18
12	18	18
13	18	18
14	18	19
15	19	19
16	20	19
17	19	19
18	21	20
19	20	19
20	20	19



Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
21	20	18
22	23	19
23	24	20
24	23	20
25	20	18
26	20	19
27	17	17
28	18	18
29	23	20
30	24	22
31	21	20
32	19	19
33	19	19
34	22	21
35	21	20
36	19	19
37	22	20
38	19	19
39	19	19
40	19	19
41	18	19

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
42	16	19
43	13	13
44	15	12
45	17	15
46	15	15
47	16	16
48	20	18
49	17	17
50	14	15
51	15	16
52		16
53	18	17
54	17	17
55	15	16
56	21	19
57	17	17
58	19	18
59	19	19
60	20	19
61	17	17

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
62	16	17
63	17	16
64	17	16
65	20	18
66	18	18
67	22	19
68	18	18
69	18	18
70	18	17
71	19	18
72	17	17
73	17	17
74	16	16
75	17	17
76	16	13
77	18	17
78	17	18
79	19	17
80	15	16
81	16	16
82	18	17

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
83	19	17
84	17	16
85	17	16
86	16	15
87	14	15
88	19	18
89	18	18
90	19	18
91	18	17
92	20	17
93	19	17
94	20	18
95	21	18
96	22	18
97	21	17
98	19	16
99	20	18
100	20	18
101	18	18
102	25	20
103	21	18

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
104	20	18
105	18	16
106	17	16
107	18	17
108	23	23
109	21	19
110	18	21
111	18	17
112	18	19
113	20	18
114	20	17
115	18	17
116	20	17
117	19	18
118	22	18
119	22	18
120	20	18
121	21	18
122	16	15
123	14	14
124	16	17



Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
125	15	16
126	15	15
127	18	19
128	21	19
129	21	20
130		20
131	23	21
132	21	21
133	16	16
134	23	17
135	22	19
136	19	20
137	23	19
138	19	18
139	20	18
140	19	18
141	22	18
142	16	18
143	22	18
144	17	16

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
145	17	18
146	18	17
147	26	19
148	16	17
149	17	17
150	18	18
151	19	19
152	22	21
153	29	22
154	21	23
155	18	18
156	21	20
157	22	21
158	19	19
159	24	21
160	18	18
161	20	19
162	20	19
163	22	23
164	19	19

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
165	21	20
166	19	19
167	19	19
168	17	18
169	27	22
170	29	22
171	18	18
172	19	19
173	21	20
174	19	18
175	17	19
176	27	24
177	26	24
178	19	19
179	18	18
180	19	19
181	19	18
182	24	22
183	27	24
184	25	23
185	19	18

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
186	19	19
187	19	18
188	20	19
189	20	18
190	19	20
191	20	19
192	19	19
193	20	19
194	24	22
195	20	20
196	20	19
197	19	19
198	21	21
199	20	20
200	20	20
201	20	20
202	19	19
203	22	20
228	20	20
229	20	20
230	21	20

Table 3.2 Cont'd.  
GRID OUTDOOR GAMMA SCREENING  
Property DU-059

LOCATION	CONTACT (micro R/hr)	1 METER (micro R/hr)
231	20	21
232	20	21
233	21	21
234	21	20
235	22	21
236	20	20
237	19	20
238	22	21
239	23	21
240	21	21
241	23	21
242	20	21
243	22	20
244	20	20
245	20	19
246	20	20
247	20	22



Table 3.3  
POINT SURFACE SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Point)	DEPTH (Inches)	Ra-226 CONCENTRATION (pCi/g)
DU-SS-8787	1	0 - 6	4.5
DU-SS-8881	2	6 - 12	1.4
DU-SS-8897	3	0 - 6	1.8
DU-SS-8779	4	6 - 12	1.9
DU-SS-8770	5	0 - 6	3.6
DU-SS-8889	6	6 - 12	1.7
DU-SS-8901	7	0 - 6	1.4
DU-SS-8841	8	6 - 12	0.9
DU-SS-8788	9	0 - 6	4.4
DU-SS-8891	10	6 - 12	5.6
DU-SS-8796	11	0 - 6	4.9
DU-SS-8807	12	6 - 12	2.4
DU-SS-8828	13	0 - 6	1.9
DU-SS-8860	14	6 - 12	1.2
DU-SS-8885	15	0 - 6	2.7
DU-SS-8886	16	6 - 12	1.5
DU-SS-8895	17	0 - 6	3.5
DU-SS-8914	18	6 - 12	3.6
DU-SS-8859	19	0 - 6	7.0
DU-SS-8879	20	6 - 12	5.0

Table 3.3 Cont'd.  
POINT SURFACE SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Point)	DEPTH (Inches)	Ra-226 CONCENTRATION (pCi/g)
DU-SS-8856	21	6 - 12	2.4
DU-SS-8858	22	0 - 6	5.7
DU-SS-8813	23	0 - 6	7.8
DU-SS-8873	24	6 - 12	2.5
DU-SS-8872	25	0 - 6	6.6
DU-SS-8882	26	6 - 12	2.6
DU-SS-8863	27	6 - 12	2.4
DU-SS-8866	28	0 - 6	4.3
DU-SS-8850	29	0 - 6	3.3
DU-SS-8875	30	6 - 12	3.4
DU-SS-8829	31	0 - 6	7.3
DU-SS-8874	32	6 - 12	2.1
DU-SS-8847	33	0 - 6	6.7
DU-SS-8844	34	6 - 12	3.3
DU-SS-8826	35	6 - 12	1.3
DU-SS-8869	36	0 - 6	2.1
DU-SS-8816	37	0 - 6	7.5
DU-SS-8846	38	6 - 12	4.5
DU-SS-8782	39	0 - 6	1.4
DU-SS-8868	40	6 - 12	1.6
DU-SS-8814	41	0 - 6	4.2

Table 3.3 Cont'd.  
POINT SURFACE SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Point)	DEPTH (Inches)	Ra-226 CONCENTRATION (pCi/g)
DU-SS-8820	42	6 - 12	1.1
DU-SS-8831	43	0 - 6	5.2
DU-SS-8809	44	6 - 12	5.8
DU-SS-8908	45	0 - 6	11.8
DU-SS-8834	46	6 - 12	1.4
DU-SS-8871	47	0 - 6	3.5
DU-SS-8798	48	6 - 12	1.5
DU-SS-3852	49	0 - 6	1.7
DU-SS-8862	50	0 - 6	7.8
DU-SS-8915	51	6 - 12	3.9
DU-SS-8819	52	6 - 12	4.4
DU-SS-8855	53	0 - 6	9.4
DU-SS-8853	54	6 - 12	3.6
DU-SS-8878	55	0 - 6	6.8
DU-SS-8773	56	6 - 12	1.4
DU-SS-8912	57	0 - 6	5.4
DU-SS-8848	58	0 - 6	2.1
DU-SS-8880	59	6 - 12	0.8
DU-SS-8785	60	6 - 12	1.7
DU-SS-8864	61	0 - 6	1.5
DU-SS-8780	62	6 - 12	4.2

Table 3.3 Cont'd.  
POINT SURFACE SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Point)	DEPTH (Inches)	Ra-226 CONCENTRATION (pCi/g)
DU-SS-8843	63	0 - 6	7.0
DU-SS-8854	64	6 - 12	0.9
DU-SS-8916	65	0 - 6	2.6

Table 3.4  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12405	059-1	0-6	2.79
DU-SS-12406	059-2	0-6	6.19
DU-SS-12407	059-3	0-6	4.72
DU-SS-12408	059-4	0-6	3.64
DU-SS-12409	059-5	0-6	5.23
DU-SS-12410	059-6	0-6	4.99
DU-SS-12418	059-7	0-6	3.50
DU-SS-12419	059-8	0-6	2.30
DU-SS-12420	059-9	0-6	3.04
DU-SS-12421	059-10	0-6	3.48
DU-SS-12422	059-11	0-6	2.61
DU-SS-12423	059-12	0-6	2.17
DU-SS-12424	059-13	0-6	2.13
DU-SS-12425	059-14	0-6	2.89
DU-SS-12426	059-15	0-6	2.99
DU-SS-12427	059-16	0-6	2.13
DU-SS-12428	059-17	0-6	2.84
DU-SS-12445	059-18	0-6	3.03
DU-SS-12446	059-19	0-6	2.81
DU-SS-12447	059-20	0-6	2.77
DU-SS-12448	059-21	0-6	4.26



Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12449	059-22	0-6	6.59
DU-SS-12450	059-23	0-6	6.35
DU-SS-12451	059-24	0-6	4.64
DU-SS-12452	059-25	0-6	3.22
DU-SS-12453	059-26	0-6	2.81
DU-SS-12454	059-27	0-6	2.65
DU-SS-12455	059-28	0-6	2.44
DU-SS-12456	059-29	0-6	3.73
DU-SS-12457	059-30	0-6	5.85
DU-SS-12458	059-31	0-6	5.30
DU-SS-12459	059-32	0-6	3.04
DU-SS-12460	059-33	0-6	2.49
DU-SS-12461	059-34	0-6	4.28
DU-SS-12462	059-35	0-6	3.76
DU-SS-12463	059-36	0-6	2.75
DU-SS-12464	059-37	0-6	4.27
DU-SS-12465	059-38	0-6	2.99
DU-SS-12466	059-39	0-6	3.53
DU-SS-12466	059-40	0-6	3.73
DU-SS-12468	059-41	0-6	5.45

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12469	059-42	0-6	2.19
DU-SS-12524	059-43	0-6	5.74
DU-SS-12525	059-44	0-6	3.80
DU-SS-12526	059-45	0-6	6.88
DU-SS-12527	059-46	0-6	9.01
DU-SS-12528	059-47	0-6	9.15
DU-SS-12529	059-48	0-6	5.37
DU-SS-12530	059-49	0-6	3.34
DU-SS-12531	059-50	0-6	4.2
DU-SS-12532	059-51	0-6	2.13
DU-SS-12533	059-52	0-6	3.34
DU-SS-12534	059-53	0-6	2.13
DU-SS-12535	059-54	0-6	10.08
DU-SS-12536	059-55	0-6	6.04
DU-SS-12537	059-56	0-6	3.95
DU-SS-12538	059-57	0-6	5.91
DU-SS-12539	059-58	0-6	6.5
DU-SS-12540	059-59	0-6	10.68
DU-SS-12541	059-60	0-6	9.15
DU-SS-12542	059-61	0-6	6.31
DU-SS-12543	059-62	0-6	5.03
DU-SS-12544	059-63	0-6	7.00

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12545	059-64	0-6	3.08
DU-SS-12546	059-65	0-6	3.72
DU-SS-12547	059-66	0-6	4.69
DU-SS-12548	059-67	0-6	2.95
DU-SS-12549	059-68	0-6	6.49
DU-SS-12550	059-69	0-6	8.78
DU-SS-12551	059-70	0-6	6.61
DU-SS-12552	059-71	0-6	5.30
DU-SS-12553	059-72	0-6	5.20
DU-SS-12554	059-73	0-6	5.80
DU-SS-12555	059-74	0-6	4.46
DU-SS-12556	059-75	0-6	2.31
DU-SS-12557	059-76	0-6	3.06
DU-SS-12558	059-77	0-6	6.30
DU-SS-12559	059-78	0-6	9.07
DU-SS-12560	059-79	0-6	3.43
DU-SS-12561	059-80	0-6	2.57
DU-SS-12562	059-81	0-6	9.25
DU-SS-12563	059-82	0-6	5.47
DU-SS-12564	059-83	0-6	6.39
DU-SS-12565	059-84	0-6	3.06

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12566	059-85	0-6	6.24
DU-SS-12567	059-86	0-6	6.70
DU-SS-12568	059-87	0-6	6.65
DU-SS-12569	059-88	0-6	5.07
DU-SS-12570	059-89	0-6	2.53
DU-SS-12571	059-90	0-6	7.00
DU-SS-12572	059-91	0-6	9.13
DU-SS-12573	059-92	0-6	5.73
DU-SS-12574	059-93	0-6	2.91
DU-SS-12575	059-94	0-6	9.91
DU-SS-12576	059-95	0-6	13.85
DU-SS-12577	059-96	0-6	15.11
DU-SS-12578	059-97	0-6	6.85
DU-SS-12579	059-98	0-6	13.93
DU-SS-12580	059-99	0-6	13.73
DU-SS-12581	059-100	0-6	10.60
DU-SS-12582	059-101	0-6	4.61
DU-SS-12583	059-102	0-6	12.88
DU-SS-12584	059-103	0-6	2.72
DU-SS-12585	059-104	0-6	6.27

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12586	059-105	0-6	3.26
DU-SS-12587	059-106	0-6	5.78
DU-SS-12588	059-107	0-6	5.47
DU-SS-12589	059-108	0-6	8.72
DU-SS-12590	059-109	0-6	9.13
DU-SS-12591	059-110	0-6	2.58
DU-SS-12623	059-111	0-6	3.26
DU-SS-12592	059-112	0-6	4.87
DU-SS-12593	059-113	0-6	2.04
DU-SS-12594	059-114	0-6	9.91
DU-SS-12595	059-115	0-6	5.10
DU-SS-12596	059-116	0-6	9.35
DU-SS-12597	059-117	0-6	4.85
DU-SS-12598	059-118	0-6	6.32
DU-SS-12599	059-119	0-6	12.14
DU-SS-12600	059-120	0-6	2.46
DU-SS-12601	059-121	0-6	5.03
DU-SS-12624	059-122	0-6	3.62
DU-SS-12625	059-123	0-6	2.13
DU-SS-12626	059-124	0-6	2.37
DU-SS-12627	059-125	0-6	2.68



Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12628	059-126	0-6	4.02
DU-SS-12631	059-127	0-6	3.60
DU-SS-12632	059-128	0-6	12.16
DU-SS-12633	059-129	0-6	4.65
DU-SS-12634	059-130	0-6	9.83
DU-SS-12635	059-131	0-6	13.45
DU-SS-12630	059-132	0-6	4.92
DU-SS-12636	059-133	0-6	2.13
DU-SS-12629	059-134	0-6	13.25
DU-SS-12637	059-135	0-6	7.03
DU-SS-12638	059-136	0-6	4.73
DU-SS-12639	059-137	0-6	10.08
DU-SS-12640	059-138	0-6	9.23
DU-SS-12641	059-139	0-6	12.32
DU-SS-12642	059-140	0-6	5.28
DU-SS-12643	059-141	0-6	3.76
DU-SS-12644	059-142	0-6	5.34
DU-SS-12645	059-143	0-6	3.58
DU-SS-12646	059-144	0-6	2.27
DU-SS-12647	059-145	0-6	2.92

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12665	059-146	0-6	3.89
DU-SS-12666	059-147	0-6	2.54
DU-SS-12667	059-148	0-6	4.45
DU-SS-12668	059-149	0-6	2.07
DU-SS-12669	059-150	0-6	5.82
DU-SS-12670	059-151	0-6	5.03
DU-SS-12671	059-152	0-6	10.70
DU-SS-12672	059-153	0-6	10.12
DU-SS-12673	059-154	0-6	18.80
DU-SS-12674	059-155	0-6	3.60
DU-SS-12675	059-156	0-6	5.86
DU-SS-12676	059-157	0-6	9.17
DU-SS-12677	059-158	0-6	6.96
DU-SS-12678	059-159	0-6	5.45
DU-SS-12679	059-160	0-6	2.44
DU-SS-12680	059-161	0-6	5.66
DU-SS-12681	059-162	0-6	7.20
DU-SS-12682	059-163	0-6	15.61
DU-SS-12683	059-164	0-6	3.69
DU-SS-12684	059-165	0-6	4.64
DU-SS-12685	059-166	0-6	4.66

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12710	059-167	0-6	3.21
DU-SS-12711	059-168	0-6	4.42
DU-SS-12712	059-169	0-6	6.70
DU-SS-12713	059-170	0-6	10.78
DU-SS-12714	059-171	0-6	6.16
DU-SS-12715	059-172	0-6	3.21
DU-SS-12716	059-173	0-6	3.87
DU-SS-12717	059-174	0-6	5.76
DU-SS-12718	059-175	0-6	2.91
DU-SS-12719	059-176	0-6	6.73
DU-SS-12720	059-177	0-6	9.37
DU-SS-12721	059-178	0-6	9.37
DU-SS-12722	059-179	0-6	3.23
DU-SS-12723	059-180	0-6	3.30
DU-SS-12724	059-181	0-6	3.22
DU-SS-12728	059-182	0-6	3.61
DU-SS-12729	059-183	0-6	6.15
DU-SS-12730	059-184	0-6	6.20
DU-SS-12731	059-185	0-6	3.96
DU-SS-12732	059-186	0-6	3.79
DU-SS-12733	059-187	0-6	2.37

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12734	059-188	0-6	2.71
DU-SS-12735	059-189	0-6	2.13
DU-SS-12736	059-190	0-6	2.13
DU-SS-12737	059-191	0-6	2.56
DU-SS-12738	059-192	0-6	3.02
DU-SS-12739	059-193	0-6	3.50
DU-SS-12740	059-194	0-6	3.81
DU-SS-12741	059-195	0-6	2.62
DU-SS-12742	059-196	0-6	3.35
DU-SS-12743	059-197	0-6	2.13
DU-SS-12744	059-198	0-6	4.03
DU-SS-12745	059-199	0-6	4.20
DU-SS-12746	059-200	0-6	2.99
DU-SS-12747	059-201	0-6	2.14
DU-SS-12748	059-202	0-6	2.31
DU-SS-12749	059-203	0-6	3.58
DU-SS-12785	059-229	0-6	3.18
DU-SS-12786	059-230	0-6	2.11
DU-SS-12787	059-231	0-6	3.93
DU-SS-12788	059-232	0-6	2.23
DU-SS-12789	059-233	0-6	2.11

Table 3.4 Cont'd.  
GRID SOIL SAMPLE SURVEY  
Property DU-059

SAMPLE ID	LOCATION (Property Grid)	DEPTH (Inches)	ESTIMATED FINAL Ra-226 CONCENTRATION (pCi/g)
DU-SS-12790	059-234	0-6	2.33
DU-SS-12791	059-235	0-6	2.46
DU-SS-12792	059-236	0-6	2.18
DU-SS-12793	059-237	0-6	2.14
DU-SS-12794	059-238	0-6	4.31
DU-SS-12795	059-239	0-6	2.41
DU-SS-12796	059-240	0-6	2.26
DU-SS-12797	059-241	0-6	2.23
DU-SS-12798	059-242	0-6	2.75
DU-SS-12799	059-243	0-6	2.34
DU-SS-12800	059-244	0-6	3.46
DU-SS-12802	059-245	0-6	2.40
DU-SS-12803	059-246	0-6	2.44
DU-SS-12804	059-247	0-6	3.84



Table 4.1  
Option II Cost Estimate

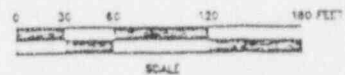
MACHINE EXCAVATION

Activity No.	Activity	Unit Price	Quantity	Estimated Cost
1.0	Slope Excavation	5.82	12,429 cy	\$ 72,337.00
2.0	Construction of Berm	28,252.00	1LS	28,252.00
3.0	Removal of Berm	22,267.00	1LS	22,267.00
4.0	Construction of Access Road	2,670.00	1LS	2,670.00
5.0	Road Repair	170,363.00	1LS	170,363.00
6.0	Backfill of Slopes	12.86	12,429 cy	159,837.00
7.0	Erosion Control	118,119.00	1LS	118,236.00
8.0	Seeding	11,119.00	1LS	11,119.00
Subtotal (Includes 19% Mark Up)				585,081.00
5% Subcontractor's Contingency				<u>29,254.00</u>
Total (Rounded)				614,300.00

Table 4.2  
Remedial Action Option I Cost Estimates

HAND EXCAVATION

Activity No.	Activity	Unit Price	Quantity	Estimated Cost
1.0	Hand Excavation	83.62	4083cy	\$ 341,420.00
2.0	Common Backfill	15.96	4083cy	65,165.00
3.0	Bulk Removal	5.80	4083cy	23,681.00
4.0	Traffic Control	7,200.00	1LS	7,200.00
5.0	Safety Fence	5.00	1500LF	7,500.00
6.0	Erosion Control	14,057.00	1LS	14,057.00
7.0	Native Seed	1.44	24,418sy	<u>35,162.00</u>
			Total	<u>\$494,185.00</u>
			5% Subcontractor's Contingency	24,709.00
			20% Overhead & Profit	<u>98,837.00</u>
			Total (Rounded)	\$ 618,000.00





# LEGEND

- BOREHOLE DESIGNATION
- SOIL SAMPLE DESIGNATION
- SS/SS-8906 BOREHOLE/SOIL SAMPLE DESIGNATION

## ESTIMATED DEPTH OF CONTAMINATION



6"

NOTE: NORTHEAST CORNER OF HOUSE IS LOCATED AT N 49952.12, E 50321.95  
SOUTHEAST CORNER OF HOUSE IS LOCATED AT N 49901.13, E 50322.75

# ANSTEC APERTURE CARD

Also Available on  
Aperture Card

9707090100-07

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

DESIGNED/DRAWN	RADIOLOGICAL SURVEY DATA			
CHECKED	DU-059			
REVIEWED	DURANGO, COLORADO			
RECOMMENDED	URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT			
APPROVED	DATE	DOE PROJECT MANAGER	DATE	DOE PROJECT ENGINEER
NR		NR		NR
PROJECT NO.		DE-AC04-83ALIB796		
DRAWING NO.		DU-059-015		

MK-FERGUSON  
A MORRISON KNUDSEN COMPANY

FINAL REA SUBMITTAL

REVISIONS

DRAWN: [blank] CHECKED: [blank] REVIEWED: [blank] RECOMMENDED: [blank] APPROVED: [blank] DATE: [blank] DOE PROJECT MANAGER: [blank] DATE: [blank] DOE PROJECT ENGINEER: [blank]

ADJACENT PROPERTY  
(DU-053)

TRANSFORMER ON  
FIBERGLASS PAD

DIRT DRIVE

STEEP SLOPE (TYPICAL)

(ASSUMED TOP OF SLOPE  
(TYPICAL))

NATIVE GROWTH  
(TYPICAL)

ADJACENT PROPERTY  
(DU-096)





ASSUMED TOE OF SLOPE (TYPICAL)

ROOSA AVENUE

PROPERTY LINE (TYPICAL)

PUMPHOUSE

TREE  
ABANDONED  
FOUNDATION

ADJACENT PROPERTY  
(DU-095)

ASSUMED TOE OF SLOPE (TYPICAL)

U.S. ROUTE 160

# ANSTEC APERTURE CARD

Also Available on  
Aperture Card

## NOTES:

1. SEE DRAWING DU-059-030 FOR REMAINING CERTIFICATION RADIOLOGICAL PLAN.
2. SEE DRAWING DU-059-033 FOR VERIFICATION SOIL SAMPLE NUMBERS PERTAINING TO THIS DRAWING.
3. SEE DRAWING DU-059-034 FOR SUPPLEMENTAL STANDARDS PERTAINING TO DU-059.

9707090100-08

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

CERTIFICATION RADIOLOGICAL PLAN

DU-059

DURANGO, COLORADO  
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

DESIGNED/DRAWN  
CHECKED  
REVIEWED  
RECOMMENDED

APPROVED NR DATE DOE PROJECT MANAGER DATE DOE PROJECT ENGINEER DATE NR



MK-FERGUSON  
A MORRISON KNUDSEN COMPANY

PROJECT NO.  
DE-AC04-83AL16796  
DRAWING NO. DU-059-031

NO.	DATE	REVISIONS	PGC	DRAWN	CHECKED	APPROVED	DATE	PGC	DATE
A	10-13-84	ISSUED FOR CERTIFICATION SURVEY							



TRANSFORMER ON  
FIBERGLASS PAD

ADJACENT PROPERTY  
(DU-053)

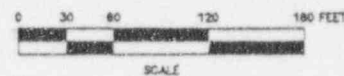
DIRT DRIVE

STEEP SLOPE (TYPICAL)

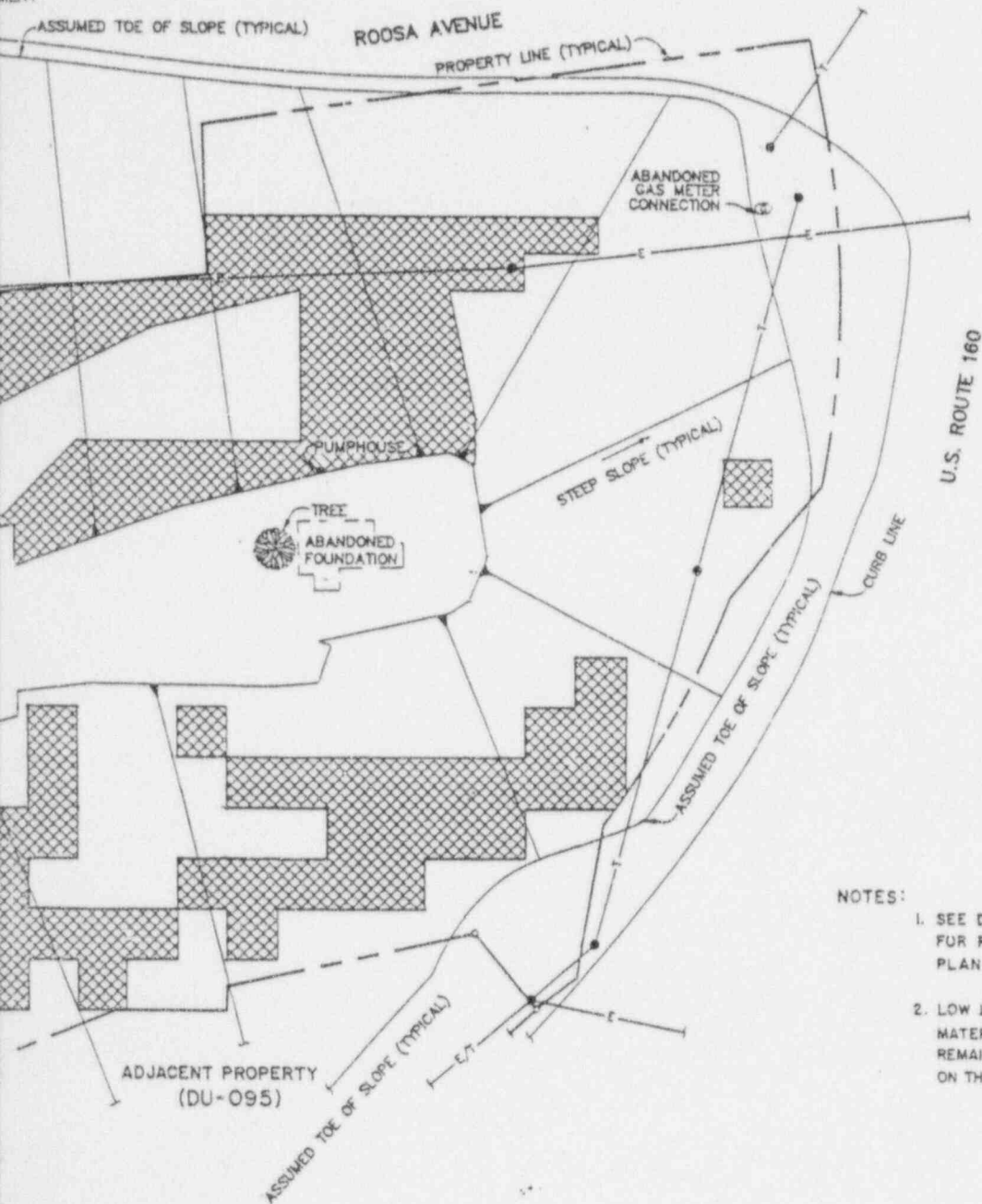
ASSUMED TOP C  
(TYPICAL)

NATIVE GROWTH  
(TYPICAL)

ADJACENT PROPERTY  
(DU-096)



MENT



CONTAMINATED MATERIAL  
(SEE NOTE 2)

# ANSTEC APERTURE CARD

Also Available on  
Aperture Card

## NOTES:

1. SEE DRAWING DU-059-030 AND DU-059-031 FOR REMAINING CERTIFICATION RADIOLOGICAL PLAN.
2. LOW LEVEL RADIOACTIVELY CONTAMINATED MATERIAL IN EXCESS OF E.P.A. STANDARDS REMAINS IN PLACE IN THE LOCATIONS INDICATED ON THIS DRAWING.

9707090100-09

U. S. DEPARTMENT OF ENERGY  
ALBUQUERQUE, NEW MEXICO

DESIGNED ☒ DRAWN  
CHECKED ☒  
REVIEWED  
RECOMMENDED  
APPROVED

## CERTIFICATION RADIOLOGICAL PLAN SUPPLEMENTAL STANDARDS DU-059

DURANGO, COLORADO  
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

NR

DATE

DOE PROJECT MANAGER

DATE

DOE PROJECT ENGINEER

DATE

NR

NR

PROJECT NO.

DE-AC04-83AL18796



MK-FERGUSON

A MORRISON KNUDSEN COMPANY

DRAWING NO.

DU-059-035

REV.

R

NO.	DATE	REVISIONS	DRAWN	CHECKED	APPROVED	APPROVED	PROJ.	APPROVED
B	07/28/90	REVISED CONTAMINATED MATERIAL	KH					
A	10/30/89	ISSUED FOR CERTIFICATION SURVEY	PGC					
NO.	DATE	REVISIONS	DRAWN	CHECKED	APPROVED	APPROVED	PROJ.	APPROVED
			ST	ST	LDE	PH	ENG	DOE

APPENDIX A  
RADIOLOGICAL SURVEY DATA

2800F

A-1

DU-059

APPENDIX A

RADIOLOGICAL SURVEY DATA

Section I

Initial Survey Data



## SURVEY NOTES DU-059

### SOIL SAMPLING

#### Surface and Subsurface

151 soil samples were taken from the areas of the property where the slope precluded borehole exploration. The sampling was done according to a grid system, with a surface sample and a sample from 6"-12" in depth taken at each location. DCS counts of the samples after ingrowth show surficial contamination throughout most of the area, characteristic of windblown type properties. Only one sample, at NS0000 E50200, shows contamination 215 pCi/g at 6"-12" depth. No further depth exploration was done here due to the inability to get borehole equipment to this location.

Two samples were taken in the limited crawlspace area that was accessible. Both results were 12.5 pCi/g, indicating that the contamination does not run under the house, which was built prior to the uranium milling operations in Durango.

Five surface soil samples were obtained from an area where boreholes were drilled with surface readings of 2290 to 2774 cpm. The DCS counts after ingrowth ranged from 9.23 to 22.2 pCi/g. Although no surface soil samples were obtained from the central area of the North end of the property, readings up to 2553 cpm are found there. Since this is the area of the property furthest from the tailings piles, this area is also assumed to have windblown contamination.

### GAMMA SURVEYS

#### Exterior

A gamma scan of the property was conducted in the area where boreholes were drilled and logged. Background readings were elevated due to the proximity to the tailings pile. Surface borehole readings of 2200 cpm + indicate windblown contamination of 5 pCi/g or more throughout the boreholed area, generally to 6" in depth. The area around the house had borehole readings 3300 cpm, but not exceeding 12" in depth.

#### Interior

Gamma scans conducted throughout the interior of the house revealed background +30% readings in most of the ground floor rooms. Readings in the four rooms of the basement were <1700 cpm, and in conjunction with the two clean soil samples taken from the crawlspace, shows no contamination under the house. As the area of deepest contamination appears to be around the house, further gamma scans and working levels in the interior will be conducted once remedial action is completed, and the tailings pile is removed.



# BOREHOLE LOG

LOGGING CREW: C. Fiehl  
L. Montoya

SHEET 1 OF 4.3 PAGE 1

DATE: 11-2-87

PROPERTY ID: Du-059

INSTRUMENT ID NO. Du-048, Knudsen 2250 244-1D  
# 35023 w/ 19509

AREA: \_\_\_\_\_

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION

OBSTRUCTION, UTILITIES, ETC., IN THE

#1

#2

#3

HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____

DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	1835	SURFACE	1818	SURFACE	2001	SURFACE	2517
0"	1915	0"	2371	0"	2034	0"	1945
6"	2042	6"	28.3	6"	2193	6"	2277
12"	2132	12"	2501	12"	2152	12"	2236
18"	2080	18"	2413	18"	2193	18"	2331
24"	2077	24"	CBST	24"	2161	24"	2429
30"		30"		30"		30"	CBST
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #1 N 50800 E 50000  
#2 N 50800 E 50050  
#3 N 50800 E 50150  
#4 N 50800 E 50250

# BOREHOLE LOG

LOGGING CREW: C. F. Ellis  
L. Montoya

SHEET 12 OF 13 PAGE 2

DATE: 11-2-84

PROPERTY ID: D11-059

INSTRUMENT ID NO. Dur 48 Ludlum 2221 w/44-10  
# 356-23 w/ # 19524

AREA: \_\_\_\_\_

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2206	SURFACE	2083	SURFACE	2362	SURFACE	2421
0"	2094	0"	2073	0"	2134	0"	1934
6"	2080	6"	1991	6"	2167	6"	2073
12"	2073	12"	1995	12"	2096	12"	2224
18"	2153	18"	2031	18"	1862	18"	2033
24" 22"	1957	24"	0835	24"	0835	24"	0835
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #5 N 50800 E 51300

#6 N 50710 E 50240

#7 N 50700 E 50250

#8 N 50710 E 50150



# BOREHOLE LOG

 LOGGING CREW: C. Fields

 SHEET 3 OF 4.3 PAGE 3
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: D4-051

 INSTRUMENT ID NO. DUR 245 Serial 220-10/94-10 AREA:

# 35623 w/ # 19569

- NOTES: 1 ALL HOLES ARE 4" DIA UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION

#9		#10		#11		#12	
HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	1701	SURFACE	1943	SURFACE	2626	SURFACE	2518
0"	2149	0"	2029	0"	2498	0"	2118
6"	2321	6"	2057	6"	2351	6"	2276
12"	2296	12"	2059	12"	2177	12"	2217
18"	2282	18"	2129	18"	1962	18"	2066
24"	2095	24"	2036	24"	1844	24"	2191
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS: #9 N 50700 E 50050
#10 N 50700 E 50000
#11 N 50600 E 50050
#12 N 50600 E 50250

# BOREHOLE LOG

 LOGGING CREW: C. Field

 SHEET 4 OF 43 PAGE 4
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: DA-059

 INSTRUMENT ID NO. DUP 48 Widium 2231 044941 AREA: \_\_\_\_\_

#35023 W/ #195051

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#13		#14		#15		#16	
HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____
TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2290	SURFACE	1621	SURFACE	2378	SURFACE	2412
0"	2328	0"	1763	0"	1911	0"	2328
6"	2300	6"	1688	6"	1995	6"	2285
12"	2096	12"	1950	12"	2023	12"	2200
18"	1791	18"	2067	18"	1924	18"	2199
24"		24" 20"	1840	24"		24" 20"	2191
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #13 N 50500 E 10500
#14 N 50500 E 10500
#15 N 50500 E 10500
#16 N 50500 E 10500



# BOREHOLE LOG

LOGGING CREW: C. Fields

SHEET 5 OF 7 PAGE 5
L. Montoya

DATE: 11-2-87

PROPERTY ID: DU-059

INSTRUMENT ID NO. Durco 40, Ludlum 2220 w/4440 AREA: \_\_\_\_\_

\* 35623 w/ # K9509

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED. CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#17

#18

#19

#20

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	1864	SURFACE	2013	SURFACE	1961	SURFACE	2343
0"	2023	0"	2055	0"	1927	0"	2485
6"	2087	6"	2062	6"	2217	6"	3565
12"	2211	12"	2171	12"	2424	12"	3183
18"	2237	18"	2315	18"	2481	18"	2290
24"	2209	24" 20"	2184	24" 20"	2423	24" 20"	2238
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #17 N 50500 E 50000
#18 N 50500 E 50000
#19 N 50400 E 50100
#20 N 50400 E 50200

# BOREHOLE LOG

 LOGGING CREW: C Fields

 SHEET 6 OF 43 PAGE 6
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: DU-659

 INSTRUMENT ID NO. DUR-048 Medium 220144-16 AREA: \_\_\_\_\_

# 35623 WPR #19504

NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.

2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#21

#22

#23

#24

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2269	SURFACE	2692	SURFACE	2029	SURFACE	2151
0"	2421	0"	2396	0"	2113	0"	2111
6"	2233	6"	2376	6"	2179	6"	1981
12"	2029	12"	2065	12"	2067	12"	1973
18"	2112	18"	1984	18"	2163	18"	1951
24"		24"		24"	2390	24"	
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #21 N 51.500 E 50300 N 50.400
#22 N 51.200 E 50300
#23 N 51.300 E 50200
#24 N 51.500 E 50100

# BOREHOLE LOG

 LOGGING CREW: C Fields

 SHEET 7 OF 4 PAGE 7
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: DA-059

 INSTRUMENT ID NO. Dur 485 Ludlum 220 w/44-10

AREA: \_\_\_\_\_

# 35627/12# 19589

- NOTES: 1 ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#25		#26		#27		#28	
HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____
TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	<u>5000</u>	SURFACE	<u>2250</u>	SURFACE	<u>2745</u>	SURFACE	<u>2650</u>
0"	<u>2174</u>	0"	<u>2185</u>	0"	<u>2582</u>	0"	<u>2640</u>
6"	<u>2195</u>	6"	<u>2460</u>	6"	<u>2885</u>	6"	<u>2776</u>
12"	<u>2112</u>	12"	<u>2472</u>	12"	<u>2542</u>	12"	<u>2568</u>
18"	<u>1996</u>	18"	<u>2418</u>	18"	<u>263</u>	18"	<u>2620</u>
24"	<u>CRST</u>	24"		24"	<u>2373</u>	24"	<u>1499</u>
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS: #25 N 5000 E 5000
#26 N 5000 E 5000
#27 N 5000 E 5000
#28 N 5000 E 5000



# BOPFHOLE LOG

LOGGING CREW: C. Fields  
L. McIntyre

SHEET 8 OF 43 PAGE 8

DATE: 11-2-67

PROPERTY ID: DU-059

INSTRUMENT ID NO. DUR 148 hudson 2220 W/44-40 AREA  
#5023 W/19529

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#29		#30		#31		#32	
HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____
TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2873	SURFACE	3054	SURFACE	2481	SURFACE	2267
0"	3032	0"	2970	0"	2494	0"	2425
6"	3687	6"	2771	6"	2572	6"	2616
12"	4113	12"	2497	12"	2629	12"	2529
18"	2911	18"	2435	18"	2635	18"	CBST
24"20"	2693	24"	CBST	24"20"	2528	24"	
30"	CBST	30"		30"	CBST	30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #29 N 50100 E 20300  
#30 N 50100 E 20200  
#31 N 50100 E 20250  
#32 N 50100 E 20300

# BOREHOLE LOG

LOGGING CREW: C. Field

SHEET 47 OF 43 PAGE 47
L. H. H. H. H. H.

DATE: 11-2-87

PROPERTY ID: DU-059

INSTRUMENT ID NO. DUR 048 Lullum 2220 w/4440 AREA:

#35623 by #14589

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#33		#34		#35		#36	
HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	3036	SURFACE	2419	SURFACE		SURFACE	
0"	2760	0"	2398	0"		0"	
6"	3275	6"	2426	6"		6"	
12"	3491	12"	2522	12"		12"	
18"	2684	18"	2970	18"		18"	
24"	2338	24"	CONST	24"		24"	
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #33 115000 E 130300
#34 N 44900 E 50350
#35
#36



# BOREHOLE LOG

LOGGING CREW: C Fields  
L Montague

SHEET 10 OF 43 PAGE 10

DATE: 11-2-87

PROPERTY ID: DU-059

INSTRUMENT ID NO. DUE 244 <sup>(48)</sup> Ludlum 2220 with 10 AREA:   
#35623 WPR# 19569

NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#3

#38

#39

#40

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	4112	SURFACE	4199	SURFACE	4549	SURFACE	4020
0"	4166	0"	4344	0"	4529	0"	3982
6"	3534	6"	3976	6"	3621	6"	4156
12"	3269	12"	3713	12"	2873	12"	3300
18"	OBST	18"	2645	18"	2255	18"	2813
24"		24"	2529	24" 20"	2209	24"	2557
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		0"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #37 N 49840 E 50 310

#38 N 49840 E 50 320

#39 N 49833 E 50 300

#40 N 49840 E 50 320

# BOREHOLE LOG

LOGGING CREW: C. Gell  
L. Montoya

SHEET 11 OF 13 PAGE 11

DATE: 11-2-87

PROPERTY ID: DLI-009

INSTRUMENT ID NO. Dur 48 Ludlum 2220 w/440  
#35623 w/PR #1989

AREA: \_\_\_\_\_

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#91		#92		#93		#94	
HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	3461	SURFACE	3705	SURFACE	2840	SURFACE	3439
0"	2964	0"	3437	0"	2669	0"	2808
6"	2518	6"	2891	6"	2417	6"	2386
12"	2300	12"	2407	12"	2469	12"	2179
18"	2012	18"	2459	18"	2293	18"	2102
24"		24" 30"	2461	24"		24"	
30"		30"	CRST	30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #91 N 49887 E 50325

#92 N 49870 E 50310

#93 N 49875 E 50310

#94 N 41870 E 50285

# BOREHOLE LOG

LOGGING CREW: C. Fields  
L. Montague

SHEET 12 OF 43 PAGE 12

DATE 11-2-87

PROPERTY ID: DU-657

INSTRUMENT ID NO. DUR: 40 Ludlum 2221, W44-10  
#35623 WPK#14589

AREA: \_\_\_\_\_

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#45

#46

#47

#48

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2962	SURFACE	3172	SURFACE	3056	SURFACE	3454
0"	2727	0"	3184	0"	3125	0"	3429
6"	2612	6"	3179	6"	3390	6"	4007
12"	2426	12"	2716	12"	2865	12"	3107
18"	2300	18"	2402	18"	2245	18"	2578
24"20"	2223	24"20"	2234	24"20"	2129	24"	2385
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #45 N 49449 E 50270

#46 N 49449 E 50270

#47 N 49449 E 50270

#48 N 49449 E 50270

# BOREHOLE LOG

 LOGGING CREW: C Fields

 SHEET 13 OF 13 PAGE 13
L. M. Smith, Jr.

 DATE: 11-2-87

 PROPERTY ID: D11-159

 INSTRUMENT ID NO D11-159 726 W/44-10  
#35623 W/#14569

AREA: \_\_\_\_\_

- NOTES: 1. ALL HOLES ARE 4" DIA UNLESS OTHERWISE NOTED  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#49		#50		#51		#52	
HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	4529	SURFACE	34916	SURFACE	4133	SURFACE	3644
0"	3614	0"	3493	0"	3969	0"	3564
6"	3914	6"	3363	6"	3616	6"	2627
12"	3663	12"	2861	12"	2762	12"	2573
18"	2674	18"	2133	18"	2697	18"	2536
24"	2447	24"		24"		24"	2373
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #49 N 4515 TO C 50-260
#50 N 4515 TO C 50-260
#51 N 4515 TO C 50-260
#52 N 4515 TO C 50-260



# BOREHOLE LOG

 LOGGING CREW: C. Frell

 SHEET 14 OF 43 PAGE 14
L. Montoya

 DATE: 11-5-87

 PROPERTY ID: DLI-0587

 INSTRUMENT ID NO. DUR 045 Ludlum 2220 w/4440 AREA: \_\_\_\_\_

#30623 w/IR# 19569

NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.

2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#53
#54
#55
#56

HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____

DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2138	SURFACE	2477	SURFACE	2392	SURFACE	1922
0"	1922	0"	2091	0"	2127	0"	1973
6"	2126	6"	2245	6"	2376	6"	2166
12"	2194	12"	2330	12"	2224	12"	2124
18"	2351	18"	2331	18"	2094	18"	2224
24"		24"		24"		24"	2099
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS: #53 N 41913 E 50.44
#54 N 11550 E 50.00
#55 N 50715 E 50.10
#56 N 50720 E 50.150



# BOREHOLE LOG

LOGGING CREW: C. Fields

SHEET 15 OF 13 PAGE 15

L. Montoya

DATE: 11-2-87

PROPERTY ID: DU 059

INSTRUMENT ID NO Sur 48 Audum 2220 6/84-10 AREA:   
#35623 w/ # 17584

- NOTES 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2123	SURFACE	2062	SURFACE	2138	SURFACE	2643
0"	2276	0"	2069	0"	2150	0"	2416
6"	2673	6"	2171	6"	2286	6"	2656
12"	2578	12"	2254	12"	2324	12"	2443
18"	2420	18"	2746	18"	2235	18"	2234
24" 20"	2315	24"	2144	24"		24"	2239
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS #57 N 4700 L 5.005

#58 N 2069 L 5.010

#59 N 2138 L 5.015

#60 N 2643 L 5.016

# BOREHOLE LOG

 LOGGING CREW: C. Fields

 SHEET 16 OF 43 PAGE 16
L. Montague

 DATE: 11-2-82

 PROPERTY ID: D11-059

 INSTRUMENT ID NO. Dur 242 Williams 2220 W/44-10

AREA: \_\_\_\_\_

# 35023 w/ # 19589

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#61
#62
#63
#64

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2100	SURFACE	2216	SURFACE	1894	SURFACE	1470
0"	2304	0"	2367	0"	1858	0"	2032
6"	2135	6"	2377	6"	1991	6"	2054
12"	2012	12"	2239	12"	2029	12"	2153
18"	2172	18"	2169	18"	2010	18"	2126
24"	2140	24"20"	2164	24"20"	2101	24"20"	2015
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #61 N 70.00 E 200.00
#62 N 50.00 E 200.00
#63 N 20.00 E 500.00
#64 N 20.00 E 500.00

# BOREHOLE LOG

 LOGGING CREW: C. Smith

 SHEET 17 OF 47 PAGE 17
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: DU-059

 INSTRUMENT ID NO. DUR 094 44111111 0000 0/44-10

AREA: \_\_\_\_\_

#35625 1-1172-19589

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#65		#66		#67		#68	
HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____	HOLE ID: _____	TIME DRILLED: _____
TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____	TIME LOGGED: _____	SOIL TYPE: _____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2438	SURFACE	1929	SURFACE	2447	SURFACE	2551
0"	2430	0"	2029	0"	2309	0"	2369
6"	2128	6"	2225	6"	2320	6"	2502
12"	2130	12"	2443	12"	2178	12"	2262
18"	2125	18"	2523	18"	2180	18"	
24"20"	2089	24"20"	2016	24"20"	2156	24"	
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #65 N 51500 (2009)
#66 N 51500 (2009)
#67 N 51500 (2009)
#68 N 51500 (2009)

# BOREHOLE LOG

LOGGING CREW: C. Ellis  
L. Montague

SHEET 18 OF 43 PAGE 18

DATE: 11-2-67

PROPERTY ID: DLI-059

INSTRUMENT ID NO. Dur 2048, Ludlum 2220 449-10 AREA: \_\_\_\_\_

#356234/PR\*19589

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#69

#70

#72

HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____

DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	1141	SURFACE	2815	SURFACE	2454	SURFACE	2677
0"	1761	0"	2488	0"	2346	0"	1959
6"	1852	6"	2695	6"	2519	6"	1775
12"	1991	12"	2273	12"	2376	12"	1755
18"	1978	18"	2291	18"	2285	18"	1663
24" 20"	1997	24" 20"	2273	24"	2473	24"	
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #69 N 50940 E 50070

#71 N 50940 E 50070

#70 N 50940 E 50070

#72 N 50940 E 50070



# BOREHOLE LOG

 LOGGING CREW: C. Fields

 SHEET 11 OF 42 PAGE 17
Lightning

 DATE: 11-2-87

 PROPERTY ID: DL-059

 INSTRUMENT ID NO. Dur 644 Ludlum 2220494 AREA:
# 30623 WIR # K1589

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION

#73

#74

#75

#76

HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____

DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2380	SURFACE	2863	SURFACE	3224	SURFACE	2162
0"	2302	0"	2579	0"	2888	0"	2108
6"	2620	6"	2857	6"	2533	6"	1936
12"	2331	12"	2863	12"	2141	12"	1845
18"	2116	18"	2311	18"	2075	18"	1772
24"	2193	24"	2209	24" 20"	2052	24" 20"	1798
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #73 N 1/4 SEC 130
#74 N 1/4 SEC 130
#75 N 1/4 SEC 130
#76 N 1/4 SEC 130



# BOREHOLE LOG

 LOGGING CREW C Fields

 SHEET 20 OF 23 PAGE 20
L Montoya

 DATE 11-2-87

 PROPERTY ID DU-057

 INSTRUMENT ID NO. DUR 090 Ludlum 2220 #49-10 AREA: \_\_\_\_\_

# 35623 WIR #1984

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS - USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

#77		#78		#79		#80	
HOLE ID: _____	_____	HOLE ID: _____	_____	HOLE ID: _____	_____	HOLE ID: _____	_____
TIME DRILLED: _____	_____	TIME DRILLED: _____	_____	TIME DRILLED: _____	_____	TIME DRILLED: _____	_____
TIME LOGGED: _____	_____	TIME LOGGED: _____	_____	TIME LOGGED: _____	_____	TIME LOGGED: _____	_____
SOIL TYPE: _____	_____	SOIL TYPE: _____	_____	SOIL TYPE: _____	_____	SOIL TYPE: _____	_____
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2141	SURFACE	2765	SURFACE	2774	SURFACE	2404
0"	2206	0"	2461	0"	2207	0"	2237
6"	2063	6"	2363	6"	2416	6"	1903
12"	2097	12"	2262	12"	2363	12"	2053
18"	2112	18"	2060	18"	2096	18"	2075
24"		24"		24"	2046	24"	
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #77 N 5000 E 5000
#78 N 5000 E 5000
#79 N 5000 E 5000
#80 N 5000 E 5000
N 5000

# BOREHOLE LOG

 LOGGING CREW: C Fields

 SHEET 21 OF 21 PAGE 21
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: DU-059

 INSTRUMENT ID NO. DIG 046 Ludlum 2250 1/44-0

AREA: \_\_\_\_\_

# 30623 with # 14564

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
 2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	1762	SURFACE	2319	SURFACE	<del>2374</del> 1729	SURFACE	2319
0"	1770	0"	2264	0"	1874	0"	2195
6"	2308	6"	2430	3"	2208	6"	2385
12"	2410	12"	2376	12"	2216	12"	2296
18"	2407	18"	2216	18"	2281	18"	2276
24"	2400	24"	2309	24"	2461	24"	
30"		30"	2192	30"	2496	30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS #81 V 50850 E 50700
#82 V 50850 E 50175
#83 V 50850 E 50175
#84 V 50850 E 50175

## BOREHOLE LOG

LOGGING CREW: C Fielding  
Harmon Boyd

SHEET 2.2 OF 1/3 PAGE 2-1

DATE: 11-2-81

PROPERTY ID: DU-659

INSTRUMENT ID NO. Sur 648 Ludlum 2270 w/24-10 AREA

# 35623 W/R # 19524

- NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.  
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: _____	HOLE ID: _____	HOLE ID: _____	HOLE ID: _____
TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____	TIME DRILLED: _____
TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____	TIME LOGGED: _____
SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____	SOIL TYPE: _____

DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	1584	SURFACE	2018	SURFACE	2277	SURFACE	2092
0"	1661	0"	2094	0"	2164	0"	2099
6"	1954	6"	2279	6"	2492	6"	2437
12"	2078	12"	2147	12"	2472	12"	2450
18"	2293	18"	2157	18"	2219	18"	2372
24"	2134	24"	1997	24"	2353	24"	2317
30"		30"		30"	2393	30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: #85 N 50855 E 50150

#86 N 50850 E 50145

#87 N 50800 E 50155

#88 N 50750 E 50140

## BOREHOLE LOG

 LOGGING CREW: C. Fields

 SHEET 2-2 OF 2 PAGE 2-2
L. Montoya

 DATE: 11-2-87

 PROPERTY ID: 04-659

 INSTRUMENT ID NO. Du264E Ludlum 222, C-144-10 AREA: \_\_\_\_\_

# 55623 w/PK#19589

NOTES: 1. ALL HOLES ARE 4" DIA. UNLESS OTHERWISE NOTED.

2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS.

OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION

#89
#90
#91
#92

HOLE ID: _____		HOLE ID: _____		HOLE ID: _____		HOLE ID: _____	
TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____		TIME DRILLED: _____	
TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____		TIME LOGGED: _____	
SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____		SOIL TYPE: _____	
DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN	DEPTH	COUNTS/1MIN
SURFACE	2259	SURFACE	2448	SURFACE	2553	SURFACE	1407
0"	2124	0"	2250	0"	2172	0"	1751
6"	2464	6"	2472	6"	2451	6"	1746
12"	2430	12"	2250	12"	2341	12"	1938
18"	2365	18"	2090	18"	2231	18"	1492
24"	2216	24"	2094	24"	2124	24"	1933
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

 REMARKS: #89 150' 750' E 500' 10'
#90 N 500' 10' E 500' 10'
#91 N 500' 10' E 500' 10'
#92 N 500' 10' E 500' 10'



SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day * Final Count	COMM.
DU-SS-8894	059	N 50200 E 50000	< 15cm	5.09	
DU-SS-8895	"	N 50600 E 50450	< 15cm	3.51	
DU-SS-8896	"	N 49700 E 50400	< 15cm	24.6	
DU-SS-8897	"	N 50800 E 50400	< 15cm	1.77	
DU-SS-8898	"	N 49900 E 50100	< 15cm	6.20	
DU-SS-8899	"	N 49600 E 50400	< 15cm	3.51	
DU-SS-8900	"	N 49700 E 50300	> 15cm	2.40	6" to 12"
DU-SS-8901	"	N 50700 E 50350	< 15cm	1.37	
DU-SS-8902	"	N 49600 E 50550	< 15cm	4.55	
DU-SS-8903	"	N 50100 E 50200	< 15cm	7.51	
DU-SS-8904	"	N 49600 E 50550	> 15cm	2.58	6" to 12"
DU-SS-8905	"	N 49600 E 50450	> 15cm	3.05	6" to 12"
DU-SS-8906	"	N 49900 E 50100	< 15cm	6.16	
DU-SS-8907	"	N 49700 E 50250	< 15cm	2.31	
DU-SS-8908	"	N 50000 E 50350	< 15cm	11.8	
DU-SS-8909	"	N 49600 E 50400	> 15cm	3.79	6" to 12"
DU-SS-8910	"	N 49600 E 50550	> 15cm	4.75	6" to 12"
DU-SS-8911	"	N 49700 E 50400	> 15cm	2.80	6" to 12"



SOIL SAMPLE ANALYSIS REPORT ID.: DU-059

PURPOSE: R5A

SAMPLE ID: #	AREA	COORDINATES	DEPTH	20-Day *	Final Count	COMM.
--------------	------	-------------	-------	----------	-------------	-------

DV-SS-8876	059	N 50300 E 50050	<15cm	13.1		
DV-SS-8877	"	N 49800 E 50350	>15cm	2.41	6" to 12"	
DV-SS-8878	"	N 49700 E 50450	<15cm	6.78		
DV-SS-8879	"	N 50500 E 50350	>15cm	5.04	6" to 12"	
DV-SS-8880	"	N 49800 E 50400	>15cm	0.820	6" to 12"	
DV-SS-8881	"	N 50800 E 50350	>15cm	1.43	6" to 12"	
DV-SS-8882	"	N 50400 E 50400	>15cm	2.57	6" to 12"	
DV-SS-8883	"	N 49700 E 50300	<15cm	1.72		
DV-SS-8884	"	N 49800 E 50200	>15cm	6.68	6" to 12"	
DV-SS-8885	++	N 50600 E 50400	<15cm	2.72		
DV-SS-8886	"	N 50600 E 50400	>15cm	1.54	6" to 12"	
DV-SS-8887	"	N 49700 E 50500	>15cm	1.50	6" to 12"	
DV-SS-8888	"	N 49700 E 50450	>15cm	1.54	6" to 12"	
DV-SS-8889	"	N 50800 E 50450	>15cm	1.68	6" to 12"	
DV-SS-8890	"	N 49600 E 50550	>15cm	1.91	6" to 12"	
DV-SS-8891	"	N 50700 E 50900	>15cm	5.56	6" to 12"	
DV-SS-8892	"	N 49800 E 50100	<15cm	1.22		
DV-SS-8893	"	N 50000 E 50200	>15cm	30.2	6" to 12"	

## SOIL SAMPLE ANALYSIS PROPERTY II.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day * Final Count	COMM.
DU-SS-8858	-059	N 50500 E 50400	<15cm	5.67	
DU-SS-8859	"	N 50500 E 50350	<15cm	6.95	
DU-SS-8860	"	N 50600 E 50350	>15cm	1.15	6" to 12"
DU-SS-8861	"	N 49900 E 50100	>15cm	2.38	6" to 12"
DU-SS-8862	"	N 50000 E 50500	<15cm	7.72	
DU-SS-8863	"	N 50400 E 50450	>15cm	2.44	6" to 12"
DU-SS-8864	"	N 49800 E 50450	<15cm	1.46	
DU-SS-8865	"	N 49700 E 50350	<15cm	2.54	
DU-SS-8866	"	N 50400 E 50450	<15cm	4.27	
DU-SS-8867	"	N 50100 E 50150	<15cm	0.880	
DU-SS-8868	"	N 50200 E 50450	>15cm	1.58	6" to 12"
DU-SS-8869	"	N 50200 E 50350	<15cm	2.14	
DU-SS-8870	"	N 49600 E 50450	<15cm	2.20	
DU-SS-8871	"	N 50000 E 50400	<15cm	3.46	
DU-SS-8872	"	N 50400 E 50400	<15cm	6.56	
DU-SS-8873	"	N 50400 E 50350	>15cm	2.45	6" to 12"
DU-SS-8874	"	N 50300 E 50400	>15cm	2.05	6" to 12"
DU-SS-8875	"	N 50300 E 50350	>15cm	3.37	6" to 12"

## SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day * Final Count	COM.
DU-SS-8767	-059	N 49900 E 50250	>15cm	4.64	6" to 12"
DU-SS-8768	"	N 50000 E 50100	<15cm	4.73	
DU-SS-8769	"	N 50100 E 50200	>15cm	3.67	6" to 12"
DU-SS-8770	"	N 50800 E 50450	<15cm	3.57	
DU-SS-8771	"	N 49900 E 50100	>15cm	2.26	6" to 12"
DU-SS-8772	"	N 50100 E 50100	>15cm	1.79	6" to 12"
DU-SS-8773	"	N 49900 E 50500	>15cm	1.44	6" to 12"
DU-SS-8774	"	N 50900 E 50050	<15cm	2.11	
DU-SS-8775	"	N 50300 E 49950	<15cm	1.26	
DU-SS-8776	"	N 50400 E 50050	>15cm	2.93	6" to 12"
DU-SS-8777	"	N 49900 E 50050	>15cm	1.13	6" to 12"
DU-SS-8778	"	N 49800 E 50150	<15cm	6.15	
DU-SS-8779	"	N 50800 E 50400	>15cm	1.92	6" to 12"
DU-SS-8780	"	N 49800 E 50500	>15cm	4.24	6" to 12"
DU-SS-8781	"	N 49800 E 50050	<15cm	8.27	
DU-SS-8782	"	N 50200 E 50750	<15cm	1.35	
DU-SS-8783	"	N 50200 E 50100	<15cm	3.65	
DU-SS-8784	"	N 50200 E 50000	>15cm	2.07	6" to 12"

SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day Final Count	COMPL.
DU-SS-8785	-059	N 49800 E 50450	>15cm	1.71	6" to 12"
DU-SS-8786	"	N 49800 E 50200	<15cm	3.01	
DU-SS-8787	"	N 50800 E 50350	<15cm	4.47	
DU-SS-8788	"	N 50700 E 50400	<15cm	4.42	
DU-SS-8789	"	N 49700 E 50450	<15cm	1.03	
DU-SS-8790	"	N 50400 E 50050	>15cm	11.4	6" to 12"
DU-SS-8791	"	N 49900 E 50050	>15cm	1.84	6" to 12"
DU-SS-8792	"	N 50100 E 50000	>15cm	2.19	6" to 12"
DU-SS-8793	"	N 50300 E 50000	>15cm	2.17	6" to 12"
DU-SS-8794	"	N 50000 E 50200	<15cm	15.1	
DU-SS-8795	"	N 49800 E 50150	>15cm	1.62	6" to 12"
DU-SS-8796	"	N 50700 E 50450	<15cm	4.94	
DU-SS-8797	"	N 50300 E 49950	>15cm	3.55	6" to 12"
DU-SS-8798	"	N 50000 E 50450	>15cm	1.45	6" to 12"
DU-SS-8799	"	N 50200 E 50150	<15cm	9.07	
DU-SS-8800	"	N 50000 E 50150	>15cm	1.42	6" to 12"
DU-SS-8801	"	N 49800 E 50250	>15cm	4.71	6" to 12"
DU-SS-8802	"	N 50000 E 50000	<15cm	2.87	



SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day * Final Count	COMM.
DV-SS-8803-059		N 50200 E 50050	> 15cm	1.73	6" to 12"
DV-SS-8804	"	N 50100 E 50050	< 15cm	2.07	
DV-SS-8805	"	N 49900 E 50250	< 15cm	5.73	
DV-SS-8806	"	N 49800 E 50250	> 15cm	4.40	6" to 12"
DV-SS-8807	"	N 50700 E 50450	> 15cm	2.42	6" to 12"
DV-SS-8808	"	N 50300 E 50000	< 15cm	4.78	
DV-SS-8809	"	N 50000 E 50350	> 15cm	5.92	6" to 12"
DV-SS-8810	"	N 50200 E 50050	< 15cm	3.99	
DV-SS-8811	"	N 50100 E 50150	> 15cm	1.14	6" to 12"
DV-SS-8812	"	N 50100 E 50050	> 15cm	1.91	6" to 12"
DV-SS-8813	"	N 50400 E 50350	< 15cm	7.84	
DV-SS-8814	"	N 50100 E 50400	< 15cm	1.22	
DV-SS-8815	"	N 50000 E 50150	< 15cm	1.72	
DV-SS-8816	"	N 50200 E 50400	< 15cm	7.47	
DV-SS-8817	"	N 49800 E 50100	> 15cm	1.608	6" to 12"
DV-SS-8818	"	N 50300 E 50050 <sup>+</sup>	> 15cm	4.35	6" to 12"
DV-SS-8819	"	N 49900 E 50400	> 15cm	4.02	6" to 12"
DV-SS-8820	"	N 50100 E 50400	> 15cm	1.06	6" to 12"



SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day* Final Count	COMM.
Du-SS-8821	059	N 49800 E 50300	<15cm	3.24	
Du-SS-8822	"	N 49700 E 50500	<15cm	0.973	
Du-SS-8823	"	N 49800 E 50350	<15cm	4.37	
Du-SS-8824	"	N 50400 E 50000	<15cm	9.55	
Du-SS-8825	"	N 49900 E 50150	>15cm	1.23	6" to 12"
Du-SS-8826	"	N 50200 E 50350	>15cm	1.27	6" to 12"
Du-SS-8827	"	N 50000 E 50100	>15cm	1.20	6" to 12"
Du-SS-8828	"	N 50600 E 50350	<15cm	1.93	
Du-SS-8829	"	N 50300 E 50400	<15cm	7.32	
Du-SS-8830	"	N 49900 E 50150	<15cm	2.96	
Du-SS-8831	"	N 50100 E 50450	<15cm	5.16	
Du-SS-8832	"	N 49900 E 50200	>15cm	1.71	6" to 12"
Du-SS-8833	"	N 50000 E 50000	>15cm	2.05	6" to 12"
Du-SS-8834	"	N 50000 E 50400	>15cm	1.37	6" to 12"
Du-SS-8835	"	N 50100 E 50000	<15cm	2.46	
Du-SS-8836	"	N 50200 E 50100	>15cm	2.13	6" to 12"
Du-SS-8837	"	N 49900 E 50200	<15cm	2.56	
Du-SS-8838	"	N 50000 E 50050	<15cm	4.37	

SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID. #	AREA	COORDINATES	DEPTH	20-Day * Final Count	COMM.
Du-SS-8839	059	N 49800 E 50050	> 15cm	7.58	6" to 12"
Du-SS-8840	"	N 49100 E 50250	> 15cm	1.20	6" to 12"
Du-SS-8841	"	N 50700 E 50350	> 15cm	0.869	6" to 12"
Du-SS-8842	"	N 49700 E 50350	> 15cm	2.13	6" to 12"
Du-SS-8843	"	N 49800 E 50500	< 15cm	6.99	
Du-SS-8844	"	N 50300 E 50450	> 15cm	3.26	6" to 12"
Du-SS-8845	"	N 49800 E 50300	> 15cm	1.28	6" to 12"
Du-SS-8846	"	N 50200 E 50400	> 15cm	4.45	6" to 12"
Du-SS-8847	"	N 50300 E 504580	< 15cm	6.71	
Du-SS-8848	"	N 49800 E 50400	< 15cm	2.13	
Du-SS-8849	"	N 50300 E 50100	< 15cm	2.01	
Du-SS-8850	"	N 50300 E 50350	< 15cm	3.28	
Du-SS-8851	"	N 50100 E 50100	< 15cm	2.81	
Du-SS-8852	"	N 50300 E 50450	< 15cm	1.72	
Du-SS-8853	"	N 49900 E 50400	> 15cm	3.63	6" to 12"
Du-SS-8854	"	N 49700 E 50550	> 15cm	.946	6" to 12"
Du-SS-8855	"	N 49900 E 50400	< 15cm	9.36	
Du-SS-8856	"	N 50500 E 50400	> 15cm	2.37	6" to 12"

SOIL SAMPLE ANALYSIS PROPERTY ID.: DU-059

PURPOSE: RSA

SAMPLE ID: #	AREA	COORDINATES	DEPTH	INITIAL COUNT (PCL/3)	20-Day FETAL (PCL/3)	COM.
-SS-8912	-059	N 49900 E 50500	<15cm	*	5.36	
-SS-8913	-059	N 50300 E 50100	>15cm	*	2.39	6" to 12"
U-SS-8914	-059	N 50600 E 50450	>15cm	*	3.55	6" to 12"
U-SS-8915	-059	N 50000 E 50500	>15cm	*	3.90	6" to 12"
U-SS-8916	-059	N 49700 E 50550	<15cm	*	2.57	
U-SS-8917	-059	N 50000 E 50050	>15cm	*	2.61	6" to 12"
U-SS-8918	-059	N 50200 E 50150	>15cm	*	5.59	6" to 12"
DU-SS-8613	-059	Crawlspace under the house	<15cm	1.40	1.28	Rm. 23
DU-SS-8618	-059	Crawl space under the house	<15cm	1.21	0.582	Rm. 23
DU-SS-8614	-059	N 50325 E 50300	<15cm	9.48	19.0	
DU-SS-8615	-059	N 50400 E 50325	<15cm	10.7	22.2	
DU-SS-8616	-059	N 50300 E 50275	<15cm	8.94	20.5	
DU-SS-8617	-059	N 50225 E 50275	<15cm	5.66	11.2	
DU-SS-8619	-059	N 50550 E 50225	<15cm	4.84	9.23	

\* Initial count

# INTERIOR SURVEY DATA LOG/EXPOSURE

 SURVEY CREW CRAIG FIELDS

 SHEET 37 OF 47 PAGE 37
LOUIS MONTOYA

DATE \_\_\_\_\_

 PROPERTY ID # DU-059

 PROJECT UMTRA
ESP-1

EXPOSURE DATA

 SURVEY METHOD: ☐ 2220
 
 INST. ID # 1665 W/ PR 42
☐ PIC
 

INST. ID# \_\_\_\_\_ CALIBRATION DATE \_\_\_\_\_

ROOM: # 1		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	2300	
W. WALL	2000	
FLOOR	2000	
CEILING	2400	

ROOM: # 2		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	2000	
E. WALL	1900	
FLOOR	1900	
CEILING	2500	

ROOM: # 3		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
W. WALL	2000	
N. WALL	2100	
FLOOR	1900	
CEILING	2300	

ROOM: # 4		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	2150	
E. WALL	2000	
FLOOR	1900	
CEILING	2100	

ROOM: # 5		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	2100	
W. WALL	2000	
N. WALL	1300	
FLOOR	2000	
CEILING	2100	

ROOM: # 6		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	2500	
E. WALL	2700	
FLOOR	1900	
CEILING	2500	

COMMENTS: \_\_\_\_\_

 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# INTERIOR SURVEY DATA LOG/EXPOSURE

SURVEY CREW CRAIG FIELDS

SHEET 1 OF 4 PAGE 5

LOUIS MONTOYA

DATE \_\_\_\_\_

PROPERTY ID # DU-059

PROJECT UMTRA

ESP-1

EXPOSURE DATA

SURVEY METHOD: C 220

INST. ID # 1665 W/ PR 42

☐ PIC

INST. ID# \_\_\_\_\_

CALIBRATION DATE \_\_\_\_\_

ROOM: # 7		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1900	
E. WALL	2100	
W. WALL	1800	
FLOOR	1900	
CEILING	2400	

ROOM: # 8		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	2000	
W. WALL	2100	
FLOOR	1900	
CEILING	2200	

ROOM: # 9		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	2000	
E. WALL	1800	
FLOOR	1900	
CEILING	2200	

ROOM: # 10		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1700	
W. WALL	2000	
FLOOR	1900	
CEILING	2100	

ROOM: # 11		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1700	
E. WALL	1900	
FLOOR	1900	
CEILING	2100	

ROOM: # 12		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1700	
E. WALL	2300	
W. WALL	1600	
S. WALL	2000	
FLOOR	1800	
CEILING	2200	

COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# INTERIOR SURVEY DATA LOG/EXPOSURE

SURVEY CREW CRAIG FIELDS

SHEET 23 OF 42 PAGE 1

LOUIS MONTOYA

DATE \_\_\_\_\_

PROPERTY ID # DU-059

PROJECT UMTRA

ESP-1

EXPOSURE DATA

SURVEY METHOD: C 2220

INST. ID # 1665 W/ PR 42

☐ PIC

INST. ID# \_\_\_\_\_

CALIBRATION DATE \_\_\_\_\_

ROOM: #13		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1300	
E. WALL	1400	
W. WALL	1600	
FLOOR	1300	
CEILING	1700	

ROOM: #14		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
S. WALL	1900	
E. WALL	2200	
FLOOR	1600	
CEILING	2200	

ROOM: #15		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1800	
E. WALL	2300	
W. WALL	1600	
FLOOR	1900	
CEILING	2200	

ROOM: #16		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	2000	
W. WALL	2000	
S. WALL	2000	
FLOOR	1600	
CEILING	2100	

ROOM: #17		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1650	
E. WALL	1500	
W. WALL	2000	
S. WALL	1700	
FLOOR	1400	
CEILING	2100	

ROOM: #18		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1300	
E. WALL	1100	
S. WALL	1500	
FLOOR	1300	
CEILING	1500	

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# INTERIOR SURVEY DATA LOG/EXPOSURE

SURVEY CREW CRAIG FIELDS

SHEET 7/2 OF 4/2 PAGE 1/2

LOUIS MONTOYA

DATE \_\_\_\_\_

PROPERTY ID # DU-059

PROJECT UMTRA

ESP-1

EXPOSURE DATA

SURVEY METHOD: ☐ 2220

INST. ID # 1665 W/ PR 42

☐ PIC

INST. ID# \_\_\_\_\_ CALIBRATION DATE \_\_\_\_\_

ROOM: #19		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
E. WALL	1600	
W. WALL	1600	
S. WALL	1500	
FLOOR	1500	
CEILING	1800	

ROOM: #20		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1800	
E. WALL	1500	
W. WALL	2000	
FLOOR	1900	
CEILING	1700	

ROOM: #21		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1500	
S. WALL	1100	
FLOOR	1500	
CEILING	1400	

ROOM: RM. 22		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1100	
E. WALL	1600	
S. WALL	1300	
FLOOR	1300	
CEILING	1400	

ROOM: #23		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. WALL	1700	
E. WALL	1600	
W. WALL	1100	
FLOOR	1600	
CEILING	1400	

ROOM: #24		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
VI. WALL	1600	
S. WALL	1600	
FLOOR	1550	
CEILING	1300	

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# INTERIOR SURVEY DATA LOG-EXPOSURE

SURVEY CREW CRAIG FIELDS

SHEET 37 OF 42 PAGE 1

LOUIS MONTOYA

DATE \_\_\_\_\_

PROPERTY ID # DU-059

PROJECT UMTRA

ESP-1  
SURVEY METHOD: C 2220

EXPOSURE DATA  
INST. ID # 1665 W/ PR 42

☐ PIC INST. ID# \_\_\_\_\_ CALIBRATION DATE \_\_\_\_\_

ROOM: #23 (TRANSPARE)		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h
N. END	1400	
E. END	1250	
W. END	1100	
S. END	1600	
FLOOR	1100	
CEILING	1200	

ROOM:		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h

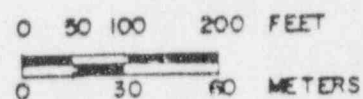
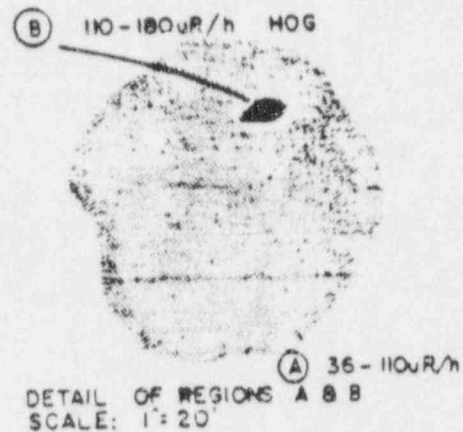
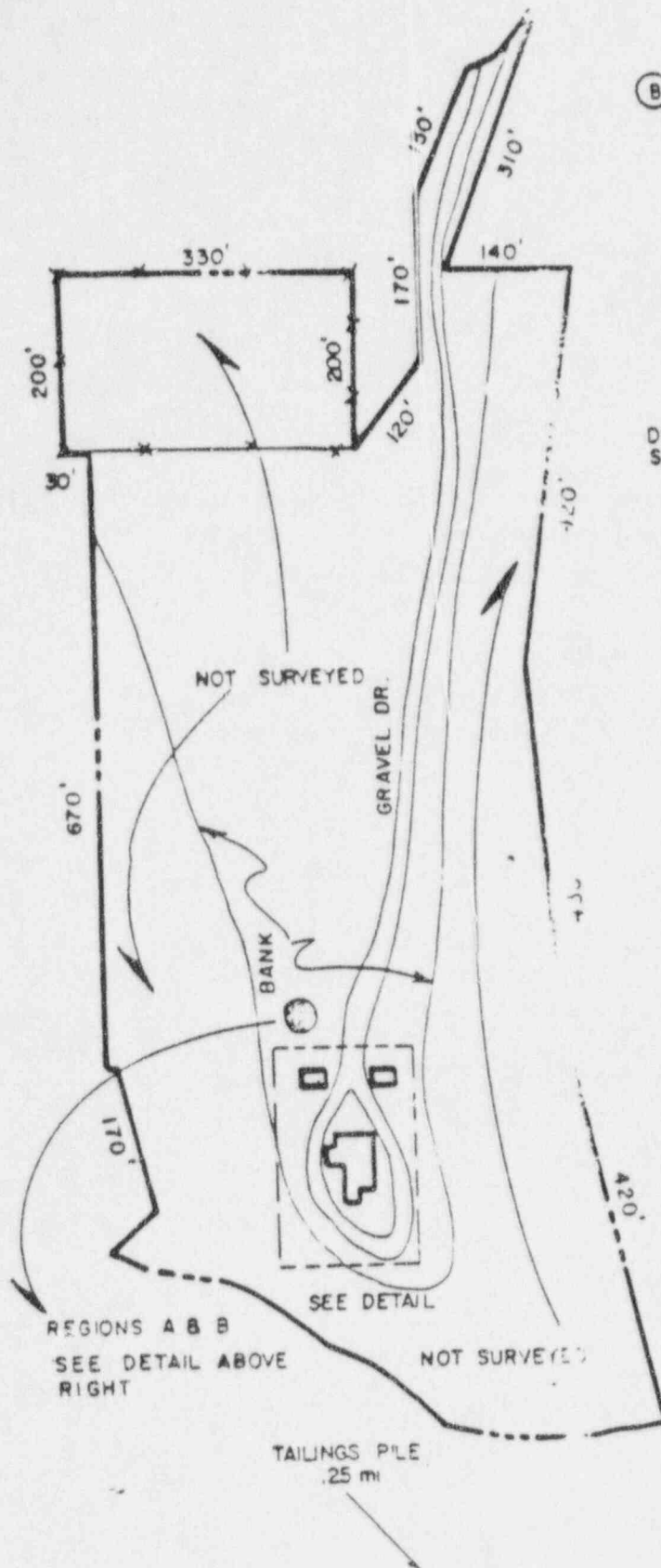
ROOM:		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h

ROOM:		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h

ROOM:		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h

ROOM:		
READING LOCATION	COUNTS /0.1MIN	RATE uR/h

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



DU00059  
NW CORNER W. ROOSA  
& US HIGHWAY 160

SHEET 1 OF 2

Figure 1a. Location DU00059 - Northwest Corner of West Roosa and Hwy 160, Durango, Colorado (outdoors - sheet 1 of 2)



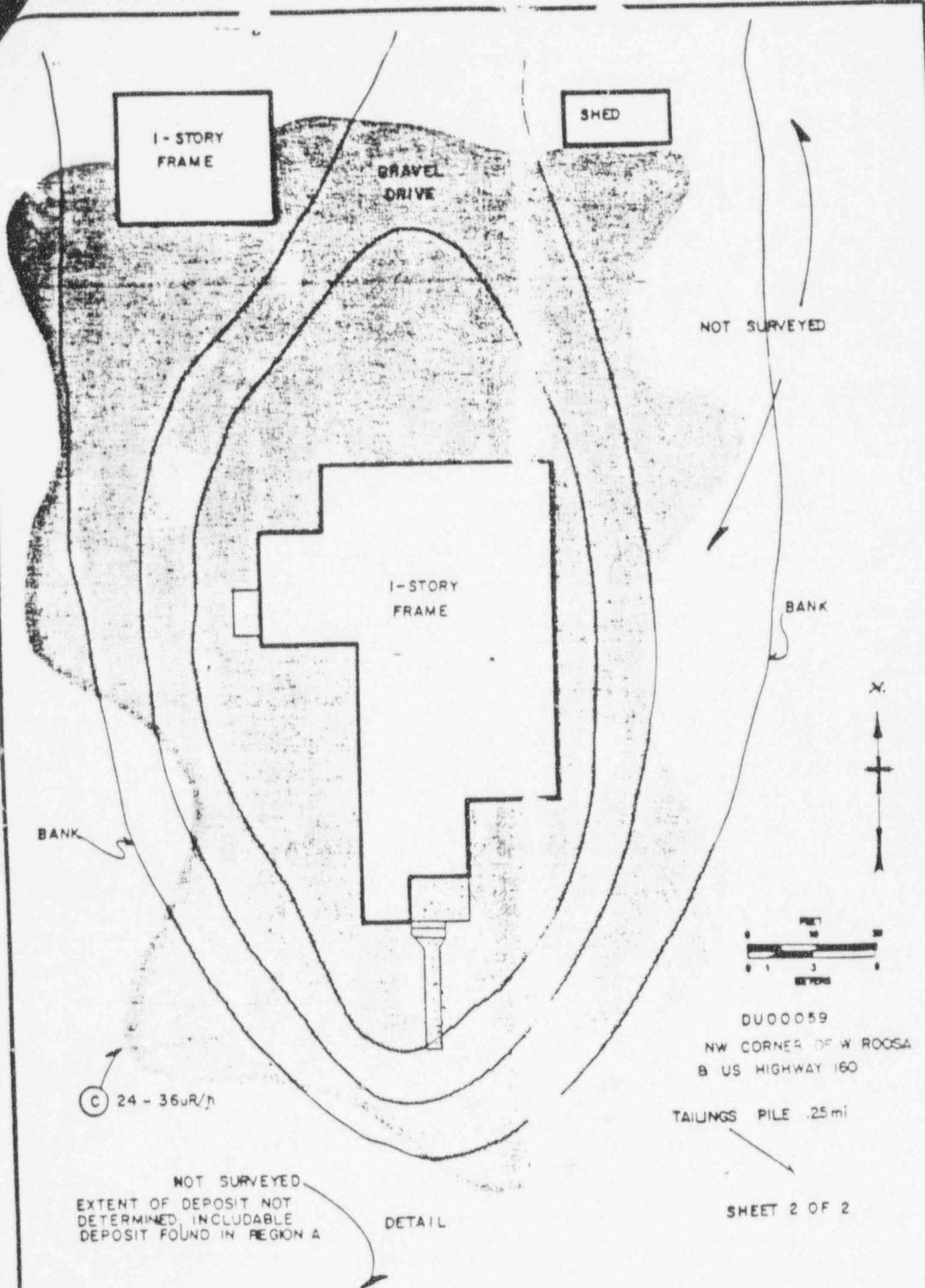


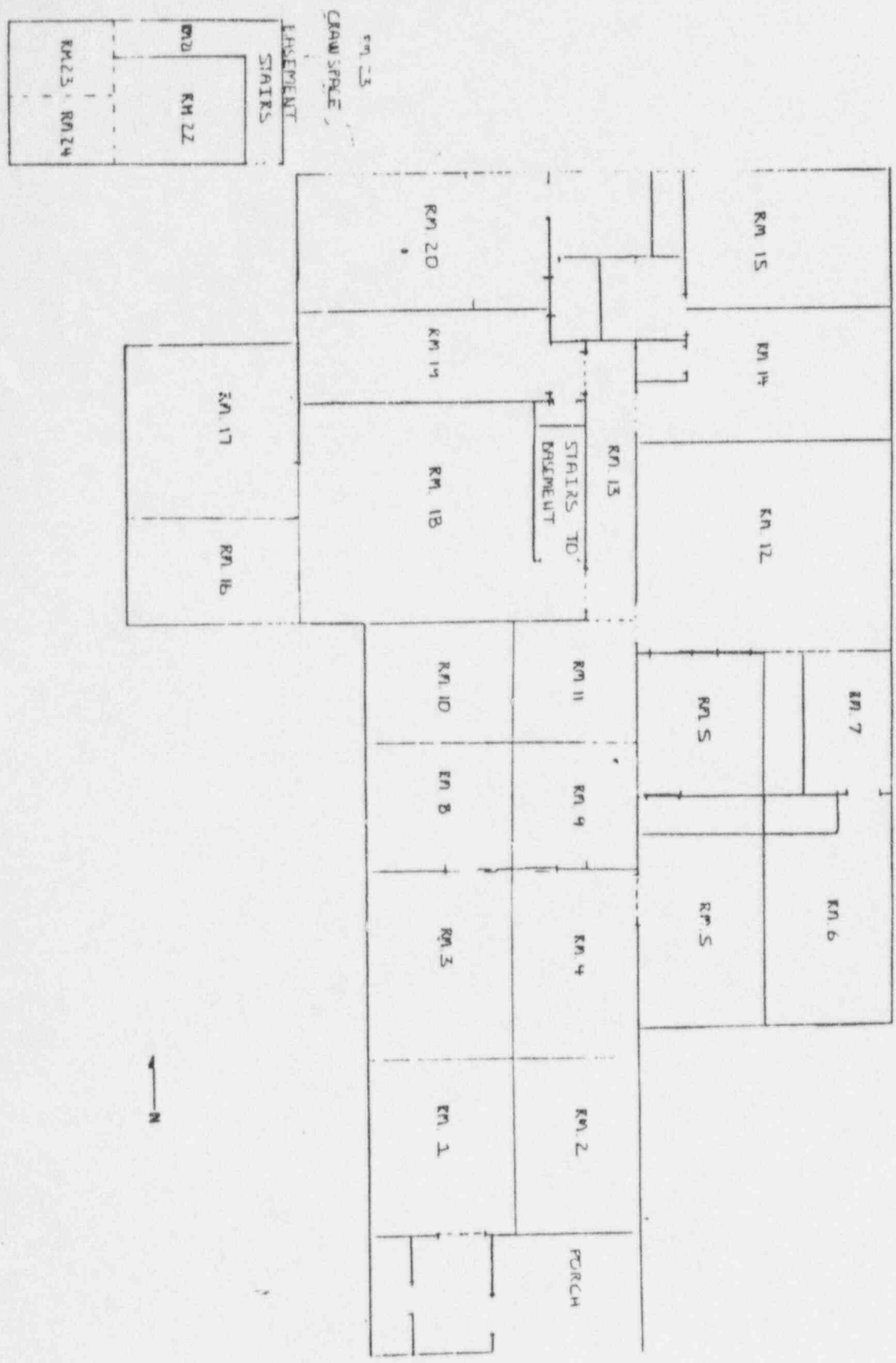
Figure 1a. Location DU00059 - Northwest  
Durango, Colorado (outdoors - sheet 2 of 2)

Corner of West Roosa and Hwy 160,



26 38 68 45

DU-059  
HOUSE



DU-059

APPENDIX A

RADIOLOGICAL SURVEY DATA

Section II

Field Verification Data

## SOIL VERIFICATION DATA

2	Coordinates	Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
				Initial	Final	
1	N 50860 N 50860 E 49950 N 49970 N 50840 N 50840 E 49970 N 49950	D-SV-10439	6"	2.45	3.97	
2	N 50860 N 50860 E 49970 E 50000 N 50840 N 50840 E 50000 E 49970	D-SV-10440	6"	<sup>1</sup> < MDA	2.04	
3	N 50860 N 50860 E 50000 E 50030 N 50840 N 50840 E 50030 E 50000	D-SV-10441	6"	<sup>1</sup> < MDA	1.58	
4	N 50860 N 50860 E 50030 E 50060 N 50840 N 50840 E 50060 E 50030	D-SV-10442	6"	<sup>1</sup> < MDA	3.07	QC RESULTS Ra-226 Th-230 3.6±0.9 2.6±0.7
5	N 50860 N 50860 E 50060 E 50090 N 50840 N 50840 E 50090 E 50060	D-SV-10443	6"	1.65	3.75	
6	N 50860 N 50860 E 50090 E 50120 N 50840 N 50840 E 50120 E 50090	D-SV-10444	6"	1.37	2.46	
7	N 50860 N 50860 E 50120 E 50150 N 50840 N 50840 E 50150 E 50120	D-SV-10445	6"	1.22	1.56	
8	N 50860 N 50860 E 50150 E 50180 N 50840 N 50840 E 50180 E 50150	D-SV-10446	6"	<sup>1</sup> < MDA	1.55	
9	N 50860 N 50860 E 50180 E 50210 N 50840 N 50840 E 50210 E 50180	D-SV-10447	6"	<sup>1</sup> < MDA	1.71	
10	N 50860 N 50860 E 50210 E 50240 N 50840 N 50840 E 50240 E 50210	D-SV-10448	6"	<sup>1</sup> < MDA	2.47	FOR ALL SAMPLES: 1-MDA 1.20 OCS 2-MDA 1.15 OCS

## SOIL VERIFICATION DATA

ID	Coordinates	Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
				Initial	Final	
11	N 50860 N 50860 E 50240 E 50270 N 50840 N 50840 E 50270 E 50240	D-SV-10449	6"	2.28	3.36	
12	N 50860 N 50860 E 50270 E 50300 N 50840 N 50840 E 50300 E 50220	D-SV-10450	6"	1.45	2.82	
13	N 50860 N 50859 E 50300 E 50311 N 50810 N 50810 E 50312 E 50300	D-SV-10451	6"	2.56	4.59	
14	N 50825 ** E 50285	D-SV-10452	6"	1 < MDA	1.58	
15	N 50825 ** E 50255	D-SV-10453	6"	1.66	3.05	
16	N 50825 ** E 50225	D-SV-10454	6"	2.40	2.59	
17	N 50825 ** E 50195	D-SV-10455	6"	1.49	2.64	
18	N 50825 ** E 50165	D-SV-10456	6"	1.29	1.96	
	N 50825 ** E 50135	D-SV-10457	6"	1.55	2.39	
20	N 50840 N 50840 E 50090 E 50120 N 50810 N 50810 E 50120 E 50104 N 50822 N 50822 E 50096 E 50090	D-SV-10458 D-SV-10459	6" 6"	1.71 1.44	3.13 3.35	duplicate
21	N 50840 N 50840 E 50060 E 50090 N 50822 N 50822 E 50090 E 50066 N 50810 N 50810 E 50066 E 50060	D-SV-10460	6"	1.72	3.02	
Single coordinate indicates the center of a 30' x 30' grid.						

## SOIL VERIFICATION DATA

#	Coordinates	Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
				Initial	Final	
22	N 50825 ** E 50045	D-SV-10461	6"	1.20	1.59	
23	N 50825 ** E 50015	D-SV-10462	6"	<sup>1</sup> <MDA	1.53	Q.C. RESULTS Ra-226 Th-230 1.1±0.5 1.5±0.6
24	N 50825 ** E 49985	D-SV-10463	6"	<sup>1</sup> <MDA	1.94	
25	N 50840 N 50840 E 49950 E 49970 N 50810 N 50810 E 49970 E 49951	D-SV-10464	6"	1.17	2.24	
26	N 50810 N 50810 E 49951 E 49970 N 50778 N 50778 E 49970 E 49953	D-SV-10465	6"	3.44	6.25	
27	N 50810 N 50810 E 49970 E 50000 N 50787 N 50793 E 50000 E 49982 N 50778 N 50778 E 49980 E 49970	D-SV-10466	6"	1.30	3.81	
28	N 50810 N 50810 E 50000 E 50030 N 50777 N 50787 E 50030 E 50000	D-SV-10467	6"	<sup>2</sup> <MDA	1.91	
29	N 50810 N 50810 E 50030 E 50060 N 50785 N 50785 E 50060 E 50033 N 50777 E 50030	D-SV-10468	6"	2.57	4.78	
30	N 50810 N 50810 E 50060 E 50066 N 50785 N 50785 E 50066 E 50060 N 50810 N 50810 E 50104 E 50120 N 50781 E 50120	D-SV-10469	6"	1.76	3.22	
		D-SV-10470	6"	1.36	3.33	



## SOIL VERIFICATION DATA

	Coordinates	Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
				Initial	Final	
32	N 50810 N 50810 E 50120 E 50150  N 50780 N 50780 E 50150 E 50122  N 50781 E 50120	D-SV-10471	6"	1 < MDA	1.86	
33	N 50795 ** E 50165	D-SV-10472	6"	1 < MDA	2.42	
34	N 50795 ** E 50195	D-SV-10473	6"	1 < MDA	2.63	
35	N 50795 ** E 50225	D-SV-10474	6"	1.87	3.50	
36	N 50795 ** E 50255	D-SV-10475	6"	1.66	1.93	
37	N 50795 ** E 50285	D-SV-10476	6"	1.72	2.08	
38	N 50810 N 50810 E 50300 E 50313  N 50780 N 50780 E 50313 E 50300	D-SV-10477	6"	2.02	3.90	
39	N 50780 N 50780 E 50300 E 50313  N 50750 N 50750 E 50314 E 50300	D-SV-10483	6"	1.34	3.26	
40	N 50765 ** E 50285	D-SV-10484 D-SV-10485	6" 6"	1 < MDA 1 < MDA	1.44 1.96	Duplicate
41	N 50765 ** E 50255	D-SV-10486	6"	1 < MDA	1.47	
42	N 50765 ** E 50225	D-SV-10487	6"	1 < MDA	1.41	Q.C. RESULTS Ra-226 Th-230 1.6±0.6 1.8±0.6
43	N 50765 ** E 50195	D-SV-10488	6"	1 < MDA	1.82	
44	N 50765 ** E 50165	D-SV-10489	6"	1 < MDA	1.87	
45	N 50780 N 50780 E 50122 E 50150  N 50750 N 50750 E 50150 E 50124	D-SV-10490	6"	2.00	5.46	

DU-059

SOIL VERIFICATION DATA

id	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
46	N 50750 E 50124 N 50720 E 50150	N 50750 E 50150 N 50720 E 50127	D-SV-10491	6"	1 < MDA	2.80	
47	N 50735 E 50165	**	D-SV-10492	6"	2.03	2.48	
48	N 50735 E 50195	**	D-SV-10493	6"	1 < MDA	1.65	
49	N 50735 E 50225	**	D-SV-10494	6"	1 < MDA	1 < MDA	
50	N 50735 E 50255	**	D-SV-10495	6"	1 < MDA	1 < MDA	
51	N 50735 E 50285	**	D-SV-10496	6"	1 < MDA	1.15	
52	N 50750 E 50300 N 50660 E 50302	N 50750 E 50314 N 50660 E 50300	D-SV-10497	6"	2.82	5.29	
53	N 50705 E 50285	**	D-SV-10498	6"	1.53	2.90	
54	N 50705 E 50255	**	D-SV-10499	6"	1 < MDA	1.75	
55	N 50705 E 50225	**	D-SV-10500	6"	1.98	3.05	
56	N 50705 E 50195	**	D-SV-10501	6"	2.64	4.83	
57	N 50705 E 50165	**	D-SV-10502	6"	1 < MDA	2.57	
58	N 50720 E 50127 N 50690 E 50150 N 50696 E 50120	N 50720 E 50150 N 50690 E 50120 N 50696 E 50129	D-SV-10503	6"	1 < MDA	3.37	
59	N 50698 E 50030 N 50696 E 50120	N 50695 E 50060 N 50690 E 50120	D-SV-10504	6"	2.16	3.15	
		N 50690 E 50030					

## SOIL VERIFICATION DATA

	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
60	N50701 E50000	N50698 E50030	D-SV-10505 D-SV-10506	6" 6"	1.75 2.29	2.70 2.12	Duplicate
	N50690 E50030	N50690 E50000					
61	N50710 E49951	N50701 E50000	D-SV-10507	6"	2.26	3.49	QC-forwarded when available
	N50690 E50000	N50690 E49970					
	N50696 E49957						
62	N50690 E49970	N50690 E50030	D-SV-10508	6"	<sup>1</sup> <MDA	1.88	
	N50667 E50030	N50679 E50000					
63	N50690 E50030	N50690 E50060	D-SV-10509	6"	1.16	1.47	
	N50660 E50060	N50660 E50041					
	N50663 E50040	N50667 E50030					
64	N50675 E50075	**	D-SV-10510	6"	<sup>1</sup> <MDA	1.49	
65	N50675 E50105	**	D-SV-10511	6"	1.43	1.82	
	N50675 E50135	**	D-SV-10512	6"	<sup>1</sup> <MDA	<sup>1</sup> <MDA	
67	N50675 E50165	**	D-SV-10513	6"	1.27	2.92	
68	N50675 E50195	**	D-SV-10514	6"	3.34	4.45	
69	N50675 E50225	**	D-SV-10515	6"	2.72	3.18	
70	N50675 E50255	**	D-SV-10516	6"	1.61	1.38	
	N50675 E50285	**	D-SV-10517	6"	<sup>1</sup> <MDA	2.15	
72	N50660 E50270	N50660 E50302	D-SV-10518	6"	<sup>1</sup> <MDA	2.42	
	N50630 E50296	N50630 E50270					

## SOIL VERIFICATION DATA

Coordinates			Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration Initial - Final		Comments
73	N50645 E50255	**	D-SV-10519	6"	1 < MDA	1.28	
74	N50645 E50225	**	D-SV-10520	6"	1 < MDA	1.51	
75	N50645 E50195	**	D-SV-10521	6"	1.29	5.46	
76	N50645 E50165	**	D-SV-10522	6"	1 < MDA	1.93	
77	N50645 E50135	**	D-SV-10523	6"	2 < MDA	2.19	
78	N50645 E50105	**	D-SV-10524	6"	2 < MDA	2.31	
79	N50645 E50075	**	D-SV-10525	6"	1.38	1.31	
B0	N50660	N50660	D-SV-10526	6"	1.78	2.82	QC Duplicate  QC RESULTS Ra-226    Th-230 2.0±0.7   2.3±0.7
	E50041	E50060	D-SV-10527	6"	2 < MDA	1.42	
	N50630	N50630					
	E50060	E50030					
B1	N50647	N50647	D-SV-10528	6"	2 < MDA	2.10	
	E50017	E50030					
	N50630	N50630					
B2	E50030	E50016	D-SV-10529	6"	2 < MDA	1.22	
	N50600	N50600					
	E50030	E50015					
B3	N50615 E50045	**	D-SV-10539	6"	2 < MDA	1.17	
B4	N50615 E50075	**	D-SV-10540	6"	2 < MDA	2 < MDA	
B5	N50615 E50105	**	D-SV-10541	6"	2 < MDA	1.36	
B7	N50615	**	D-SV-10542	6"	1.40	2.64	
	E50135						
B7	N50615 E50165	**	D-SV-10543	6"	1.40	1.31	

## SOIL VERIFICATION DATA

	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
88	N50615 E50195	**	D-SV-10544	6"	2 < MDA	1.47	
89	N50615 E50225	**	D-SV-10545	6"	1 < MDA	1.72	
90	N50615 E50255	**	D-SV-10546	6"	1.34	2.73	
91	N50630 E50270 N50600 E50289	N50630 E50296 N50600 E50270	D-SV-10547	6"	1.63	2.68	
92	N50600 E50270 N50570 E50282 N50540 E50270	N50600 E50289 N50540 E50284	D-SV-10555	6"	1.35	2.43	
93	N50588 E50255	**	D-SV-10556	6"	2 < MDA	1.69	
94	N50585 E50225	**	D-SV-10557	6"	1 < MDA	2.12	
95	N50585 E50195	**	D-SV-10558	6"	1 < MDA	2.14	
96	N50585 E50165	**	D-SV-10559	6"	1 < MDA	2.28	
97	N50585 E50135	**	D-SV-10560	6"	1 < MDA	1.99	
98	N50585 E50105	**	D-SV-10561	6"	1 < MDA	1.33	
99	N50585 E50075	**	D-SV-10562	6"	1 < MDA	1.83	QC RESULTS Ra-226 Th-230 1.3±0.5 1.0±0.
100	N50585 E50045	**	D-SV-10571 D-SV-10572	6" 6"	1 < MDA 1 < MDA	1 < MDA 1.25	Duplicate
101	N50600 E50015 N50570 E50030	N50600 E50030 N50570 E50016	D-SV-10573	6"	1.73	2.25	
102	N50555 E50045	**	D-SV-10574	6"	1 < MDA	1 < MDA	



## SOIL VERIFICATION DATA

i	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
103	N50555 E50075	**	D-SV-10575	6"	<sup>1</sup> < MDA	1.56	
104	N50555 E50105	**	D-SV-10576	6"	<sup>1</sup> < MDA	<sup>1</sup> < MDA	
105	N50555 E50135	**	D-SV-10577	6"	<sup>1</sup> < MDA	1.90	
106	N50555 E50165	**	D-SV-10578	6"	<sup>2</sup> < MDA	1.64	
107	N50555 E50195	**	D-SV-10587	6"	2.15	1.70	
108	N50555 E50225	**	D-SV-10593	6"	<sup>1</sup> < MDA	1.53	
109	N50555 E50255	**	D-SV-10594	6"	1.78	1.70	
110	N50540 E50270  N50510 E50586	N50540 E50284  N50510 E50270	D-SV-10595	6"	1.80	3.03	
111	N50525 E50255	**	D-SV-10596	6"	1.22	2.00	
112	N50525 E50225	**	D-SV-10597	6"	<sup>1</sup> < MDA	1.69	
113	N50525 E50195	**	D-SV-10598	6"	<sup>1</sup> < MDA	<sup>1</sup> < MDA	
114	N50525 E50165	**	D-SV-10599	6"	1.24	1.39	
115	N50525 E50135	**	D-SV-10563	6"	1.63	2.34	
116	N50525 E50105	**	D-SV-10564	6"	<sup>1</sup> < MDA	1.63	
117	N50525 E50075	**	D-SV-10565	6"	<sup>1</sup> < MDA	1.43	
118	N50540 E50030  N50510 E50060  N50520 E50030	N50540 E50060  N50510 E50031	D-SV-10566	6"	1.21	1.64	

## SOIL VERIFICATION DATA

	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
119	N50570 E50016	N50570 E50030	D-SV-10567	6"	1.35	2.09	
	N50520 E50030						
120	N50510 E50031	N50510 E50060	D-SV-10569 D-SV-10568	6" 6"	1.18 1.54	3.27 1.89	Duplicate
	N50480 E50060	N50480 E50039					
121	N50495 E50075	**	D-SV-10570	6"	<sup>2</sup> < MDA	1.77	
122	N50495 E50105	**	D-SV-10579	6"	1.28	2.57	
123	N50495 E50135	**	D-SV-10580	6"	<sup>2</sup> < MDA	2.77	
124	N50495 E50165	**	D-SV-10581	6"	1.30	2.33	
	N50495 E50195	**	D-SV-10582	6"	<sup>2</sup> < MDA	2.51	QC RESULTS Ra-226 Th-230 1.4±0.6 2.3±0.7
126	N50495 E50225	**	D-SV-10583	6"	<sup>2</sup> < MDA	2.06	
127	N50495 E50255	*8	D-SV-10584	6"	1.16	2.70	
128	N50510 E50270	N50510 E50286	D-SV-10585	6"	1.27	1.54	
	N50504 E50286	N50504 E50300					
	N50480 E50300	N50480 E50270					
129	N50504 E50300	N50504 E50318	D-SV-10586	6"	<sup>2</sup> < MDA	1.49	
	N50437 E50300						
130	N50465 E50285	**	D-SV-10600	6"	1.43	2.45	
	N50465 E50255	**	D-SV-10601	6"	<sup>2</sup> < MDA	1.58	
132	N50465 E50225	**	D-SV-10602	6"	<sup>2</sup> < MDA	1.89	

## SOIL VERIFICATION DATA

ID	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
133	N50465 E50195	**	D-SV-10603	6"	1.61	1.33	
134	N50465 E50165	**	D-SV-10604	6"	1.94	2.50	
135	N50465 E50135	**	D-SV-10605	6"	<sup>2</sup> <MDA	2.37	
136	N50465 E50105	**	D-SV-10606	6"	<sup>2</sup> <MDA	1.88	
137	N50480 E50060	N50480 E50090	D-SV-10607	6"	<sup>2</sup> <MDA	<sup>1</sup> <MDA	QC results forwarded when available
	N50450 E50090	N50450 E50067					
	N50455 E50060						
138	N50480 E50039	N50480 E50060	D-SV-10608	6"	1.64	1.93	
	N50455 E50060	N50466 E50043					
139	N50450 E50067	N50450 E50090	D-SV-10619	6"	<sup>1</sup> <MDA	<sup>1</sup> <MDA	
	N50383 E50090						
140	N50435 E50105	**	D-SV-10620	6"	<sup>1</sup> 1.54	<sup>1</sup> 2.29	Duplicate
			D-SV-10621	6"	<sup>1</sup> <MDA	<sup>1</sup> <MDA	
141	N50435 E50135	**	D-SV-10622	6"	<sup>1</sup> <MDA	<sup>1</sup> <MDA	
142	N50435 E50165	**	D-SV-10623	6"	<sup>1</sup> <MDA	1.87	
143	N50435 E50195	**	D-SV-10624	6"	<sup>1</sup> <MDA	1.27	
144	N50435 E50225	**	D-SV-10625	6"	<sup>1</sup> <MDA	1.95	
	N50435 E50255	**	D-SV-10626	6"	<sup>1</sup> <MDA	2.25	
146	N50450 E50270	N50450 E50300	D-SV-10627	6"	<sup>2</sup> <MDA	2.31	

## SOIL VERIFICATION DATA

ID	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
146 cont	N50436 E50300	N50420 E50296					
	N50420 E50270						
147	N50420 E50270	N50420 E50296	D-SV-10628	6"	<sup>1</sup> < MDA	2.18	
	N50390 E50288	N50390 N50270					
148	N50405 E50255	**	D-SV-10629	6"	<sup>1</sup> < MDA	2.50	
149	N50405 E50225	**	D-SV-10630	6"	<sup>1</sup> < MDA	1.16	
150	N50405 E50195	**	D-SV-10631	6"	<sup>1</sup> < MDA	<sup>2</sup> < MDA	
151	N50405 E50165	**	D-SV-10632	6"	<sup>1</sup> < MDA	1.57	
152	N50405 E50135	**	D-SV-10633	6"	<sup>1</sup> < MDA	1.39	
153	N50405 E50105	**	D-SV-10634	6"	<sup>1</sup> < MDA	2.26	
154	N50390 E50090	N50390 E50120	D-SV-10635	6"	1.90	1.85	
	N50327 E50120	N50360 E50098					
	N50383 E50090						
155	N50375 E50135	**	D-SV-10636	6"	1.47	1.80	
156	N50375 E50165	**	D-SV-10637	6"	<sup>1</sup> < MDA	1.69	QC results forwarded when available
157	N50375 E50195	**	D-SV-10638	6"	1.44	1.74	
158	N50375 E50255	**	D-SV-10639	6"	1.67	2.36	
159	N50375 E50255	**	D-SV-10643	6"	3.11	5.32	



## SOIL VERIFICATION DATA

id	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
160	N50390 E50270	N50390 E50288	D-SV-10753 D-SV-10754	6" 6"	1.50 1.76	3.23 3.13	Duplicate
	N50360 E50279	N50360 E50270					
161	N50360 E50270	N50360 E50279	D-SV-10644	6"	2.09	3.69	
	N50354 E50278	N50350 E50292					
	N50330 E50292	N50330 E50270					
162	N50345 E50255	**	D-SV-10645	6"	1.40	2.00	
163	N50345 E50225	**	D-SV-10646	6"	1.34	2.06	
164	N50345 E50195	**	D-SV-10647	6"	1.75	2.56	
165	N50345 E50165	**	D-SV-10648	6"	<sup>2</sup> < MDA	2.01	
166	N50345 E50135	**	D-SV-10649	6"	1.25	<sup>2</sup> < MDA	
167	N50330 E50120	N50330 E50150	D-SV-10650	6"	<sup>2</sup> < MDA	1.89	
	N50282 E50150	N50237 E50120					
168	N50315 E50165	**	D-SV-10651	6"	1.54	1.62	
169	N50315 E50195	**	D-SV-10652	6"	1.42	1.55	
170	N50315 E50225	**	D-SV-10653	6"	<sup>2</sup> < MDA	2.50	
171	N50315 E50255	**	D-SV-10755	6"	1.24	3.22	
	N50330 E50270	N50330 E50292	D-SV-10654	6"	1.64	3.57	
	N50300 E50292	N50300 E50270					



## SOIL VERIFICATION DATA

ID	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
173	N50300 E50270 N50270 E50299	N50300 E50292 N50270 E50270	D-SV-10655	6"	1.36	1.67	
174	N50285 E50255	**	D-SV-10756	6"	3.50	4.13	
175	N50285 E50225	**	D-SV-10656	6"	1.33	2.49	
176	N50285 E50195	**	D-SV-10657	6"	1.40	2.47	
177	N50300 E50150 N50270 E50180 N50282 E50150	N50300 E50180 N50270 E50158	D-SV-10658	6"	1.50	2.53	QC RESULTS Ra-226 Th-230 1.7±0.6 1.2±0.5
178	N50270 E50158 N50188 E50180	N50270 E50180	D-SV-10714	6"	1.95	2.38	QC results forwarded when available
179	N50255 E50195	**	D-SV-10715	6"	1.50	3.15	
180	N50255 E50225	**	D-SV-10716 D-SV-10717	6" 6"	1.28 1.60	2.36 2.15	Duplicate
181	N50255 E50255	**	D-SV-10718	6"	1.63	2.99	
182	N50270 E50270 N50264 E50300 N50240 E50270	N50270 E50299 N50240 E50300	D-SV-10719	6"	<sup>1</sup> < MDA	2.81	
183	N50225 E50285	**	D-SV-10720	6"	1.32	2.50	
184	N50225 E50255	**	D-SV-10721	6"	2.02	3.82	
185	N50225 E50225	**	D-SV-10722	6"	1.20	2.01	

## SOIL VERIFICATION DATA

ID	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
186	N50225 E50195	**	D-SV-10723	6"	1.18	1.80	
187	N50210 E50180 N50180 E50210 N50188 E50180	N50210 E50210 N50180 E50182	D-SV-10724	6"	1.66	2.09	
188	N50195 E50225	**	D-SV-10725	6"	1.80	1.97	
189	N50195 E50255	**	D-SV-10726	6"	1.27	1.86	
190	N50195 E50285	**	D-SV-10727	6"	1.70	3.64	
191	N5014 E50100 N50209 E50304 N50180 E50300	N50209 E50312 N50180 E50311	D-SV-10728	6"	3.06	4.04	
192	N50180 E50300 N50142 E50320	N50180 E50311 N50142 E50300	D-SV-10729	6"	1.32	2.46	
193	N50165 E50285	**	D-SV-10731	6"	1.25	2.62	
194	N50165 E50255	**	D-SV-10730	6"	1.71	1.79	
195	N50165 E50225	**	D-SV-10732	6"	1.78	3.54	
196	N50180 E50182 N50140 E50210	N50180 E50210 N50140 E50193	D-SV-10733	6"	1.47	2.86	

## SOIL VERIFICATION DATA

id	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
197	N50150 E50210	N50150 E50240	D-SV-10757	6"	1.26	3.91	
	N50120 E50240	N50120 E50212					
	N50140 E50210						
198	N50135 E50255	**	D-SV-10758	6"	1.34	1.78	
199	N50150 E50270	N50150 E50300	D-SV-10759	6"	1.63	2.15	
	N50142 E50300	N50142 E50292					
	N50120 E50300	N50120 E50300					
	N50120 E50270						
	N50105 E50285	**	D-SV-10760 D-SV-10761	6" 6"	1.42 <MDA	2.14 2.11	Duplicate
201	N50105 E50255	**	D-SV-10762	6"	1.47	2.81	QC results forwarded when available
202	N50120 E50212	N50120 E50240	D-SV-10763	6"	1.71	3.60	
	N50090 E50240	N50090 E50215					
203	N50090 E50215	N50090 E50240	D-SV-10764	12"	1.56	2.99	
	N50060 E50240	N50060 E50215					
204	N50075 E50225	**	D-SV-10765	12"	<MDA	2.46	
205	N50075 E50285	**	D-SV-10766	12"	1.58	2.73	
206	N50120 E50300	N50120 E50310	D-SV-10767	12"	2.12	4.62	
	N50060 E50321	N50060 E50300					

## SOIL VERIFICATION DATA

	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
207	N50060 E50300	N50600 E50321	D-SV-10768	12"	1.59	3.39	
	N50030 E50332	N50030 E50300					
208	N50045 E50285	**	D-SV-10769	12"	1.65	3.13	
209	N50045 E50255	**	D-SV-10770	12"	1.48	3.39	
210	N50060 E50215	N50060 E50240	D-SV-10771	12"	2.90	4.40	
	N50030 E50240	N50030 E50214					
211	N50030 E50214	N50030 E50240	D-SV-10772	12"	4.00	6.93	
	N50000 E50240	N50000 E50214					
212	N50015 E50255	**	D-SV-10773	12"	<sup>1</sup> < MDA	3.03	
213	N50015 E50285	*8	D-SV-10774	12"	<sup>2</sup> < MDA	2.99	
214	N50015 E50315	*8	D-SV-10775	12"	1.94	3.12	
215	N49985 E50315	**	D-SV-10776	12"	<sup>2</sup> < MDA	3.03	
216	N49985 E50285	**	D-SV-10777	12"	1.30	2.15	
217	N49985 E50255	**	D-SV-10778	12"	1.84	3.03	
218	N50000 E50214	N50000 E50240	D-SV-10779	12"	2.04	4.64	
	N49970 E50240	N49970 E50213					
219	N49970 E50213	N49970 E50240	D-SV-10780	12"	2.85	5.46	
	N49930 E50240	N49938 E50216					



DU-059  
SOIL VERIFICATION DATA

ID	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
20	N49955 E50255	**	D-SV-10781 D-SV-10782	12" 12"	<sup>2</sup> <MDA 1.34	2.03 2.44	QC Duplicate QC results forwarded when available
21	N49955 E50285	**	D-SV-10783	12"	<sup>2</sup> <MDA	2.04	
22	N49955 E50315	**	D-SV-10784	12"	2.06	2.25	
223	N50030 E50330 N49940 E50353	N50030 E50332 N49940 E50330	D-SV-10785	12"	2.57	4.85	
22	N49940 E50330 N49910 E50360	N49940 E50353 N49910 E50330	D-SV-10786	12"	2.86	3.72	
225	N49925 E50315	**	D-SV-10787	12"	2.35	3.79	
226	N49925 E50285	**	D-SV-10788	12"	1.28	1.68	
227	N49940 E50240 N49910 E50270 N49938 E50243	N49940 E50270 N49910 E50249 N49930 E50240	D-SV-10789	12"	1.25	1.98	
228	N49910 E50249 N49880 E50270	N49910 E50270 N49880 E50256	D-SV-10790	12"	1.25	1.83	
229	N49895 E50285	**	D-SV-10791	12"	<sup>2</sup> <MDA	1.83	
230	N49895 E50315	**	D-SV-10792	12"	1.54	2.03	
231	N49895 E50345	**	D-SV-10793	12"	3.18	5.28	
232	N49865 E50345	**	D-SV-10794	12"	2.02	3.64	
233	N49865 E50315	**	D-SV-10795	12"	1.37	2.04	



## SOIL VERIFICATION DATA

	Coordinates		Sample #	Approx. Depth	Ra-226 (pCi/g) Concentration		Comments
					Initial	Final	
234	N49865 E50285	**	D-SV-10796	12"	1.20	2.95	
235	N49880 E50256	N49880 E50270	D-SV-10797	12"	3.01	3.68	
	N49838 E50270	N49850 E50262					
236	N49850 E50270	N49850 E50300	D-SV-10798	12"	2 < MDA	1.95	
	N49826 E50300	N45838 E50270					
237	N49850 E50300	N49850 E50330	D-SV-10799	12"	2.04	4.33	
	N49830 E50330	N49826 E50300					
238	N49850 E50330	N49850 E50360	D-SV-10800	12"	3.47	4.45	
	N49835 E50360	N49830 E50330					
239	N49910 E50360	N49850 E50368	D-SV-10801	12"	5.36	8.41	
	N49835 E50360						

SITE NAME DURANCO  
SITE AREA 06-054

MS-FERROCATION/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #3: 984369  
OCS #4: 285411  
OCS #5: 285403

OCS SERIAL NO. \_\_\_\_\_

COMPT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE RECALC	OCS# INITIAL	FUNCTION NO. INITIAL	MASS NET DRY	Ra 226 INITIAL	OC SAMPLE	LABORATORY REFURY	DEPTM C13 CM INITIAL	TECH INITIAL	REMARKS
7-19-89	Du-SV 14982	OS9-240	6-27-89	6-27-89	3	8.23E2	5319	1.55					#-50600 E-50320
7-19-89	Du-SV 14983	OS9-241	6-27-89	6-29-89	4	1.86E3	5197	3.58					N-50600 E-50340
7-19-89	Du-SV 14984	OS9-242	6-27-89	6-29-89	5	1.11E3	5330	4.08					N-50770 E-50340
7-19-89	Du-SV 14985	OS9-243	6-27-89	6-29-89	3	1.55E3	5205	2.98					N-50770 E-50340
7-19-89	Du-SV 14986	OS9-244	6-27-89	6-29-89	3	1.11E3	4985	2.23					N-50770 E-50340
7-19-89	Du-SV 14987	OS9-245	6-27-89	6-29-89	4	2.36E3	5119	4.13					N-50800 E-50313
7-19-89	Du-SV 14988	OS9-246	6-27-89	6-29-89	3	1.28E3	4945	2.57					N-50770 E-50313
7-19-89	Du-SV 14989	OS9-247	6-27-89	6-29-89	3	1.65E3	5288	5.15					N-50770 E-50313
7-19-89	Du-SV 14990	OS9-248	6-27-89	6-29-89	5	1.70E3	4503	3.78					N-50770 E-50313
7-19-89	Du-SV 14991	OS9-249	6-27-89	6-29-89	3	1.13E3	5201	3.07					N-50600 E-50303
7-19-89	Du-SV 14992	OS9-250	6-27-89	6-29-89	4	1.57E3	4930	3.18					N-50600 E-50298
7-19-89	Du-SV 14993	OS9-251	6-27-89	6-29-89	5	1.63E3	4830	3.37					N-50620 E-50293

NOTE: All soil sample results are in pc/gm

Site Correction Factor =  $\frac{1.43(x)}{1.391}$  (05-10-89)  
Count Time = 500 sec, unless noted otherwise.

VP Correction Factor =  $\frac{1.15(x) + 505}{92-03-88}$  = 1.98 (x) - 1.20 3-15-91/4

REVIEWED BY \_\_\_\_\_

STILL NAME DURANGO

317C AREA DU-059

MR-TRUCUSO:/CHEN-MUCLEAR  
OPOSED CRYSTAL SYSTEM RECORD

OC5 SERIAL NO

OCS #3: 984369  
OCS #4: 285411  
OCS #5: 285403

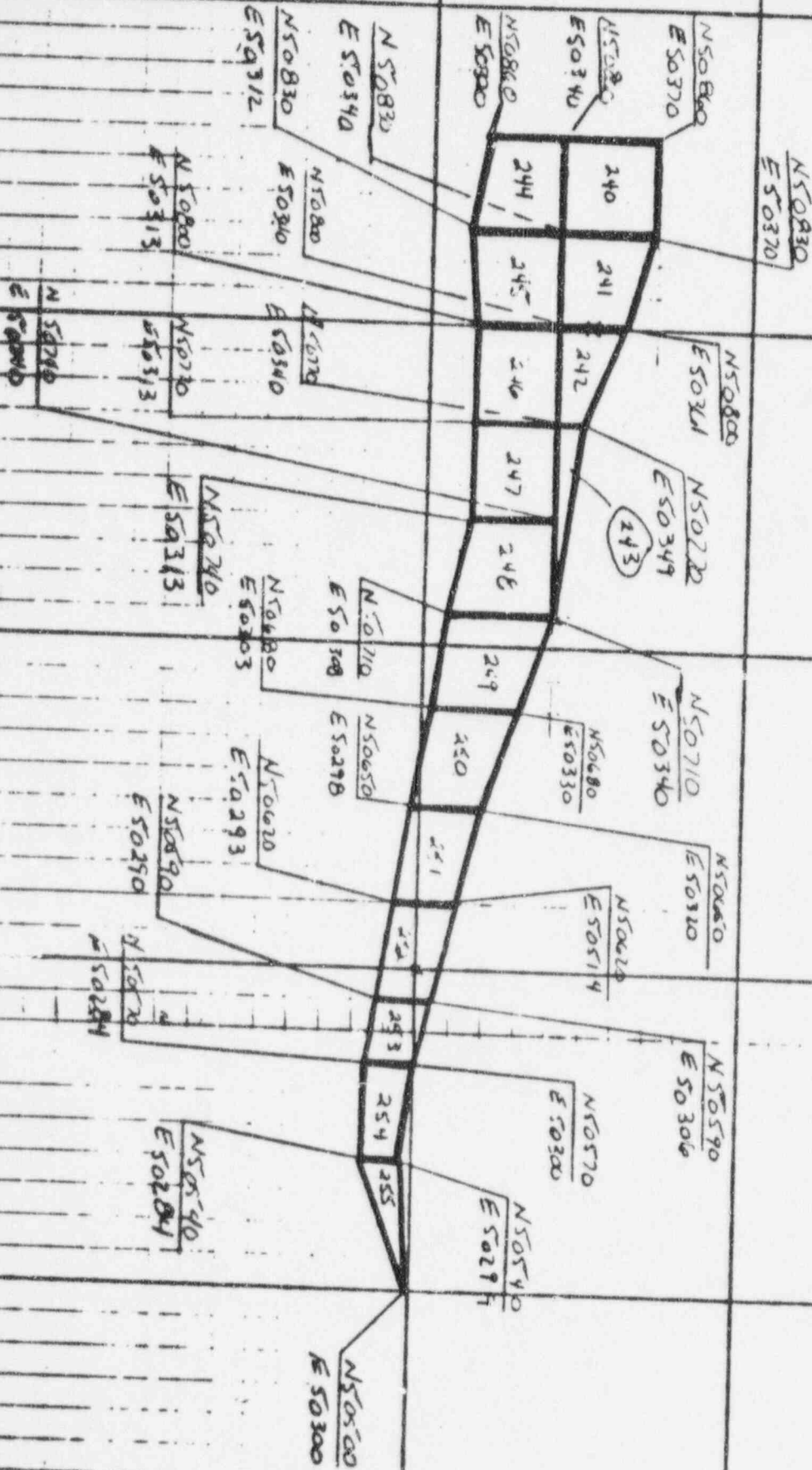
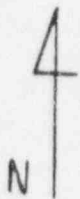
[illegible]

NOTE: All test sample results are  $\text{mg}/\text{kg}$

Site Correction Factor =  $\frac{1.42}{0.8} = 1.775$  (05-10-89)

VP correction factor =  $1.5 \left( \frac{0.05}{0.02-0.05} \right) + 50 \left( \frac{0.05}{0.02-0.05} \right) = 1.96$  (8)  $-1.50$   $-5-15 \text{ psi/g}$

87-000000





DU-059

APPENDIX A

RADIOLOGICAL SURVEY DATA

Section III

Secondary Survey Data



DU-059,096  
SLOPE SURVEY

INTRODUCTION:

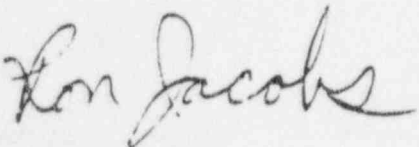
A comprehensive radiological characterization survey was performed on the steep slopes of DU-096 and the West and South slopes of DU-059. This data is necessary to determine whether remediation will be performed or supplemental standards will be applied.

GAMMA SURVEY:

A grid system was set up and each 33'x33' grid was scanned. One representative set of contact and one meter readings was recorded for each grid.

SOIL SAMPLES:

Soil samples were collected in each grid following standard verification sample collection techniques.



RON JACOBS  
3-10-89

OUTDOOR GAMMA SCREENING  
SURVEY DATA SHEET

LOGGING CREW: Dan Murphy  
Chris Workman  
Barb Greene, Dennis Jones

SHEET 1 OF 6 PAGE 1

DATE: 3-9-89

PROPERTY ID: 059

INSTRUMENT ID NO.: ESP-1 - #1709

BACKGROUND CALCULATION:

#1 \_\_\_\_\_ + #2 \_\_\_\_\_ + #3 \_\_\_\_\_ = \_\_\_\_\_ - 3 = \_\_\_\_\_ COUNTS/1MIN

AREA: <u>CONTACT</u>		AREA: <u>1 meter</u>		AREA: <u>CONTACT</u>		AREA: <u>1- meter</u>	
POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN
1	1900	1	1960	25	2200	25	2000
2	2010	2	1910	26	2300	26	2100
3	2100	3	2130	27	1700	27	1760
4	2130	4	2260	28	1940	28	1960
5	1780	5	1800	29	2770	29	2190
6	1540	6	1740	30	2930	30	2670
7	2070	7	1980	31	2400	31	2200
8	2000	8	1950	32	2090	32	2090
9	1960	9	1910	33	2170	33	2080
10	2030	10	1970	34	2620	34	2440
11	1950	11	1980	35	2520	35	2310
12	1990	12	1960	36	2030	36	2120
13	1960	13	1970	37	2560	37	2230
14	1990	14	2110	38	2090	38	2150
15	2060	15	2110	39	2090	39	2160
16	2220	16	2020	40	2080	40	2080
17	2130	17	2100	41	1970	41	2070
18	2500	18	2350	42	1570	42	2100
19	2300	19	2100	43	1080	43	1100
20	2300	20	2100	44	1440	44	934
21	2300	21	2000	45	1730	45	1460
22	2800	22	2100	46	1460	46	1490
23	3000	23	2200	47	1630	47	1650
24	2800	24	2200	48	2180	48	1980

REMARKS:

# OUTDOOR GAMMA SCREENING SURVEY DATA SHEET

LOGGING CREW: Don Murphy, Dennis

SHEET 2 OF 6 PAGE 2

Jones, Chris Workman,

DATE: 3-9-99

Terry Herman, Bob Greene

PROPERTY ID: 059

INSTRUMENT ID NO.: ESP 1 - \*1709

BACKGROUND CALCULATION:

#1 \_\_\_\_\_ + #2 \_\_\_\_\_ + #3 \_\_\_\_\_ = \_\_\_\_\_ - 3 = \_\_\_\_\_ COUNTS/1MIN

AREA: <u>CONTACT</u>		AREA: <u>1 meter</u>		AREA: <u>CONTACT</u>		AREA: <u>1-METER</u>	
POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN
49	1720	49	1690	73	1700	73	1730
50	1290	50	1480	74	1590	74	1540
51	1350	51	1520	75	1760	75	1740
52	1420	52	1550	76	1580	76	1020
53	1860	53	1670	77	1900	77	1790
54	1710	54	1700	78	1770	78	1960
55	1410	55	1580	79	2030	79	1730
56	2420	56	2130	80	1380	80	1500
57	1670	57	1750	81	1580	81	1600
58	2060	58	1950	82	1890	82	1760
59	2160	59	2010	83	2150	83	1820
60	2260	60	2080	84	1720	84	1600
61	1710	61	1750	85	1720	85	1620
62	1650	62	1690	86	1590	86	1480
63	1670	63	1630	87	1210	87	1340
64	1720	64	1650	88	2070	88	1900
65	2260	65	1880	89	1930	89	1860
66	2000	66	1900	90	2070	90	1890
67	2540	67	2050	91	1990	91	1790
68	1910 <sup>2000</sup>	68	1910	92	2220 <del>2200</del>	92	1920
69	1930	69	1900	93	2160	93	1900
70	1890	70	1810	94	2330	94	1980
71	2170	71	1890	95	2510	95	1990
72	1820	72	1750	96	2650	96	1980

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# OUTDOOR GAMMA SCREENING SURVEY DATA SHEET

LOGGING CREW: Don Murphy, Dennis Jones, Chris Workman, Terry Herman, Bob Greene

SHEET 4 OF 6 PAGE 4  
DATE: 2-8-89  
PROPERTY ID: 059

INSTRUMENT ID NO.: ESP-1 - \* 1709

BACKGROUND CALCULATION:

#1 \_\_\_\_\_ + #2 \_\_\_\_\_ + #3 \_\_\_\_\_ = \_\_\_\_\_ - 3 = \_\_\_\_\_ COUNTS/1MIN

AREA: <u>CONTACT</u>		AREA: <u>1 METER</u>		AREA: <u>CONTACT</u>		AREA: <u>1. METER</u>	
POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN
97	2460	97	1930	121	2520	121	1980
98	2160	98	1630	122	1620	122	1430
99	2250	99	1900	123	1290	123	1290
100	2250	100	1970	124	1660	124	1690
101	1970	101	1970	125	1470	125	1500
102	3060	102	2190	126	1450	126	1440
103	2380	103	1990	127	1980	127	2040
104	2390	104	1980	128	2410	128	2140
105	1950	105	1620	129	2370	129	2310
106	1740	106	1640	130	2190	130	2330
107	1930	107	1910	131	2930	131	2480
108	2840	108	2930	132	2500	132	2400
109	2520	109	2140	133	1500	133	1620
110	1990	110	2400	134	2850	134	1740
111	1840	111	1796	135	2630	135	2170
112	1920	112	2070	136	2020	136	2190
113	2290	113	1990	137	2710	137	2130
114	2250	114	1820	138	2020	138	1970
115	1980	115	1760	139	2220	139	1960
116	2290	116	1760	140	2020	140	1960
117	2160	117	1950	141	2590	141	1910
118	2590	118	1910	142	1620	142	1941
119	2584	119	1950	143	2590	143	1850
120	2300	120	1950	144	1790	144	1530

REMARKS: \_\_\_\_\_

# OUTDOOR GAMMA SCREENING SURVEY DATA SHEET

LOGGING CREW: Don Murphy, Dennis Jones,  
Chris Workman, Terry Herman,  
Bob Greene

SHEET 3 OF 4 PAGE 3

DATE: 3-8-89

PROPERTY ID: 059

INSTRUMENT ID NO.: E.SP-1 - \*1709

BACKGROUND CALCULATION:

#1 \_\_\_\_\_ + #2 \_\_\_\_\_ + #3 \_\_\_\_\_ = \_\_\_\_\_ - 3 = \_\_\_\_\_ COUNTS/1MIN

AREA: <u>Contact</u>		AREA: <u>1-meter</u>		AREA: <u>Contact</u>		AREA: <u>1-meter</u>	
POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN
145	1730	145	1980	169	3410	169	2650
146	1950	146	1750	170	3800	170	2690
147	3240	147	2080	171	1970	171	1940
148	1630	148	1670	172	2040	172	2040
149	1690	149	1740	173	2470	173	2290
150	1950	150	1910	174	2050	174	1920
151	2020	151	2010	175	1930	175	2010
152	2680	152	2400	176	3440	176	2940
153	3830	153	2680	177	3360	177	2980
154	2460	154	2730	178	2060	178	2080
155	1940	155	1940	179	1990	179	1980
156	2380	156	2260	180	2030	180	2120
157	2570	157	2500	181	2050	181	1970
158	2140	158	2130	182	3030	182	2560
159	2980	159	2430	183	3460	183	2970
160	1960	160	1870	184	3190	184	2830
161	2310	161	2120	185	2070	185	1940
162	2230	162	2100	186	2160	186	2070
163	2550	163	2720	187	2020	187	1980
164	2090	164	2040	188	2190	188	2179
165	2460	165	2350	189	2220	189	1990
166	2170	166	2100	190	2160	190	2220
167	2020	167	2120	191	2190	191	2160
168	1930	168	1930	192	2020	192	2020

REMARKS: \_\_\_\_\_



# **OUTDOOR GAMMA SCREENING SURVEY DATA SHEET**

LOGGING CREW: Dave Murphy, Dennis Jones  
Chris Workman, Terry Herman  
Bob Greene

SHEET 5 OF 6 PAGE 5

DATE: 3-9-89

PROPERTY ID: 059

INSTRUMENT ID NO.: ESP-1 - #1709

BACKGROUND CALCULATION:

#1 \_\_\_\_\_ + #2 \_\_\_\_\_ + #3 \_\_\_\_\_ = \_\_\_\_\_ - 3 = \_\_\_\_\_ COUNTS/1MIN

AREA: <u>Contact</u>		AREA: <u>1-meter</u>		AREA: <u>Contact</u>		AREA: <u>1-meter</u>	
POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN	POINT ID	READING COUNTS/1MIN
193	2280	193	2070	217	2375	217	1792
194	2558	194	2633	218	2285	218	1743
195	2331	195	2284	219	2008	219	1660
196	2198	196	2148	220	1977	220	1692
197	2171	197	2075	221	1440	221	1380
198	2463	198	2490	222	2273	222	1850
199	2342	199	2311	223	1479	223	1479
200	2343	200	2229	224	2426	224	1940
201	2202	201	2236	225	1678	225	1498
202	2152	202	2027	226	2244	226	1727
203	2561	203	2238	227	1551	227	1487
204	<del>2190</del> 1983	204	<del>2132</del> 1732	228	2308	228	2250
205	1934	205	1926	229	2285	229	2342
206	1538	206	1515	230	2385	230	2349
207	2700	207	1959	231	2259	231	2394
208	2182	208	1872	232	2286	232	2461
209	1494	209	1371	233	2426	233	2387
210	2170	210	1958	234	2354	234	2288
211	1995	211	1729	235	2572	235	2439
212	1953	212	1790	236	2180	236	2286
213	1446	213	1469	237	2056	237	2207
214	1905	214	1787	238	2607	238	2395
215	1496	215	1464	239	2787	239	2475
216	2263	216	1727	240	2363	240	2426

REMARKS: \_\_\_\_\_



MCHARISON  
KNUDSEN

OUTDOOR GAMMA SCREENING  
SURVEY DATA SHEET

LOGGING CREW: Dan Murphy Dennis Jones  
Chris Workman Terry Harmon  
Jack Greene

SHEET 6 OF 6 PAGE 6  
DATE: 3-9-99  
PROPERTY ID: 059

INSTRUMENT ID NO.: ESP-1 - # 1761

### BACKGROUND CALCULATION:

#1 \_\_\_\_\_ + #2 \_\_\_\_\_ + #3 \_\_\_\_\_ = \_\_\_\_\_ - 3 = \_\_\_\_\_ COUNTS/MIN

[illegible]

REMARKS

HE-FERGUSON/CHEN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

SITE NAME Durango  
SITE AREA \_\_\_\_\_

OCS #1 Serial #984369  
OCS #2 Serial #285411

COUPE DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	WASD	Re 226	OC	LABORATORY RESULT	DEPTH	TECH	REMARKS
INITIAL					INITIAL	INITIAL	NET	INITIAL				INITIAL	
20 DAY					20 DAY	20 DAY	20 DAY	20 DAY	UNIT	Re 226	Th 230	20 DAY	
1/4/89	DU-SS-12405	C59-C1	1/4/89		1	7.44 E 2	440.4	1.69				SS	N 49800 1900 C E 50240 1960 Im
	DU-SV												
1/4/89	DU-SS-12406	C59-2	1/4/89		1	1.22 E 3	250	4.21				SS	N 49800 2010 C E 50270 1910 Im
	DU-SV												
1/4/89	DU-SS-12407	C59-3	1/4/89		1	1.22 E 3	390.3	3.12				SS	N 49800 2100 C E 50300 2130 Im
	DU-SV												
1/4/89	DU-SS-12409	C59-4	1/4/89		1	1.16 E 3	500.8	2.32				SS	N 49800 2130 C E 50330 2260 Im
	DU-SV												
1/4/89	DU-SS-12409	C59-5	1/4/89		2	1.40 E 3	400.4	3.50				SS	N 49800 1780 C E 50360 1900 Im
	DU-SV												
1/4/89	DU-SS-12410	C59-6	1/4/89		2	1.76 E 3	530.0	3.32				SS	N 49800 1540 C E 50390 1740 Im
	DU-SV												
1/11/89	DU-SS-12418	C59-7	1/10/89		1	1.82 E 3	817.7	2.22				JS	N 49766 2070 C E 50433 1980 Im
	DU-SV												
1/11/89	DU-SS-12419	C59-8	1/10/89		1	1.20 E 3	897.3	1.33				JS	N 49766 2000 C E 50400 1950 Im
	DU-SV												
1/11/89	DU-SS-12420	C59-9	1/10/89		1	1.13 E 3	601.4	1.88				JS	N 49766 1960 C E 50366 1910 Im
	DU-SV												
1/11/89	DU-SS-12421	C59-10	1/10/89		2	1.58 E 3	718.5	2.20				JS	N 49766 2030 C E 50333 1970 Im
	DU-SV												
1/11/89	DU-SS-12422	C59-11	1/10/89		2	1.06 E 3	677.7	1.56				JS	N 49766 1950 C E 50300 1990 Im
	DU-SV												
1/11/89	DU-SS-12423	C59-12	1/10/89		2	6.22 E 2	504.7	1.23				JS	N 49733 1940 C E 50366 1960 Im
	DU-SV												

NOTE: All cell sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for HDA-5pCi/g (2/3/88)  
1.90(x)-1.40 for 5-15pCi/g (2/3/88)



MR. FERGUSON/CHEN-NUCLEAR  
OFFPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	QC	LABORATORY RESULT		DEPTH	TECH	REMARKS
									326	7B 326			
1-11-89	DU-SS-12424 DU-SV	Q59-13	1-10-89		1	4.65E2	553.0				✓	J.S.	N-49733 1960 C E-50333 1970 1A
1-11-89	DU-SS-12425 DU-SV	Q59-14	1-10-89		1	1.31E3	738.1				✓	J.S.	N-49733 1890 C E-50300 2110 1A
1-11-89	DU-SS-12426 DU-SV	Q59-15	1-10-89		1	9.97E2	539.5				✓	J.S.	N-49700 2060 C E-50300 2110 1A
1-11-89	DU-SS-12427 DU-SV	Q59-16	1-10-89		2	6.95E2	579.2				✓	J.S.	N-49700 2220 C E-50333 2020 1A
1-11-89	DU-SS-12428 DU-SV	Q59-17	1-10-89		2	8.68E2	500.1				✓	J.S.	N-49700 2130 C E-50333 2100 1A
1-16-89	DU-SS-12445 DU-SV	Q59-18	1-16-89		1	1.16E3	725.0				✓	J.S.	N-49666 2500 C E-50300 2350 1A
1-16-89	DU-SS-12446 DU-SV	Q59-19	1-16-89		1	1.07E3	626.0				✓	J.S.	N-49666 2500 C E-50333 2300 C
1-17-89	DU-SS-12447 DU-SV	Q59-20	1-17-89		1	1.05E3	625.5				✓	SS	N-49666 2100 C E-50333 2100 1A
1-17-89	DU-SS-12448 DU-SV	Q59-21	1-17-89		1	1.47E3	579.0				✓	SS	N-49666 2200 C E-50300 2000 1A
1-17-89	DU-SS-12449 DU-SV	Q59-22	1-17-89		1	2.55E3	855.5				✓	SS	N-49633 2100 1A E-50333 2000 C
1-17-89	DU-SS-12450 DU-SV	Q59-23	1-16-89		1	2.47E3	571.0				✓	SS	N-49633 2100 1A E-50333 2000 C
1-17-89	DU-SS-12451 DU-SV	Q59-24	1-16-89		2	1.92E3	628.0				✓	SS	N-49600 2100 1A E-50300 2000 C

NOTE: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)1.505 for 10A-5pCi/g (7/7/88)

IR-TERGUSOH/CHEN-NUCLEAR  
OPPOSED CRISTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SNIPPED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	Pa 226	QC	LABORATORY RESULT		DEPTH	TECH	REMARKS				
										INITIAL	INITIAL				WET	INITIAL	Pa 226	Th 226
1-17-89	DU-SS-12452	059-25	1-16-89		2	1.59E3	790.5	2.01				✓	SS	N-50560 CPTM 1856 C. E-49833 1721m				
	DU-SV																	
1-17-89	DU-SS-12453	059-26	1-16-89		2	9.70E2	568.5	1.71				✓	SS	N-49600 AVE CPTM 2100 im E-50200 2300 C				
	DU-SV																	
1-17-89	DU-SS-12454	059-27	1-17-89		1	8.89E2	559.0	1.59				✓	SS	N-49666 AVE CPTM 1760 im E-50466 1770 C				
	DU-SV																	
1-17-89	DU-SS-12455	059-28	1-17-89		1	8.64E2	608.5	1.43				✓	SS	N-49733 AVE CPTM 1960 im E-50400 1940 C				
	DU-SV																	
1-17-89	DU-SS-12456	059-29	1-17-89		1	1.40E3	586.6	2.39				✓	SS	N-49733 AVE CPTM 2190 im E-50433 2170 C				
	DU-SV																	
1-17-89	DU-SS-12457	059-30	1-17-89		1	2.63E3	663.4	3.96				✓	SS	N-49733 AVE CPTM 2670 im E-50466 2930 C				
	DU-SV																	
1-17-89	DU-SS-12458	059-31	1-17-89		1	2.15E3	605.4	3.55				✓	SS	N-49700 AVE CPTM 2408 C E-50400 2280 im				
	DU-SV																	
1-17-89	DU-SS-12459	059-32	1-17-89		1	1.22E3	679.0	1.88				✓	SS	N-49700 AVE CPTM 2090 im E-50433 2090 C				
	DU-SV																	
1-17-89	DU-SS-12460	059-33	1-17-89		1	9.51E2	645.3	1.47				✓	SS	N-49700 AVE CPTM 2090 im E-50466 1770 C				
	DU-SV																	
1-17-89	DU-SS-12461	059-34	1-17-89		1	1.64E3	586.0	2.72-30				✓	SS	N-49666 AVE CPTM 2440 im E-50400 2620 C				
	DU-SV																	
1-17-89	DU-SS-12462	059-35	1-17-89		1	1.53E3	634.0	2.41				✓	SS	N-49666 AVE CPTM 2510 im E-50433 2520 C				
	DU-SV																	
1-17-89	DU-SS-12463	059-36	1-17-89		2	1.43E3	859.0	1.66				✓	SS	N-49666 AVE CPTM 2120 im E-50466 2030 C				
	DU-SV																	

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for HDA-5pCi/g (2/3/88)  
1.08(x)-1.40 for S-15pCi/g (2/3/88)



MR-120000/CHN-NUCLEAR

OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Duerango  
SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SIFTED	DATE REAGED	TAG NO	FUNCTION NO.		MASS		No 236		ON	LARGEST RESULT		DEPTH		REMARKS
						INITIAL	20 DAY	NET	DAY	INITIAL	20 DAY		20 DAY	20 DAY	100 cm	INITIAL	
1-17-89	DU-SS-12461 DU-SV	059-37	1-17-89		2	1.88E3		671.0		2.79					✓	SS	N-49633 AVECTM 2230 1m E-50400 1500 C
1-17-89	DU-SS-12465 DU-SV	059-38	1-17-89		2	1.88E3		641.0		1.44					✓	SS	N-49633 20 40 C E-50400 2150 1m
1-17-89	DU-SS-12466 DU-SV	059-39	1-17-89		2	1.88E3		686.6		2.24					✓	SS	N-49633 AVECTM 2160 1m E-50400 1090 C
1-17-89	DU-SS-12467 DU-SV	059-40	1-17-89		2	1.88E3		468.0		2.39					✓	SS	N-49600 AVECTM 2030 1m E-50400 1080 C
1-17-89	DU-SS-12468 DU-SV	059-41	1-17-89		2	1.88E3		350.0		3.66					✓	SS	N-49600 AVECTM 2070 1m E-50400 1970 C
1-17-89	DU-SS-12469 DU-SV	059-42	1-17-89		2	5.91E2		472.5		1.25					✓	SS	N-49600 AVECTM 2100 1m E-50400 1570 C
1-23-89	DU-SS-12521 DU-SV	059-43	1-20-89		1	2.96E3		761.8		3.88					✓	SS	N-50533 AVECTM 1100 1m E-50000 1080 C
1-23-89	DU-SS-12515 DU-SV	059-44	1-20-89		2	1.84E3		754.0		2.44					✓	JS	N-50500 AVECTM 1140 C E-50000 1440 C
1-23-89	DU-SS-12516 DU-SV	059-45	1-20-89		1	3.62E3		766.5		4.72					✓	JS	N-50466 AVECTM 1730 C E-50000 1460 1m
1-23-89	DU-SS-12517 DU-SV	059-46	1-20-89		2	4.20E3		797.8		5.36					✓	JS	N-50411 AVECTM 1380 1m E-50000 1460 1m
1-23-89	DU-SS-12518 DU-SV	059-47	1-20-89		1	3.84E3		748.0		5.33					✓	JS	N-50400 AVECTM 1650 1m E-50000 1630 C
1-23-89	DU-SS-12519 DU-SV	059-48	1-23-89		1	1.72E3		477.6		3.60					✓	JS	N-50433 AVECTM E-50033 2180

NOTE: All soil sample results are in pcf/cm

REVIEWED BY \_\_\_\_\_

Site Correction factor = 1.31(x)1.767 (10/21/87) VP Correction Factor = 1.35(x)1.505 for HDA Sp.1/E (7/1/88)

MR. FERGUSON/CHEM-NUCLEAR  
OFFGAS CRISTAL BYSSER RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA

COUNT DATE INITIAL 30 DAY	SAMPLE NUMBER	SAMPLE LOCATION	DATE SHIPPED	DATE SEALED	TAG NO INITIAL 30 DAY	FUNCTION NO. INITIAL 30 DAY	MASS NET DRY	Pa 272 INITIAL 30 DAY	QC SMPL	LABORATORY RESULT		DEPTH 415 cm 419 cm 30 DAY	SECH INITIAL 30 DAY	REMARKS
										Pa 276	Pa 278			
1-23-89	DU-SS-12510 DU-SV	Q59-49	1-23-89		1	7.50E2	386.2	2.10				✓	JS	N 50480 AVECPM E 50033 1710c
1-23-89	DU-SS-12511 DU-SV	Q59-50	1-23-89		1	1.13E3	411.6	2.74				✓	JS	N 50400 AVECPM E 50066 1290c
1-23-89	DU-SS-12512 DU-SV	Q59-51	1-23-89		1	3.04E2	328.1	4.04				✓	JS	N 50366 AVECPM E 50066 1350c
1-23-89	DU-SS-12513 DU-SV	Q59-52	1-23-89		1	6.89E2	328.4	2.10				✓	JS	N 50366 AVECPM E 50033 1420c
1-23-89	DU-SS-12514 DU-SV	Q59-53	1-23-89		1	3.67E2	395.5	4.04				✓	JS	N 50366 AVECPM E 50000 1860c
1-23-89	DU-SS-12515 DU-SV	Q59-54	1-23-89		1	2.60E3	449.3	5.80				✓	JS	N 50366 AVECPM E 49966 1710c
1-23-89	DU-SS-12516 DU-SV	Q59-55	1-23-89		1	1.33E3	329.8	4.10				✓	JS	N 50333 AVECPM E 50066 1410c
1-23-89	DU-SS-12517 DU-SV	Q59-56	1-23-89		1	9.75E2	382.2	2.55				✓	JS	N 50333 AVECPM E 50033 2420c
1-23-89	DU-SS-12518 DU-SV	Q59-57	1-23-89		1	2.05E3	514.1	4.00				✓	JS	N 50333 AVECPM E 50000 1670c
1-23-89	DU-SS-12519 DU-SV	Q59-58	1-23-89		2	1.39E3	313.1	4.44				✓	JS	N 50333 AVECPM E 49966 2060c
1-23-89	DU-SS-12520 DU-SV	Q59-59	1-23-89		2	1.82E3	298.6	6.10				✓	JS	N 50333 AVECPM E 49933 2160c
1-23-89	DU-SS-12521 DU-SV	Q59-60	1-23-89		2	1.78E3	332.9	5.33				✓	JS	N 50333 AVECPM E 49900 2260c

NOTE: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction factor = 1.71(x)1.769 (10/21/87) VP Correction Factor = 1.35(-)1.505 for HMA-5pCi/g (2/1/88)

DR-FERGUSON/CHEN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE	SAMPLE	DATE	DATE	TAG NO	FUNCTION NO.	MASS	Ra 226	QC	LABORATORY	DEPTH	TECH	REMARKS
INITIAL	NUMBER	LOCATION	UNFILED	SEALED	INITIAL	INITIAL	WET	INITIAL	WET	RESULT	15 cm	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY	WET	Ra 226	Th 230	20 DAY	
1-23-89	DU-SS-12542				2	1.82E3	424.0	4.30				✓ JS	N-50300 AVECPM E-50100 1710C
	DU-SV	059-61	1-23-89										
1-23-89	DU-SS-12543				2	1.36E3	405.8	3.25				✓ JS	N-50300 AVECPM E-50066 1650C
	DU-SV	059-62	1-23-89										
1-23-89	DU-SS-12544				2	2.00E3	446.0	4.81				✓ JS	N-50300 AVECPM E-30033 1670C
	DU-SV	059-63	1-23-87										
1-23-89	DU-SS-12545				2	1.17E3	616.3	1.91				✓ JS	N-50300 AVECPM E-50000 1720C
	DU-SV	059-64	1-23-89										
1-23-89	DU-SS-12546				2	1.01E3	424.4	2.38				✓ JS	N-50300 AVECPM E-49966 2260C
	DU-SV	059-65	1-23-89										
1-23-89	DU-SS-12547				2	9.64E2	313.0	3.10				✓ JS	N-50300 AVECPM E-49933 2000C
	DU-SV	059-66	1-23-89										
1-23-89	DU-SS-12548				2	1.15E3	635.0	1.81				✓ JS	N-50300 AVECPM E-49900 2540C
	DU-SV	059-67	1-23-89										
1-23-89	DU-SS-12549				1	1.01E3	228.0	4.42				✓ JS	N-50266 CPTM 2000C. E-49900 1710Im
	DU-SV	059-68	1-23-89										
1-23-89	DU-SS-12550				1	2.47E3	480.6	5.14				✓ JS	N-50260 CPTM 1930C. E-49966 1900Im
	DU-SV	059-69	1-23-89										
1-24-89	DU-SS-12551				1	2.83E3	626.4	4.52				✓ JS	N-50266 CPTM 1890C. E-50000 1810Im
	DU-SV	059-70	1-23-89										
1-24-89	DU-SS-12552				1	2.84E3	799.0	3.55				✓ JS	N-50266 CPTM 2170C. E-50033 1870Im
	DU-SV	059-71	1-23-89										
1-24-89	DU-SS-12553				1	1.69E3	485.5	3.48				✓ JS	N-50266 CPTM 1810C. E-50066 1750Im
	DU-SV	059-72	1-23-89										

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)+.749 (10/21/87)

VP Correction Factor = 1.35(x)+.505 for HMA-5pCi/g (2/3/88)  
1.98(x)-1.40 for 5-15pCi/g (2/3/88)



MR-FERGUSON/CHEN-NUCLEAR  
OPPOSED CRISTAL SYSTEM RECORD

OCS #1 Serial #384369  
OCS #2 Serial #285411

SITE NAME Durango

SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	No 226	OC	LABORATORY RESULT		DEPTH	TECH	REMARKS			
										INITIAL	INITIAL			WET	INITIAL	No 226	Th 228
INITIAL																	
20 DAY																	
1-24-89	DU-SS-12554	059-73	1-23-89		1	2.52E3	642.6	3.92				✓	SS	N-50246	CPTM		
	DU-SV															E-50100	1700C.
1-24-89	DU-SS-12555	059-74	1-23-89		1	1.87E3	639.0	2.93				✓	SS	N-50266	CPTM		
	DU-SV															E-50133	1580C.
1-24-89	DU-SS-12556	059-75	1-23-89		1	1.08E3	807.0	1.34				✓	SS	N-50233	CPTM		
	DU-SV															E-50133	1760C.
1-24-89	DU-SS-12557	059-76	1-23-89		1	1.08E3	572.4	1.89				✓	SS	N-50233	CPTM		
	DU-SV															E-50100	10301m
1-24-89	DU-SS-12558	059-77	1-23-89		1	3.21E3	748.8	4.29				✓	SS	N-50233	CPTM		
	DU-SV															E-50066	17701m
1-24-89	DU-SS-12559	059-78	1-23-89		1	3.71E3	701.6	5.29				✓	SS	N-50233	CPTM		
	DU-SV															E-50033	1790C.
1-24-89	DU-SS-12560	059-79	1-23-89		1	1.64E3	735.6	2.17				✓	SS	N-50233	CPTM		
	DU-SV															E-30000	1030C.
1-24-89	DU-SS-12561	059-80	1-23-89		2	1.13E3	740.0	1.53				✓	SS	N-50200	CPTM		
	DU-SV															E-50166	15001m
1-24-89	DU-SS-12562	059-81	1-23-89		2	3.09E3	574.6	5.38				✓	SS	N-50200	CPTM		
	DU-SV															E-50133	1560C.
1-24-89	DU-SS-12563	059-82	1-23-89		2	2.52E3	684.0	3.68				✓	SS	N-50200	CPTM		
	DU-SV															E-50100	17601m
1-24-89	DU-SS-12564	059-83	1-23-89		2	2.46E3	563.5	4.36				✓	SS	N-50200	CPTM		
	DU-SV															E-50066	2150C.
1-24-89	DU-SS-12565	059-84	1-23-89		2	1.01E3	533.3	1.89				✓	SS	N-50200	CPTM		
	DU-SV															E-50033	1720C.

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction factor = 1.31(x)+.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for IMA-5pCi/g (2/1/88)  
1.08(x)-1.40 for 5-15pCi/g (2/1/88)

MR. FERGUSON/CHEM-NUCLEAR  
OFFGAS CRISTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SHIPPED	DATE SEALED	TAG NO	FUNCTION NO.		MASS	GC	LABORATORY RESULT		DEPTH	TECH	REMARKS
						INITIAL	20 DAY	WET DRY		No 226	INITIAL	20 DAY		
1-24-89	DU-SS-12544	Q59-85	1-23-89		2	3.02E3		799.5		4.25		✓	SS	N 50100 E 50066 1720C. 1620C.
1-24-89	DU-SV				2	3.47E3		735.5		4.59		✓	SS	N 50166 E 50166 1590C. 1490C.
1-24-89	DU-SS-12547	Q59-86	1-23-89		2	3.08E3		677.3		4.55		✓	SS	N 50166 E 50133 1310C. 1210C.
1-24-89	DU-SV	Q59-87	1-23-89		1	1.97E3		582.6		3.38		✓	SS	N 50166 E 50100 2010 1900C.
1-24-89	DU-SS-12549	Q59-88	1-23-89		1	4.77E2		630.0		1.50		✓	SS	N 50166 E 50066 1930C. 1830C.
1-24-89	DU-SV	Q59-89	1-23-89		1	2.97E3		617.6		4.81		✓	SS	N 50166 E 50033 2070C. 1890C.
1-24-89	DU-SS-12571	Q59-90	1-23-89		1	3.51E3		660.4		5.32		✓	SS	N 50166 E 50000 1790C. 1690C.
1-25-89	DU-SS-12572	Q59-91	1-23-89		1	2.03E3		525.0		3.87		✓	SS	N 50133 E 50166 2210C. 2110C.
1-25-89	DU-SV	Q59-92	1-24-89		1	9.14E2		595.0		1.78		✓	SS	N 50133 E 50133 2101C. 2001C.
1-25-89	DU-SS-12573	Q59-93	1-24-89		1	2.10E3		368.0		5.71		✓	SS	N 50133 E 50100 2310C. 2210C.
1-25-89	DU-SV	Q59-94	1-24-89		1	4.16E3		540.4		7.70		✓	SS	N 50133 E 50066 1901C. 1801C.
1-25-89	DU-SS-12576	Q59-95	1-24-89		1	3.67E3		440.0		8.34		✓	SS	N 50133 E 50033 1940C. 1840C.
1-25-89	DU-SV	Q59-96	1-24-89		1							✓	SS	

NOTE: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction factor = 1.31(x) + 7.69 (10/21/87) VP Correction Factor = 1.35(x) + 5.05 for 10A-5pCi/g (2/3/88)  
10B-5pCi/g (2/3/88)



MR-1740000/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1. Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO.	FUNCTION NO.	MASS	Mo 236	DC	LABORATORY RESULT		DEPTH	TECH	REMARKS
					INITIAL	INITIAL	WPT	INITIAL	SUBT	No 236	Th 230	100 cm	INITIAL	
					20 DAY	20 DAY	DAY	20 DAY				15 cm	20 DAY	
1-25-89	DU-SS-12578				1	1.67E3	358.0	4.70				✓	SS	N 50133 E 50000 S 2960 CPM 1m=1820 "
	DU-SV	059-97	1-24-89											
1-25-89	DU-SS-12579				1	3.25E3	420.0	7.74				✓	SS	N 50100 E 50100 S 2800 CPM 1m=1820 "
	DU-SV	059-98	1-24-89											
1-25-89	DU-SS-12580				1	4.91E3	443.0	7.64				✓	SS	N 50100 E 50133 S 2250 CPM 1m=1800 "
	DU-SV	059-99	1-24-89											
1-25-89	DU-SS-12581				1	3.92E3	647.3	6.06				✓	SS	N 50100 E 50100 S 2280 CPM 1m=1870 "
	DU-SV	059-100	1-24-89											
1-25-89	DU-SS-12582				1	1.34E3	441.3	3.04				✓	SS	N 50100 E 50066 S 1910 CPM 1m=1870 "
	DU-SV	059-101	1-24-89											
1-25-89	DU-SS-12583				1	2.69E3	373.3	7.21				✓	SS	N 50100 E 50066 S 3066 CPM 1m=2190 "
	DU-SV	059-102	1-24-89											
1-25-89	DU-SS-12584				1	6.70E2	408.4	1.64				✓	SS	N 50100 E 50000 S 2380 CPM 1m=1890 "
	DU-SV	059-103	1-24-89											
1-25-89	DU-SS-12585				1	1.8E3	436.0	4.27				✓	SS	N 50066 E 50166 S 2280 CPM 1m=1880 "
	DU-SV	059-104	1-24-89											
1-25-89	DU-SS-12586				1	9.89E2	484.0	2.04				✓	SS	N 50066 E 50133 S 1850 CPM 1m=1820 "
	DU-SV	059-105	1-24-89											
1-25-89	DU-SS-12587				1	2.04E3	522.0	3.91				✓	SS	N 50066 E 50100 S 2740 CPM 1m=1690 "
	DU-SV	059-106	1-24-89											
1-25-89	DU-SS-12588				2	1.68E3	456.0	3.68				✓	SS	N 50066 E 50066 S 1930 CPM 1m=1810 "
	DU-SV	059-107	1-24-89											
1-25-89	DU-SS-12589				2	2.12E3	415.0	5.11				✓	SS	N 50066 E 50033 S 2840 CPM 1m=2830 "
	DU-SV	059-108	1-24-89											

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction factor = 1.31(x) + 1.749 (10/21/87) VP Correction Factor = 1.35(x) + 1.505 for HMA-SpCl/g (2/1/88)  
1.98(x) - 1.40 for S-15uCl/g (2/1/88)

IR-FERGUSON/CHFN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #283411

SITE NAME Durango

SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	Na 226	QC	LABORATORY RESULT	DEPTH	TECH	REMARKS
INITIAL					INITIAL	INITIAL	WET	INITIAL				INITIAL	
10 DAY					10 DAY	10 DAY	DRY	10 DAY	SWT	Na 226	Th 230	10 DAY	
1/25/89	DU-SS-12590	C59-109	1/24/89		2	1.64E3	308.2	5.32				SS	N50066 E50000 S=2520 CPM IM=2140 CPM
	DU-SV												
1/25/89	DU-SS-12591	C59-110	1/24/89		2	4.84E2	314.0	1.54				SS	N50033 CPM E50166 S=1990 IM=2150
	DU-SV												
2/1/89	DU-SS-12623	C59-111	2/1/89		1	8.52E2	417.7	2.04				JS	N50033 CPM E50133 S=1840 IM=1790
	DU-SV												
1/25/89	DU-SS-12592	C59-112	1/24/89		2	1.12E3	347.0	3.23				SS	N50033 CPM E50100 S=1920 IM=2070
	DU-SV												
1/25/89	DU-SS-12593	C59-113	1/24/89		2	3.68E2	323.0	1.14				SS	N50033 CPM E50066 S=2240 IM=1970
	DU-SV												
1/25/89	DU-SS-12994	C59-114	1/24/89		2	2.90E3	307.5	3.71				SS	N50033 CPM E50033 S=2250 IM=1830
	DU-SV												
1/25/89	DU-SS-12995	C59-115	1/24/89		2	1.00E3	296.0	3.40				SS	N50033 CPM E50000 S=1980 IM=1760
	DU-SV												
1/25/89	DU-SS-12596	C59-116	1/24/89		2	1.58E3	291.0	5.43				SS	N50000 CPM E50166 S=2260 IM=1760
	DU-SV												
1/25/89	DU-SS-12597	C59-117	1/24/89		2	1.56E3	485.0	3.22				SS	N50000 CPM E50133 S=2160 IM=1950
	DU-SV												
1/25/89	DU-SS-12598	C59-118	1/24/89		2	1.37E3	318.0	4.31				SS	N50000 CPM E50100 S=2540 IM=1910
	DU-SV												
1/25/89	DU-SS-12599	C59-119	1/24/89		2	2.33E3	340.6	6.84				SS	N60000 CPM E50066 S=2584 IM=1950
	DU-SV												
1/25/89	DU-SS-12600	C59-120	1/24/89		2	4.68E2	322.0	1.45				SS	N50000 CPM E50033 S=2300 IM=1960
	DU-SV												

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for IMA-5pCi/g (7/7/88)  
1.98(x)-1.40 for S-15pCi/g (7/7/88)

MR-FERGUSON/CHEN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

Durango

SITE NAME  
SITE AREA

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	HASS		QC	LABORATORY RESULT		DEPTH	TECH	REMARKS
							INITIAL	30 DAY		No 334	No 336	419 CP	INITIAL	
2/25/89	DU-SS-12601	C59-121	1/24/89		2	1.15E 3		3436		3.35		✓	SS	AJ50000 5.2630 E50000 1m 1980
2/25/89	DU-SV													
2/25/89	DU-SS-12624	C59-122	2/1/89		1	9.14E 2		396.1		2.31		✓	JS	AJ50066 1620.5 E50000 1430.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12635	C59-123	2/1/89		1	3.41E 2		433.5		2.10		✓	JS	AJ50033 1280.5 E50000 1280.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12646	C59-124	2/1/89		1	6.02E 2		435.1		1.38		✓	JS	AJ50000 1660.5 E50000 1680.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12627	C59-125	2/1/89		2	6.97E 2		433.6		1.61		✓	JS	AJ49966 1470.5 E50033 1500.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12628	C59-126	2/1/89		2	1.11E 3		4270		2.60		✓	JS	AJ49966 1450.5 E50000 1440.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12631	C59-127	2/1/89		1	9.46E 2		411.3		2.29		✓	JS	AJ49966 1860.5 E50066 2040.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12632	C59-128	2/1/89		1	2.98E 3		434.8		6.85		✓	JS	AJ49966 2410.5 E50033 2140.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12633	C59-129	2/1/89		1	1.26E 3		410.8		3.07		✓	JS	AJ49966 2370.5 E50000 2310.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12634	C59-132	2/1/89		2	1.27E 3		388.8		1.27		✓	JS	AJ49933 2410.5 E50033 2330.1m
2/25/89	DU-SV													
2/25/89	DU-SS-12639	C59-134	2/1/89		2	3.37E 3		455.7		7.40		✓	JS	AJ49933 2410.5 E50066 1740.1m
2/25/89	DU-SV													
2/25/89	DU-SV													

NOTE: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction factor = 1.31(x) 1.769 (10/21/87) VP Correction Factor = 1.15(x) + .505 for MDA-5pCi/g (2/3/88)  
1.98(x) - 1.40 for 5-15pCi/g (7/1/88)



SITE NAME DUREDO

SITE AREA

MR. FERGUSON/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORDOCS #1: 984369  
OCS #2: 285411

OCS SERIAL NO. \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	OCS#	FUNCTION NO.		MASS		No 226		QC	LABORATORY RESULT		DEPT. TECH		REMARKS
						INITIAL	30 DAY	WET	DRY	INITIAL	30 DAY		No 226	TH 226	413 cm	20 DAY	
2-2-89	Du-SS-12634	059-130	2/1/89		1		2.03E3	358.2	56.7						✓	AS	N 49966 2190 C E 50066 2330 M
2-2-89	Du-SS-12635	059-131	2/1/89		1		2.31E3	388.4	7.50						✓	AS	N 49966 2930 S E 50033 2480 M
2-2-89	Du-SS-12636	059-133	2/1/89		1		1.54E2	390.0	4.00						✓	AS	E 50033 1500 S N 49900 1620 M
2-2-89	Du-SS-12637	059-135	2/1		2		1.12E3	231.9	4.83						✓	AS	N 49900 2630 S E 50066 2170 M
2-2-89	Du-SS-12638	059-136	2/1		2		8.23E2	203.1	3.13						✓	AS	N 49933 2020 S E 50100 2190 M
2-2-89	Du-SS-12639	059-137	2/1		2		2.22E3	385.6	5.80						✓	AS	N 49900 2710 S E 50100 2130 M
2-2-89	Du-SS-12640	059-138	2/1		2		2.37E3	441.1	5.37						✓	AS	N 49933 2020 S E 50166 1970 M
2-2-89	Du-SS-12641	059-139	2/1		2		2.46E3	355.0	6.93						✓	AS	N 49900 2220 S E 50100 1860 M
2-2-89	Du-SS-12642	059-140	2/1		2		1.00E3	282.5	3.54						✓	AS	N 49933 2020 S E 50166 1960 M
2-2-89	Du-SS-12643	059-141	2/1		2		8.75E2	363.0	2.41						✓	AS	N 49900 2580 S E 50166 1910 M
2-2-89	Du-SS-12644	059-142	2/1		2		1.23E3	409.4	3.58						✓	AS	N 49933 1820 S E 50200 1841 M
2-2-89	Du-SS-12645	059-143	2/1		2		8.62E2	377.5	2.28						✓	AS	N 49900 2580 S E 50200 1850 M

NOTE: All soil sample results are in pCi/gm

REVIEWED BY AS

Site Correction Factor =  $1.31(x) + .749$  (10/21/88) VP Correction Factor =  $1.35(x) + .505$  MDA-5pCi/g  
 Count Time = 500 sec, unless noted otherwise.  
 (2/3/88) =  $1.98(x) - 1.40$  5-15pCi/g



SITE NAME Durango  
SITE AREA \_\_\_\_\_

MR-FERGUSON/CHEM-NUCLEAR  
OPPOSED CRISTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

COUNT DATE	SAMPLE	SAMPLE	DATE	DATE	TAG NO	FUNCTION NO.	MASS	Re 226	DC	LABORATORY		DEPTH	TECH	REMARKS
INITIAL	NUMBER	LOCATION	SAMPLED	SEALED	INITIAL	INITIAL	WET	INITIAL	CODE	RESULT		(15 cm)	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY		Re 226	Th 230	(15 cm)	20 DAY	
2/2/89	DU-SS-1268	C59-144	2/1/89		2	4.91 E2	375.2	1.31				✓	JS	N 49933 17903
	DU-SV													E 50233 15301m
2/2/89	DU-SS-1269	O59-145	2/1/89		2	7.38 E2	411.7	1.79				✓	JS	N 49900 17303
	DU-SV													E 50233 18901m
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													
	DU-													
	DU-SV													

NOTES: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)+.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for 10A-5pCi/g (2/3/88)  
1.98(x)-1.40 for 5-15pCi/g (2/3/88)

HR-FERGUSON/CHTN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE ENITLED	DATE SEALED	TAG NO INITIAL 20 DAY	FUNCTION NO. INITIAL 20 DAY	NASH WF DRY	Pa 226 INITIAL 20 DAY	OC CHECK	LABORATORY RESULT Pa 226 Th 230	DEPTH 15 cm 25 cm	TECH INITIAL 20 DAY	REMARKS
2-27-89	DU-SS-12665				1	1.69E3	674.5	2.51			✓	RF	N-49866 CPTM E-50133 1950C. 17501m
	DU-SV	059-146	2-27-89										
2-27-89	DU-SS-12666				1	1.06E3	704.0	1.51			✓	RF	N-49866 CPTM E-50200 3240C. 20801m
	DU-SV	059-147	2-27-89										
2-27-89	DU-SS-12667				1	1.99E3	682.5	2.92			✓	RF	N-49833 CPTM E-50200 1630C. 16701m
	DU-SV	059-148	2-27-89										
2-27-89	DU-SS-12668				1	7.86E2	677.5	1.16			✓	RF	N-49833 CPTM E-50233 1690C. 17401m
	DU-SV	059-149	2-27-89										
2-27-89	DU-SS-12669				1	2.70E3	685.0	3.94			✓	RF	N-49800 CPTM E-50200 1850C. 19101m
	DU-SV	059-150	2-27-89										
2-27-89	DU-SS-12670				1	2.56E3	763.5	3.35			✓	RF	N-49866 CPTM E-50166 2020C. 20101m
	DU-SV	059-151	2-27-89										
2-27-89	DU-SS-12671				1	3.42E3	559.5	6.11			✓	RF	N-49866 CPTM E-50133 2640C. 24001m
	DU-SV	059-152	2-27-89										
2-27-89	DU-SS-12672				1	3.78E3	650.0	5.82			✓	RF	N-49866 CPTM E-50100 3830C. 26801m
	DU-SV	059-153	2-27-89										
2-27-89	DU-SS-12673				1	6.07E3	593.5	10.2			✓	RF	N-49866 CPTM E-50066 2460C. 27301m
	DU-SV	059-154	2-27-89										
2-27-89	DU-SS-12674				1	1.31E3	571.0	2.29			✓	RF	N-49866 CPTM E-50033 1840C. 18401m
	DU-SV	059-155	2-27-89										
2-27-89	DU-SS-12675				1	2.92E3	735.5	3.97			✓	RF	N-49833 CPTM E-50166 2380C. 22601m
	DU-SV	059-156	2-27-89										
2-3-89	DU-SS-12676				1	3.65E3	682.5	5.34			✓	RF	N-49833 CPTM E-50133 2570C. 25001m
	DU-SV	059-157	2-27-89										

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87)

VF Correction Factor = 1.35(x)+.505 for HMA-5pCi/g (2/3/88)  
1.98(x)-1.40 for 5-15pCi/g (2/3/88)

RR-FERGUSON/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	Ra 226	DC	LABORATORY RESULT	DEPTH	TECH	REMARKS
INITIAL					INITIAL	INITIAL	NET	INITIAL			15 cm	INITIAL	
20 DAY					20 DAY	20 DAY	DRE	20 DAY	SWTIF	Ra 226	Th 230	20 DAY	
3-1-89	DU-SS-12677				1	3.18 E 3	665.0	4.78				✓ RF	N-49833 CPTM E-50100 2140C. 2430Im.
	DU-SV	059-158	2-27-89										
2-28-89	DU-SS-12678				2	2.08 E 3	568.1	3.66				✓ RF	N-49833 CPTM E-50066 1890C. 2430Im.
	DU-SV	059-159	2-27-89										
2-28-89	DU-SS-12679				2	9.52 E 2	663.5	1.43				✓ RF	N-49833 CPTM E-50033 1960C. 1870Im.
	DU-SV	059-160	2-27-89										
3-1-89	DU-SS-12680				2	2.68 E 3	701.0	3.82				✓ RF	N-49800 CPTM E-50166 2310C. 2120Im.
	DU-SV	059-161	2-27-89										
3-1-89	DU-SS-12681				2	3.63 E 3	731.5	4.96				✓ RF	N-49800 CPTM E-50133 2230C. 2100Im.
	DU-SV	059-162	2-27-89										
3-1-89	DU-SS-12682				2	4.21 E 3	589.9	8.57				✓ RF	N-49800 CPTM E-50100 1550C. 2710Im.
	DU-SV	059-163	2-27-89										
3-1-89	DU-SS-12683				2	1.32 E 3	558.5	2.36				✓ RF	N-49800 CPTM E-50066 2090C. 2040Im.
	DU-SV	059-164	2-27-89										
3-1-89	DU-SS-12684				2	1.88 E 3	614.5	3.06				✓ RF	N-49800 CPTM E-50033 2460C. 2350Im.
	DU-SV	059-165	2-27-89										
3-1-89	DU-SS-12685				2	1.99 E 3	646.0	3.08				✓ RF	N-49800 CPTM E-50000 2190C. 2100Im.
	DU-SV	059-166	2-27-89										
3-3-89	DU-SS-12710				1	1.21 E 3	603.5	2.00				✓ RF	N-49766 CPTM E-50233 2420C. Im 2120
	DU-SV	059-167	2-27-89										
3-3-89	DU-SS-12711				1	1.87 E 3	650.6	2.40				✓ RF	N-49766 CPTM E-50200 2183C. Im 1930
	DU-SV	059-168	2-27-89										
3-3-89	DU-SS-12712				1	3.20 E 3	671.0	4.54				✓ RF	N-49766 CPTM E-50156 2191C. Im 256C
	DU-SV	059-169	2-27-89										

NOTE: All soil sample results are in pCi/g

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for HDA-5pCi/g (2/3/88)  
1.98(x)-1.40 for 5-15pCi/g (2/3/88)



HK-FERGUSON/CHEN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

SITE NAME Durango  
SITE AREA \_\_\_\_\_

OCS #1 Serial #984369  
OCS #2 Serial #285411

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SMIPLED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	Ra 226	QC	LABORATORY RESULT	DEPTH	TECH	REMARKS
INITIAL					INITIAL	INITIAL	WET	INITIAL			(15 cm)	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY	UNIT	Ra 226	Th 230	20 DAY	
3-3-89	DU-SS-12713	059-170	2/27/89		1	3.41E3	554.4	6.15				✓ RF	N 49766 CPTM E 50133 C-3800 IM-2670
	DU-SV												
3-3-89	DU-SS-12714	059-171	2/27/89		1	2.51E3	598.5	4.19				✓ RF	N 49766 CPTM E 50100 C-1970 IM-1940
	DU-SV												
3-3-89	DU-SS-12715	059-172	2/27/89		2	1.09E3	543.6	2.00				✓ RF	N 49766 CPTM E 50066 C-2040 IM-2040
	DU-SV												
3-3-89	DU-SS-12716	059-173	2/27/89		2	1.57E3	630.5	2.49				✓ RF	N 49766 CPTM E 50033 C-2470 IM-2290
	DU-SV												
3-3-89	DU-SS-12717	059-174	2/27/89		2	2.10E3	539.5	3.89				✓ RF	N 49766 CPTM E 50000 C-2050 IM-1920
	DU-SV												
3-3-89	DU-SS-12718	059-175	2/27/89		2	1.06E3	546.0	1.78				✓ RF	N 49733 CPTM E 50233 C-1830 IM-2010
	DU-SV												
3-6-89	DU-SS-12719	059-176	2/27/89		1	2.57E3	557.2	4.61				✓ DJW	N 49733 CPTM E 50200 C-3440 IM-2960
	DU-SV												
3-6-89	DU-SS-12720	059-177	2/27/89		1	2.94E3	590.0	5.44				✓ DJW	N 49733 CPTM E 50166 C-3360 IM-2880
	DU-SV												
3-6-89	DU-SS-12721	059-178	2/27/89		1	2.93E3	538.6	5.44				✓ DJW	N 49733 CPTM E 50133 C-2060 IM-2080
	DU-SV												
3-6-89	DU-SS-12722	059-179	2/27/89		1	1.11E3	550.0	2.02				✓ DJW	N 49733 CPTM E 50100 C-1890 IM-1970
	DU-SV												
3-6-89	DU-SS-12723	059-180	2/27/89		1	1.21E3	589.0	2.07				✓ DJW	N 49733 CPTM E 50066 C-2030 IM-2120
	DU-SV												
3-6-89	DU-SS-12724	059-181	2/27/89		1	1.21E3	601.1	2.01				✓ DJW	N 49733 CPTM E 50033 C-2050 IM-1970
	DU-SV												

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87)

VP Correction Factor = 1.35(x)+.505 for HMA-5pCi/g (2/3/88)  
1.98(x)-1.40 for 5-15pCi/g (2/3/88)



OCs	#1 Serial	#984369
OCs	#2 Serial	#285411

SIZE	WAVE	DURANGO
SIZE	AREA	

OFFICE CRYSTAL SYSTEM RECORDS

[illegible]

NOTE: All cell sample results are in  $\mu\text{Ci}/\text{g}$ .

REVIEWED BY

Site Correction factor = 1.31(x) 1.749 (10/21/87) VF Correction Factor = 1.15(x) + .505 for HMA-5pci/c (2/3/88)  
1.98(x) - 1.40 for 5-15pci/c (2/3/88)

MR-FERGUSON/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

SITE NAME Durango  
SITE AREA \_\_\_\_\_

OCS #1: 984369  
OCS #2: 285411

OCS SERIAL NO. \_\_\_\_\_

COUNT DATE	SAMPLE	SAMPLE	DATE	DATE	OCS#	FUNCTION NO.	MASS	Ra 226	OC	LABORATORY	DEPT	TECH	REMARKS
INITIAL	NUMBER	LOCATION	SAMPLED	SEALED	INITIAL	INITIAL	WET	INITIAL	SMPL	RESULT	<15 cm	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY		Ra 226 Th 230	>15 cm	20 DAY	
3-6-89					1	2.47E3	585.3	4.22			✓	DTW	N 49700 CPTM 2190C E 50166 23301m
	04-SS-12730	059-184	2-27-89										
3-6-89					1	1.36E3	531.6	2.56			✓	DTW	N 49700 CPTM 2070C E-50133 19701m
	04-SS-12731	059-185	2-27-89										
3-6-89					1	1.44E3	593.5	2.42			✓	DTW	N. 49700 CPTM 2160C E-50166 19701m
	04-SS-12732	059-186	2-27-89										
3-6-89					1	8.43E2	612.6	1.38			✓	DTW	N. 49700 CPTM 2020C E.50066 17801m
	04-SS-12733	059-187	2-27-89										
3-6-89					2	8.74E2	536.3	1.63			✓	DTW	N-49666 CPTM 2190C E-50266 21781m
	04-SS-12734	059-188	2-27-89										
3-6-89					2	4.78E2	564.2	MDA			✓	DTW	N 49666 CPTM 2120C E 50233 19501m
	04-SS-12735	059-189	2-27-89										
3-6-89					2	4.80E2	565.8	MDA			✓	DTW	N 49666 CPTM 2160C E 50266 12201m
	04-SS-12736	059-190	2-27-89										
3-6-89					1	8.48E2	557.7	1.52			✓	DTW	N-49666 CPTM 2190C E-50166 21601m
	04-SS-12737	059-191	2-27-89										
3-6-89					1	1.01E3	573.4	1.86			✓	DTW	N 49666 CPTM 2020C E-50133 10201m
	04-SS-12738	059-192	2-27-89										
3-6-89					1	1.20E3	540.0	2.22			✓	DTW	N 49666 CPTM 2280C E 51100 20701m
	04-SS-12739	059-193	2-27-89										
3-6-89					2	1.50E3	611.0	2.45			✓	DTW	N 49633 CPTM 2880C E-50266 26201m
	04-SS-12740	059-194	2-27-89										
3-6-89					2	9.00E2	572.7	1.57			✓	DTW	N. 49633 CPTM 2310C E 50233 22201m
	04-SS-12741	059-195	2-27-89										

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor =  $1.31(x) + .749$  (10/21/88)  
Count Time = 500 sec, unless noted otherwise.

VP Correction Factor =  $1.35(x) + .505$  MDA-5pCi/g  
(2/3/88) =  $1.98(x) - 1.40$  5-15pCi/g

MF-FINGUSO/CHEM-NUCLEAR  
 OPPOSED (PSYCAL SYSTEM RECORD)

 OCS #1: 986369  
 OCS #2: 285411

 SITE NAME DUPONRO  
 SITE AREA \_\_\_\_\_

OCS SERIAL NO. \_\_\_\_\_

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	UCS#	FUNCTION NO.		MASS		OC	LABORATORY RESULT		DEPTN	TECH		REMARKS
						INITIAL	20 DAY	NET	DRY		Ro 226	Tn 230		413 cm	INITIAL	
3-6-89	04-S-12742	059-196	2-27-89		2	1.27E3		6014	2.11				✓	03W		N-49633 CPTM 2463C
3-6-89	04-S-12743	059-197	2-27-89		1	6.14E2		648.0	5.16				✓	03W		E-50200 2171C
3-6-89	04-S-12744	059-198	2-27-89		1	1.67E3		6393	2.61				✓	03W		N-49600 CPTM 2463C
3-6-89	04-S-12745	059-199	2-27-89		1	1.80E3		657.8	2.74				✓	03W		E-50266 2171C
3-6-89	04-S-12746	059-200	2-27-89		2	1.11E3		6098	1.87				✓	03W		N-49600 CPTM 2463C
3-6-89	04-S-12747	059-201	2-27-89		2	6.67E2		552.1	1.21				✓	03W		E-50266 2171C
3-6-89	04-S-12748	059-202	2-27-89		2	7.36E2		578.0	1.34				✓	03W		N-49733 CPTM 2463C
3-6-89	04-S-12749	059-203	2-27-89		2	1.53E3		670.0	2.28				✓	03W		E-50266 2171C
3-6-89	04-S-12750	059-204	2-28-89		2	2.67E3		728.5	3.62				✓	03W		N-50833 CPTM 1434C
3-6-89	04-S-12751	059-205	2-28-89		2	3.31E3		712.2	4.65				✓	03W		E-50266 2171C
3-6-89	04-S-12752	059-206	2-28-89		1	6.81E2		597.7	5.16				✓	03W		N-50833 CPTM 1434C
3-6-89	04-S-12753	059-207	2-28-89		1	4.37E3		663.6	7.13				✓	03W		E-50266 2171C
																N-50800 CPTM 1706C
																E-50200 2171C

NOTE: All soil sample results are in pCi/gm

REVISED BY \_\_\_\_\_

 Site Correction Factor =  $1.31(x) + .749$  (10/21/88) VP Correction Factor =  $1.35(x) + .505$  MDA-5pCi/g  
 Count Time = 500 sec, unless noted otherwise. (2/3/89) = 1.98(x) - 1.40 5-15pCi/g



HE-FERGUSON/CHEN-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

SITE NAME Durango  
SITE AREA \_\_\_\_\_

OCS #1 Serial #984369  
OCS #2 Serial #285411

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO	FUNCTION NO.	MASS	Re 226	QC	LABORATORY RESULT	DEPTH	TECH	REMARKS
INITIAL	NUMBER	LOCATION	SAMPLED	SEALED	INITIAL	INITIAL	NET	INITIAL	DATE	Re 226	Th 230	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY				20 DAY	
3-6-89	DU-SS-12759	059-208	2/28/89		1	4.12 E 3	687.1	6.0				✓ DJW	N-50800 CPTM E-50333 C-2182 IM-1872
	DU-SV												
3-6-89	DU-SS-12755	059-209	2/28/89		1	7.36 E 2	679.5	<MDA				✓ DJW	N 50800 CPTM E 50346 C-1994 IM-1371
	DU-SV												
3-6-89	DU-SS-12756	059-210	2/28/89		1	3.58 E 3	700.5	5.11				✓ DJW	N 50766 CPTM E 50300 C-2170 IM-1858
	DU-SV												
3-6-89	DU-SS-12757	059-211	2/28/89		1	1.29 E 3	599.5	2.15				✓ DJW	N 50766 CPTM E 50733 C-1978 IM-1728
	DU-SV												
3-7-89	DU-SS-12758	059-212	2/28/89		1	3.93 E 3	694.5	5.66				✓ DJW	N 50733 CPTM E 50300 C-1853 IM-1770
	DU-SV												
3-7-89	DU-SS-12764	059-213	2/28/89		1	1.49 E 3	643.0	2.32				✓ DJW	N 50733 CPTM E 50333 C-1946 IM-1969
	DU-SV												
3-7-89	DU-SS-12765	059-214	2/28/89		1	2.44 E 3	677.0	3.60				✓ DJW	N 50700 CPTM E 50300 C-1905 IM-1707
	DU-SV												
3-7-89	DU-SS-12766	059-215	2/28/89		2	6.97 E 2	647.5	<MDA				✓ DJW	N 50700 CPTM E 50333 C-1986 IM-1969
	DU-SV												
3-7-89	DU-SS-12767	059-216	2/28/89		2	3.36 E 3	604.0	5.56				✓ DJW	N 50666 CPTM E 50266 C-2263 IM-1727
	DU-SV												
3-7-89	DU-SS-12768	059-217	2/28/89		2	2.58 E 3	614.0	4.19				✓ DJW	N 50666 CPTM E 50300 C-2375 IM-1792
	DU-SV												
3-7-89	DU-SS-12773	059-218	2/28/89		2	3.55 E 3	640.5	5.54				✓ DJW	N 50633 CPTM E 50266 C-2285 IM-1743
	DU-SV												
3-7-89	DU-SS-12774	059-219	2/28/89		2	2.16 E 3	647.5	3.34				✓ DJW	N 50633 CPTM E 50300 C-2008 IM-1660
	DU-SV												

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x) ± .749 (10/21/87) VP Correction Factor = 1.15(x) ± .505 for IDA-5pCi/g (2/7/88)  
1.98(x) ± 1.40 for 5-15pCi/g (2/7/88)



MR-FERGUSON/CHEN-NUCLEAR  
DIPOSED CRYSTAL BATCH RECORD

SITE NAME DuENGO  
SITE AREA \_\_\_\_\_

OCS #1 Serial #984369  
OCS #2 Serial #285411

COUNT DATE	SAMPLE	SAMPLE	DATE	DATE	TAG NO	FUNCTION NO.	WASH	Pa 226	OC	LABORATORY		DEPTH	SECH	REMARKS
INITIAL	NUMBER	LOCATION	SHIPPED	SEALED	INITIAL	INITIAL	WET	INITIAL	UNIT	RESULT		(15 cm)	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY		Pa 226	Th 230	(15 cm)	20 DAY	
3-7-89	DU-SS-12785	059-220	2/28/89		2	3.87E3	676.5	5.75				✓	DFW	N 50800 CPM E 50266 C-1877 1m-1672
	DU-SV													
3-7-89	DU-SS-12776	059-221	2/28/89		1	1.20E3	618.0	1.94				✓	DFW	N 50600 CPM E 50300 C-1440 1m-1380
	DU-SV													
3-7-89	DU-SS-12777	059-222	2/28/89		1	2.72E3	623.5	4.36				✓	DFW	N 50566 CPM E 50266 C-2273 1m-1550
	DU-SV													
3-7-89	DU-SS-12778	059-223	2/28/89		1	2.58E3	588.5	4.38				✓	DFW	N 50566 CPM E 50300 C-1979 1m-1479
	DU-SV													
3-7-89	DU-SS-12780	059-224	2/28/89		1	2.62E3	650.0	4.03				✓	DFW	N 50533 CPM E 50266 C-2426 1m-1842
	DU-SV													
3-7-89	DU-SS-12781	059-225	2/28/89		1	1.02E3	631.0	1.62				✓	DFW	N 50533 CPM E 50300 C-1678 1m-1485
	DU-SV													
3-7-89	DU-SS-12782	059-226	2/28/89		1	3.44E3	646.5	5.32				✓	DFW	N 50500 CPM E 50266 C-2294 1m-1727
	DU-SV													
3-7-89	DU-SS-12783	059-227	2/28/89		1	9.41E2	722.0	1.30				✓	DFW	N 50500 CPM E 50300 C-1551 1m-1487
	DU-SV													
3-7-89	DU-SS-12784	059-228	2/28/89		1	9.72E2	647.0	1.50				✓	DFW	N 49566 CPM E 50533 C-2308 1m-2250
	DU-SV													
3-7-89	DU-SS-12785	059-229	2/28/89		1	1.28E3	646.5	1.98				✓	DFW	N 49566 CPM E 50500 C-2285 1m-2342
	DU-SV													
3-7-89	DU-SS-12786	059-230	2/28/89		1	7.32E2	614.0	1.19				✓	DFW	N 49566 CPM E 50466 C-2385 1m-2397
	DU-SV													
3-7-89	DU-SS-12787	059-231	2/28/89		1	1.64E3	645.8	2.54				✓	DFW	N 49566 CPM E 50933 C-2254 1m-2344
	DU-SV													

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for HDA-5pCi/g (2/3/88)  
1.98(x)-1.40 for 5-15pCi/g (2/3/88)

DR-FERGUSON/CHEM-NUCLEAR  
OFFGAS CRISTAL SYSTEM RECORD

SITE NAME Durango

SITE AREA

OCS #1 Serial #984369

OCS #2 Serial #285411

COARSE DATE	SAMPLE	SAMPLE	DATE	DATE	TAG NO	FUNCTION NO.	MASS	Pa 236	OC	LABORATORY		DEPTH	TECH	REMARKS
INITIAL	NUMBER	LOCATION	SNIPLED	SEALED	INITIAL	INITIAL	NET	INITIAL	DATE	RESULT		15 cm	INITIAL	
28 DAY					28 DAY	28 DAY	DATE	28 DAY	DATE	Pa 236	Th 238	15 cm	28 DAY	
3-7-89	DU-55-12788	059-232	2/28/89		2	8.93 E 2	672.3	1.28				✓	JW	N 49586 CPTM E 50400 C=2286 1m=2461
	DU-SV													
3-7-89	DU-55-12789	059-233	2/28/89		2	8.32 E 2	697.8	1.19				✓	JW	N 49586 CPTM E 50366 C=2426 1m=2387
	DU-SV													
3-7-89	DU-55-12790	059-234	2/28/89		2	9.63 E 2	715.3	1.35				✓	JW	N 49586 CPTM E 50373 C=2354 1m=2288
	DU-SV													
3-7-89	DU-55-12791	059-235	2/28/89		2	1.61 E 3	696.0	1.45				✓	JW	N 49586 CPTM E 50300 C=2572 1m=2839
	DU-SV													
3-7-89	DU-55-12792	059-236	2/28/89		1	9.34 E 2	750.3	1.24				✓	JW	N 49583 CPTM E 50366 C=2180 1m=2286
	DU-SV													
3-7-89	DU-55-12793	059-237	2/28/89		1	9.24 E 2	768.6	1.21				✓	JW	N 49583 CPTM E 50400 C=2058 1m=2207
	DU-SV													
3-7-89	DU-55-12794	059-238	2/28/89		1	2.12 E 3	751.5	2.82				✓	JW	N 49583 CPTM E 50433 C=2601 1m=2395
	DU-SV													
3-7-89	DU-55-12795	059-239	2/28/89		1	1.09 E 3	770.5	1.41				✓	JW	N 49583 CPTM E 50466 C=2787 1m=2475
	DU-SV													
3-7-89	DU-55-12796	059-240	2/28/89		2	1.09 E 3	838.2	1.30				✓	JW	N 49633 CPTM E 50500 C=2363 1m=2426
	DU-SV													
3-7-89	DU-55-12797	059-241	2/28/89		2	8.22 E 2	639.7	1.28				✓	JW	N 49600 CPTM E 50500 C=2722 1m=2521
	DU-SV													
3-7-89	DU-55-12798	059-242	2/28/89		2	1.04 E 3	624.5	1.66				✓	JW	N 49633 CPTM E 50500 C=2861 1m=2370
	DU-SV													
3-7-89	DU-55-12799	059-243	2/28/89		2	8.36 E 2	613.0	1.36				✓	JW	N 49666 CPTM E 50500 C=2527 1m=2312
	DU-SV													

NOTE: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction Factor = 1.31(x)1.749 (10/21/87)

VP Correction Factor = 1.35(x)1.505 for HDA-5pCi/g (2/3/88)

1.00(x)1.20 for 5.15pCi/g (2/3/88)

OCs #1 Serial #984369  
OCs #2 Serial #285411

Durango

0177 8244

總發行所 上海北馬路

[illegible]

more, and all sample results are in psi/gm

REVIEWED BY

Site Correction factor =  $1.31(x) + 1.749$  (10/21/87)      VP Correction Factor =  $1.35(x) + 1.505$  for MMA-5<sup>mc</sup>/c (2/3/88)  
 $1.08(x) + 1.60$  for 5-15<sup>mc</sup>/c (2/3/88)

DU-059  
EAST SLOPES

A survey of the East slopes was performed in November of 1987. This survey consisted of pulling soil samples on 100'x50' centers. Two samples were pulled at each location, one 0-6" and one 6-12". In June of 1988 another survey was performed. At that time contact and one meter readings were taken at some of the 100'x50' grid points.

*Ron Jacobs*

RON JACOBS  
3-10-89



REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

MR-FERGUSON/CHW-HUKLEAR

OFFSHORE CRISTAL SYSTEM RECORD

SITE NAME Durango

SITE AREA

OCS #1 Serial #984369

OCS #2 Serial #285411

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SHIPPED	DATE SEALED	TAG NO	FUNCTION NO.		NASH		R# 236	OC	LABORATORY RESULT		DEFIN	VFCH	REMARKS
						INITIAL	30 DAY	WET	DRE			R# 236	TH 230			
12-16-87	DU-SS9787 DU-SV	059-1	11-9	11-23	2		3.10 E3	693.8	4.47					✓		N 50800 E 50350
12-22	DU-SS9831 DU-SV	059-2	11-9	11-23	1		1.02 E3	714.2	1.43					✓	TM	N 50900 E 50350
12-23	DU-SS9897 DU-SV	059-3	11-10	11-23	2		1.32 E3	744.7	1.77					✓	MD	N 50900 E 50400
12-16	DU-SS9779 DU-SV	059-4	11-10	11-23	1		1.31 E3	681.4	1.92					✓	CF	N 50800 E 50400
12-16	DU-SS9770 DU-SV	059-5	11-10	11-23	1		3.15 E3	992.4	3.57					✓	CF	N 50800 E 50450
12-22	DU-SS9899 DU-SV	059-6	11-10	11-23	1		1.32 E3	714.2	1.68					✓	MD	N 50800 E 50450
12-23	DU-SS9901 DU-SV	059-7	11-10	11-23	1		1.00 E3	731.8	1.37					✓	MD	N 50700 E 50350
12-16	DU-SS9841 DU-SV	059-8	11-9	11-23	1		1.50 E2	748	0.969					✓	SS/MD	N 50700 E 50350
12-16	DU-SS9779 DU-SV	059-9	11-9	11-23	2		2.72 E3	615.1	4.42					✓	TM	N 50700 E 50400
12-22	DU-SS9891 DU-SV	059-10	11-10	11-23	2		3.97 E3	713.9	5.56					✓	MD	N 50700 E 50450
12-16	DU-SS9796 DU-SV	059-11	11-10	11-23	2		3.94 E3	777.3	4.94					✓	TM	N 50700 E 50450
12-16	DU-SS9867 DU-SV	059-12	11-10	11-23	1		1.79 E3	738.4	2.42					✓	TM	N 50700 E 50450

NOTE: All soil sample results are in pci/qa

REVIEWED BY

Site Correction factor = 1.31(x)+.749 (10/21/87) VP Correction Factor = 1.35(x)+.505 for MHA-5pci/q (7/3/88)

MX-FERGUSON/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

SITE NAME Durango  
SITE AREA \_\_\_\_\_

OCS #1 Serial #984369  
OCS #2 Serial #285411

COUNT DATE	SAMPLE	SAMPLE	DATE	DATE	SAG NO	FUNCTION NO.	MASS	Ra 226	OC	LABORATORY		DEPTH	TECH	REMARKS
INITIAL	NUMBER	LOCATION	SMILED	SEALED	INITIAL	INITIAL	WET	INITIAL	CVR12	RESULT		(15 cm)	INITIAL	
20 DAY					20 DAY	20 DAY	DRY	20 DAY		Ra 226	Th 230	(15 cm)	20 DAY	
12-16	DU-559928 DU-SV	059-13	11-10	11-23	1	1.48 E3	765.8	1.93				✓	SS/i	N 50600 E 50350
12-21	DU-559960 DU-SV	059-14	11-10	11-23	1	9.12 E2	704.5	1.15				✓	MD	N 50600 E 50350
12-22	DU-559956 DU-SV	059-15	11-10	11-23	2	2.33 E3	857.4	2.72				✓	MD	N 50600 E 50400
12-22	DU-559986 DU-SV	059-16	11-10	11-23	2	1.0°	705.2	1.54				✓	MD	N 50600 E 50400
12-22	DU-559995 DU-SV	059-17	11-10	11-23	1	2.73 E3	777.8	3.51				✓	MD	N 50600 E 50450
12-23	DU-559914 DU-SV	059-19	11-10	11-23	1	2.79 E3	785.3	3.55				✓	MD	N 50600 E 50450
12-21	DU-559959 DU-SV	059-19	11-9	11-23	2	5.79 E3	932.5	6.95				✓	MD	N 50500 E 50350
12-22	DU-559979 DU-SV	059-20	11-9	11-23	1	4.05 E3	800.0	5.04				✓	MD	N 50500 E 50350
12-19	DU-559956 DU-SV	059-21	11-9	11-23	2	1.90 E3	802.2	2.37				✓	CF	N 50500 E 50400
12-21	DU-559959 DU-SV	059-22	11-9	11-23	1	4.66 E3	821.4	5.67				✓	MD	N 50500 E 50400
12-16	DU-559913 DU-SV	059-23	11-9	11-23	1	6.29 E3	802.3	7.84				✓	TM	N 50400 E 50350
12-21	DU-559913 DU-SV	059-24	11-9	11-23	2	2.07 E3	845.5	2.45				✓	MD	N 50400 E 50350

NOTE: All soil sample results are in pCi/gm

REVIEWED BY \_\_\_\_\_

Site Correction Factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.75(x)1.505 for HMA-SpC1/R (2/7/88)



MR-FERGUSON/CHEM-NUCLEAR  
OPPOSED CRYSTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango

SITE AREA

COUNT DATE INITIAL 30 DAY	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	TAG NO		FUNCTION NO.		MASS		QC		LABORATORY RESULT		DEPTH	TECH	REMARKS
					INITIAL	30 DAY	INITIAL	30 DAY	WET	DRY	INITIAL	30 DAY	Mo 230	Th 230	45 cm	INITIAL	30 DAY
12-21	DU-SS 9872 DU-SV	059-25	11-9	11-23	2		5.16 E3		786.0						✓	MD	N 50400 E 50400
12-22	DU-SS 9892 DU-SV	059-26	11-9	11-23	1		2.05 E3		797.1						✓	MD	N 50400 E 50400
12-21	DU-SS 9862 DU-SV	059-27	11-9	11-23	2		1.93 E3		791.6						✓	MD	N 50400 E 50450
12-21	DU-SS 9846 DU-SV	059-28	11-9	11-23	1		3.34 E3		792.0						✓	MD	N 50400 E 50450
12-24	DU-SS 9850 DU-SV	059-29	11-9	11-23	1		2.66 E3		790						✓	SS/MD	N 50300 E 50350
12-22	DU-SS 9875 DU-SV	059-30	11-9	11-23	2		2.68 E3		795.0						✓	MD	N 50300 E 50350
12-16	DU-SS 9829 DU-SV	059-31	11-9	11-23	1		6.11 E3		935						✓	SS/MD	N 50300 E 50400
12-22	DU-SS 9874 DU-SV	059-32	11-9	11-23	2		1.36 E3		662.1						✓	MD	N 50300 E 50400
12-16	DU-SS 9847 DU-SV	059-33	11-9	11-23	1		4.27 E3		636						✓	SS/MD	N 50300 E 50450
12-16	DU-SS 9844 DU-SV	059-34	11-9	11-23	1		2.11 E3		649						✓	SS/MD	N 50300 E 50450
12-16	DU-SS 9826 DU-SV	059-35	11-9	11-23	1		1.68 E3		948.3						✓	MD	N 50200 E 50350
12-22	DU-SS 9869 DU-SV	059-36	11-9	11-23	2		1.81 E3		947.1						✓	MD	N 50200 E 50350

NOTES: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction factor = 1.31(x) + 1.769 (10/21/87)

VP Correction Factor = 1.35(x) + 1.505 for 10A-50C1/E (2/7/88)



MR-FERGUSON/CHIN-NUCLEAR  
OPPOSED CRISTAL SYSTEM RECORD

OCS #1 Serial #984369  
OCS #2 Serial #285411

SITE NAME Durango  
SITE AREA

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SEALED	VAG NO	FUNCTION NO.	MASS NET	NO 236 INITIAL	OC	LABORATORY RESULTS	DEPTH	TECH	NUMBERS
INITIAL	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236	NO 236
30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY	30 DAY
12-16	DU-558846 DU-SV	059-37	11-9	11-23	1	574 E3	769.3	7.47			✓		N 50200 E 50400
12-16	DU-558846 DU-SV	059-38	11-9	11-23	1	345 E3	774.9	4.45			✓	TM	N 50200 E 50400
12-16	DU-558846 DU-SV	059-39	11-9	11-23	1	990 E2	440.1	1.35			✓	TM	N 50200 E 50450
12-21	DU-558846 DU-SV	059-40	11-9	11-23	1	104 E3	657.0	1.58			✓	MD	N 50200 E 50450
12-16	DU-558846 DU-SV	059-41	11-9	11-23	1	344 E3	945.0	4.22			✓	TM	N 50100 E 50400
12-16	DU-558846 DU-SV	059-42	11-9	11-23	2	775 E2	729.5	1.06			✓	TM	N 50100 E 50450
12-16	DU-558846 DU-SV	059-43	11-9	11-23	1	354 E3	685.4	5.16			✓	MD	N 50100 E 50450
12-16	DU-558846 DU-SV	059-44	11-9	11-23	1	454 E3	700.1	5.92			✓	TM	N 50000 E 50350
12-23	DU-558846 DU-SV	059-45	11-9	11-23	2	667 E3	946.8	11.9			✓	MD	N 50000 E 50350
12-16	DU-558846 DU-SV	059-46	11-9	11-23	1	919 E2	598	1.37			✓	MD	N 50000 E 50400
12-21	DU-558846 DU-SV	059-47	11-9	11-23	2	179 E3	517.3	3.46			✓	MD	N 50000 E 50400
12-16	DU-558846 DU-SV	059-48	11-9	11-23	2	121 E3	934.7	1.45			✓	TM	N 50000 E 50450

NOTE: All soil sample results are in pCi/gm

REVIEWED BY

Site Correction Factor = 1.31(x)1.749 (10/21/87) VP Correction Factor = 1.35(x)4.505 for HMA-5pCi/g (2/3/88)

OCS #1 Serial #984369  
OCS #2 Serial #285411

OC5 #1 Serial #984369  
OC5 #2 Serial #285411

COUNT DATE	SAMPLE NUMBER	SAMPLE LOCATION	DATE SAMPLED	DATE SERIALIZED	TAG NO	FUNCTION NO.		MASS	No 226 INITIAL	QC	LABORATORY RESULT		DEPTH	TECH	REMARKS
						INITIAL	30 DAY				No 226	30 DAY			
12-21	DV-55 9852	059-49	11-9	11-23	1		1.40 E3	714.9	1.72				✓		N 50000 E 50450
12-21	DV-55 9862	059-50	11-9	11-23	1		5.38 E3	696.9	7.72				✓	MD	N 50000 E 50500
12-23	DV-55 9815	059-51	11-9	11-23	1		2.94 E3	754.3	3.90				✓	MD	N 50000 E 50500
12-16	DV-55 9819	059-52	11-9	11-23	2		3.00 E3	679.5	4.42				✓	TM	N 49900 E 50400
12-19	DV-55 9855	059-53	11-9	11-23	1		5.19 E3	554.6	9.36				✓	CF	N 49900 E 50400
12-19	DV-55 9853	059-54	11-9	11-23	1		2.99 E3	796.0	3.63				✓	CF	N 49900 E 50450
12-22	DV-55 9879	059-55	11-9	11-23	1		4.64 E3	634.7	6.79				✓	MD	N 49900 E 50450
12-16	DV-55 9873	059-56	11-9	11-23	2		9.01 E2	624.9	1.44				✓	CF	N 49900 E 50500
12-23	DV-55 9812	059-57	11-9	11-23	2		4.04 E3	783.7 761.6	5.36				✓	MD	N 49900 E 50500
12-16	DV-55 9841	059-58	11-9	11-23	1		1.53 E3	717.2	2.13				✓	MD	N 49900 E 50400
12-22	DV-55 9890	059-59	11-9	11-23	1		4.06 E2	739.0	0.820				✓	MD	N 49900 E 50400
12-16	DV-55 9785	059-60	11-9	11-23	1		1.26 E3	736.7	1.71				✓	TM	N 49900 E 50450

NOTE: All cell sample weights are in gcl/gw

REVIEWED BY

[illegible]





APPENDIX B  
OWNER COMMENTS



ENGINEERS  
AND  
CONSTRUCTORS



**MK-FERGUSON COMPANY**  
A MORRISON KNUDSEN COMPANY

HEADQUARTERS OFFICE  
ONE ERIEVIEW PLAZA  
CLEVELAND, OHIO U.S.A. 44114  
PHONE (216) 523-5600; TELEX 985542

REPLY TO MK-FERGUSON COMPANY  
REMEDIAL ACTIONS  
CONTRACTOR UMTRA PROJECT  
PO BOX 9136  
ALBUQUERQUE, NEW MEXICO U.S.A. 87119

June 2, 1989

Mr. Conrad Steller  
United Bank of Denver  
United Bank Center  
1700 Broadway  
Denver, CO 80274-0043

SUBJECT: Application of Supplemental Standards - DU-059

Dear Mr. Steller:

Per your conversation with Rob Pommerening of my staff, enclosed is a copy of the Department of Energy (DOE) certification letter issued to owners where supplemental standards have been applied.

Should you have any questions, please contact Mr. Pommerening at 1-800-443-4379.

Sincerely,

MK-Ferguson Company

J.G. Oldham  
Project Director

JGO/RAP/ss

Enclosure

cc: w/enclosure:

P. Martin, United Bank of Durango  
Document Control

w/o enclosure:

J. Garcia - DOE/UMTRA



**Department of Energy**  
 Albuquerque Operations Office  
 P. O. Box 5400  
 Albuquerque, New Mexico 87115

FEB 22 1989

**MK-FERGUSON CO.**  
 ALBUQUERQUE

Vicinity Property No.

FEB 23 1989

RECEIVED

Gentlemen:

Under the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604), the U.S. Department of Energy (DOE), with ten percent funding provided by the state, has completed remedial action at the property referenced above. In addition, supplemental standards were applied to certain areas of the property. Review of the available data indicates your property has been cleared of residual radioactive contamination to the extent required by the Environmental Protection Agency (EPA) Standards (40 CFR Part 192). Therefore, the DOE certifies your property is in compliance with the EPA Standards.

The current status of your property will be recorded by the state on the appropriate property records, per requirements of Public Law 95-604. Records of Uranium Mill Tailings Remedial Action vicinity properties are archived with both the state and the DOE.

Should you have any questions regarding the project or your property, please write to me at the above address or contact Gaeton Falance of my staff at (505) 846-1206 or the Department of Environmental Resources at (412) 665-2900. Your cooperation in the successful accomplishment of this work has been greatly appreciated.

Sincerely,

Original Signed By CAC

Mark L. Matthews  
 Acting Project Manager  
 Uranium Mill Tailings Project Office

cc:  
 James G. Yusko, DER, PA

bcc:  
 B. Hoyer, NRC  
 J. Oldham, MK-F  
 VPMS :FC

ENGINEERS  
AND  
CONSTRUCTORS



**MK-FERGUSON COMPANY**  
A MORRISON KNUDSEN COMPANY

HEADQUARTERS OFFICE  
ONE ERIEVIEW PLAZA  
CLEVELAND, OHIO U.S.A. 44114  
PHONE (216) 523-5600/TELEX 983542

REPLY TO MK-FERGUSON COMPANY  
REMEDIAL ACTIONS  
CONTRACTOR-UMTRA PROJECT  
P.O. BOX 9136  
ALBUQUERQUE, NEW MEXICO U.S.A. 87119

May 18, 1989

Mr. Conrad Steller  
United Bank of Denver  
United Bank Center  
1700 Broadway  
Denver, CO 80274-0043

SUBJECT: DU-059 - Supplemental Standards

Dear Mr. Steller:

As you know, remedial action on your property at State Highway 160 and Roosa Avenue was divided into two phases. Phase I, completed last construction season, consisted of the cleanup of all accessible areas on top of the hill. Phase II addresses the contamination found on the slopes of the property.

An additional radiological survey has been performed at the property on accessible portions of the slopes to more exactly define areas of contamination that exceed EPA standards for uranium mill tailings.

Soil samples were collected from every 100m<sup>2</sup> grid on the west and south slopes, and at every 100'x50' center on the east slope. Concentrations of Ra-226 in these soil samples ranged from 1.6 to 22.0 picocuries per gram (pCi/g). The EPA standard for Ra-226 concentrations in the top 15cm layer of soil averaged over 100m<sup>2</sup> is 5 pCi/g not including background. The background Ra-226 concentration in the Durango area is 1.6 pCi/g. Only 77 of 323 soil samples collected have Ra-226 concentration in excess of the EPA standards.

Gamma surveys show that the general area radiation levels range from 12 to 29 micro R/hr. Background for the Durango area is 14 micro R/hr. If a person spent 8 hours a day, 5 days a week, for 50 weeks in a 29 micro R/hr radiation field, he would receive about 58 millirem of gamma exposure in one year. This is less than one-fifth of the Nuclear Regulatory Commission's (NRC) limit of 500 millirem/year allowed the general public (10 CFR 20.105).

Mr. Conrad Steller  
May 18, 1989  
Page 2

Because of the risk of injury to contractor personnel compared to the very low public health hazard, we are recommending leaving the uranium mill tailings on the west and south slopes, and the east slope below the access road in place. This action is authorized under Title 40, Code of Federal Regulations, Sections 192.21 and 22. Basically, these sections of the EPA standards, which are established for cleanup of uranium mill tailings, allow residual radioactive materials to remain in place when certain conditions are met. The criterion defining when remedial action will not take place (called Supplemental Standards) is as follows:

Remedial action to satisfy Subparts A or B would pose a clear and present risk of injury to workers or to members of the public, notwithstanding reasonable measures to avoid or reduce risk.

MK-Ferguson believes that the criterion for the application of Supplemental Standards has been met due to the steepness and instability of the slopes of the property.

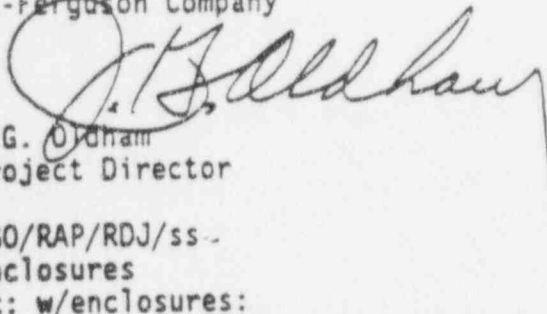
In compliance with the EPA regulations found in the Code of Federal Regulations, 40 CFR 192.21, we solicit your comments concerning this action. Excavation of radioactive materials on your property in other outdoor areas has been completed.

We are attaching a copy of the applicable sections of the Code of Federal Regulations as well as a property sketch and photographs for your convenience in responding to this proposed action. To comply with EPA regulations, we must receive a written response with your concurrence and/or comments. We request this response by June 7, 1989.

If you have any questions concerning this situation, please call Mr. Rob Pommerening or my staff at 1-800-443-4379.

Sincerely,

MK-Ferguson Company



J.G. Oldham  
Project Director

JGO/RAP/RDJ/ss-  
Enclosures

cc: w/enclosures:

P. Martin, United Bank of Durango  
M. Thomson, DUR  
J. Garcia - DOE/UMTRA  
Document Control





Photo No. 1. View looking southeast. Highway 160 is visible on the right. (DU-059)



Photo No. 2. View looking north. Highway 160 is visible in the foreground. (DU-059)

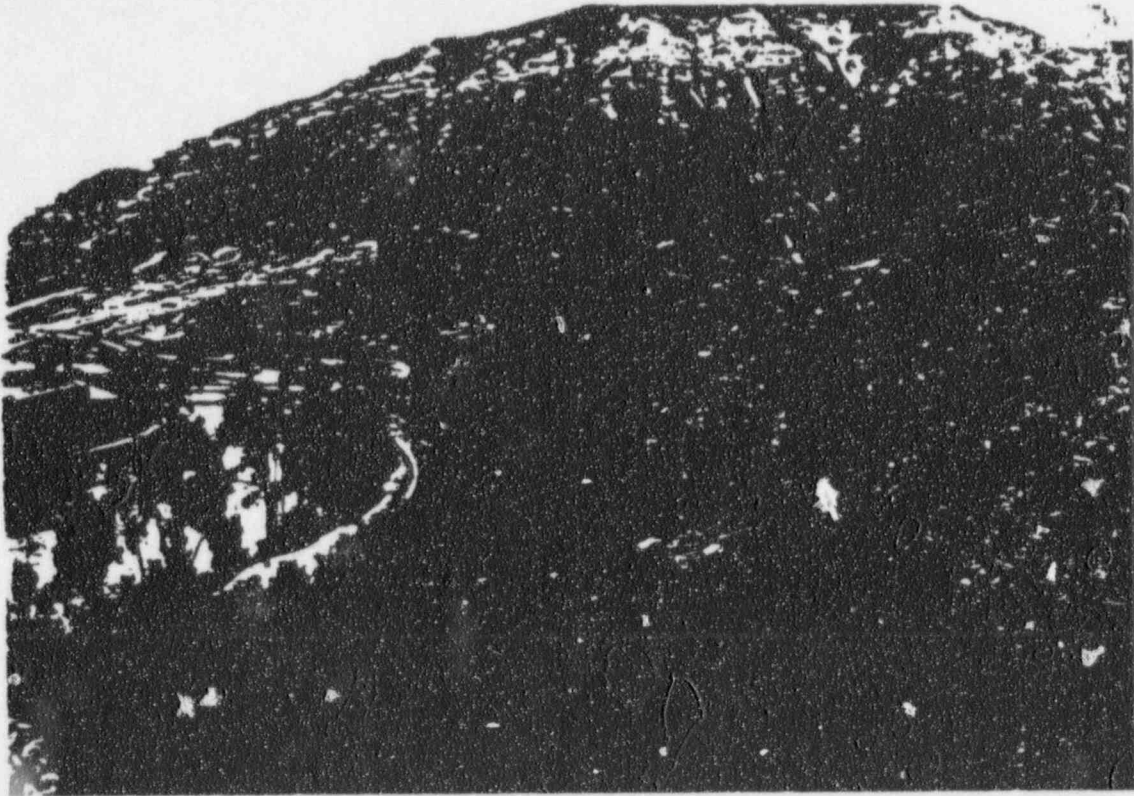


Photo No. 3. View looking south along the east slope. Red Lion Inn is visible at the left. (DU-059)



Photo No. 4. View looking north of DU-059 (property is in the background across the main site and Highway 160) same as photo #2. Red Lion Inn is visible on the right. (DU-059)



DO. 2012

Area of Phase I  
Remedial Action

Approximate  
Property  
Line

AERIAL PHOTOGRAPH  
(Subject Outlined in Black)

- |                      |                          |
|----------------------|--------------------------|
| 1. U. S. Highway 160 | 4. Ninth Street Bridge   |
| 2. Animas River      | 5. Camino del Rio        |
| 3. Roosa Avenue      | 6. U. S. Highway 160/550 |

TAKEN  
PICTS

4

spection and Enforcement Regional Office listed in Appendix D at least 30 days before the date that respiratory protective equipment is first used under the provisions of this section.

[41 FR 52301, Nov. 29, 1976, as amended at 43 FR 29270, July 7, 1978; 47 FR 16164, Apr. 15, 1982]

#### § 20.104 Exposure of minors.

(a) No licensee shall possess, use, or transfer licensed material in such a manner as to cause any individual within a restricted area who is under 18 years of age, to receive in any period of one calendar quarter from radioactive material and other sources of radiation in the licensee's possession a dose in excess of 10 percent of the limits specified in the table in paragraph (a) of § 20.101.

(b) No licensee shall possess, use or transfer licensed material in such a manner as to cause any individual within a restricted area, who is under 18 years of age to be exposed to airborne radioactive material possessed by the licensee in an average concentration in excess of the limits specified in Appendix B, Table II of this part. For purposes of this paragraph, concentrations may be averaged over periods not greater than a week.

(c) The provisions of §§ 20.103(b)(2) and 20.103(c) shall apply to exposures subject to paragraph (b) of this section except that the references in §§ 20.103(b)(2) and 20.103(c) to Appendix B, Table I, Column 1 shall be deemed to be references to Appendix B, Table II, Column 1.

[25 FR 10914, Nov. 17, 1960, as amended at 41 FR 52302, Nov. 29, 1976]

#### § 20.105 Permissible levels of radiation in unrestricted areas.

(a) There may be included in any application for a license or for amendment of a license proposed limits upon levels of radiation in unrestricted areas resulting from the applicant's possession or use of radioactive material and other sources of radiation. Such applications should include information as to anticipated average radiation levels and anticipated occupancy times for each unrestricted area involved. The Commission will approve

the proposed limits if the applicant demonstrates that the proposed limits are not likely to cause any individual to receive a dose to the whole body in any period of one calendar year in excess of 0.5 rem.

(b) Except as authorized by the Commission pursuant to paragraph (a) of this section, no licensee shall possess, use or transfer licensed material in such a manner as to create in any unrestricted area from radioactive material and other sources of radiation in his possession:

(1) Radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of two millirems in any one hour, or

(2) Radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of 100 millirems in any seven consecutive days.

(c) In addition to other requirements of this part, licensees engaged in uranium fuel cycle operations subject to the provisions of 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," shall comply with that part.

[25 FR 10914, Nov. 17, 1960, and 46 FR 18526, Mar. 25, 1981]

#### § 20.106 Radionuclides in effluents to unrestricted areas.

(a) A licensee shall not possess, use, or transfer licensed material so as to release to an unrestricted area radioactive material in concentrations which exceed the limits specified in Appendix B, Table II of this part, except as authorized pursuant to § 20.302 or paragraph (b) of this section. For purposes of this section concentrations may be averaged over a period not greater than one year.

(b) An application for a license or amendment may include proposed limits higher than those specified in paragraph (a) of this section. The Commission will approve the proposed limits if the applicant demonstrates:

(1) That the applicant has made a reasonable effort to minimize the radioactivity contained in effluents to unrestricted areas; and



for consideration of the various factors affecting the longevity of control and stabilization methods and their costs. These factors have different levels of predictability and may vary for the different sites.

(2) Protection of water should be considered in the analysis for reasonable assurance of compliance with the provisions of § 192.02. Protection of water should be considered on a case-specific basis, drawing on hydrological and geochemical surveys and all other relevant data. The hydrologic and geologic assessment to be conducted at each site should include a monitoring program sufficient to establish background ground water quality through one or more upgradient wells, and identify the presence and movement of plumes associated with the tailings piles.

(3) If contaminants have been released from a tailings pile, an assessment of the location of the contaminants and the rate and direction of movement of contaminated ground water, as well as its relative contamination, should be made. In addition, the assessment should identify the attenuative capacity of the unsaturated and saturated zone to determine the extent of plume movement. Judgments on the possible need for remedial or protective actions for ground-water aquifers should be guided by relevant considerations described in EPA's hazardous waste management system (47 FR 32274, July 26, 1982) and by relevant State and Federal Water Quality Criteria for anticipated or existing uses of water over the term of the stabilization. The decision on whether to institute remedial action, what specific action to take, and to what levels an aquifer should be protected or restored should be made on a case-by-case basis taking into account such factors as technical feasibility of improving the aquifer in its hydrogeologic setting, the cost of applicable restorative or protective programs, the present and future value of the aquifer as a water resource, the availability of alternative water supplies, and the degree to which human exposure is likely to occur.

(b)(1) Compliance with Subpart B, to the extent practical, should be dem-

onstrated through radiation surveys. Such surveys may, if appropriate, be restricted to locations likely to contain residual radioactive materials. These surveys should be designed to provide for compliance averaged over limited areas rather than point-by-point compliance with the standards. In most cases, measurement of gamma radiation exposure rates above and below the land surface can be used to show compliance with § 192.12(a). Protocols for making such measurements should be based on realistic radium distributions near the surface rather than extremes rarely encountered.

(2) In § 192.12(a), "background level" refers to the native radium concentration in soil. Since this may not be determinable in the presence of contamination by residual radioactive materials, a surrogate "background level" may be established by simple direct or indirect (e.g., gamma radiation) measurements performed nearby but outside of the contaminated location.

(3) Compliance with § 192.12(b) may be demonstrated by methods that the Department of Energy has approved for use under Pub. L. 92-314 (10 CFR 712), or by other methods that the implementing agencies determine are adequate. Residual radioactive materials should be removed from buildings exceeding 0.03 WL so that future replacement buildings will not pose a hazard (unless removal is not practical—see § 192.21(c)). However, sealants, filtration, and ventilation devices may provide reasonable assurance of reductions from 0.03 WL to below 0.02 WL. In unusual cases, indoor radiation may exceed the levels specified in § 192.12(b) due to sources other than residual radioactive materials. Remedial actions are not required in order to comply with the standard when there is reasonable assurance that residual radioactive materials are not the cause of such an excess.

**§ 192.21 Criteria for applying supplemental standards.**

The implementing agencies may (and in the case of Subsection (f) shall) apply standards under § 192.22 in lieu of the standards of Subparts A

or B if they determine that any of the following circumstances exists:

(a) Remedial actions required to satisfy Subparts A or B would pose a clear and present risk of injury to workers or to members of the public, notwithstanding reasonable measures to avoid or reduce risk.

(b) Remedial actions to satisfy the cleanup standards for land, § 192.12(a), or the acquisition of minimum materials required for control to satisfy § 192.02(b), would, notwithstanding reasonable measures to limit damage, directly produce environmental harm that is clearly excessive compared to the health benefits to persons living on or near the site, now or in the future. A clear excess of environmental harm is harm that is long-term, manifest, and grossly disproportionate to health benefits that may reasonably be anticipated.

(c) The estimated cost of remedial action to satisfy § 192.12(a) at a "vicinity" site (described under Sec. 101(6)(B) of the Act) is unreasonably high relative to the long-term benefits, and the residual radioactive materials do not pose a clear present or future hazard. The likelihood that buildings will be erected or that people will spend long periods of time at such a vicinity site should be considered in evaluating this hazard. Remedial action will generally not be necessary where residual radioactive materials have been placed semi-permanently in a location where site-specific factors limit their hazard and from which they are costly or difficult to remove, or where only minor quantities of residual radioactive materials are involved. Examples are residual radioactive materials under hard surface public roads and sidewalks, around public sewer lines, or in fence post foundations. Supplemental standards should not be applied at such sites, however, if individuals are likely to be exposed for long periods of time to radiation from such materials at levels above those that would prevail under § 192.12(a).

(d) The cost of a remedial action for cleanup of a building under § 192.12(b) is clearly unreasonably high relative to the benefits. Factors that should be included in this judgment are the anticipated period of occupancy, the incremental radiation level that would

be affected by the remedial action, the residual useful lifetime of the building, the potential for future construction at the site, and the applicability of less costly remedial methods than removal of residual radioactive materials.

(e) There is no known remedial action.

(f) Radionuclides other than radium-226 and its decay products are present in sufficient quantity and concentration to constitute a significant radiation hazard from residual radioactive materials.

#### § 192.22 Supplemental standards.

Federal agencies implementing Subparts A and B may in lieu thereof proceed pursuant to this section with respect to generic or individual situations meeting the eligibility requirements of § 192.21.

(a) When one or more of the criteria of § 192.21(a) through (e) applies, the implementing agencies shall select and perform remedial actions that come as close to meeting the otherwise applicable standard as is reasonable under the circumstances.

(b) When § 192.21(f) applies, remedial actions shall, in addition to satisfying the standards of Subparts A and B, reduce other residual radioactivity to levels that are as low as is reasonably achievable.

(c) The implementing agencies may make general determinations concerning remedial actions under this Section that will apply to all locations with specified characteristics, or they may make a determination for a specific location. When remedial actions are proposed under this Section for a specific location, the Department of Energy shall inform any private owners and occupants of the affected location and solicit their comments. The Department of Energy shall provide any such comments to the other implementing agencies. The Department of Energy shall also periodically inform the Environmental Protection Agency of both general and individual determinations under the provisions of this section.

#### § 192.23 Effective date.

Subparts A, B, and C shall be effective March 7, 1983.



P.O. Drawer K  
1063 Main Avenue  
Durango, Colorado 81301  
(303) 247-3242



# United Bank of Durango

June 9, 1989

MK-FERGUSON CO.  
ALBUQUERQUE

JUN 12 1989

RECEIVED

ATTN: J. G. Oldham, Project Director  
MK-Ferguson Company  
Remedial Actions  
Contractor - UMTRA Project  
P. O. Box 9136  
Albuquerque, New Mexico 87119

RE: DU-059 - Supplemental Standards

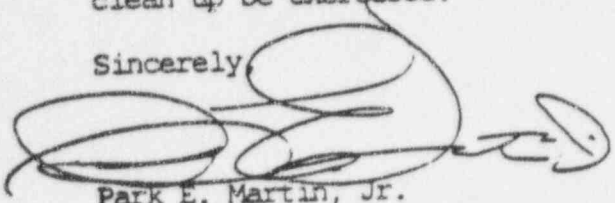
Dear Mr. Oldham,

In response to your letter of 5-18-89 and subsequent to my phone conversation with Rob Pommerening on 6-7-89, please be advised that the United Bank of Durango DOES NOT wish to apply "Supplemental Standards" to certain areas of this property. (State Highway 160 and Roosa Avenue DU-059)

At this point we have a contract in hand for purchase of this property. We have fully discussed and disclosed all information regarding the remedial action related to this property with the purchaser. The offer to purchase hinges on the total clean up of this project and therefore anything less will adversely effect the final sale of this property, therefore I am sure you will understand our position.

Additionally our review indicates that anything less than complete clean up of residual radioactive materials would negate our existing contract and/or could prove to be a "cloud" on the title to this property and be detrimental to any future attempts to market the property, therefore we have to disagree with your recommendation and further request that complete clean up be exercised.

Sincerely,

  
Park E. Martin, Jr.  
Senior Vice President

PEM/mrs

cc: Conrad Steller, United Bank of Denver  
Robert Wolff, Wessman Development Co. - (Contract Purchaser)

REP	INFO	DIST	REP	INFO	DIST
	<input checked="" type="checkbox"/>	JGO			PDC
	<input checked="" type="checkbox"/>	RFS			MMH
	<input checked="" type="checkbox"/>	REC		<input checked="" type="checkbox"/>	RAP
		JCH/GRJ			HRA
		CDW			ISL/MS
		JEM			CCPD
		JD			JEI
	<input checked="" type="checkbox"/>	KAT			TSS
		JGP			KMG
		KPS			WVS
		ISJ/DC			MAZ
					ADW
OHS. FILE			DURANGO		
WORK FILE			DU059		

APPENDIX C  
DOE/STATE COMMENTS





RADIOLOGICAL AND ENGINEERING ASSESSMENT (REA)  
Review Form

DOE Location No. DU-059 Rev. No. 1

PRIORITY: ☒ ROUTINE ☐ URGENT  
REQUESTED RESPONSE BY 11-16-89 DATE 11-2-89  
COMMENTS: Recommended application of Supplemental Standards to slopes of mesa.  
Robert A Pommerening 11-2-89 CONT. ON ATTACHED SHEET NO. \_\_\_\_\_  
VP MANAGER DATE

DATE RECEIVED 11/16/89  
☒ RECOMMEND APPROVAL ☐ RECOMMEND APPROVAL AS NOTED BELOW ☐ DO NOT RECOMMEND APPROVAL AS NOTED BELOW  
COMMENTS: Based on the data provided, the application of supplemental standards to select portions of the east and west mesas is warranted. The actual area of the west mesa application  
Robert A Pommerening 12/12/89 CONT. ON ATTACHED SHEET NO. Back  
TAG DATE

DATE TRANSMITTED \_\_\_\_\_  
☐ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED  
RESPONSE DATE \_\_\_\_\_ ATTACHED RESPONSE ON SHEET NO. \_\_\_\_\_

DATE TRANSMITTED \_\_\_\_\_  
☐ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED  
RESPONSE DATE \_\_\_\_\_ ATTACHED RESPONSE ON SHEET NO. \_\_\_\_\_

DATE TRANSMITTED \_\_\_\_\_  
☐ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED  
RESPONSE DATE \_\_\_\_\_ ATTACHED RESPONSE ON SHEET NO. \_\_\_\_\_

DATE RECEIVED 11-3-89  
☒ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED  
COMMENTS: \_\_\_\_\_  
MK-FERGUSON CO.  
ALBUQUERQUE  
DEC 19 1989  
RECEIVED  
J. Marcia 12/18/89 SHEET NO. 1 OF 1  
DOE VP MANAGER DATE

may be larger than necessary, however  
the ~~impairing~~ impactuality of obtaining  
grid samples prohibits a more detailed  
analysis.

REP	INFO	DIST	REP	INFO	DIST
		JGO			PDC
					ALWH
		DEC			<del>TRAP</del>
		PHICU			IMP
		ICP			WATKINS
		JOP			GOIPD
		JJD			ICI
		WDT			TOI
		ICP			DEW
		OTB			JWS
		SSIDC			MAZ
					BSW
ORIG FILE			10-1		
WORK FILE			DU059		



Thomas M. Vernon, M.D.  
Executive Director

JAN 29 1990

RECEIVED

Re: State Concurrence on Final REA for DU-059, File No. DUR-XIII.N

Dear Mr. Oldham:

We are providing State concurrence on the Final REA for DU-059.

The Final REA discusses that remediation was completed on all relatively flat and accessible areas where development is likely to occur on this property. The REA states that remediation is not recommended for steep portions of the site which are sporadically contaminated. This contamination is shallow and is likely to be washed down the steep slopes by normal erosion within a few years. Remediation of these steep areas would be difficult, expensive, and would create environmental harm. The REA recommends that remediation not be performed on the steep portions because of the high cost relative to long-term benefits.

We concur with the Final REA and agree that supplemental standards should be applied to this property. We believe that the recommended options will satisfactorily protect the public health and environment.

I contacted Mr. Park Martin, Jr. Senior Vice President of the United Bank of Durango, owner of the property, to discuss the reasons for our concurrence. He expressed special concern about title annotation possibly placing a "cloud" on the property for future sale. I advised that DOE was reevaluating the land record annotation issue in an effort to avoid the problem he identified, but that this was still an open issue. I also promised to keep him advised about the progress of this issue.

If you have any questions, please contact Patricia Martinek at (303) 331-4828.

Sincerely,

Edward L. Bischoff  
UMTRA Program Manager  
Hazardous Materials and  
Waste Management Division

ELB:lh:5897K

cc: B. Franz, CDH  
M. Matthews, DOE  
J. Garcia, DOE  
P. Martin, United Bank of Durango  
R. Pommerening, MK-F

REP	INFO	DIST	REP	INFO	DIST
	✓	JGO			PDC
	✓	JPH			MWH
	✓	WAZ			
	✓	REC			MFP
		CDW			FJF/MKE
		JPH			GG/PD
		JID			JEJ
	✓	MDT			TBS
		JCP			DEW
		DPS			JWS
		SJSDC			TGS
					RSW

ORIG. FILE STFC  
 WORK FILE DUR 059



**MK-FERGUSON COMPANY**

A MORRISON KNUDSEN COMPANY

UMTRA PROJECT OFFICE

P.O. BOX 9136

ALBUQUERQUE, NEW MEXICO 87119