ATTACHMENT

KERR-McGEE NUCLEAR CORPORATION

CIMARRON FACILITY

LICENSE SNM-1174, DOCKET 70-1193,
AND SNM-928, DOCKET 70-925

LIQUID WASTE CONTROL PONDS - PROPOSED DECOMMISSIONING

The Kerr-McGee Nuclear Corporation's Cimarron Facility suspended production operations in December 1975. During operations, five evaporation ponds served as a method of liquid waste control. By the summer of 1976, the ponds were essentially dry, and the sludge resulting from the evaporation of the water was removed, mixed with cement and buried in a licensed burial site. Since then, the ponds have been dry, except for occasional rainfall which subsequently evaporates. Samples were taken from the top six inches of soil in all the ponds, and analyzed for the isotopes possibly present in the particular pond in question. Each sampling point consisted of a 6 x 12 inch area with individual samples taken at the depths indicated on the attached. Equal weight composites were made as indicated and for two of the uranium ponds, secondary composites were made for all depths. Duplicate samples are held for further examination if desirable.

Analyses were made by varying methods and are reported here on a dry weight basis. The methods used and their detection limits are given below:

	Method	Detection Level
Uranium	fluorimetry	2 ± 1 µg/gm
Plutonium	alpha pulse height	.002 dpm/gm
U-235	gamma spectroscopy	.004 dpm/gm
Uranium α	liquid scintillation	1 ± .5 pCi/gm

It will be noted for Uranium ponds #1, #2, and the emergency pond, the Uranium-235 analysis is biased high when compared with the Uranium value determined by fluorimetry and α analysis. This bias is caused by the presence of

gamma activity from other isotopes contributing to the signal from U-235. This bias is not evident in the Plutonium ponds which received primarily depleted Uranium. Discrepancies in Uranium comparisons could also be expected due to compositing and aliquoting errors and analytical uncertainties at these low activity levels.

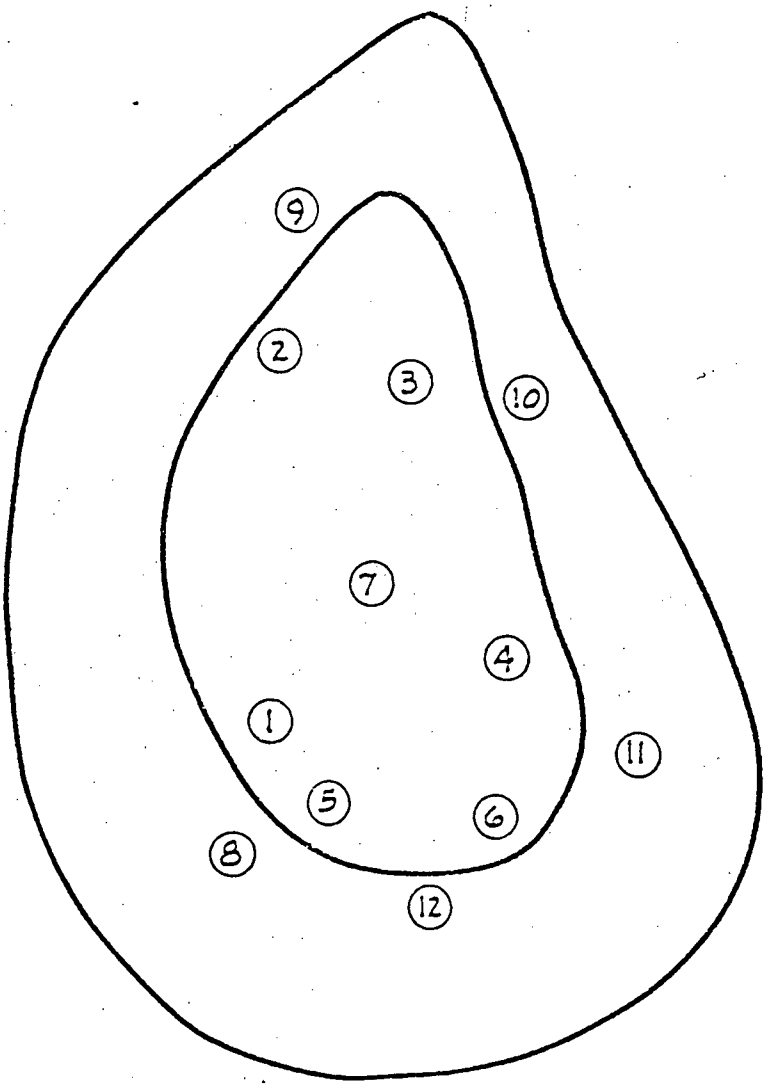
Kerr-McGee's examination of this data leads us to believe that the ponds can be buried in place without hazard to future use of the land or the public. We would propose that the lined ponds be disposed of by folding the lining into the bottom of the pond, then bulldozing the berm in on top of this, adding soil as necessary to bring the surface level into substantial agreement with the surrounding topography.

We would propose that the unlined ponds be disked in order to mix the contamination occurring in the top 6 to 10 inches, then the berms bulldozed over the center of the ponds and additional soil added to bring the surface to match the surrounding topography.

These areas would be seeded, initially with a quick growing cover such as rye grass, and sprigged with bermuda or seeded with fescue to provide pasture equal to the natural grass on the surrounding area. These seed beds would be watered and fertilized as necessary to ensure quick growth and sound vegetative cover. It is expected that within 2 growing seasons, the vegetative productivity from these areas would equal that of the natural grass surrounding the area.

KERR-McGEE NUCLEAR CORPORATION
CIMARRON FACILITY

Plutonium Evaporation Pond
(Lined)



Plutonium Evaporation Pond

Area	Depth	U,ug/g	U-alpha, pCi/g	Pu-238 pCi/g	Pu-239 pCi/g
I Composite of sampling pts. 2 & 3	0-1.5"	195	32	0.010	0.032
	1.5-3"	39	10	0.007	0.003
	3-6"	22	6	0.005	0.003
	6-10"	2.3	3.2	0.022	0.005
II Composite of sampling pts. 4 & 7	0-1.5"	22	7	0.009	0.016
	1.5-3"	10	5	0.010	0.001
	3-6"	12	5	0.012	0.002
III Composite of sampling pts. 1, 5, & 6	0-1.5"	37	1.8	0.026	0.231
	1.5-3"	38	42	0.003	0.010
	3-6"	134	29	0.006	0.005
IV Composite of sampling pts. 9 & 10	0-1.5"	37	11	0.035	0.246
	1.5-3"	78	23	0.574	5.34
	3-6"	48	12	0.012	0.004
Composite of sampling pts. 1 & 4	6-10"	17	4.5	0.004	0.033
VI Composite of sampling pts. 8, 11, & 12	0-1.5"	5.9	3.6	0.002	0.021
	1.5-3"	1.4	2.7	0.004	0.020
	3-6"	3.1	6	0.002	0.002

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 10 1978

FCRR:WGB
Docket No. 70-1193
License No. SNM-1174, Amendment No. 2

Kerr-McGee Nuclear Corporation
ATTN: Mr. W. J. Shelley, Director
Regulation and Control
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

Gentlemen:

In accordance with your application dated August 19, 1977 and the supplement dated March 3, 1978, and pursuant to Title 10, Code of Federal Regulations, Part 70, Special Nuclear Material License No. SNM-1174 is hereby amended (item 21c of the license) to authorize backfilling of the retention or settling ponds at the Cimarron Facility in the manner described in your license application, and the return of these areas to normal topography and usage.

All other conditions of this license shall remain the same.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard W. Starostecki, Chief
Fuel Reprocessing and Recycle Branch
Division of Fuel Cycle and Material Safety

TABLE 1

Radioanalytical Results - Samples From Kerr-McGee Cimarron Facility

Sample No.	Location	Type	Analytical Results (pCi/g dry) U-235	U-238	Pu-239
	Uranium Pond #1				
1-1	composite points 8, 10+12 @ 0.0-1.5" deep	soil	18	99	NA
1-2	composite points 2, 3+4 @ 0.0-1.5" deep	soil	2	11	NA
1-3	pond center-point 0.0-10.0" deep	soil	12	67	NA
	Uranium Pond #2				
2-1	composite points C-5, C-6, D-6 @ 1.5-3.0" deep	soil	11	61	NA
2-2	composite points B-1, B-2, C-1 @ 0.0-1.5" deep	soil	11	72	NA
2-3	pond center-point 0.0-6.0" deep	soil	8	57	0.009±0.002
2-4	standing water	filtrate	NA	NA	0.032±0.013
		solids	7	64	0.150±0.010
3	Uranium Emergency Pond	soil	2	10	NA
	Plutonium Evaporation Pond				
4-1	composite points 5, 6 @ 1.5-3.0" deep	soil	0.4	16	0.006±0.002
4-2	composite points 9, 10, 11 @ 1.5-3.0 deep	soil	0.1	1.5	0.273±0.019
5	Plutonium Emergency Pond	soil	0.1	1.5	0.009±0.002

Uranium Waste Pond #2

Area	Depth	*U, ug/g	Pu-239 pCi/g	Pu-238 pCi/g	U-alpha pCi/g	U-235 *pCi/g
I SW Grid	0-0.5"		0.026	0.007	314	
Composite	0.5-1.5"	160	0.010	0.013	404	16.4
of A-1, A-2	1.5-3"		0.003	0.006	145	
B-1, B-2	3-6"		0.016	0.014	33	
II SE Grid	0-0.5"		0.030	0.010	409	
Composite	0.5-1.5"		0.004	0.005	407	
of C-1, C-2	1.5-3"	160	0.001	0.008	114	15.5
D-1, D-2	3-6"		0.001	0.010	20	
III W Central	0-0.5"		0.064	0.024	223	
Grid	0.5-1.5"		0.004	0.003	391	
Composite	1.5-3"	160	0.002	0.003	223	16.9
of A-3, A-4,	3-6"		0.014	0.016	50	
B-3, B-4						
IV E Central	0-0.5"		0.035	0.023	334	
Grid	0.5-1.5"		0.014	0.005	418	
Composite	1.5-3"	240	0.001	0.006	432	26.5
of C-3, C-4,	3-6"		0.004	0.008	350	
D-3, D-4						
V NW Grid	0-0.5"		0.031	0.016	236	
Composite	0.5-1.5"		0.005	0.004	436	
of A-5, A-6	1.5-3"	250	0.001	0.018	486	23.0
B-5, B-6	3-6"		0.005	0.015	186	
VI NE Grid	0-0.5"		0.023	0.019	236	
Composite	0.5-1.5"		0.005	0.007	341	
of C-5, C-6	1.5-3"	250	<0.001	0.004	564	24.4
D-5, D-6	3-6"		<0.001	0.012	318	
I Sw Grid	6-10"	21	0.004	0.021	37	3.56
VI NE Grid	6-10"	39	0.002	0.006	59	N.D.

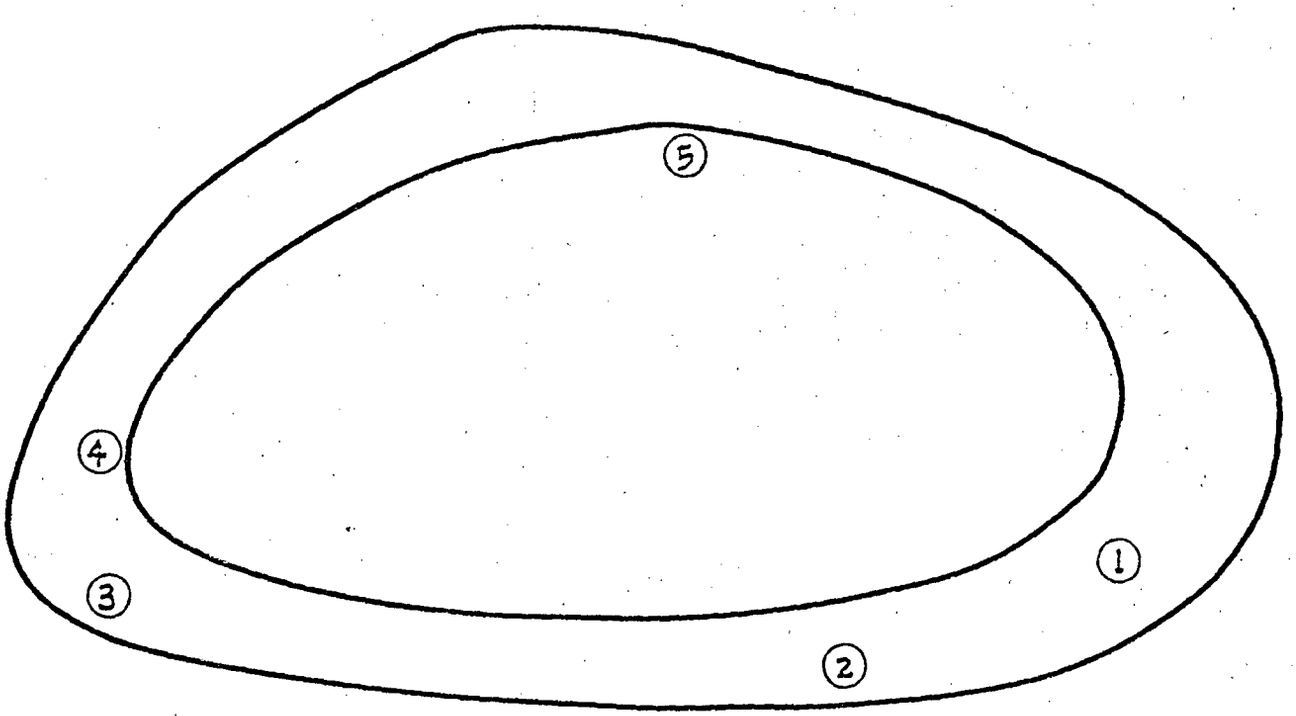
*Analysis made on composite composed of all depths.

N.D. - Not Determined

KERR-McGEE NUCLEAR CORPORATION

CIMARRON FACILITY

Uranium Emergency Pond
(unlined)



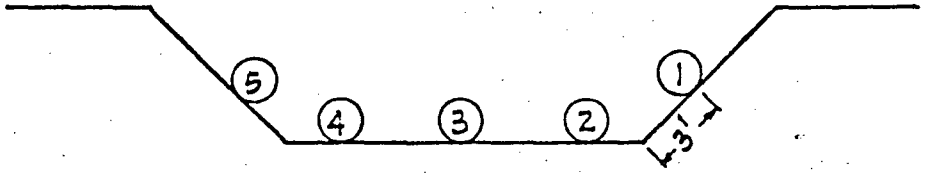
Uranium Emergency Pond

Area	Depth	*U,ug/g	U-alpha pCi/g	U-235 *pCi/g
Composite of sampling pts. 1 & 2	0-3"	15	21.9	Not detected
	3-6"		9.9	
	6-10"		44.7	
Sampling pt 3	0-3"	5	248	Not detected
	3-6"		33.5	
	6-10"		11.8	
Sampling pt. 4	0-3"	26	34.7	4.0
	3-6"		86	
	6-10"		33.4	
Sampling pt. 5	0-3"	131	9.0	18.6
	3-6"		32.8	
	6-10"		152	

*Analysis made on composite composed of all depths.

KERR-McGEE NUCLEAR CORPORATION
CIMARRON FACILITY

Plutonium Emergency Pond
(Lined)



Plutonium Emergency Pond

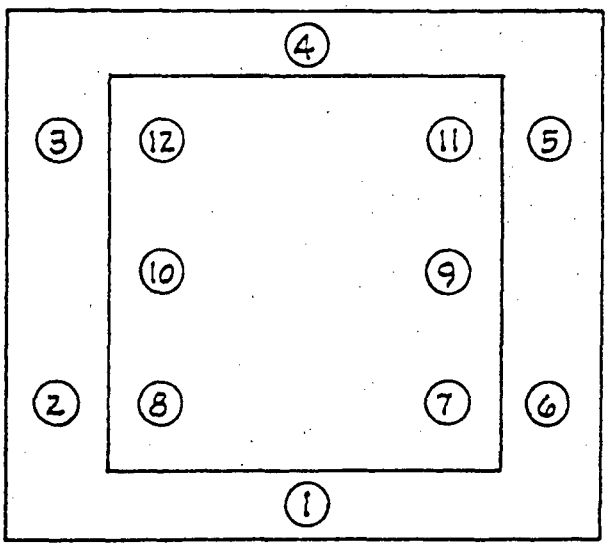
Area	Depth	U, ug/g	U-alpha, pCi/g	Pu-238 pCi/g	Pu-239 pCi/g
I. Composite of sampling pts. 1 & 5	0-1.5"	14	12	0.003	0.002
	1.5-3"	6.1	6	0.006	0.003
	3-6"	2.2	3.2	0.004	0.002
II Composite of sampling pts. 2 & 3	0-1.5"	97	17	0.010	0.050
	1.5-3"	7.8	3.6	0.006	0.002
IV Sampling pt. 4	0-1.5"	11	6	0.004	0.007
	1.5-4.5"	2.5	4.1	0.008	0.004

KERR-McGEE NUCLEAR CORPORATION

CIMARRON FACILITY

Uranium Waste Pond #1

(Lined)

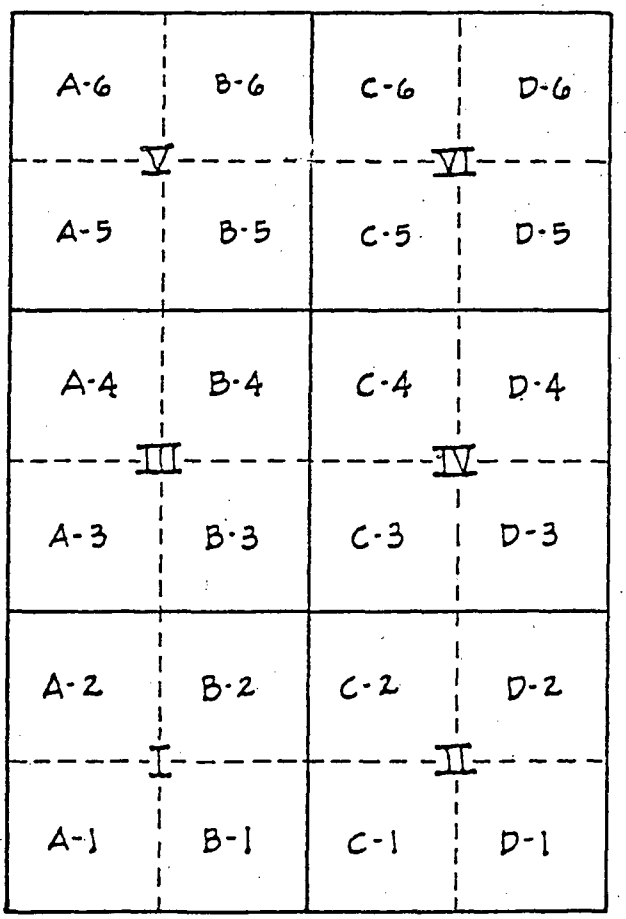


Uranium Waste Pond #1

Area	Depth	U-alpha pCi/g	U,ug/g
I Composite of sampling pts. 1, 2, & 3	Tar & Gravel	97	64
	0-1.5"	33	32
	1.5-3"	32	35
	3-6"	20	8
II Composite of sampling pts. 4, 5 & 6	Tar & gravel	65	64
	0-1.5"	47	31
	1.5-3"	50	29
	3-6"	52	24
III Composite of sampling pts. 8, 10 & 11	Tar & gravel	1486	934
	0-1.5"	936	761
	1.5-3"	1309	828
	3-6"	469	283
IV Composite of sampling pts. 7, 9 & 11	Tar & gravel	776	452
	0-1.5"	85	56
	1.5-3"	160	93
	3-6"	102	52
V Composite of sampling pts. 8, 9 & 12	6-10"	220	127

KERR-McGEE NUCLEAR CORPORATION
CIMARRON FACILITY

Uranium Waste Pond #2
(Unlined)



13.0 Uranium Plant Yard

The restricted areas surrounding the Uranium Process Building (Building #1) and Warehouse Building (Building #4) have been extensively characterized and remediated. This area also contains a stockpile of Option #2 material awaiting approval from the NRC for on-site disposal. For this Characterization Report, the uranium plant yard has been segregated into four separate sections. They are the area north of Building #1 and surrounding Building #4, the area south of Building #1, the area east of Building #1, and the parking area west of Building #1. Stockpiles of Option #2 materials are contained in areas north and east of Building #1. The general layout of the uranium plant yard is shown on Figure 14.1 (included with Section 14.0).

The restricted yard area surrounding Building #1 was originally included in the Micro-R survey of the entire site which was conducted in 1979. The survey results have been placed on Drawing No. 79PRSBUR-0. This drawing is included as an attachment to Section 6.0. This survey showed numerous locations in the Uranium Plant Yard area with surface readings exceeding 30 uR/hr. Subsurface characterization and decommissioning work was initiated in this area and has continued up through the present.

A. Characterization Data (Restricted Area North of Uranium Building / Warehouse Building Yard):

A random soil sampling program was undertaken in late 1989, with analysis completed by February 1, 1990, by Cimarron personnel within the restricted area and around the three sanitary lagoons. The purpose of this sampling program was twofold: (1) to determine the extent of shallow surface soil contamination and (2) to determine the depth of soil contamination. The soil sampling program was completed with corings taken from 0 to 2 ft. and from 0 to 20 ft. and allowed Cimarron personnel to more accurately determine the volume of contaminated soil in this area. These sampling locations are shown on Figure 13.1. The soil data for the shallow sampling (0-2 ft.) and deep sampling (0-20 ft.) are shown in Tables 13.1 and 13.2, respectively. The 1990 soil sampling data indicates that, in general, contamination in the yard areas from uranium plant operations was limited to the upper 1 to 4 ft. of surface soils. Additionally, this sampling effort negated an earlier borehole gamma survey completed in 1988 that indicated contamination down to 20 ft. in depth. As a result of 1990 random soil sampling effort, it became obvious that the 1988[14] survey was producing false positives due to in-situ naturally occurring

Figure 13.1

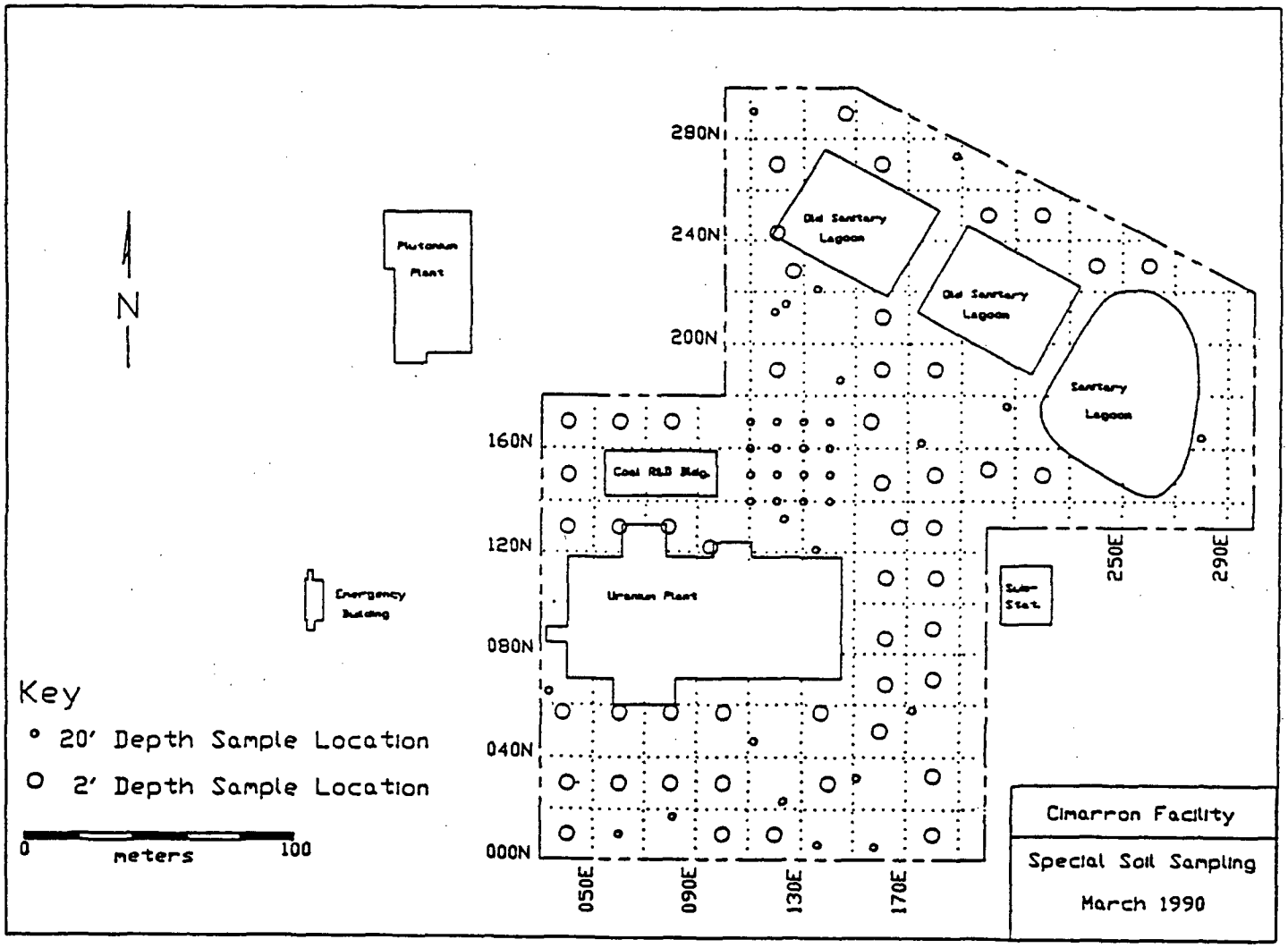

N
Plutonium Plant
Old Sanitary Lagoon
Old Sanitary Lagoon
Sanitary Lagoon
Coal R&D Bldg.
Uranium Plant
Emergency Building
Solar Stat.
280N
240N
200N
160N
120N
080N
040N
000N
250E
290E
050E
090E
130E
170E
Key
° 20' Depth Sample Location
O 2' Depth Sample Location
0
meters
100
Cimarron Facility
Special Soil Sampling
March 1990

Table 13.1
Cimarron Facility
March 1990 Soil Sampling Events
Uranium Plant Yard Area
Page 1 of 2

Location	Sample Depth	Total Uranium pCi / gram
10N - 40E	0 - 1'	17.97
	1 - 2'	17.40
10N - 100E	0 - 1'	14.20
	1 - 2'	12.37
10N - 120E	0 - 1'	12.65
	1 - 2'	8.67
10N - 180E	0 - 1'	9.17
	1 - 2'	7.77
30N - 40E	0 - 1'	12.77
	1 - 2'	10.76
30N - 60E	0 - 1'	30.90
	1 - 2'	22.39
30N - 80E	0 - 1'	42.61
	1 - 2'	12.10
30N - 100E	0 - 1'	53.62
	1 - 2'	26.72
30N - 140E	0 - 1'	21.36
	1 - 2'	7.46
33N - 180E	0 - 1'	6.10
	1 - 2'	6.18
57N - 38E	0 - 1'	14.69
	1 - 2'	12.33
57N - 60E	0 - 1'	120.82
	1 - 2'	66.47
57N - 80E	0 - 1'	94.19
	1 - 2'	95.86
57N - 100E	0 - 1'	28.18
	1 - 2'	15.04
57N - 137E	0 - 1'	25.12
	1 - 2'	12.53
50N - 160E	0 - 1'	16.93
	1 - 2'	12.10
68N - 162E	0 - 1'	20.16
	1 - 2'	16.19
70N - 180E	0 - 1'	41.26
	1 - 2'	13.09
86N - 162e	0 - 1'	25.34
	1 - 2'	14.21
90N - 180E	0 - 1'	47.82
	1 - 2'	29.58
110N - 162E	0 - 1'	39.07
	1 - 2'	24.76
110N - 181E	0 - 1'	41.61
	1 - 2'	31.43
130N - 40E	0 - 1'	23.91
	1 - 2'	15.80
130N - 60E	1 - 2'	30.95
	2 - 3'	21.33

Table 13.1
Cimarron Facility
March 1990 Soil Sampling Events
Uranium Plant Yard Area
Page 2 of 2

Location	Sample Depth	Total Uranium pCi / gram
130N - 79E	1 - 2'	27.71
	2 - 3'	16.68
122N - 95E	1 - 2'	16.02
	2 - 3'	10.97
130N - 167E	0 - 1'	82.84
	1 - 2'	37.96
130N - 180E	0 - 1'	40.44
	1 - 2'	25.42
150N - 40E	0 - 1'	60.53
	1 - 2'	30.60
147N - 160E	0 - 1'	34.27
	1 - 2'	18.32
150N - 180E	0 - 1'	30.79
	1 - 2'	19.52
152N - 200E	0 - 1'	48.46
	1 - 2'	29.63
150N - 220E	0 - 1'	6.61
	1 - 2'	7.43
170N - 40E	0 - 1'	17.35
	1 - 2'	16.96
170N - 60E	0 - 1'	19.62
	1 - 2'	14.09
170N - 80E	0 - 1'	23.64
	1 - 2'	14.01
170N - 156E	0 - 1'	13.62
	1 - 2'	11.69
190N - 120E	0 - 1'	15.06
	1 - 2'	7.87
190N - 160E	0 - 1'	7.80
	1 - 2'	6.85
190N - 180E	0 - 1'	7.17
	1 - 2'	6.99
210N - 160E	0 - 1'	10.34
	1 - 2'	6.64
228N - 126E	0 - 1'	13.13
	1 - 2'	11.51
230N - 240E	0 - 1'	12.02
	1 - 2'	12.16
230N - 260E	0 - 1'	7.52
	1 - 2'	8.17
243N 120E	0 - 1'	11.74
	1 - 2'	8.23
250N - 200E	0 - 1'	12.18
	1 - 2'	10.47
250N - 220E	0 - 1'	11.21
	1 - 2'	12.54
270N - 120E	0 - 1'	11.37
	1 - 2'	10.60
270N - 160E	0 - 1'	16.13
	1 - 2'	10.37
290N - 146E	0 - 1'	13.43
	1 - 2'	11.15

table131

ble 13.2
Cimarron Facility - Gamma Spec. Analysis
Uranium Activity, pCi/g

GRID LOCATION	SAMPLING DEPTHS										
	0 - 1'	1 - 2'	3-4'	5-6'	7-8'	9-10'	11-12'	13-14'	15-16'	17-18'	19-20'
170N, 110E	25	51	13	18	20	22	7.4	16	12	13	13
160N, 110E	29	13	11	10	11	9	13	3	13	13	12
150N, 110E	81	13	11	8.2	11	10	14	12	-	-	14
140N, 110E	410	37	13	27	16	13	4	15	12	16	13
170N, 120E	28	20	20	9.4	12	15	14	25	12	5.2	11
160N, 120E	46	110	13	23	13	23	23	22	73	12	12
150N, 120E	39	17	11	5.6	9.1	11	12	16	14	11	12
140N, 120E	180	120	11	8.1	7.4	16	20	25	13	15	12
170N, 130E	12	17	14	10	13	11	13	11	15	26	13
160N, 130E	20	15	18	30	19	15	11	87	13	14	11
150N, 130E	27	18	12	5.6	8.0	16	21	-	13	14	12
140N, 130E	79	51	20	17	17	15	13	14	9.8	13	13
170N, 140E	21	61	5.3	18	21(10-11')	16	14	12	11	11	17(16-17')
160N, 140E	15	27	16	21	14	28	63	7.1	15	13	14
150N, 140E	51	7.1	13	14	16	26	22	13	13	11	6.4
140N, 140E	29	17	14	16	14	15	14	5.0	22	15	14
273N, 188E	11	17	15	23	12	7.4	12	18	11	8.3	7.1
133N, 123E	332	120	7.3	12	14	6.7	18	9.4	11	13	13
46N, 112E	60	15	11	8.4	12	9.3	9.8	8.1	14	-	-
17N, 81E	21	13	14	11	8.6	4	20	13	12	11	11
215N, 123E	23	15	12	15	13	13	14	16	15	9.2	10.4
23N, 123E	53	16	10	8.1	3.3	5.7	9.1	6.9	5.8	8.5	11
212N, 119E	9.9	33	10	11	17	13	12	12	15	15	13
176N, 207E	15	17	9.9	13	12	12	9.7	13	15	12	11
58N, 172E	134	36	19	16	12	14	16	4.4	20	12	9.3
65N, 33E	13	15	12	15	24	10	10	15	16	13	8.6
291N, 111E	24	22	16	15	6.8	9.2	3.1	6.9	9.2	9.2	13
32N, 151E	11	22	33	14	22	6.3	5.2	14	6.4	6.9	9.6
164N, 280E	16	16	11	11	13	11	9.8	20	19	11	6.7
6N, 136E	21	12	16	9.1	20	7.5	13	7.5	7.7	6.4	13
10N, 60E	7.5	14	13	7.2	10	33	16	14	8.3	10	15
221N, 135E	24	15	17	22	12	12	22	16	18	13	15
186N, 144E	18	37	8	14	12	22	12	12	19	18	15
162N, 175E	30	42	12	13	29	24	14	16	20	8.7	14
121N, 135E	15	23	12	15	13	12	13	13	7.5	8.9	9.8
5N, 158E	25	14	11	8.9	6.3	10	7.7	5.2	6.3	9.0	13

radionuclides. This data, presented in Table 13.2, was submitted to the NRC by letter from J. C. Stauter to Mr. Glen L. Sjoblom.[15]

Additionally, ORAU in 1988 collected soil samples from 19 boreholes around the site in potentially contaminated areas. As noted by the NRC[16], there appears to be little evidence of subsurface radioactive contamination." Maximum sample depth was 25 feet.

In order to further characterize this area, in 1993 an extensive soil sampling program was completed on a 5m x 5m grid at depths of 0 to 4 ft. The soil sampling data is shown on Drawings No. 93PRCWSS-1 through 93PRCWSS-4. Based upon this characterization, the uranium plant yard north of the Uranium Building (Building #1) was remediated. Both Option #2 and #4 soils were removed from this area. Option #2 soil was placed in the stockpile for on-site disposal. Option #4 soil was packaged and shipped off site for disposal.

Soil sampling was performed after remediation of this area. This sampling indicated several areas that required further remediation. Resampling of this area was completed after additional contaminated soil was removed. Soil sampling was performed at a depth of 0 to 6 in. on a 10m x 10m grid prior to backfill. These data have been placed on Drawing No. 93POCWSS-0. Also, a gamma survey was performed prior to backfill. These data were placed on Drawing No. 93POCW3D-0. Verbal permission was received by Cimarron personnel from the NRC to backfill the area around Building #4 in 1993. After backfilling, the surface soil was sampled and final surveys were completed. The data from the gamma survey performed after backfill are shown on Drawing No. 93FICW3D-0. The data from the Micro-R survey performed at the surface and at one meter are shown on Drawings No. 93FICWUR-0 and 93FICWUR-1. The data from the soil sampling are shown on Drawing No. 93FICWSS-0.

The soil samples taken prior to and during remediation were analyzed at the Cimarron facility laboratory. The Option #2 soil that was removed from this area was placed in the stockpile area.

B. Characterization Data (Restricted Area South of Uranium Building #1):

This area contained the UF_6 Receiving Area (Vaporizer Room), Tank Storage Building (#2), Solvent Extraction Building (#3), Liquid

Storage Area and UF_6 Storage Area. Cimarron License SNM-928, Amendment #8, was issued January 5, 1990 to allow Cimarron to remove a portion of the inner control fence south of the Uranium Building for remediation of this area. The outer fence is still in place.

This area was included in the random soil sampling program undertaken in March, 1990. Both shallow corings (0 to 2 ft.) and deep corings (0 to 20 ft.) were performed with composite soil samples collected at one-foot intervals. The analytical data are included in Table 13.1 and Table 13.2. Data indicated elevated concentrations of uranium in the upper two feet of the soil.

In 1993, additional soil sampling was performed on a 5m x 5m grid. Samples were collected down to 4 ft., composited and analyzed for total uranium. The results of this sampling program are shown on Drawings No. 93PRSUSS-0 through 93PRSUSS-4. The sample results showed numerous areas requiring remediation. Remediation of this area was completed in 1994 with final surface soil sampling analytical results plotted on Drawing No. 94POSUSS-0. Also, surface surveys were completed and are shown on Drawings No. 94POSU3D-0, 94POSUUR-0 and 94POSUUR-1.

With the removal of the concrete floor in the Vaporizer Room, extensive soil sampling of this area was undertaken by Cimarron between May and July, 1992. The sampling was performed on a 2m x 2m grid at depths of from 0 to 2 feet with several samples taken down to 8 feet. The soil samples were composited at one-foot intervals and analyzed for total Uranium in the facility laboratory. The analytical results for the 0-1 ft. and 1-2 ft. sample aliquot are shown on Drawings No. 92PRVRSS-1 and -2. A total of 200 samples were collected and analyzed. The samples varied from near-background levels to 364 pCi/g, with the average activity being 41.7 pCi/g.

In 1994, after remediation of the area beneath the vaporizer room, soil samples were collected and analyzed for total uranium to verify that sufficient soil had been removed (i.e. to within Option #1 limits). Also, during this same period, a survey was performed using a lead-shielded 3 inch x 0.5 inch NaI detector and a Micro-R meter. The soil sampling results, survey readings, and Micro-R readings are shown on Drawings No. 94POVRSS-0, 94POVR3D-0, 94POVRUR-0 and 94POVRUR-1.

The Uranium Tank Storage Building (Building #2) area experienced several spills during the operating history of the Uranium Plant. Tank overflows in the building caused two liquid releases for which the NRC was notified. Option #4 soil beneath Building #2 was excavated in 1990 to a depth of approximately 12 ft., with 80,000 ft^3 of material shipped off site for disposal. The Option #4 soil beneath the building that was excavated and shipped off site for disposal showed uranium concentrations up to 1,600 pCi/g. The average uranium concentration in the soil samples was 1,000 pCi/g. Soil sampling data at depths collected are shown on Drawing No. 94POB2FSS. Also, the survey data collected for this excavation are shown on Drawings No. 94POB2F3D-0, 94POB2FUR-0, and 94POB2FUR-1. Soil sample data for the side walls of the excavation, and for the wall surveys are shown on Drawings No. 94POB2WSS, 94POB2W3D-0, 94POB2WUR-0 and 94POB2WUR-1. This area has not been backfilled.

Option #4 soil was also removed from beneath the Solvent Extraction Building in 1989. The soil samples had a maximum concentration of 650 pCi/g uranium, with an average concentration of 300 pCi/g. This area has not been backfilled.

C. Characterization Data (Restricted Area East of Uranium Building #1):

This area was included in the random soil sampling program which was completed in March, 1990. The data for this area, the shallow coring data and the deep coring data are included in Tables 13.1 and 13.2. As noted in the tables, shallow soil contamination was detected in several of the corings.

This area contains both of the Option #2 stockpiles, and for this reason, the areas underneath the stockpiles have not been characterized since March, 1990. There is reason to believe that characterization of this area will identify elevated levels of uranium in soil at shallow depths. In addition, the area east of the Uranium Building (near the electrical distribution panel) was utilized for storage of Cushing equipment awaiting disposal in Burial Ground #1. Thorium-contaminated soil has been removed from this area and shipped off site for disposal.

The two stockpiles containing Option #2 materials are awaiting NRC approval for on-site disposal. The soil in the stockpiles has been characterized by surveys and soil sampling. The stockpiles were leveled to approximately 7 to 7-1/2 feet, a 5m x 5m grid was

established, and the soil was cored to a depth of 2 meters. The general location of the two stockpiles is shown on Drawing No. 94MOST-RF1. Samples were collected for every 0.5 meter depth interval, composited, and analyzed at the Cimarron facility laboratory. The soil sample analytical results for the East Stockpile corings are included on Drawings No. 94POEPSS-0.5 through 94POEPSS-2.0. Also, a summary of the analytical data is shown on Drawing No. 94MOEPSS.

Additionally, gamma surveys were taken in the boreholes from the stockpile surface down to 2 meters in depth. This data can be used to compare the gamma survey results in cpm to the soil uranium concentrations in pCi/g. The gamma survey results are shown on Drawings No. 94POEPDP-0.5 through 94 POEPDP-2.0.

The surface of the Eastern Stockpile was surveyed with a Ludlum Model 2220 with a lead-shielded 3 in. x 0.5 in. NaI detector. Background was established and readings were taken on the 5m x 5m grid intersects. These readings are shown on Drawing No. 94POEP3D-0 . A Micro-R survey was also performed at the surface and at one meter. These readings are shown on Drawings No. 94POEPUR-0 and 94POEPUR-1.

Similar surveys and soil sampling was performed on the North Stockpile. The soil sampling results are shown on Drawings No. 94PONPSS-0.5 through 94PONPSS-2.0; the soil summary data is shown on Drawing No. 94MONPSS; the bore hole gamma survey results are on Drawings No. 94PONPDP-0.5 through 94PONPDP-2.0; and the surface survey results are shown on Drawings No. 94PONP3D-0, 94PONPUR-0, and 94PONPUR-1.

D. Characterization Data (Restricted Area West of Uranium Building #1):

A gamma survey was completed in 1990 on the parking lot area using a Ludlum Model 2220 with a lead-shielded 3 in. x 0.5 in. NaI detector. This survey identified several areas of contamination as shown on Drawing No. 90PRUY3D-0. This drawing is included as an attachment to Section 8.0. With background established at 1,800 cpm, there were six grid locations that exceeded twice background. Soil sampling conducted in 1990 also included the parking lot. The results of this soil sampling effort are shown on Drawings No. 90PRUYSS-0 through 90PRUYSS-4. These drawings are included as attachments to Section 6.0. All sample

analysis results for the samples taken from the parking lot were within the guideline value for Option #1 material.

E. Characterization Data (South Drainage to Highway 74):

This area was included in the Micro-R survey completed in 1979. The survey results are included on Drawing No. 79PRSBUR-0 which is included as an attachment to Section 6.0. This area was affected by drainage from the Uranium Plant Yard. Additionally, this drainage area was included in the 1990 survey and soil sampling effort that included the area surrounding the Uranium Plant restricted area.

The soil sampling was conducted to a depth of 4 ft. The soil sample results are shown on Drawings No. 90PRSUSS-0 through 90PRSUSS-4. Several surface readings exceeded the Option #1 uranium guideline value (the maximum concentration was 119 pCi/g). The survey results for a gamma survey and two Micro-R surveys completed in 1990 are included on Drawings No. 90PRSU3D-0, 90PRSUUR-0 and 90PRSUUR-1.

F. Environmental Data:

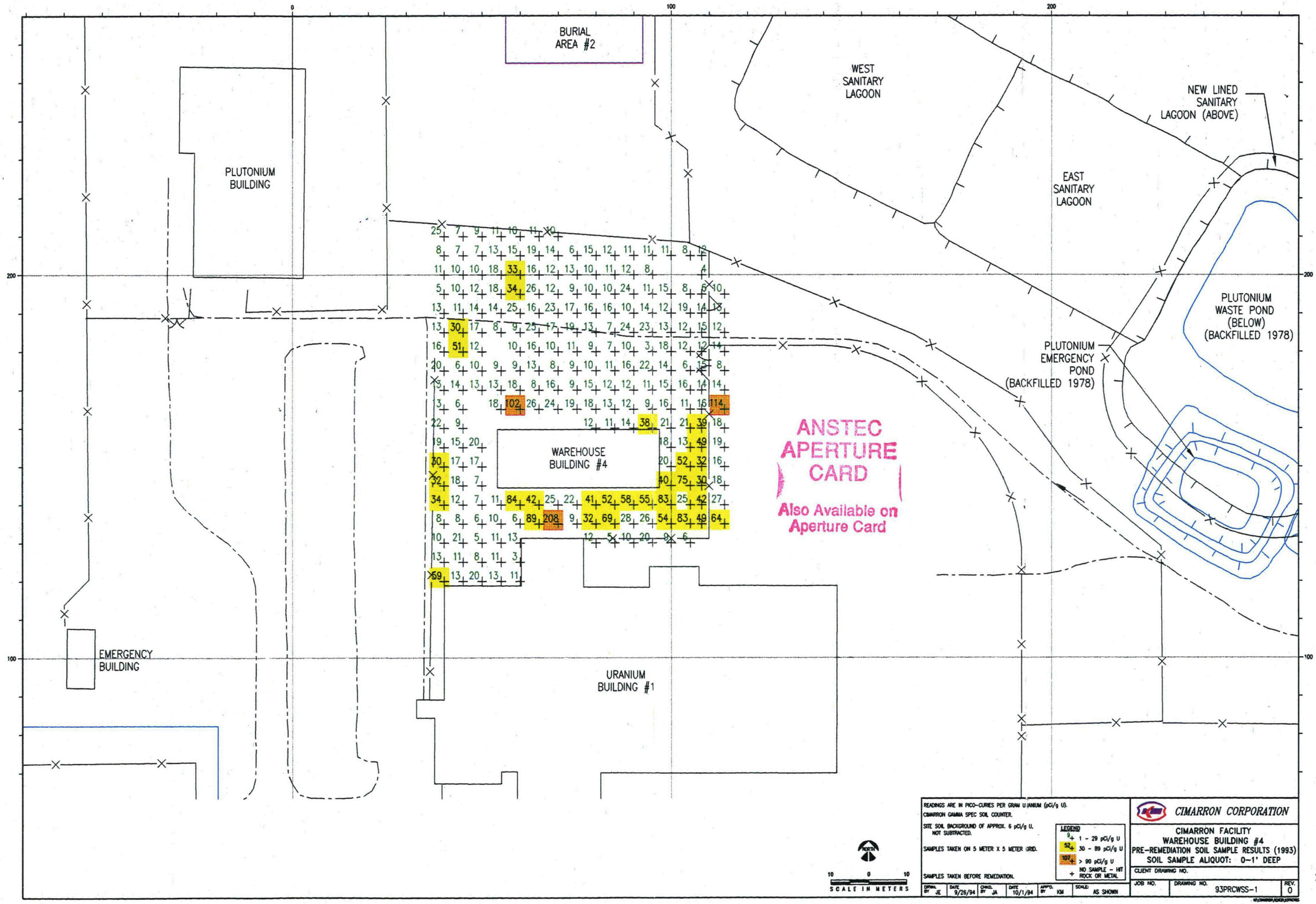
Well sampling data in the vicinity of the Uranium Building (Building #1) are available for well #1319 and #1326 (east of the U Building), well #1327B (west), and wells #1328, #1329, and #1330 located to the south.

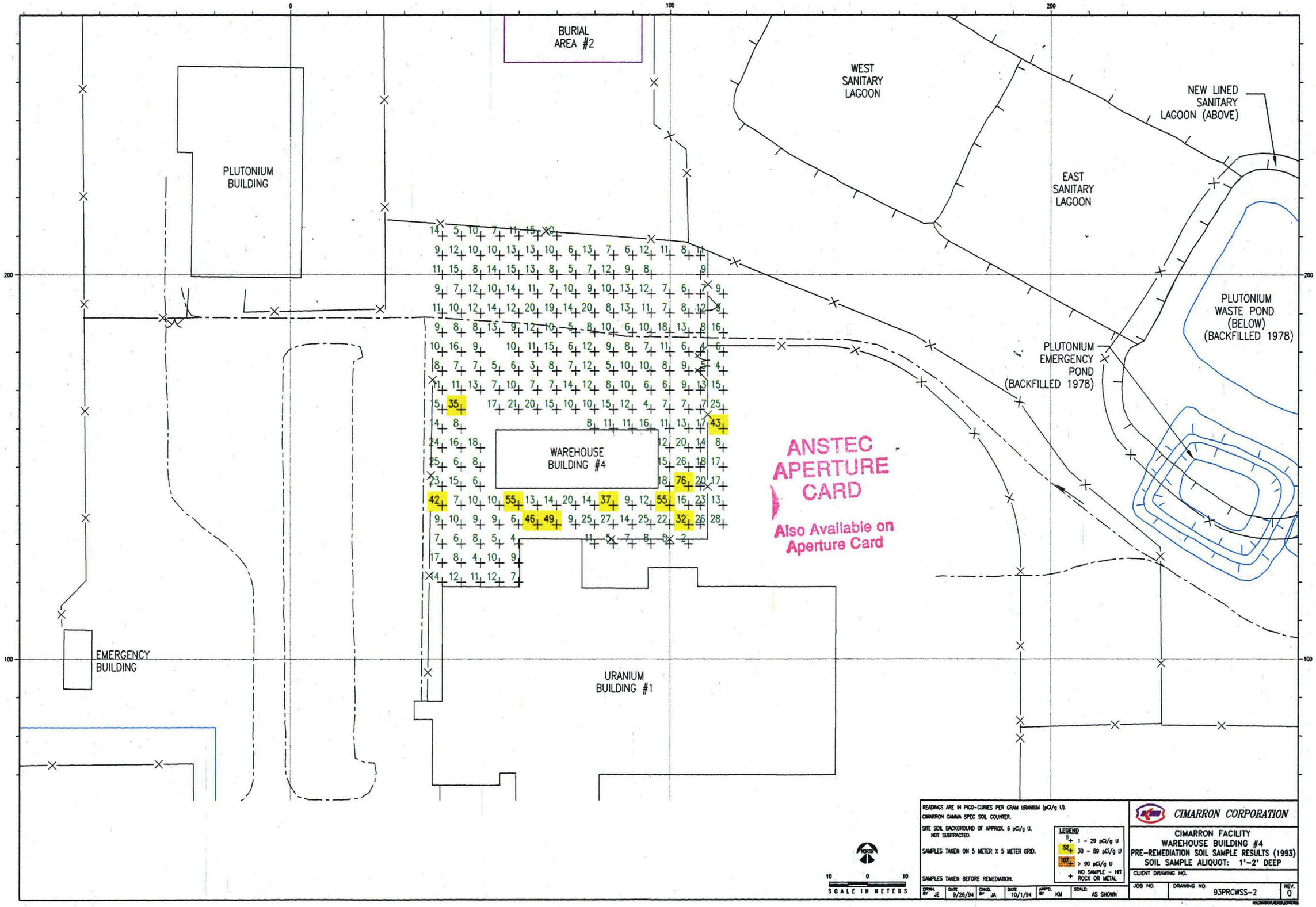
Well #1326 had measurable concentrations of gross alpha ranging from 14 pCi/L (March, 1989) to 175 pCi/L (June, 1989). Gross beta concentrations in this well ranged from less than 20 pCi/L to 9,640 pCi/L (June, 1989). Total uranium concentrations in well #1326 ranged from less than 0.005 mg/L to 0.014 mg/L (approximately 21 pCi/L based upon an enrichment of 2.7 weight percent). Neither the gross alpha or the gross beta concentrations in June, 18, 1989 appear to be attributable to the presence of uranium from on-site activities. Recent measurements performed in 1993 and 1994 for gross alpha, gross beta, and total uranium are at levels near the historical lows for this well. However, isotopic measurements for uranium in 1994 do indicate some low-level concentrations (U-234: 14.3 ± 2.1 pCi/L, U-235: 0.6 ± 0.3 pCi/L, U-238: 6.3 ± 1.1 pCi/L).

Gross alpha, gross beta, total uranium, and isotopic activities were less than detectable or near background levels in wells #1319, #1327B, #1329, and #1330 for the years 1989 through 1993.

Well #1328 had low levels of gross alpha ranging from 23 pCi/L to 35 pCi/L. The gross alpha in well #1328 is due to the presence of uranium as verified by isotopic analyses. Gross beta concentrations in this well were all less than detectable.

Soil samples are collected annually at sample location #1402, situated north of the uranium plant, and sample location #1403, south of the uranium plant. Surface soil concentrations of total uranium ranged from less than detectable up to 35 μg/g (approximately 50 pCi/g) at sample location #1402 in 1986. Concentrations in 1993 surface soil samples were less than 3 μg/g at location #1402 and 12 μg/g (17 pCi/g) at sample location #1403. The 1993 values are below the facility release criteria. Subsurface soil sample data were consistent with results obtained for the surface soil samples.





READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).
CIMARRON GAMMA SPEC SOIL COUNTER.
SITE SOIL BACKGROUND OF APPROX. 6 pCi/g U. NOT SUBTRACTED.
SAMPLES TAKEN ON 5 METER X 5 METER GRID.
SAMPLES TAKEN BEFORE REMEDIATION.

LEGEND
- 1 – 29 pCi/g U
- 30 – 89 pCi/g U
- > 90 pCi/g U
- + NO SAMPLE – HIT ROCK OR METAL

CIMARRON CORPORATION

CIMARRON FACILITY
WAREHOUSE BUILDING #4
PRE-REMEDIATION SOIL SAMPLE RESULTS (1993)
SOIL SAMPLE ALIQUOT: 1'–2' DEEP

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/26/94	JA	10/1/94	KM	AS SHOWN		93PRCWSS-2	0

BURIAL AREA #2

WEST SANITARY LAGOON

NEW LINED SANITARY LAGOON (ABOVE)

EAST SANITARY LAGOON

PLUTONIUM BUILDING

PLUTONIUM WASTE POND (BELOW) (BACKFILLED 1978)

PLUTONIUM EMERGENCY POND (BACKFILLED 1978)

WAREHOUSE BUILDING #4

EMERGENCY BUILDING

URANIUM BUILDING #1

0 100 200

READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).
CIMARRON GAMMA SPEC SOIL COUNTER.
SITE SOIL BACKGROUND OF APPROX. 6 pCi/g U. NOT SUBTRACTED.
SAMPLES TAKEN ON 5 METER X 5 METER GRID.
SAMPLES TAKEN BEFORE REMEDIATION.

LEGEND
- 1 – 29 pCi/g U
- 30 – 89 pCi/g U
- > 90 pCi/g U
- NO SAMPLE – HIT ROCK OR METAL

NORTH

10 0 10
SCALE IN METERS

DRWN. BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE
JE	9/26/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
WAREHOUSE BUILDING #4
PRE-REMEDIATION SOIL SAMPLE RESULTS (1993)
SOIL SAMPLE ALIQUOT: 2'-3' DEEP

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	93PRCWSS-3	0

-97

BURIAL AREA #2

WEST SANITARY LAGOON

NEW LINED SANITARY LAGOON (ABOVE)

EAST SANITARY LAGOON

PLUTONIUM BUILDING

PLUTONIUM WASTE POND (BELOW) (BACKFILLED 1978)

PLUTONIUM EMERGENCY POND (BACKFILLED 1978)

WAREHOUSE BUILDING #4

EMERGENCY BUILDING

URANIUM BUILDING #1

READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).
CIMARRON GAMMA SPEC SOIL COUNTER.
SITE SOIL BACKGROUND OF APPROX. 6 pCi/g U. NOT SUBTRACTED.
SAMPLES TAKEN ON 5 METER X 5 METER GRID.
SAMPLES TAKEN BEFORE REMEDIATION.

LEGEND
1 - 29 pCi/g U
30 - 89 pCi/g U
> 90 pCi/g U
NO SAMPLE - HIT ROCK OR METAL

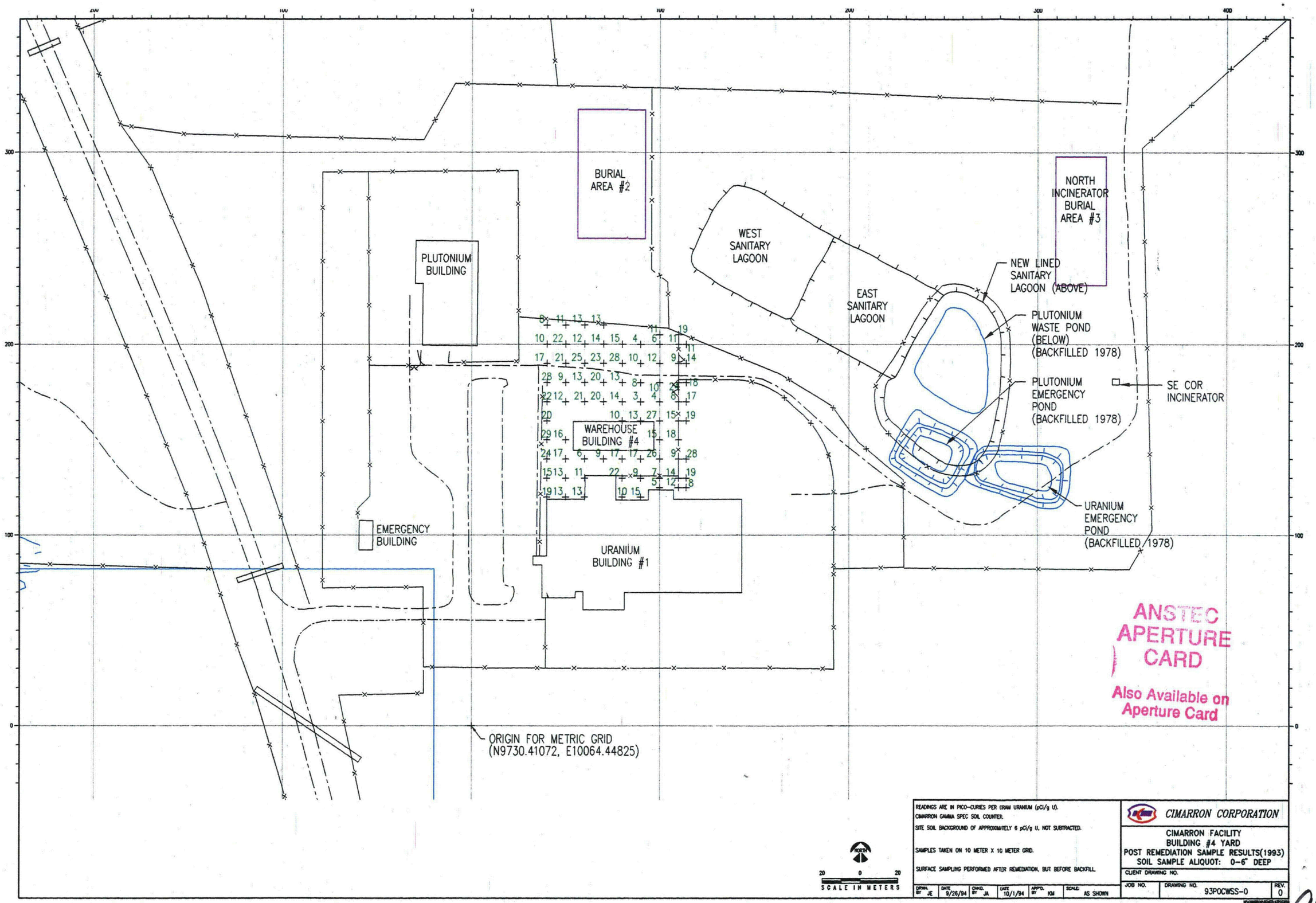
SCALE IN METERS

CIMARRON CORPORATION

CIMARRON FACILITY
WAREHOUSE BUILDING #4
PRE-REMEDIATION SOIL SAMPLE RESULTS (1993)
SOIL SAMPLE ALIQUOT: 3'-4' DEEP

CLIENT DRAWING NO.

ORIGN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/26/94	JA	10/1/94	KM	AS SHOWN		93PRCWSS-4	0



READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).
CIMARRON GAMMA SPEC SOIL COUNTER.
SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.
SAMPLES TAKEN ON 10 METER X 10 METER GRID.
SURFACE SAMPLING PERFORMED AFTER REMEDIATION, BUT BEFORE BACKFILL.

NORTH
20 0 20
SCALE IN METERS

CIMARRON CORPORATION

CIMARRON FACILITY
BUILDING #4 YARD
POST REMEDIATION SAMPLE RESULTS(1993)
SOIL SAMPLE ALIQUOT: 0-6" DEEP

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/26/94	JA	10/1/94	KM	AS SHOWN

JOB NO.	DRAWING NO.	REV.
	93POCWSS-0	0

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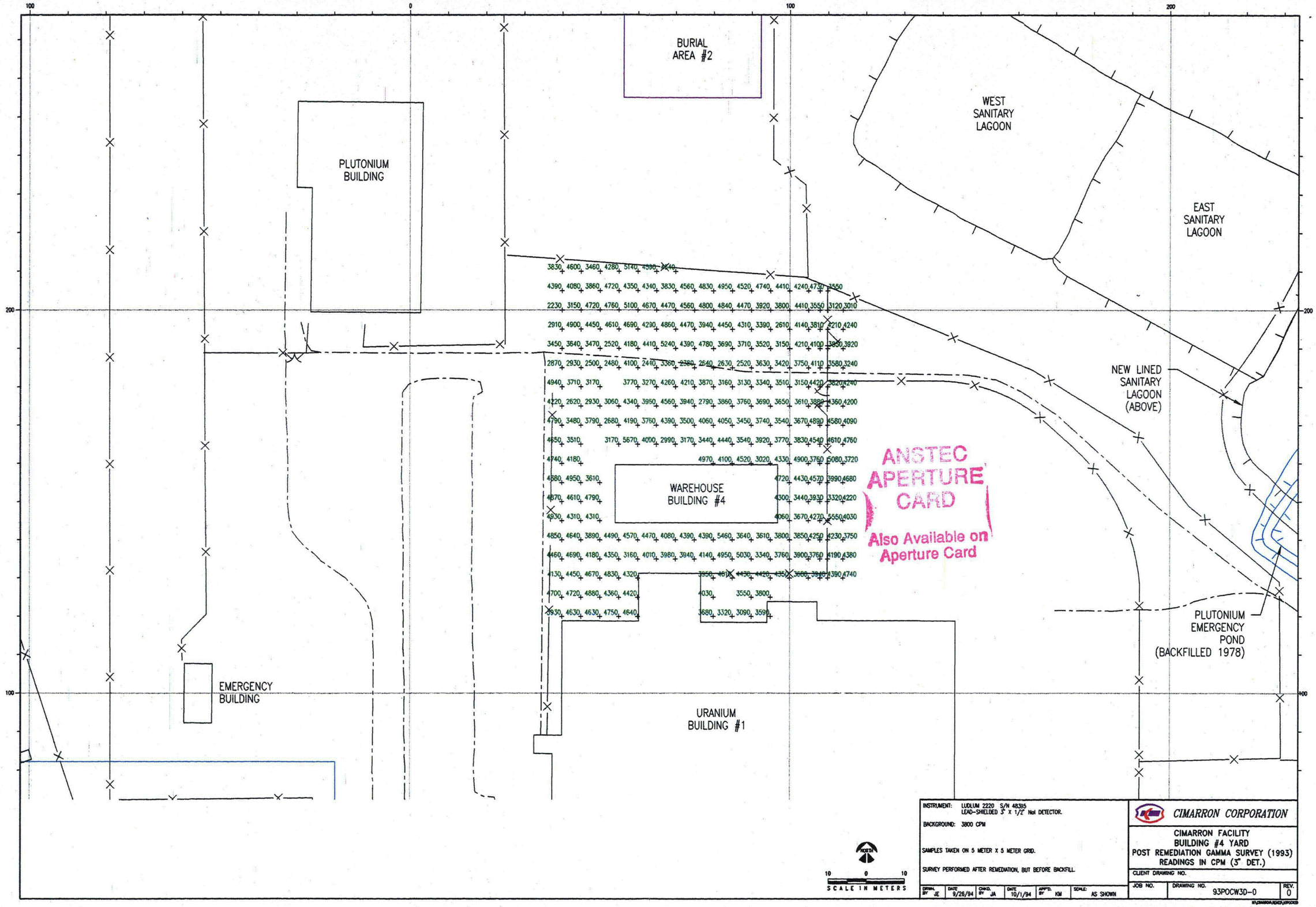
9412080115 —99



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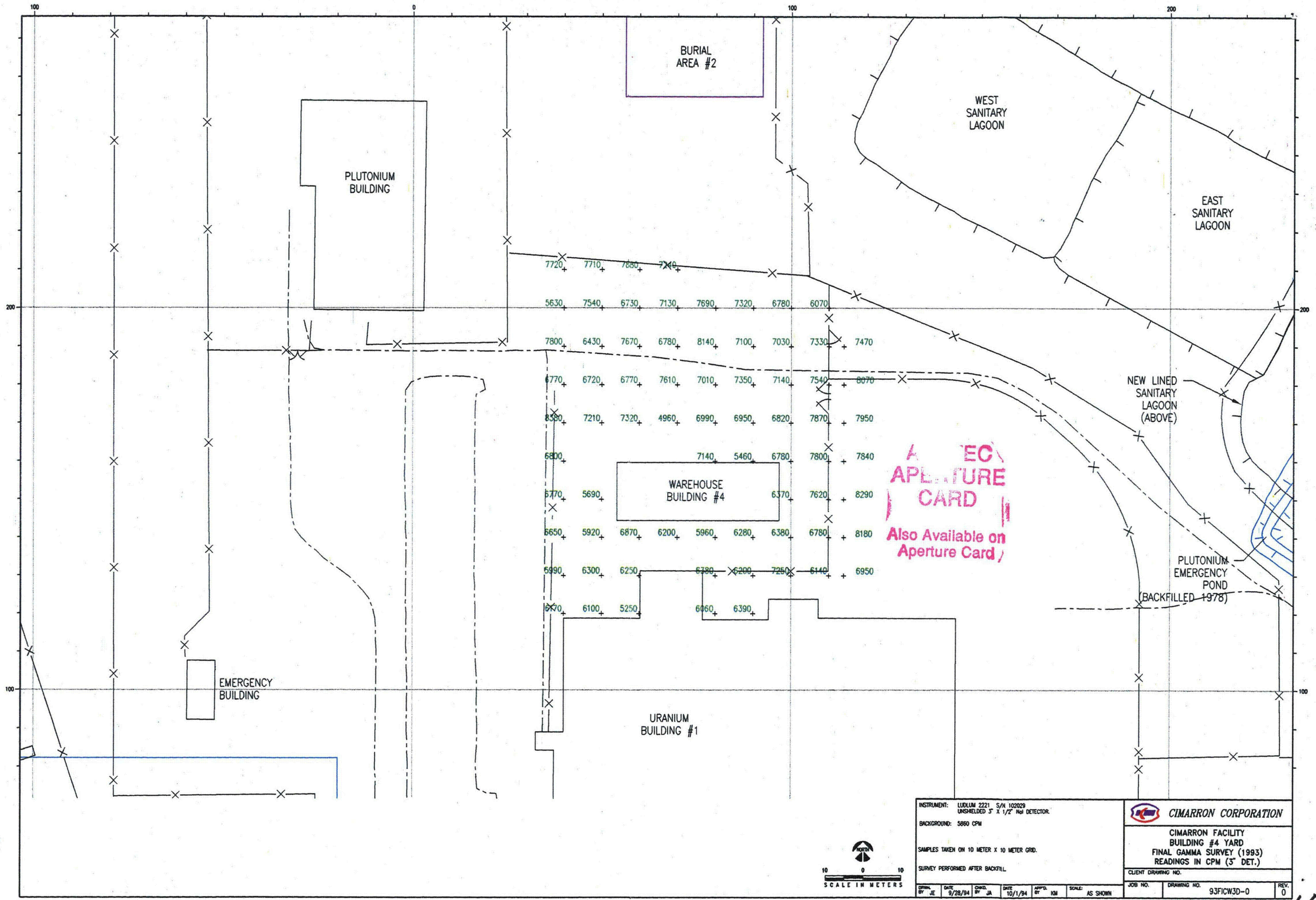


INSTRUMENT: LUDLUM 2221 S/N 102029
UNSHIELDED 3" X 1/2" NaI DETECTOR.

BACKGROUND: 5860 CPM

SAMPLES TAKEN ON 10 METER X 10 METER GRID.

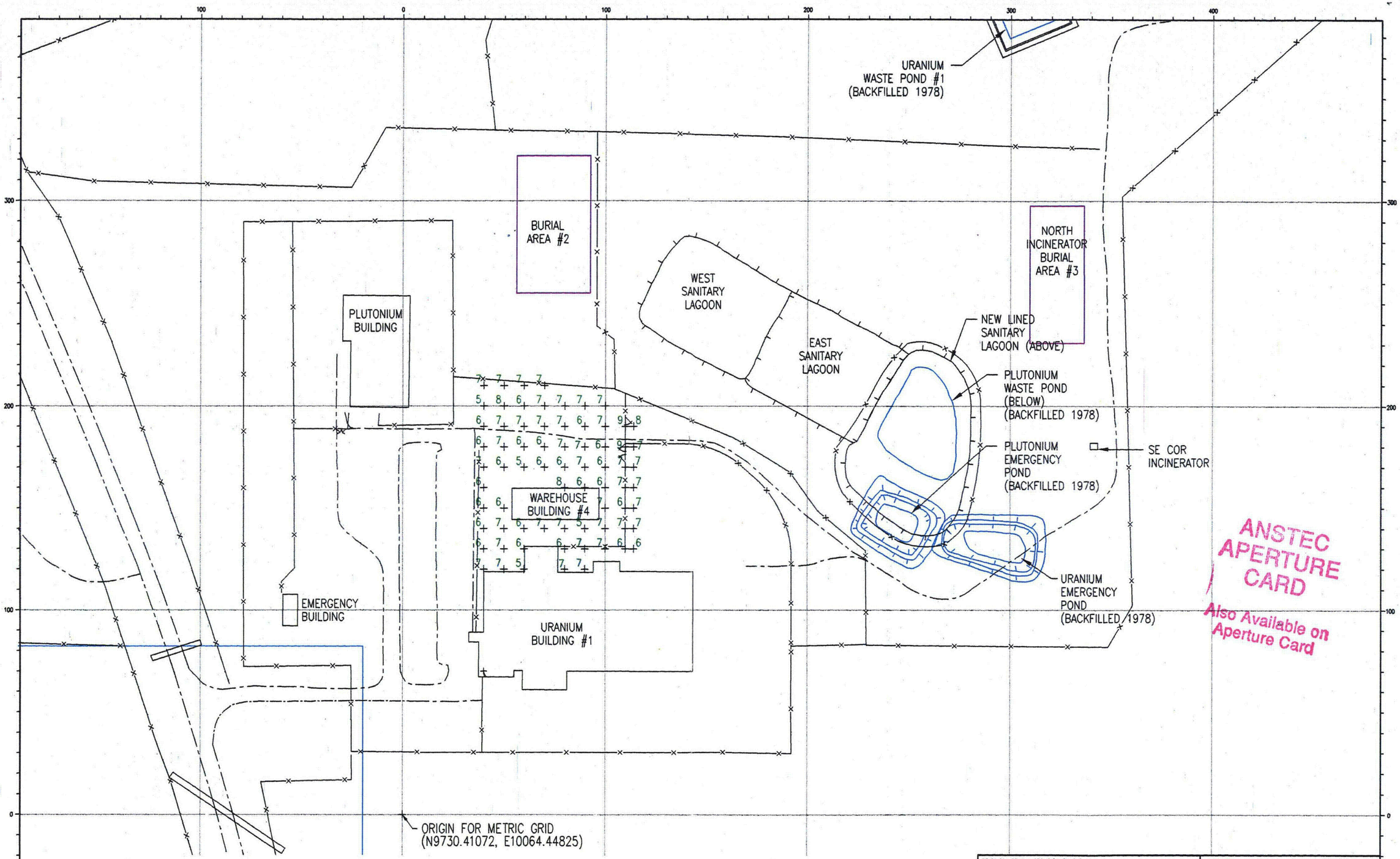
SURVEY PERFORMED AFTER BACKFILL

CIMARRON CORPORATION

CIMARRON FACILITY
BUILDING #4 YARD
FINAL GAMMA SURVEY (1993)
READINGS IN CPM (3" DET.)

CLIENT DRAWING NO.

DRAWN BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		93FICW3D-0	0



READINGS ARE IN MICRO-R/Hr (μR/Hr).

INSTRUMENT: LUDLUM MICRO-R METER.
MODEL NO: 19
SERIAL NO: 75544
BACKGROUND: 7 MICRO-R/Hr., NOT SUBTRACTED.

READINGS TAKEN ON A 10 METER BY 10 METER GRID.

READINGS TAKEN AFTER REMEDIATION AND BACKFILL.

NORTH

20 0 20
SCALE IN METERS

CIMARRON CORPORATION

CIMARRON FACILITY
BUILDING #4 YARD
FINAL MICRO-R SURVEY (1993)
AT LAND SURFACE

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		93FICWUR-0	0

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9412080115 -102

URANIUM WASTE POND #1 (BACKFILLED 1978)

BURIAL AREA #2

NORTH INCINERATOR BURIAL AREA #3

WEST SANITARY LAGOON

EAST SANITARY LAGOON

NEW LINED SANITARY LAGOON (ABOVE)

PLUTONIUM BUILDING

PLUTONIUM WASTE POND (BELOW) (BACKFILLED 1978)

PLUTONIUM EMERGENCY POND (BACKFILLED 1978)

SE COR INCINERATOR

WAREHOUSE BUILDING #4

URANIUM EMERGENCY POND (BACKFILLED 1978)

EMERGENCY BUILDING

URANIUM BUILDING #1

ORIGIN FOR METRIC GRID (N9730.41072, E10064.44825)

READINGS ARE IN MICRO-R/Hr (μR/Hr).

INSTRUMENT: LUDLUM MICRO-R METER.
MODEL NO: 19
SERIAL NO: 75544
BACKGROUND: 7 MICRO-R/Hr., NOT SUBTRACTED.

READINGS TAKEN ON A 10 METER BY 10 METER GRID.

READINGS TAKEN AFTER REMEDIATION AND BACKFILL.

DRWN. BY JE | DATE 9/28/94 | CHKD. BY JA | DATE 10/1/94 | APP'D. BY KM | SCALE: AS SHOWN

SCALE IN METERS 20 0 20

CIMARRON CORPORATION

CIMARRON FACILITY
BUILDING #4 YARD
FINAL MICRO-R SURVEY (1993)
AT ONE METER ABOVE SURFACE

CLIENT DRAWING NO.

JOB NO. | DRAWING NO. 93FICWUR-1 | REV. 0

9412080115 -103

URANIUM WASTE POND #1 (BACKFILLED 1978)

BURIAL AREA #2

NORTH INCINERATOR BURIAL AREA #3

WEST SANITARY LAGOON

EAST SANITARY LAGOON

NEW LINED SANITARY LAGOON (ABOVE)

PLUTONIUM BUILDING

PLUTONIUM WASTE POND (BELOW) (BACKFILLED 1978)

PLUTONIUM EMERGENCY POND (BACKFILLED 1978)

SE COR INCINERATOR

WAREHOUSE BUILDING #4

URANIUM EMERGENCY POND (BACKFILLED 1978)

EMERGENCY BUILDING

URANIUM BUILDING #1

ORIGIN FOR METRIC GRID (N9730.41072, E10064.44825)

READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

URANIUM BACKGROUND OF 6 pCi/g, NOT SUBTRACTED.

SAMPLES TAKEN ON 10 METER X 10 METER GRID.

FINAL RANDOM SURFACE SAMPLING OF BACKFILLED AREA TAKEN ON A 10 METER X 10 METER GRID INTERSECT.

NORTH

20 0 20

SCALE IN METERS

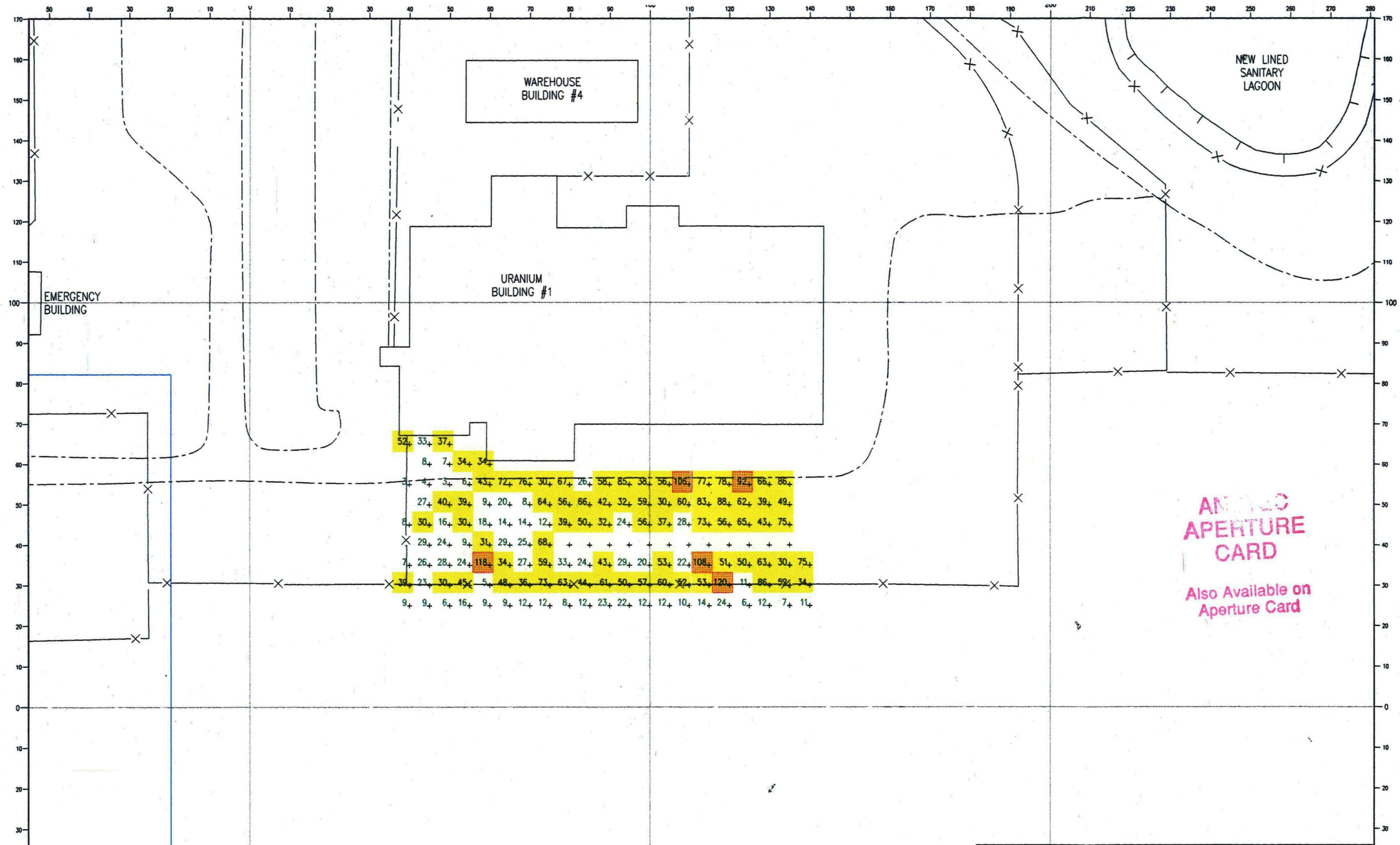
CIMARRON CORPORATION

CIMARRON FACILITY
BUILDING #4 YARD
FINAL SOIL SAMPLE RESULTS (1993)
SOIL SAMPLE ALIQUOT: 0" – 6" DEEP

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		93FICWSS-0	0

-104



READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.

SAMPLES TAKEN ON A 5 METER X 5 METER GRID.

LEGEND

- 6+ 1 - 29 pCi/g
- 54+ 30 - 89 pCi/g
- 129+ 90 - 250 pCi/g
- 527+ > 251 pCi/g
- + NO SAMPLE - STOCKPILE AREA OR HIT ROCK OR METAL

SCALE IN METERS

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
PRE-REMEDIATION SOIL SAMPLE RESULTS (1993)
SOIL SAMPLE ALIQUOT: 0-6" DEEP

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE	CLIENT DRAWING NO.	JOB NO.	DRAWING NO.	REV.
JE	9/14/94	JA	10/1/94	KM	AS SHOWN			93PRSUSS-0	0

WAREHOUSE BUILDING #4

URANIUM BUILDING #1

EMERGENCY BUILDING

NEW LINED SANITARY LAGOON

28+ 12+ 9+
5+ 5+ 12+ 12+
6+ 7+ 18+ 50+ 27+ 20+ 220+ 21+ 84+ 72+ 33+ 90+ 19+ 31+ 31+ 69+ 35+ 74+ 70+ 45+
9+ 21+ 15+ 10+ 10+ 12+ 45+ 75+ 84+ 89+ 39+ 53+ 24+ 119+ 113+ 90+ 48+ 17+ 57+
8+ 14+ 7+ 11+ 14+ 14+ 6+ 9+ 33+ 33+ 30+ 25+ 25+ 16+ 39+ 95+ 108+ 127+ 6+ 34+
7+ 14+ 7+ 11+ 22+ 27+ 57+ + + + + + + + + + + +
6+ 18+ 20+ 7+ 86+ 22+ 17+ 23+ 21+ 18+ 13+ 13+ 9+ 20+ 13+ 87+ 11+ 11+ 22+ 9+ 5+
20+ 11+ 16+ 55+ 26+ 24+ 14+ 12+ 21+ 19+ 19+ 55+ 78+ 72+ 16+ 13+ 6+ 5+ 41+ 9+ 6+
7+ 8+ 5+ 16+ 6+ 4+ 12+ 5+ 6+ 14+ 12+ 13+ 13+ 13+ 3+ 7+ 5+ 8+ 8+ 10+ 4+

READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.

SAMPLES TAKEN ON A 5 METER X 5 METER GRID.

LEGEND

6+ 1 - 29 pCi/g

54+ 30 - 89 pCi/g

128+ 90 - 250 pCi/g

527+ > 251 pCi/g

+ NO SAMPLE - STOCKPILE AREA OR HIT ROCK OR METAL

NORTH

10 0 10

SCALE IN METERS

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE
JE	9/14/94	JA	10/1/94	KM	AS SHOWN

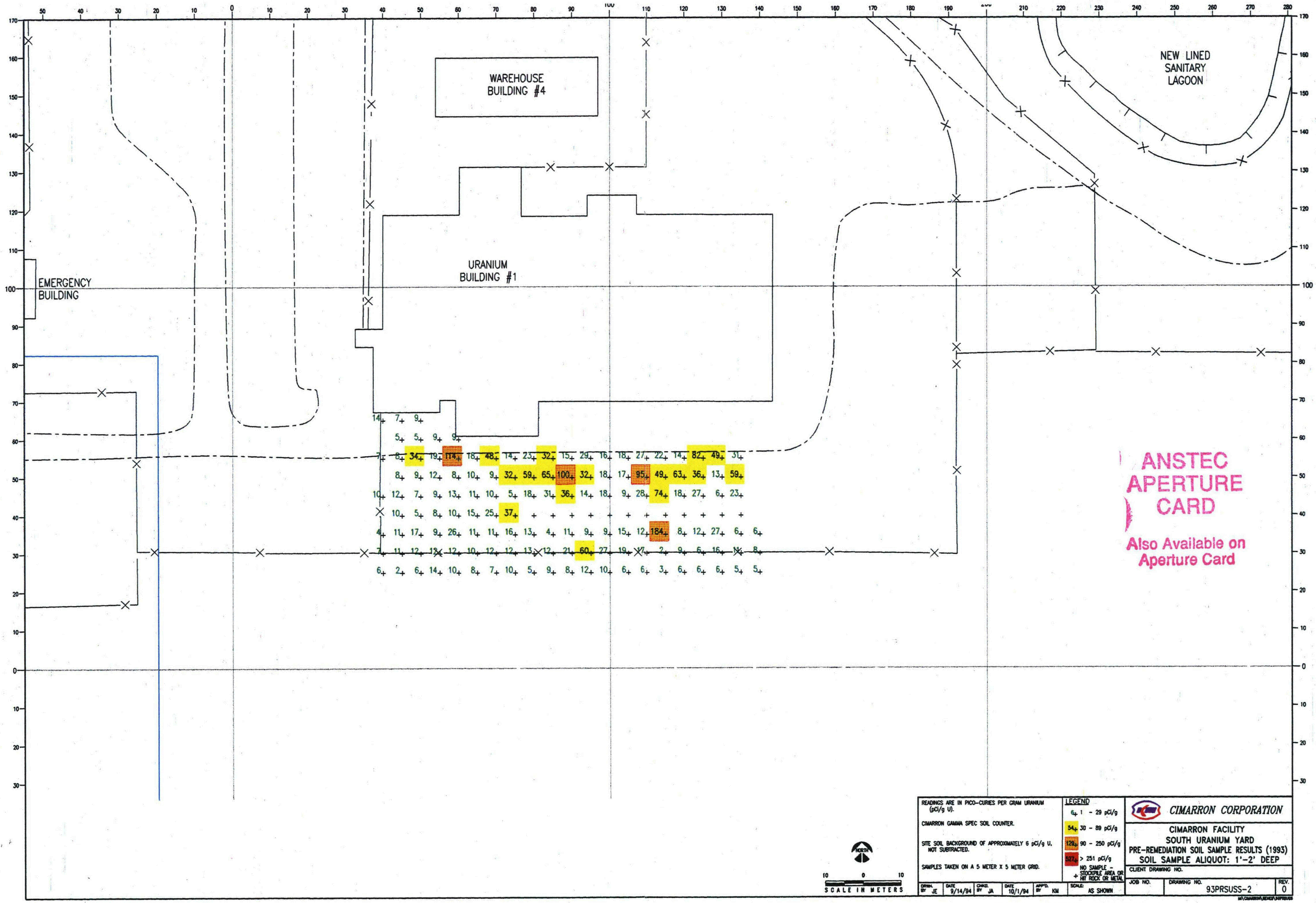
CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
PRE-REMEDIATION SOIL SAMPLE RESULTS (1993)
SOIL SAMPLE ALIQUOT: 6"-1' DEEP

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	93PRSUSS-1	0

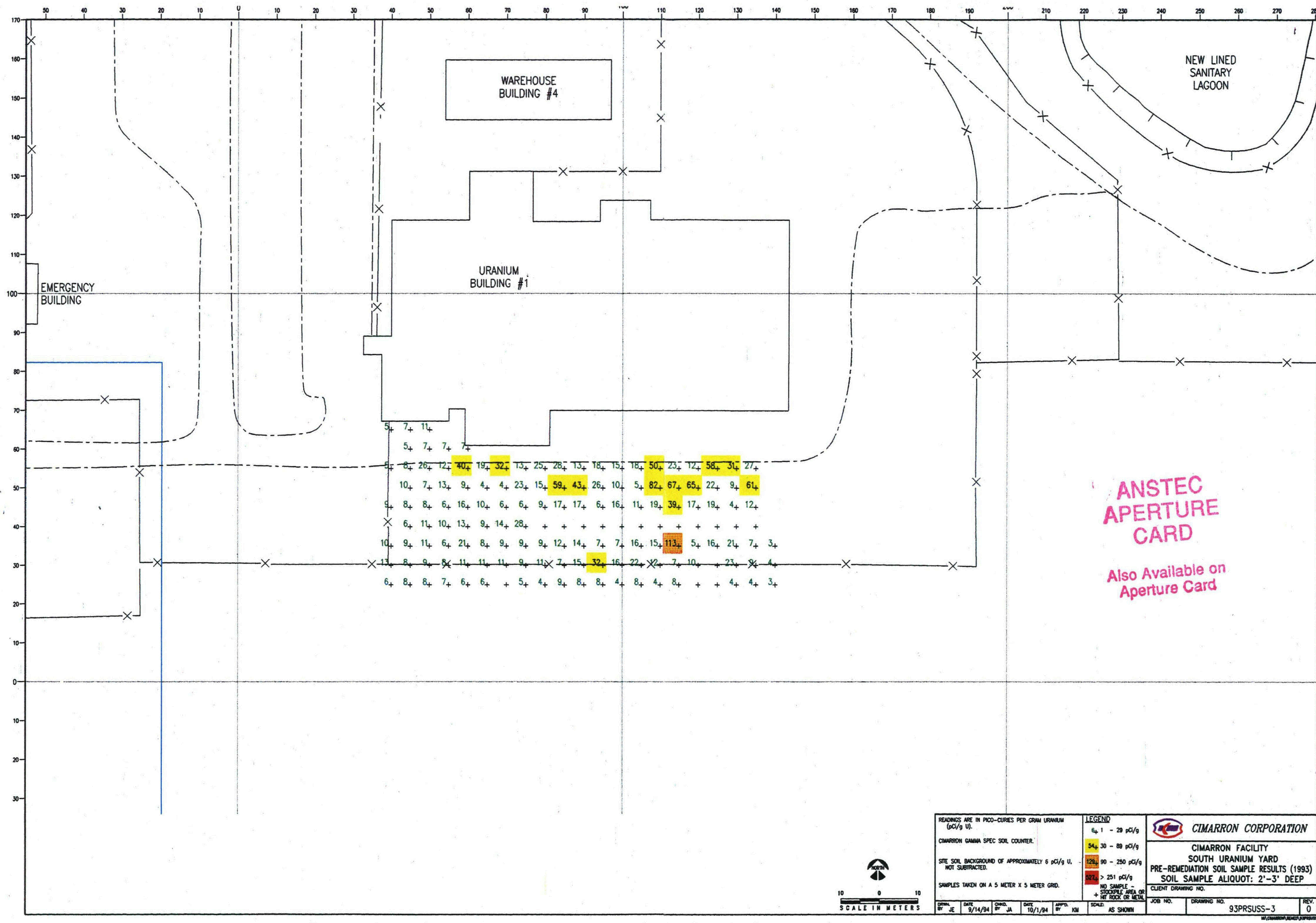
406



ANSTEC APERTURE CARD

Also Available on Aperture Card

9412080115

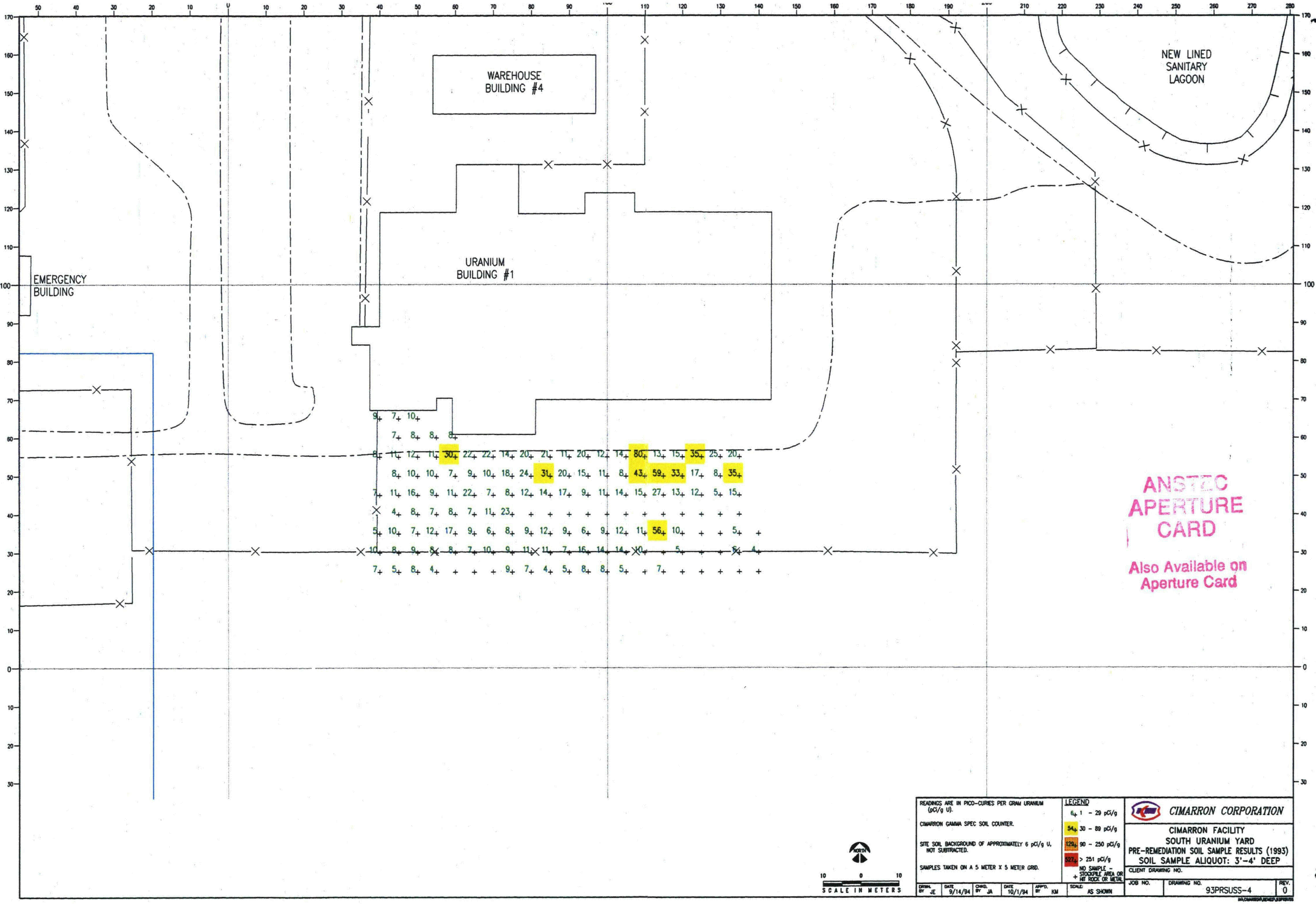


ANSTEC APERTURE CARD

Also Available on Aperture Card

9412080115

-108



ANSTEC APERTURE CARD

Also Available on Aperture Card

9412080115 -109

WAREHOUSE
BUILDING #4

NEW LINED
SANITARY
LAGOON

URANIUM
BUILDING #1

EMERGENCY
BUILDING

15+ 13+ 19+ 16+ 9+ 7+ 10+ 9+ 19+ 10+ 26+ 13+ 9+
19+ 28+ 11+ 9+ 8+ 27+ 10+ 18+ 19+ 20+ 13+ 17+ 22+
11+ 25+ 3+ 7+ 16+ 13+ 5+ 13+ 28+ 9+ 15+ 25+ 18+ 17+ 16+ 16+ 17+ 21+
18+ 5+ 11+ 20+ 9+ 11+ 8+ 10+ 11+ 16+ 23+ 9+ 24+ 18+ 12+ 12+ 4+ 3+ 23+ 27+ 21+ 24+
28+ 16+ 29+ 7+ 11+ 17+ 15+ 23+ 15+ 20+ 20+ 23+ 8+ 12+ 13+ 29+ 10+ 5+ 53+ 22+ 8+ 29+
10+ 15+ 10+ 14+ 12+ 11+ 11+ 20+ 19+ 22+ 18+ 24+ 21+ 7+ 19+ 20+ 10+ 23+ 13+ 23+
18+ 19+ 9+ 7+ 16+ 15+ 16+ 17+ 17+ 21+ 16+ 30+ 22+ 8+ 21+ 27+ 10+ 20+ 14+
6+ 13+ 24+ 4+ 19+ 8+ 12+ 13+ 14+ 7+ 14+ 23+ 8+ 23+ 14+ 10+ 12+ 28+
29+ 17+ 25+ 24+ 8+ 17+ 16+ 10+ 10+ 14+ 21+ 11+ 9+ 13+ 11+ 20+ 16+ 10+ 8+ 34+ 25+
8+ 20+ 14+ 9+ 10+ 9+ 13+ 4+ 13+ 12+ 11+ 12+ 5+ 8+ 11+ 15+ 6+ 5+ 13+ 11+ 15+

NORTH

10 0 10
SCALE IN METERS

READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.

SAMPLES TAKEN ON A 5 METER X 5 METER GRID.

POST REMEDIATION - BEFORE BACKFILL.

LEGEND

6+	1 - 29 pCi/g
54+	30 - 89 pCi/g
129+	90 - 250 pCi/g
527+	> 251 pCi/g

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
POST-REMEDIATION SOIL SAMPLE RESULTS (93/94)
SURFACE SAMPLES

CLIENT DRAWING NO.

DRAWN BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	8/22/94	JA	10/1/94	KM	AS SHOWN		94POSUSS-0	0

-110

WAREHOUSE BUILDING #4

URANIUM BUILDING #1

EMERGENCY BUILDING

NEW LINED SANITARY LAGOON

4220 3390 3080 3410 3820 4600 4960 5390 4500 7650 4900 5650 3210 3010
4830 4990 3630 3560 4470 4000 4320 4130 4960 5520 3540 3570
2900 2560 1840 2210 3890 4780 3720 3190 4310 4990 3790 4810 4610 4910 5020 4500 3140 2800 3040
1950 2180 4090 4710 4600 3950 3990 4650 4420 4680 4890 4670 5020 5700 5210 5010 2650 2090 2090 3250 3120 4370
4670 4320 4400 3790 4820 4340 4040 4960 4030 4400 4510 4210 4700 5490 4070 4210 3280 2030 3440 3580 2560 3540
4500 4080 4750 4940 4520 4920 4260 4810 4520 4270 5100 5020 4560 3640 4530 2730 3820 3690 3680 2750
3095 4910 4400 4490 5380 4550 3660 4460 4320 4920 4900 4520 4850 4440 4250 3080 2750 3910 3130
4120 3910 4530 3970 3900 4490 4240 4420 4220 3990 4220 4740 4320 4070 4630 2670 2680 3320
3560 4220 4320 4030 5010 4220 4310 4260 4360 4680 4050 3820 3710 4860 4080 3830 3260 3570 2590 3490 3480
4150 4380 3800 3830 3860 3600 4210 3770 4300 3970 4430 5030 4310 4720 4340 2670 2420 2930 2950 3770 2910

NORTH

10 0 10
SCALE IN METERS

INSTRUMENT: LUDLUM 2220 S/N 48395
LEAD-SHIELDED 3" X 1/2" NaI DETECTOR
BACKGROUND RANGE: 2670-3630 CPM
READINGS TAKEN ON A 5 METER X 5 METER GRID.
POST REMEDIATION - BEFORE BACKFILL.

LEGEND
629 = < 5500 CPM
5536 = >= 5500 CPM

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
POST-REMEDIATION GAMMA SURVEY (93/94)
READINGS IN CPM (3" DETECTION)

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/26/94	JA	10/1/94	KM	AS SHOWN		94POSU3D-0	0

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WAREHOUSE BUILDING #4

NEW LINED SANITARY LAGOON

URANIUM BUILDING #1

EMERGENCY BUILDING

8 7 7 7 7 8 10 11 12 11 10 5 5
8 9 9 8 8 7 8 9 9 10 10 7 7
7 7 7 6 9 8 8 9 8 8 7 8 8 11 9 10 7 4 5
7 7 8 9 7 7 7 8 8 8 8 10 11 10 9 8 6 6 7 6 7 6
8 10 10 8 8 9 8 8 8 8 9 8 10 10 10 7 7 5 7 5 5 5
9 9 10 9 8 9 9 9 7 8 10 9 11 9 9 6 9 8 7 6
8 9 9 8 8 9 8 9 8 8 9 9 10 9 9 6 8 7 4
7 8 9 8 7 8 9 8 8 8 9 9 9 9 9 6 5 5
6 8 7 8 8 9 10 8 9 7 10 9 8 9 8 6 6 6 6 7 7
7 8 6 8 7 7 8 7 7 8 7 9 8 7 8 6 6 6 6 7 6

NORTH

10 0 10
SCALE IN METERS

READINGS ARE IN MICRO-R/Hr (μR/Hr).

INSTRUMENT: LUDLUM MICRO-R METER.
MODEL NO: 125
SERIAL NO: 9081
BACKGROUND: 7 MICRO-R/Hr.

SAMPLES TAKEN ON A 5 METER X 5 METER GRID.

POST REMEDIATION - BEFORE BACKFILL.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/26/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
POST-REMEDIATION MICRO-R SURVEY (93/94)
AT LAND SURFACE

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POSUUR-0	0

9412080115

-112

WAREHOUSE
BUILDING #4

NEW LINED
SANITARY
LAGOON

URANIUM
BUILDING #1

EMERGENCY
BUILDING

7 7 7 7 7 8 9 8 9 8 10 4 4
8 9 8 8 7 9 9 10 9 8 11 6 6
7 7 7 7 9 7 8 8 9 7 7 9 10 11 9 9 6 4 4
7 7 8 8 7 8 7 7 7 7 8 9 10 10 9 7 5 4 6 5 5 4
7 10 10 7 7 9 8 8 8 8 8 10 10 11 11 6 6 5 6 4 5 4
8 9 10 7 7 8 7 9 7 8 10 10 9 8 8 5 7 7 6 4
7 9 8 8 7 9 7 10 8 8 8 9 9 10 10 5 7 5 4
7 8 7 7 7 9 8 9 7 7 8 7 10 11 10 5 5 4
6 7 6 8 8 8 8 8 8 7 9 8 9 8 8 5 5 6 6 6 6
7 8 7 7 7 7 7 6 7 7 7 7 8 7 7 6 6 6 6 6 6

NORTH

10 0 10
SCALE IN METERS

READINGS ARE IN MICRO-R/Hr (μR/Hr).

INSTRUMENT: LUDLUM MICRO-R METER.
MODEL NO: 12S
SERIAL NO: 9081
BACKGROUND: 7 MICRO-R/Hr.

SAMPLES TAKEN ON A 5 METER X 5 METER GRID.

POST REMEDIATION - BEFORE BACKFILL

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/26/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
POST-REMEDIATION MICRO-R SURVEY (93/94)
AT ONE METER ABOVE SURFACE

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POSUUR-1	0

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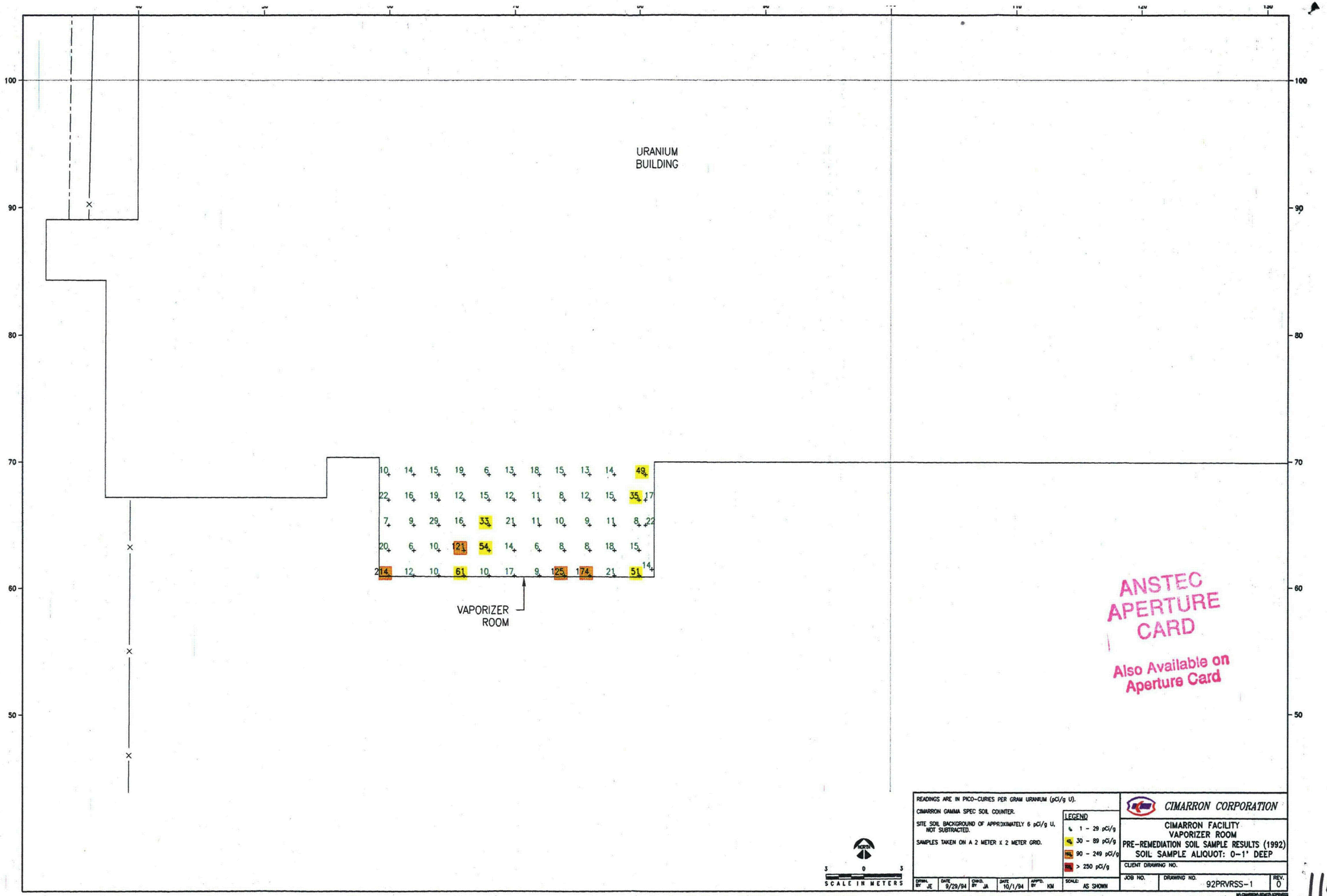
-113



READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER x 2 METER GRID.

LEGEND
- 1 - 29 pCi/g
- 30 - 89 pCi/g
- 90 - 249 pCi/g
- > 250 pCi/g

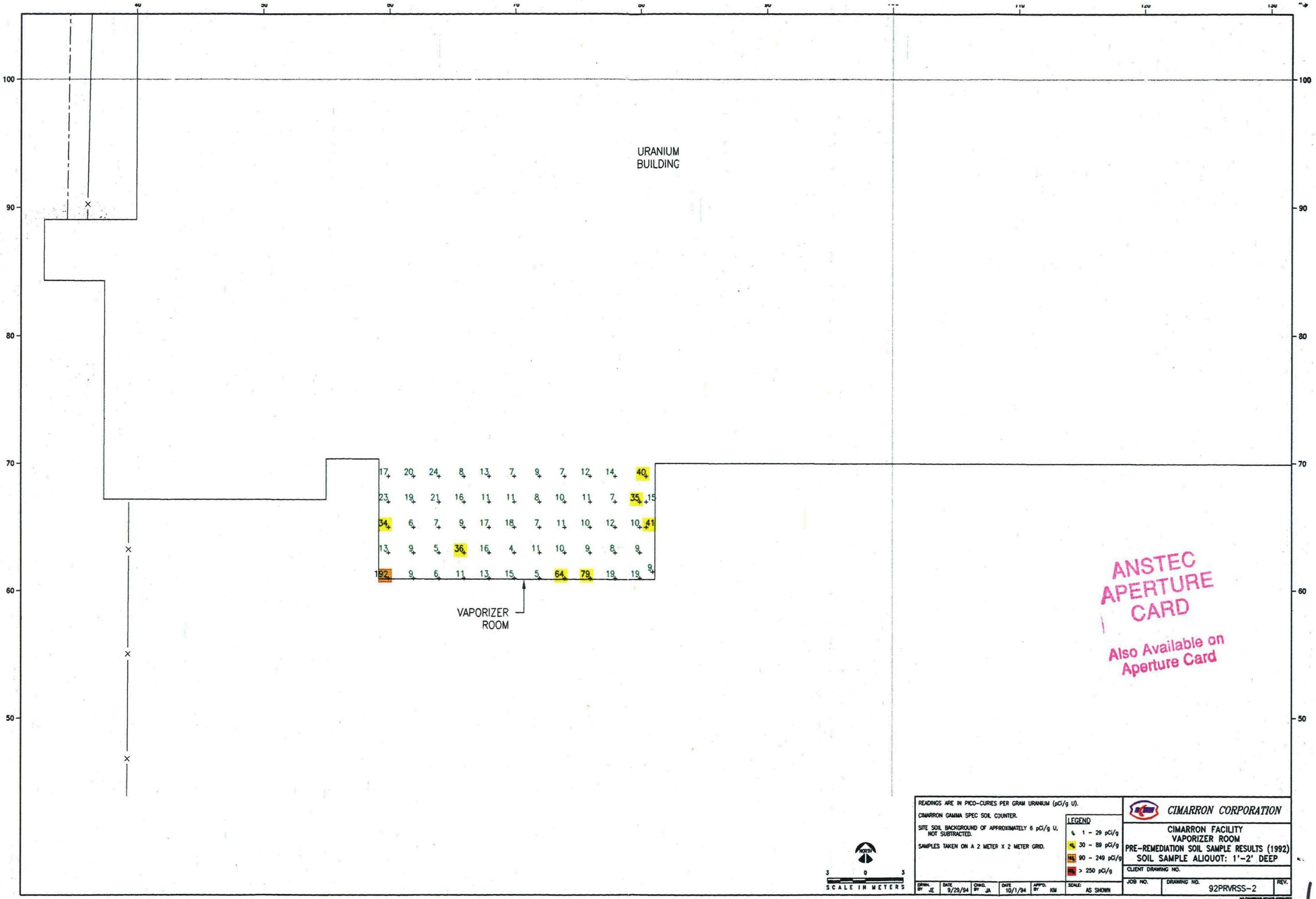
DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/29/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
VAPORIZER ROOM
PRE-REMEDIATION SOIL SAMPLE RESULTS (1992)
SOIL SAMPLE ALIQUOT: 0-1' DEEP

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	92PRVRSS-1	0



READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER X 2 METER GRID.

LEGEND
- 1 - 29 pCi/g
- 30 - 89 pCi/g
- 90 - 249 pCi/g
- > 250 pCi/g

CIMARRON CORPORATION

CIMARRON FACILITY
VAPORIZER ROOM
PRE-REMEDIATION SOIL SAMPLE RESULTS (1992)
SOIL SAMPLE ALIQUOT: 1'-2' DEEP

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/29/94	JA	10/1/94	KM	AS SHOWN		92PRVRSS-2	

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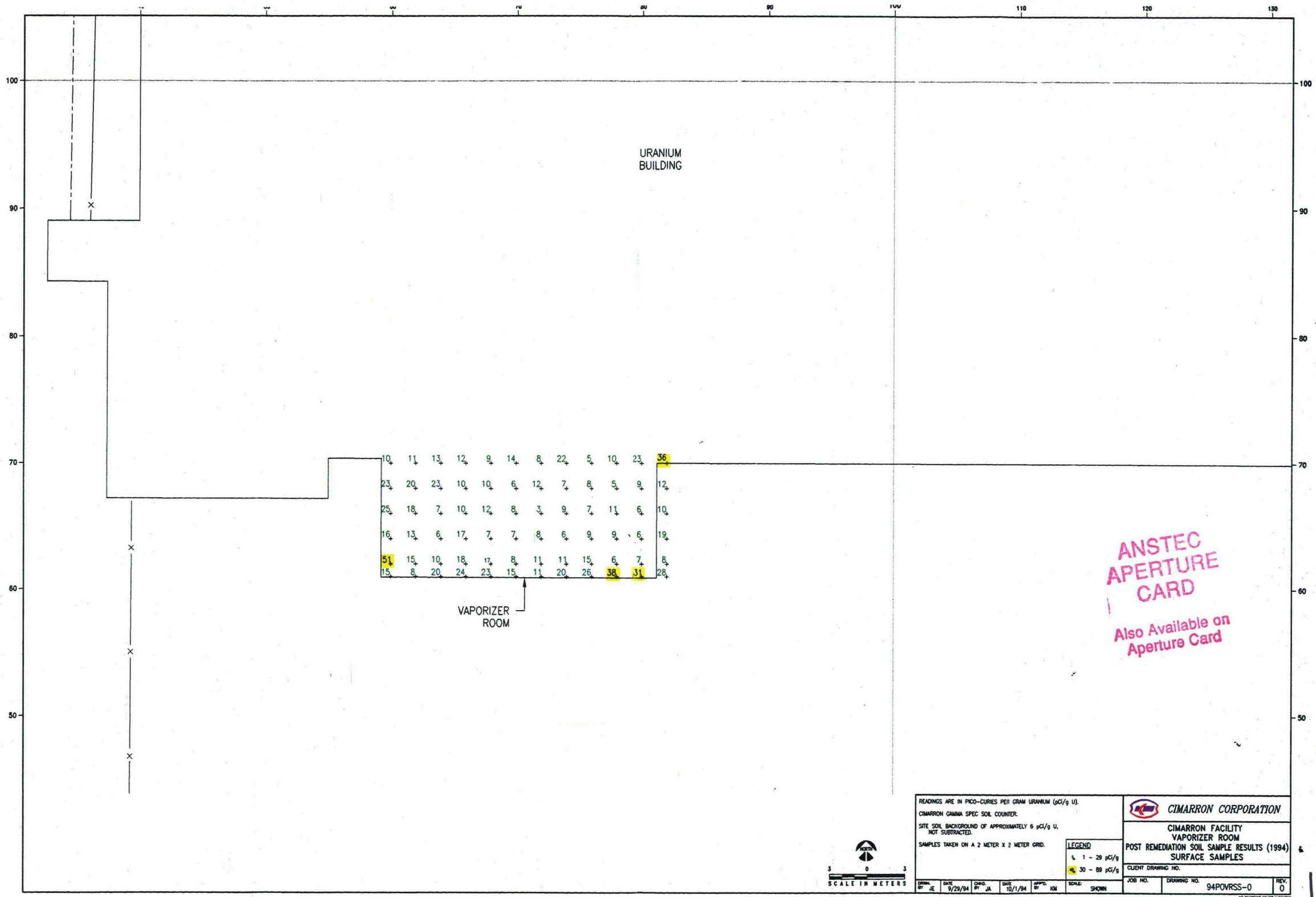
-115



READINGS ARE IN PICO-CURIES PER GRAM URANIUM (pCi/g U).

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U, NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER X 2 METER GRID.

LEGEND
1 - 29 pCi/g
30 - 89 pCi/g

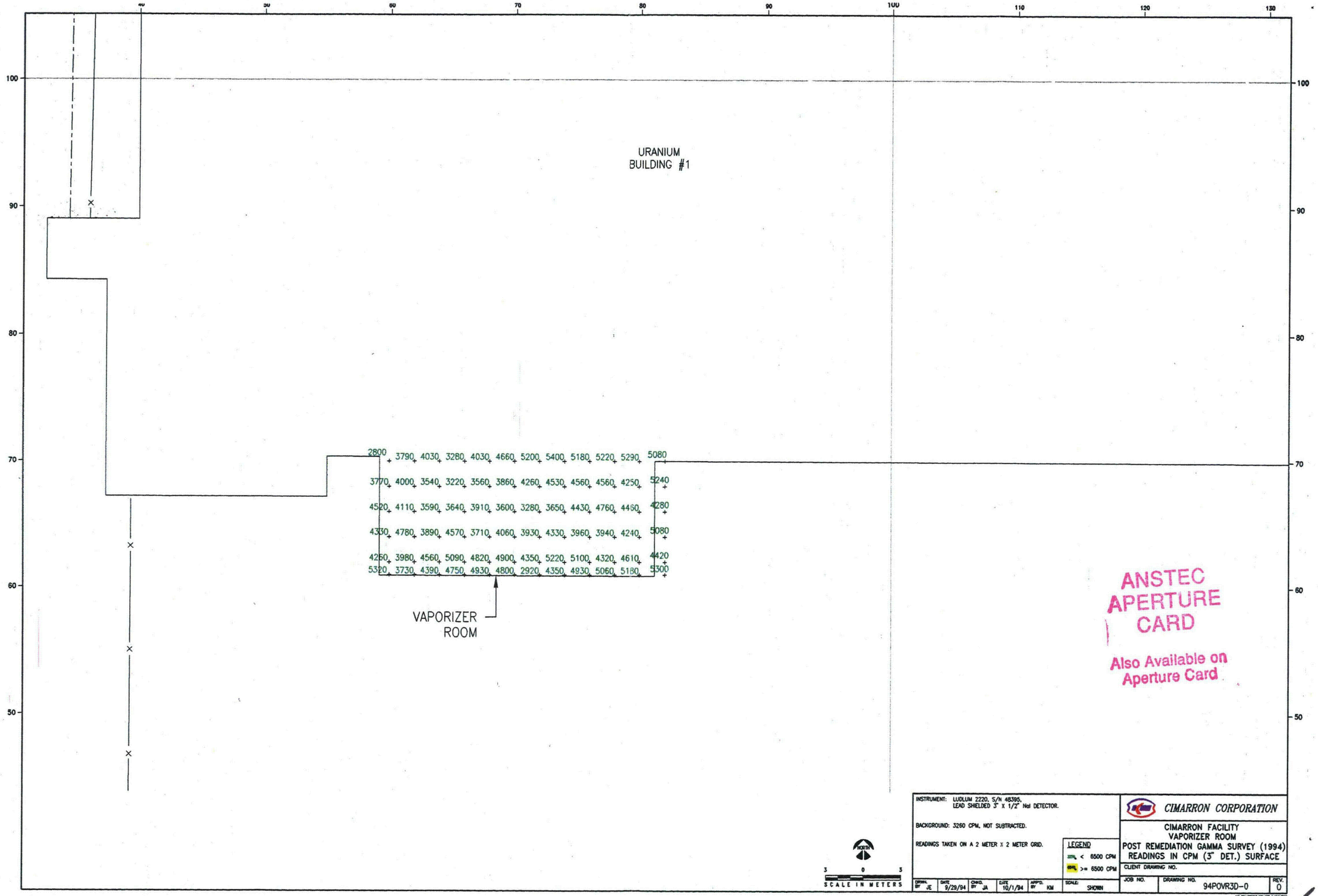
DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/29/94	JA	10/1/94	KM	SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
VAPORIZER ROOM
POST REMEDIATION SOIL SAMPLE RESULTS (1994)
SURFACE SAMPLES

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POVRSS-0	0



INSTRUMENT: LUDLUM 2220, S/N 48395,
LEAD SHIELDED 3" X 1/2" NaI DETECTOR.

BACKGROUND: 3260 CPM, NOT SUBTRACTED.

READINGS TAKEN ON A 2 METER X 2 METER GRID.

LEGEND
< 6500 CPM
>= 6500 CPM

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/29/94	JA	10/1/94	KM	SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
VAPORIZER ROOM
POST REMEDIATION GAMMA SURVEY (1994)
READINGS IN CPM (3" DET.) SURFACE

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POVR3D-0	0

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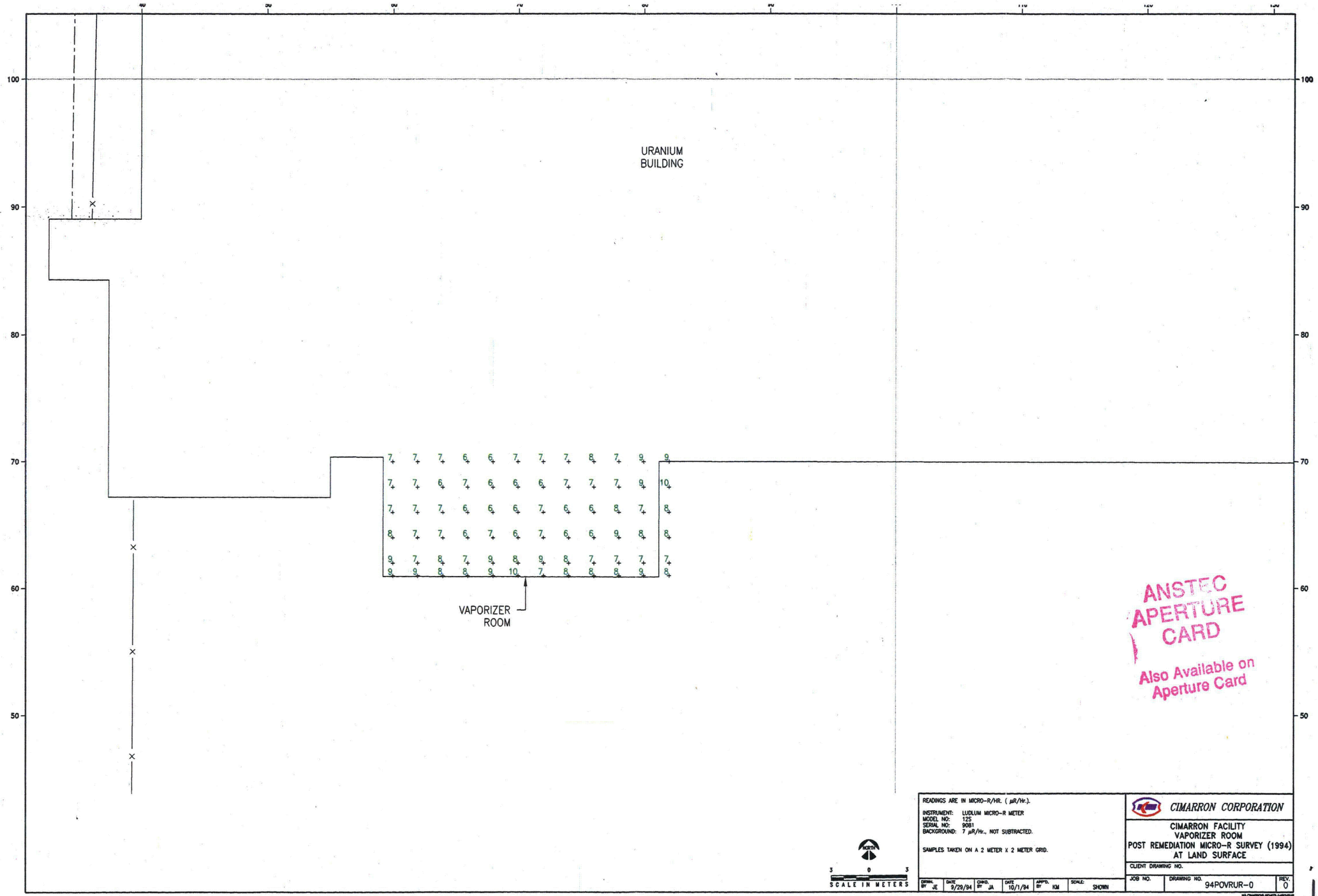

NORTH

3 0 3
SCALE IN METERS

READINGS ARE IN MICRO-R/HR. (μR/Hr.).

INSTRUMENT: LUDLUM MICRO-R METER
MODEL NO: 125
SERIAL NO: 9081
BACKGROUND: 7 μR/Hr., NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER X 2 METER GRID.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	9/29/94	JA	10/1/94	KM	SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
VAPORIZER ROOM
POST REMEDIATION MICRO-R SURVEY (1994)
AT LAND SURFACE

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POVRUR-0	0

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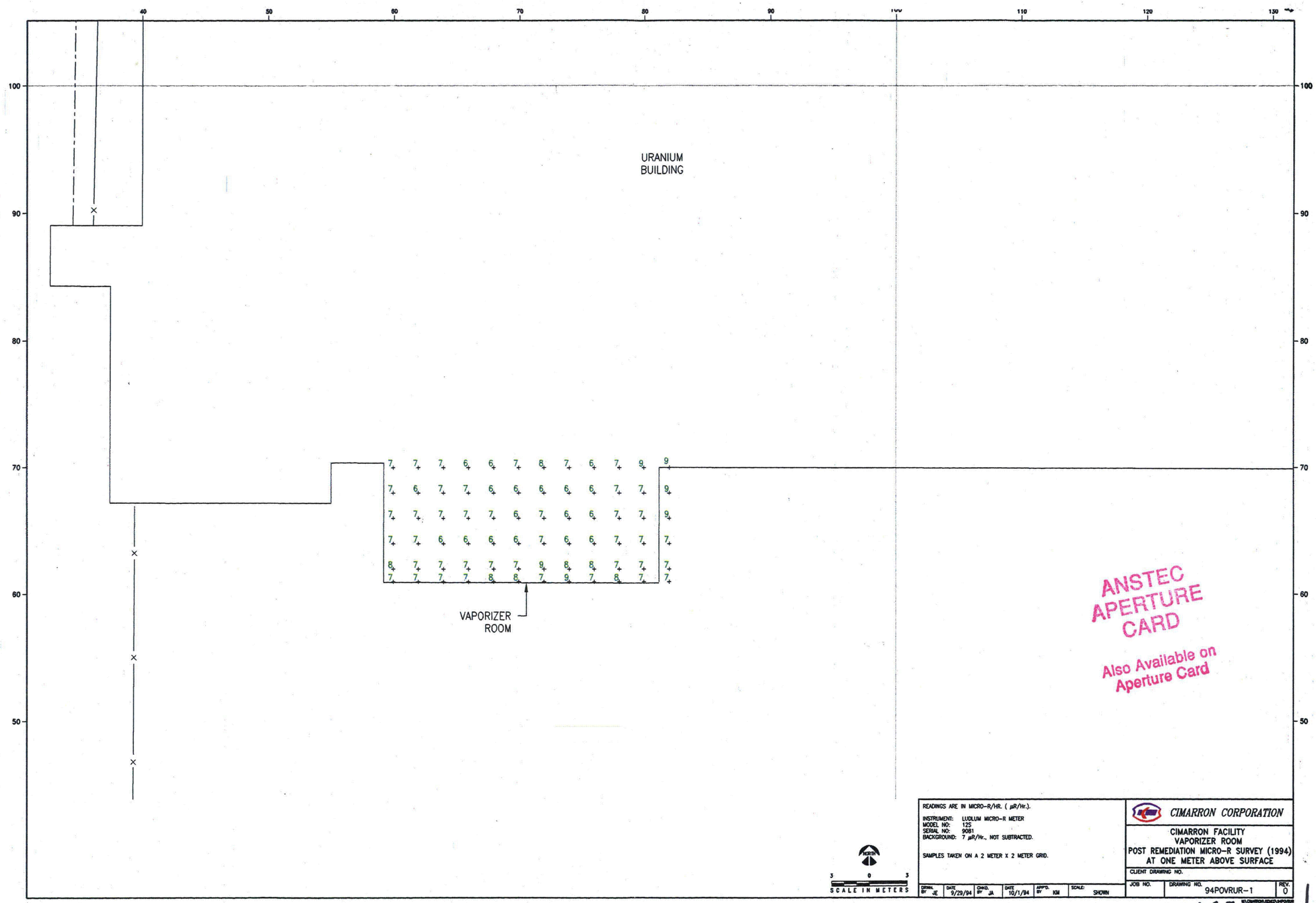


NORTH

3 0 3
SCALE IN METERS

READINGS ARE IN MICRO-R/HR. (μR/Hr.).

INSTRUMENT: LUDLUM MICRO-R METER
MODEL NO: 12S
SERIAL NO: 9081
BACKGROUND: 7 μR/Hr., NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER X 2 METER GRID.

DRWN. BY	DATE	CHK'D. BY	DATE	APP'D. BY	SCALE:
JE	9/29/94	JA	10/1/94	KM	SHOWN

CIMARRON CORPORATION

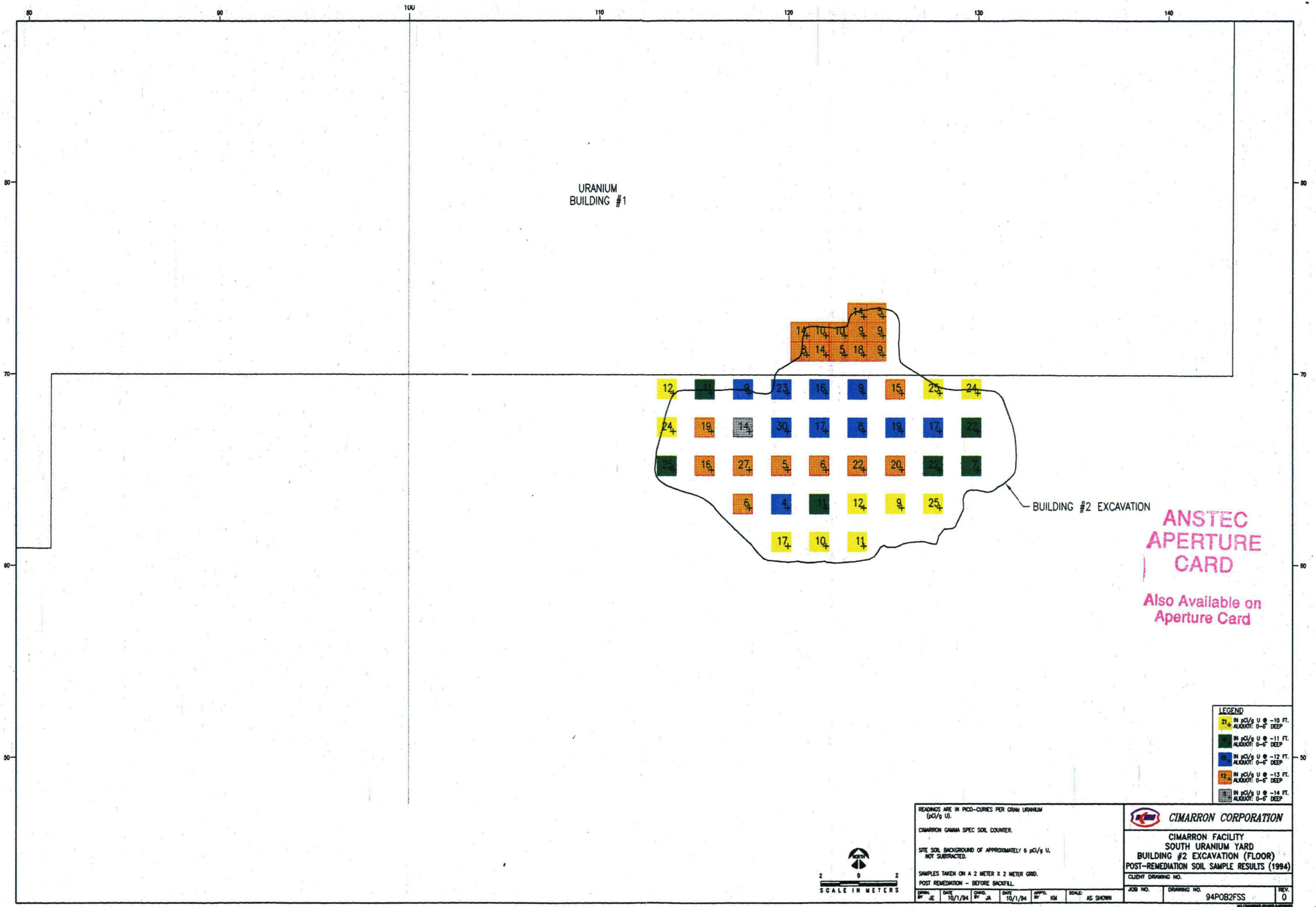
CIMARRON FACILITY
VAPORIZER ROOM
POST REMEDIATION MICRO-R SURVEY (1994)
AT ONE METER ABOVE SURFACE

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POVRUR-1	0

9412080115

419



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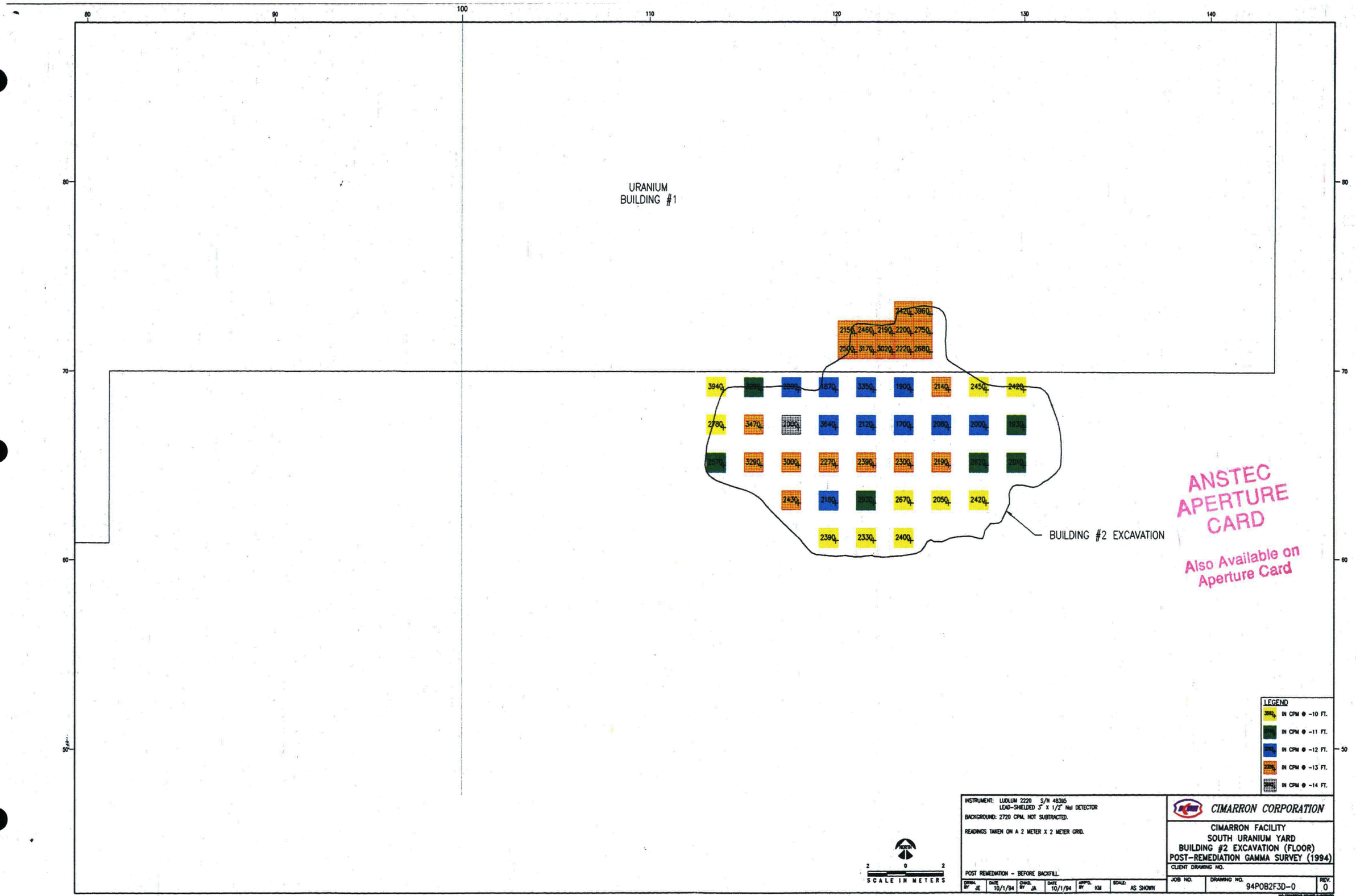


ANSTEC APERTURE CARD

Also Available on Aperture Card

INSTRUMENT: LUDLUM 2220 S/N 48385
LEAD-SHIELDED 3" X 1/2" NaI DETECTOR

BACKGROUND: 2720 CPM, NOT SUBTRACTED.

READINGS TAKEN ON A 2 METER X 2 METER GRID.

POST REMEDIATION - BEFORE BACKFILL.

ORIGN. BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE:
JE	10/1/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

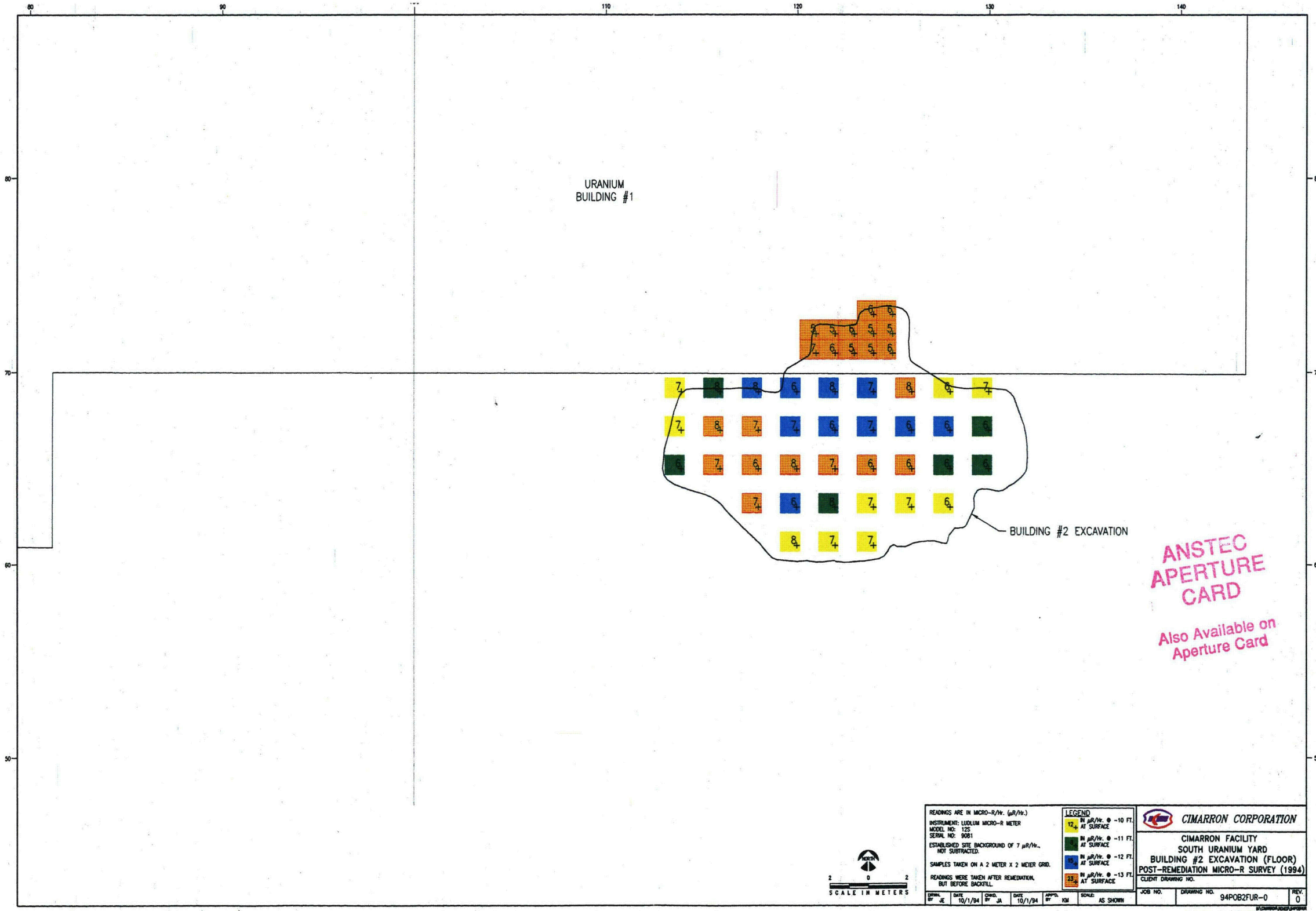
CIMARRON FACILITY
SOUTH URANIUM YARD
BUILDING #2 EXCAVATION (FLOOR)
POST-REMEDIATION GAMMA SURVEY (1994)

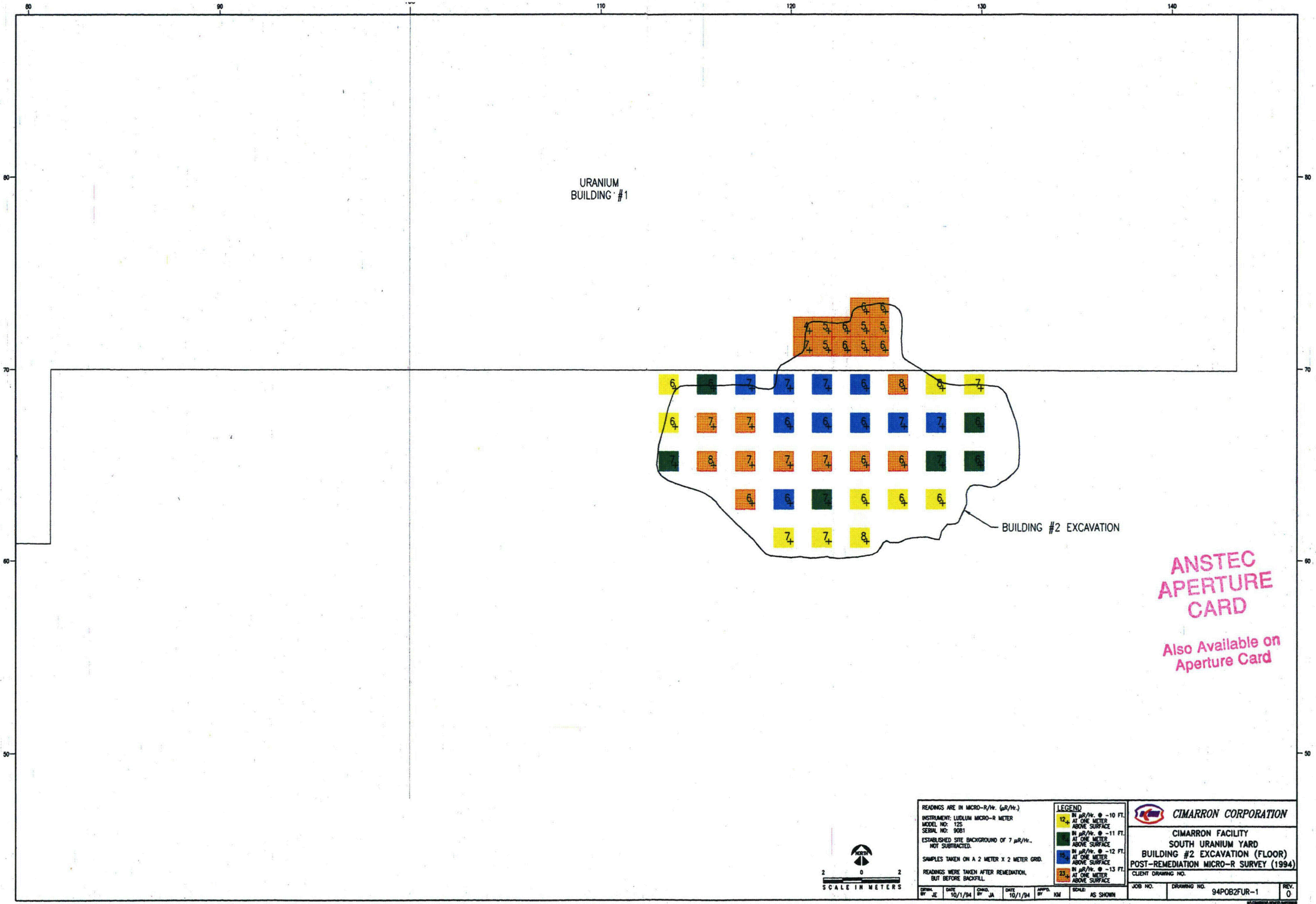
CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POB2F3D-0	0

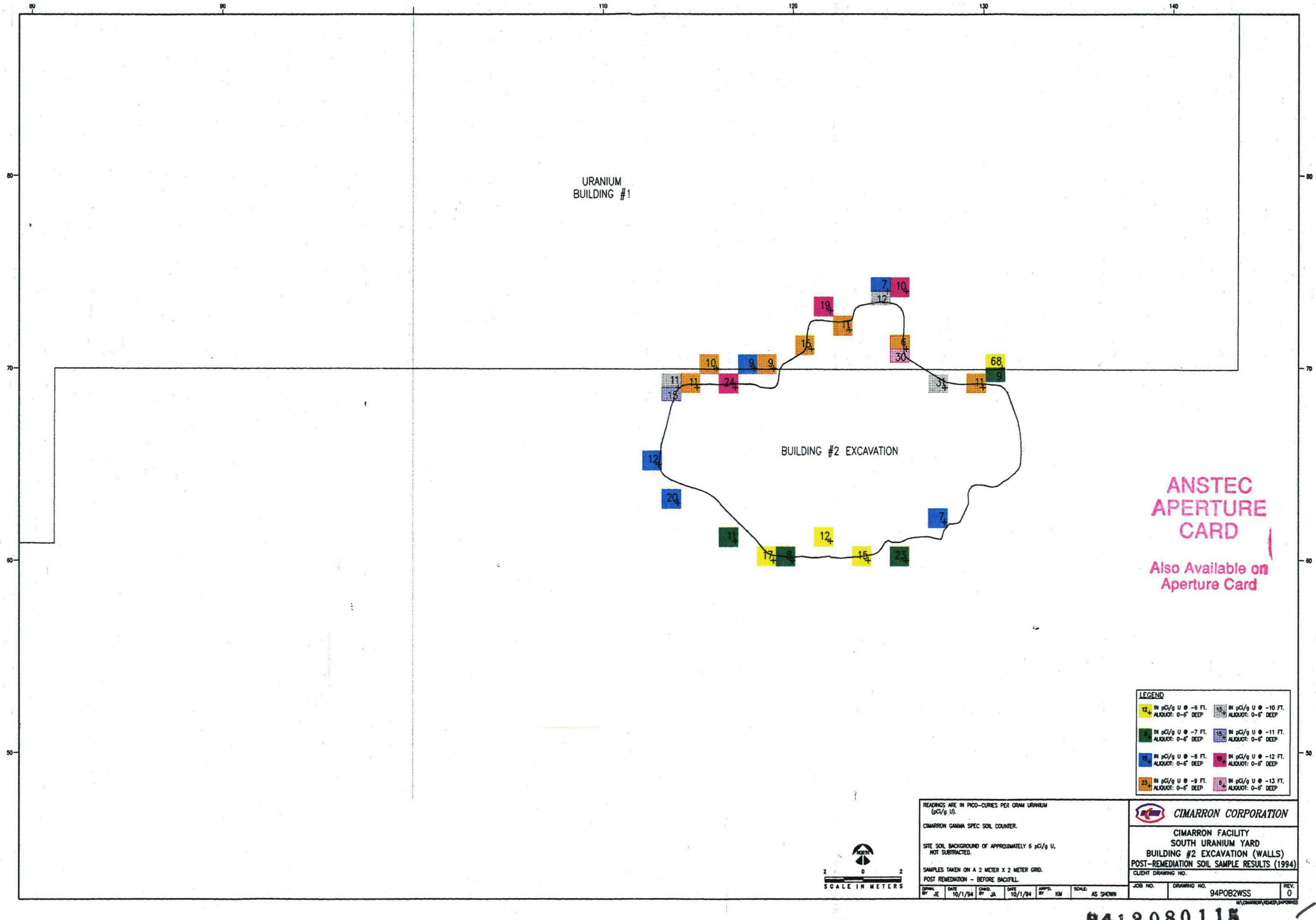
9412080115

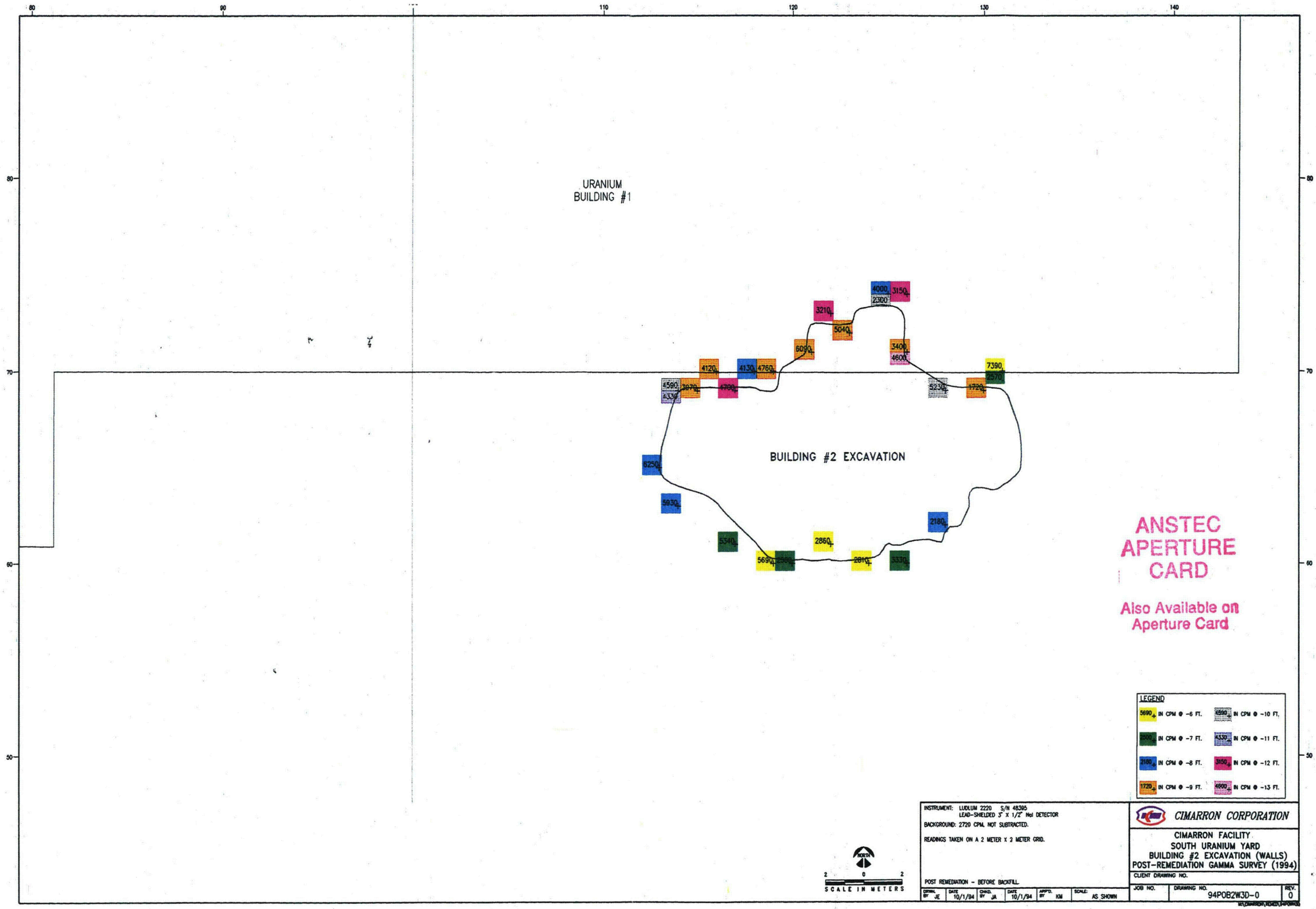
-121





123





LEGEND

5690+ IN CPM @ -6 FT.	4580+ IN CPM @ -10 FT.
5300+ IN CPM @ -7 FT.	4330+ IN CPM @ -11 FT.
2180+ IN CPM @ -8 FT.	3150+ IN CPM @ -12 FT.
1720+ IN CPM @ -9 FT.	4600+ IN CPM @ -13 FT.

INSTRUMENT: LUDLUM 2220 S/N 48395
LEAD-SHIELDED 3" X 1/2" NaI DETECTOR
BACKGROUND: 2720 CPM. NOT SUBTRACTED.

READINGS TAKEN ON A 2 METER X 2 METER GRID.

POST REMEDIATION - BEFORE BACKFILL.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	10/1/94	JA	10/1/94	KM	AS SHOWN

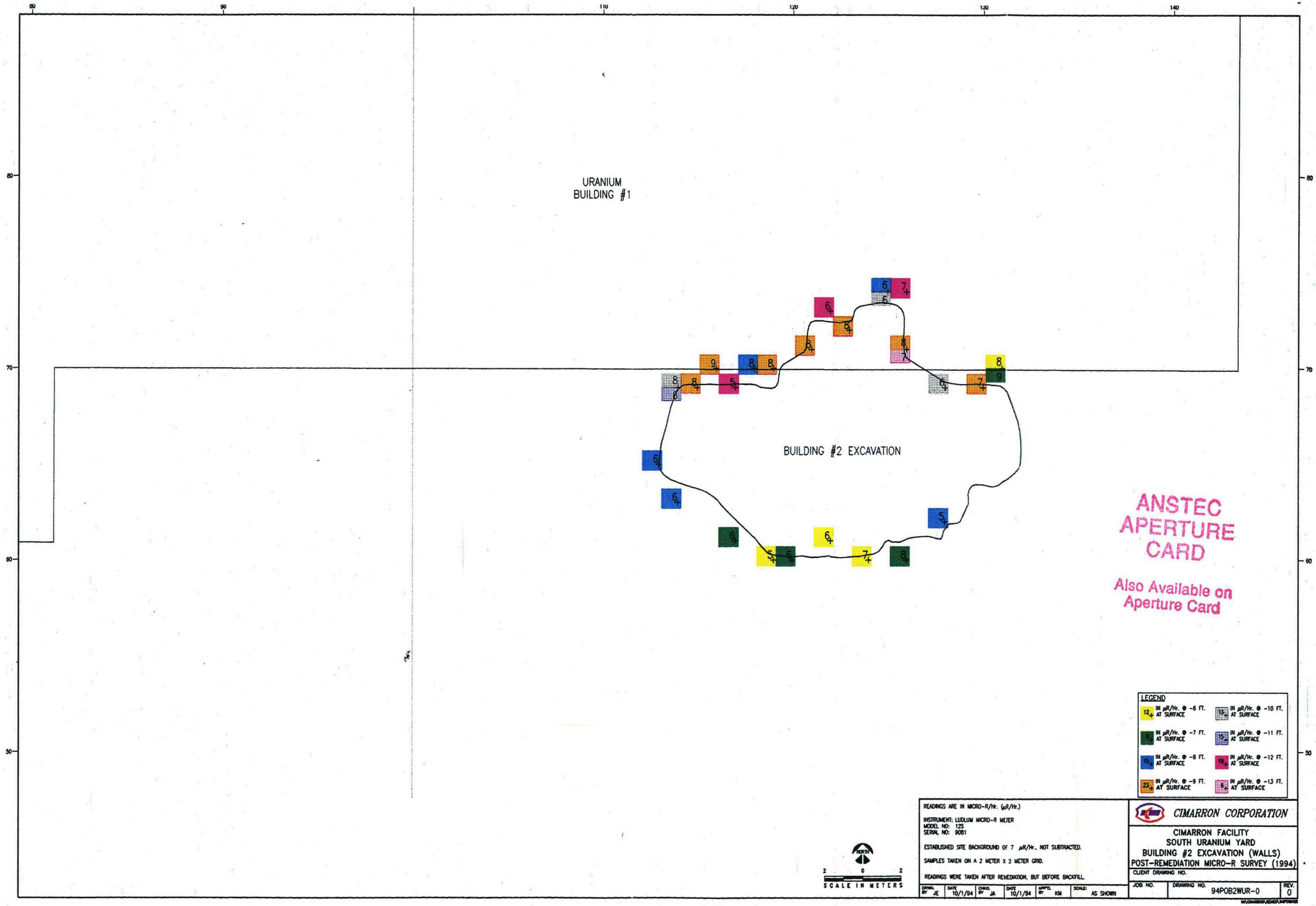
CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
BUILDING #2 EXCAVATION (WALLS)
POST-REMEDIATION GAMMA SURVEY (1994)

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POB2W3D-0	0

-125



LEGEND

- 12+ IN μR/Hr. @ -6 FT. AT SURFACE
- 8+ IN μR/Hr. @ -7 FT. AT SURFACE
- 15+ IN μR/Hr. @ -8 FT. AT SURFACE
- 23+ IN μR/Hr. @ -9 FT. AT SURFACE
- 5+ IN μR/Hr. @ -10 FT. AT SURFACE
- 5+ IN μR/Hr. @ -11 FT. AT SURFACE
- 10+ IN μR/Hr. @ -12 FT. AT SURFACE
- 5+ IN μR/Hr. @ -13 FT. AT SURFACE

NORTH

2 0 2

SCALE IN METERS

READINGS ARE IN MICRO-R/Hr. (μR/Hr.)

INSTRUMENT: LUDLUM MICRO-R METER
MODEL NO: 12S
SERIAL NO: 9081

ESTABLISHED SITE BACKGROUND OF 7 μR/Hr., NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER X 2 METER GRID.

READINGS WERE TAKEN AFTER REMEDIATION, BUT BEFORE BACKFILL.

DRWN. BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE:
JE	10/1/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
BUILDING #2 EXCAVATION (WALLS)
POST-REMEDIATION MICRO-R SURVEY (1994)

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POB2WUR-0	0

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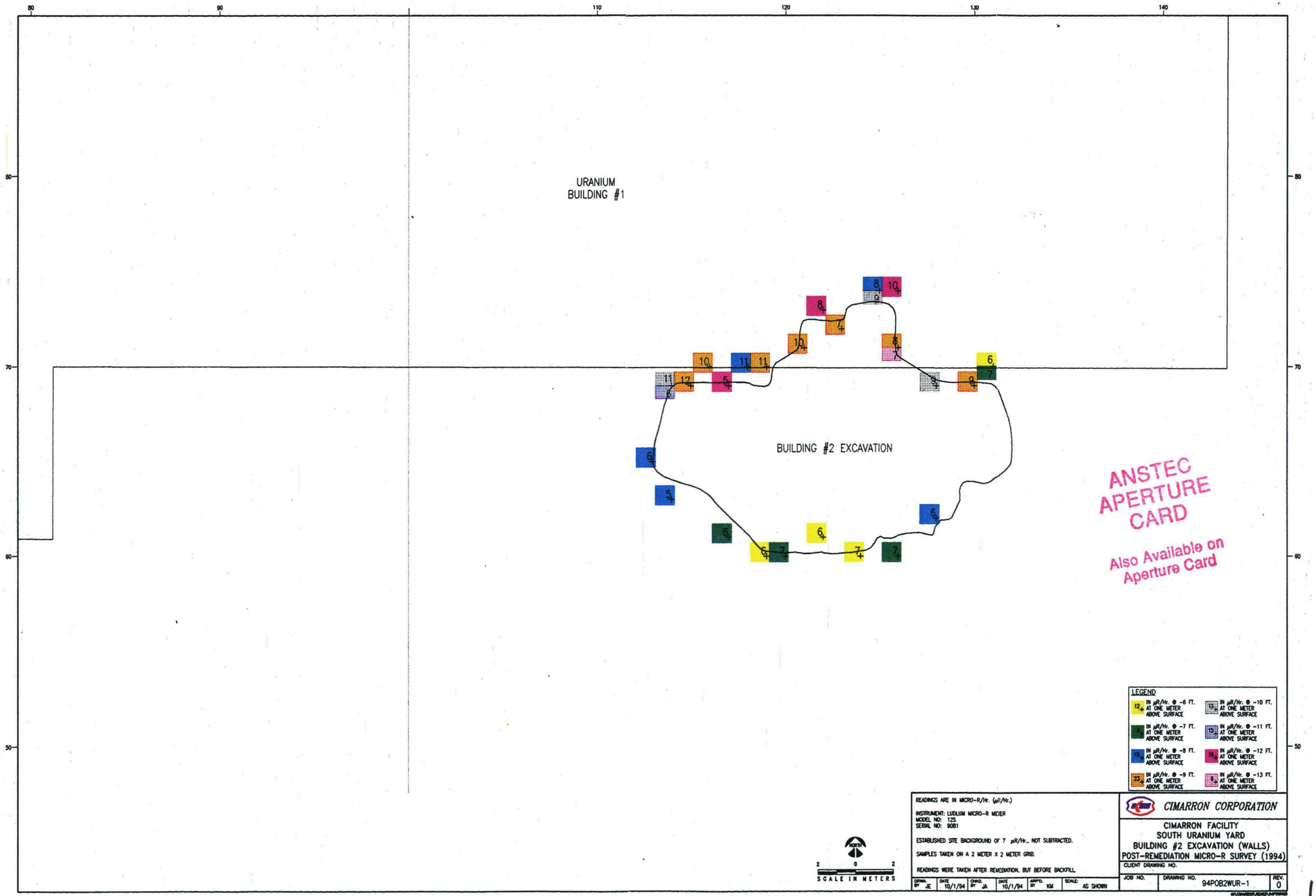
-126



READINGS ARE IN MICRO-R/Hr. (μR/Hr.)

INSTRUMENT: LUDLUM MICRO-R METER
MODEL NO: 125
SERIAL NO: 9081

ESTABLISHED SITE BACKGROUND OF 7 μR/Hr., NOT SUBTRACTED.

SAMPLES TAKEN ON A 2 METER X 2 METER GRID.

READINGS WERE TAKEN AFTER REMEDIATION, BUT BEFORE BACKFILL.

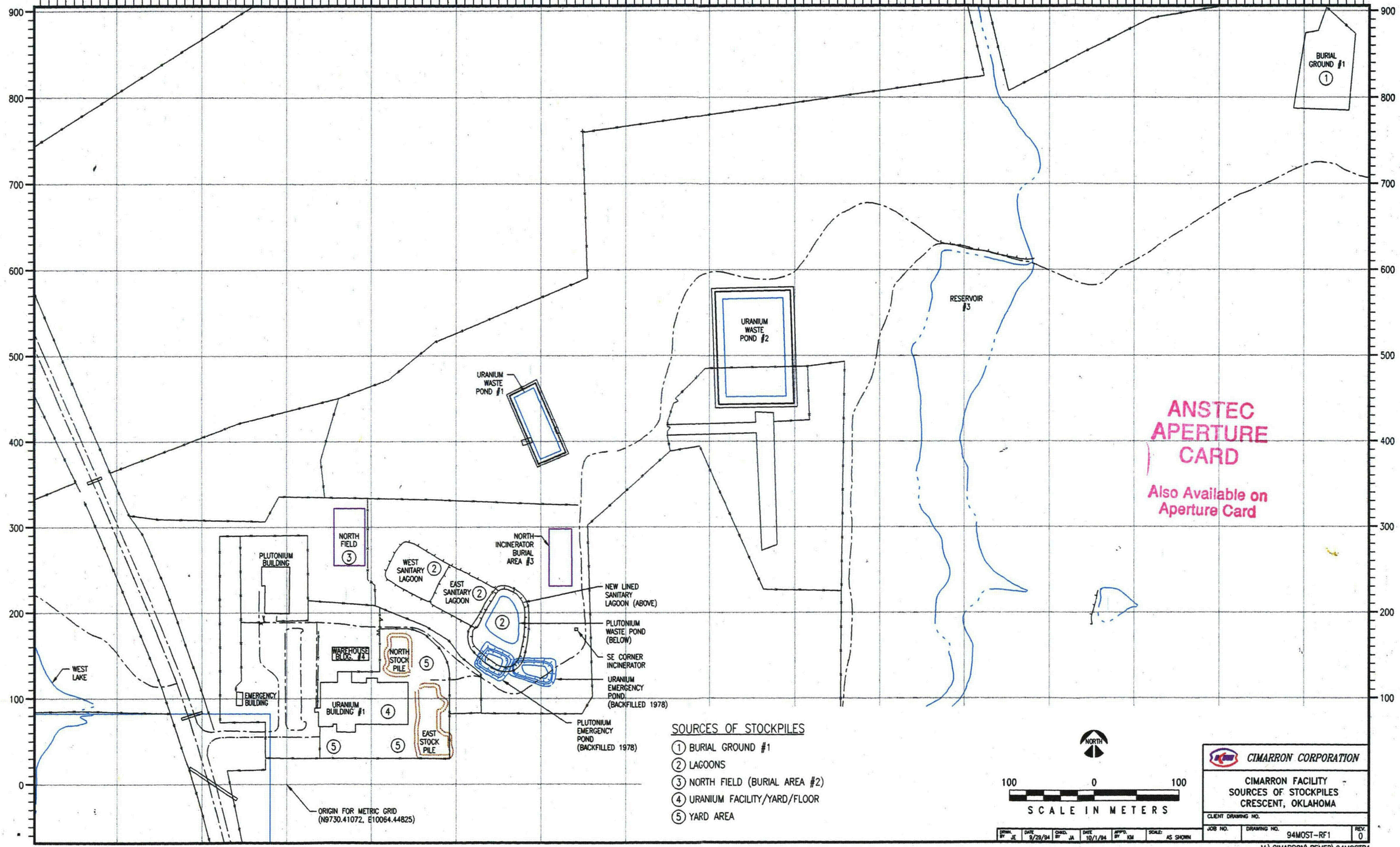
DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:
JE	10/1/94	JA	10/1/94	KM	AS SHOWN

CIMARRON CORPORATION

CIMARRON FACILITY
SOUTH URANIUM YARD
BUILDING #2 EXCAVATION (WALLS)
POST-REMEDIATION MICRO-R SURVEY (1994)

CLIENT DRAWING NO.

JOB NO.	DRAWING NO.	REV.
	94POB2WUR-1	0



ANSTEC APERTURE CARD

Also Available on Aperture Card

SOURCES OF STOCKPILES

(1) BURIAL GROUND #1
(2) LAGOONS
(3) NORTH FIELD (BURIAL AREA #2)
(4) URANIUM FACILITY/YARD/FLOOR
(5) YARD AREA

NORTH

100 0 100
SCALE IN METERS

CIMARRON CORPORATION

CIMARRON FACILITY
SOURCES OF STOCKPILES
CRESCENT, OKLAHOMA

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/29/94	JA	10/1/94	KM	AS SHOWN		94MOST-RF1	0

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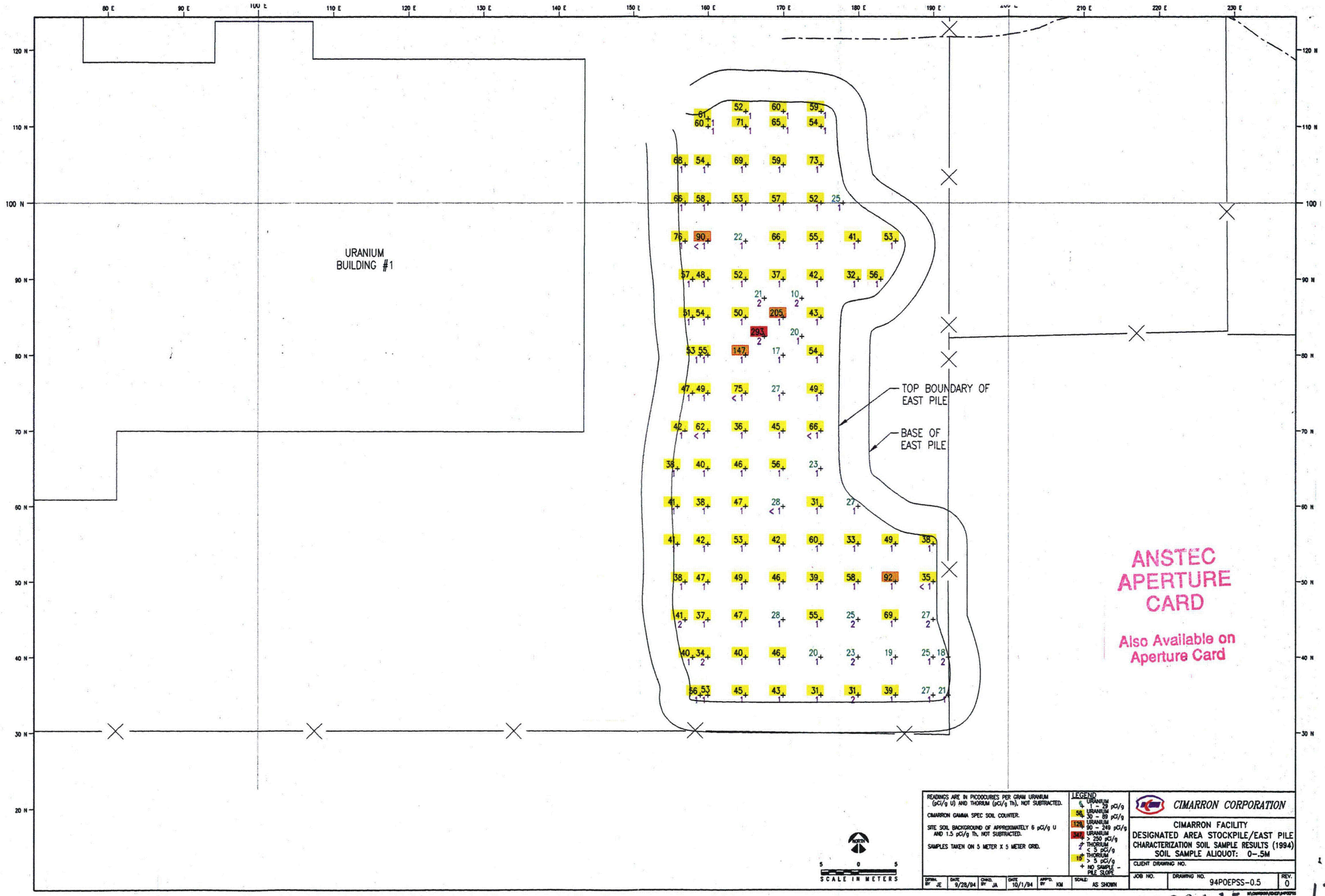
9412080115 -120



URANIUM
BUILDING #1

TOP BOUNDARY OF
EAST PILE

BASE OF
EAST PILE

READINGS ARE IN PICOCURIES PER GRAM URANIUM (pCi/g U) AND THORIUM (pCi/g Th), NOT SUBTRACTED.

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U AND 1.5 pCi/g Th, NOT SUBTRACTED.

SAMPLES TAKEN ON 5 METER X 5 METER GRID.

LEGEND
- 58 URANIUM 1 - 29 pCi/g
- 58 URANIUM 30 - 89 pCi/g
- 128 URANIUM 90 - 249 pCi/g
- 344 URANIUM > 250 pCi/g
- 2 THORIUM < 5 pCi/g
- 19 THORIUM > 5 pCi/g
- + NO SAMPLE - PILE SLOPE

SCALE IN METERS

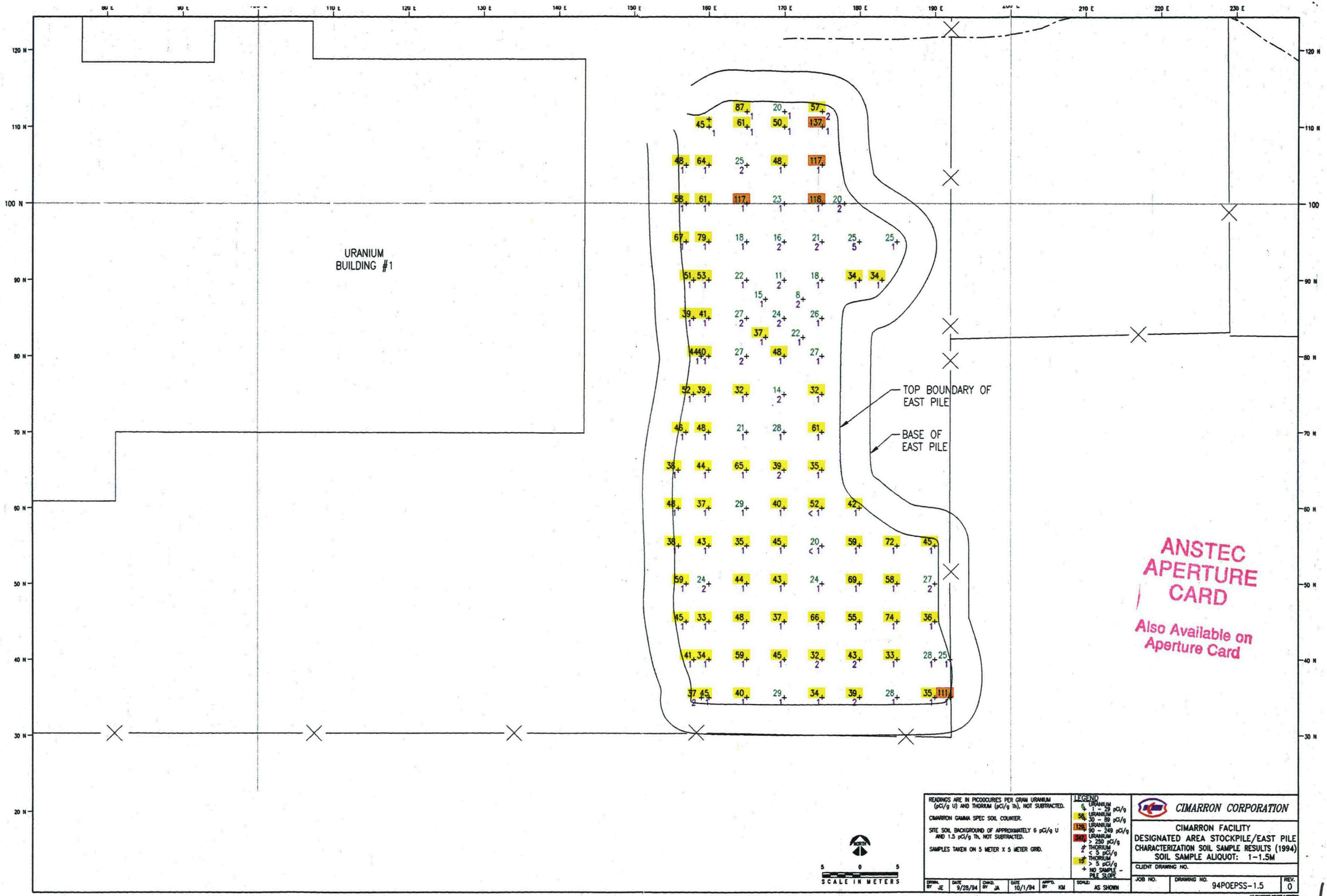
CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION SOIL SAMPLE RESULTS (1994)
SOIL SAMPLE ALIQUOT: .5–1M

CLIENT DRAWING NO.

DRAWN BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEPSS-1.0	0

130



READINGS ARE IN PICOCURIES PER GRAM URANIUM (pCi/g U) AND THORIUM (pCi/g Th), NOT SUBTRACTED.

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U AND 1.5 pCi/g Th, NOT SUBTRACTED.

SAMPLES TAKEN ON 5 METER X 5 METER GRID.

LEGEND
- 5 URANIUM 1 - 29 pCi/g
- 58 URANIUM 30 - 89 pCi/g
- 128 URANIUM 90 - 249 pCi/g
- 1547 URANIUM > 250 pCi/g
- # THORIUM < 5 pCi/g
- 15 THORIUM > 5 pCi/g
- + NO SAMPLE - PILE SLOPE

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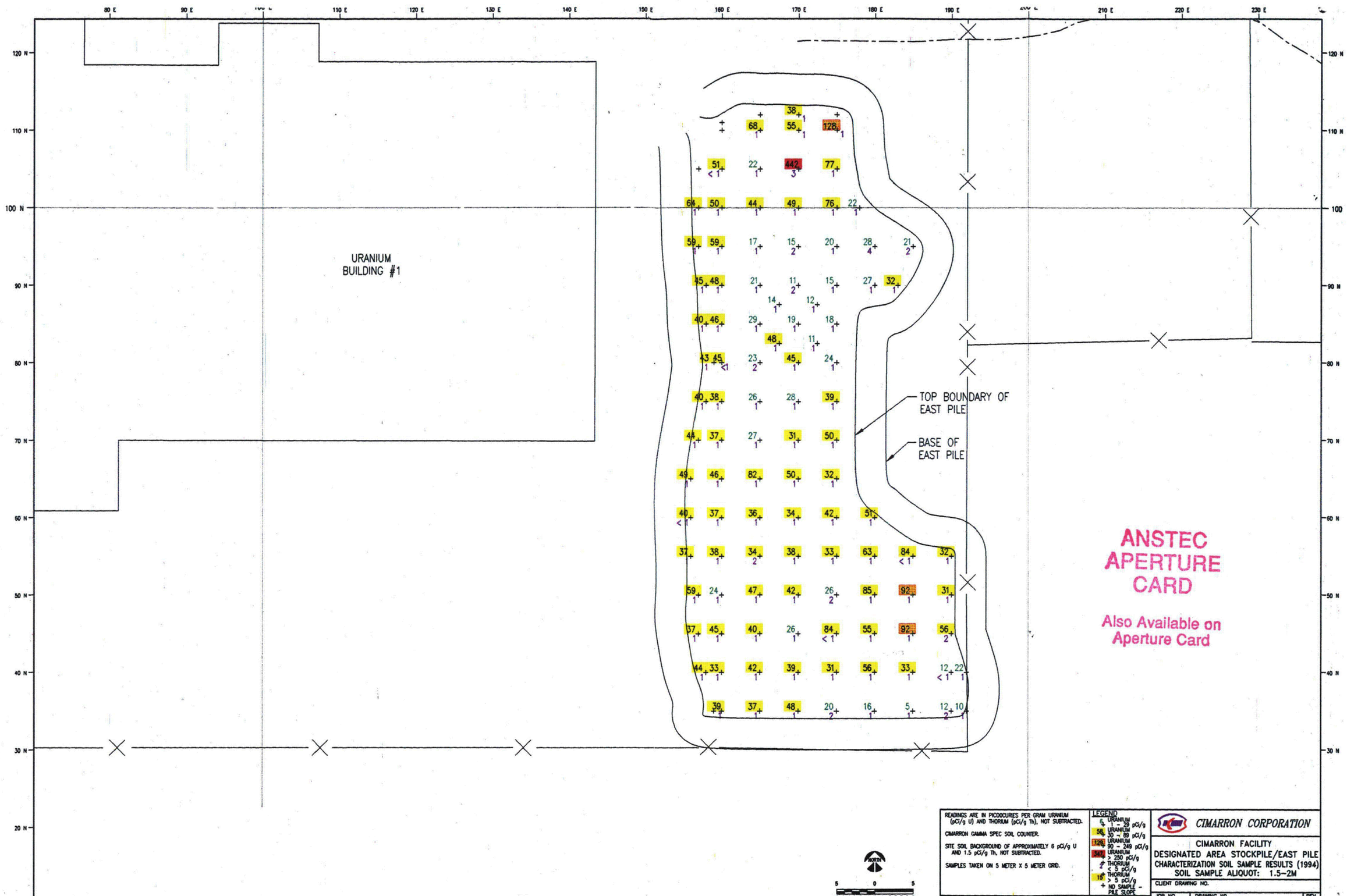
CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION SOIL SAMPLE RESULTS (1994)
SOIL SAMPLE ALIQUOT: 1-1.5M

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEPSS-1.5	0



READINGS ARE IN PICOCURIES PER GRAM URANIUM (pCi/g U) AND THORIUM (pCi/g Th), NOT SUBTRACTED.

CIMARRON GAMMA SPEC SOIL COUNTER.

SITE SOIL BACKGROUND OF APPROXIMATELY 6 pCi/g U AND 1.5 pCi/g Th, NOT SUBTRACTED.

SAMPLES TAKEN ON 5 METER X 5 METER GRID.

LEGEND

- 6 URANIUM 1 - 29 pCi/g
- 58 URANIUM 30 - 89 pCi/g
- 126 URANIUM 90 - 249 pCi/g
- 342 URANIUM > 250 pCi/g
- 2 THORIUM ≤ 5 pCi/g
- 15 THORIUM > 5 pCi/g
- + NO SAMPLE - PILE SLOPE

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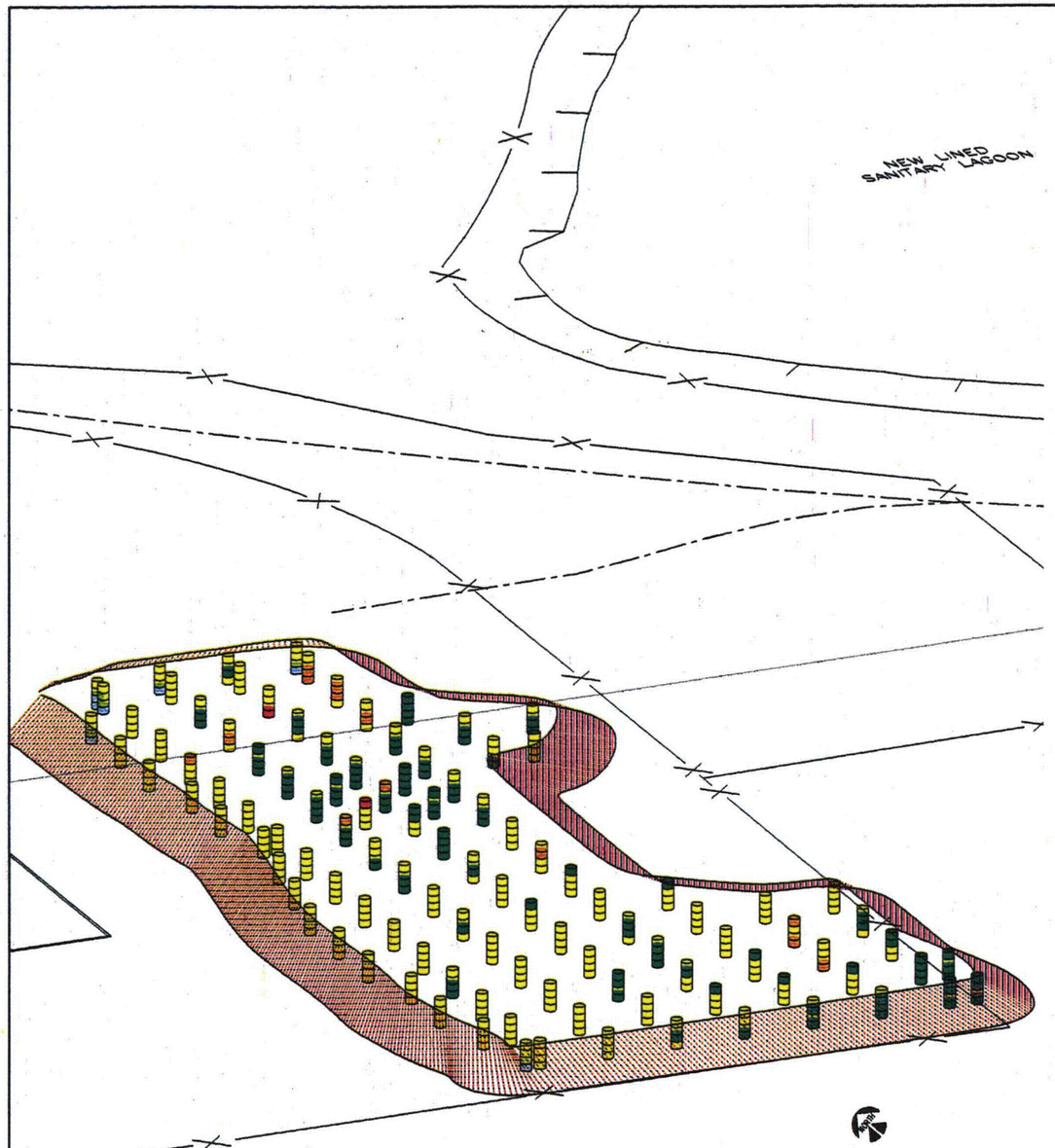
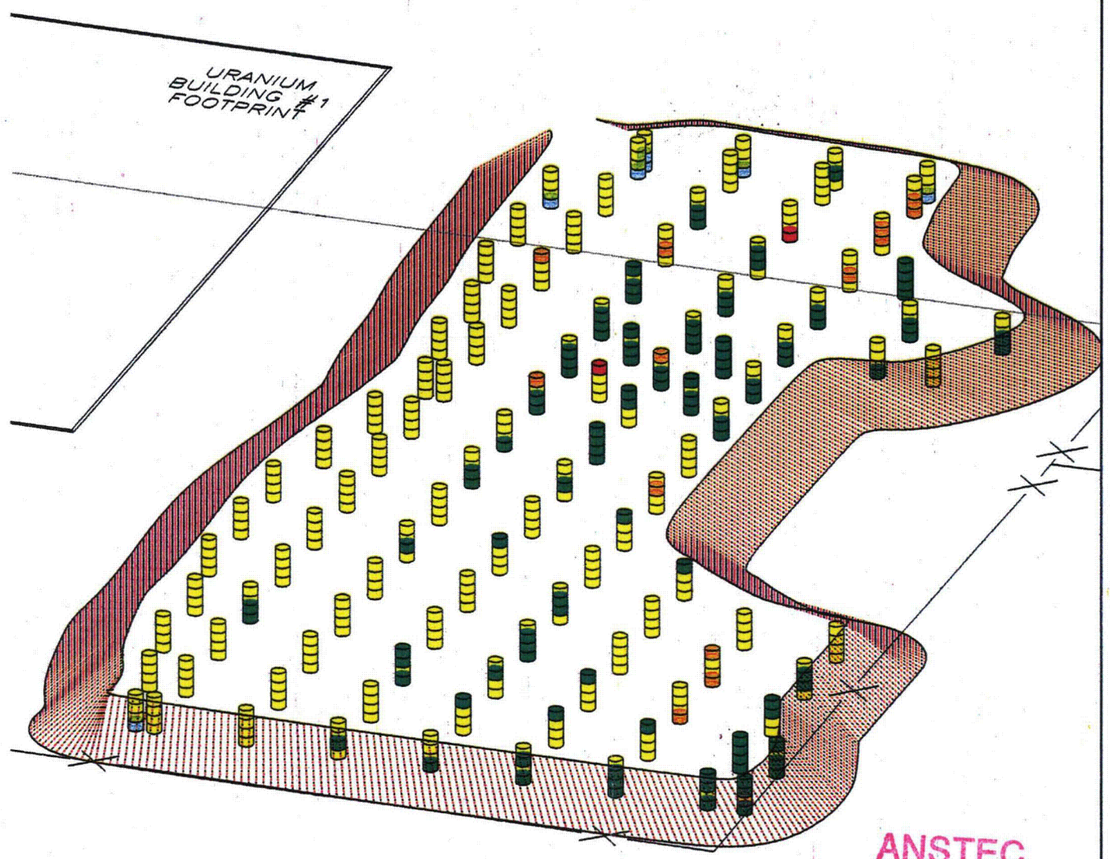
CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION SOIL SAMPLE RESULTS (1994)
SOIL SAMPLE ALIQUOT: 1.5–2M

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE:
JE	9/28/94	JA	10/1/94	KM	AS SHOWN

JOB NO. | DRAWING NO. 94POEPSS-2.0 | REV. 0





LEGEND

- 0 TO .5 M
- .5 TO 1 M
- 1 TO 1.5 M
- 1.5 TO 2 M

1 - 29 pCi/g U
30 - 89 pCi/g U
90 - 249 pCi/g U
> 250 pCi/g U

PILE SLOPE - NO SAMPLE

CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION SOIL SAMPLE RESULTS (1994)
SOIL SAMPLE ALIQUOTS: 0 TO 2M DEEP

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	NONE		94MOEPSS	0

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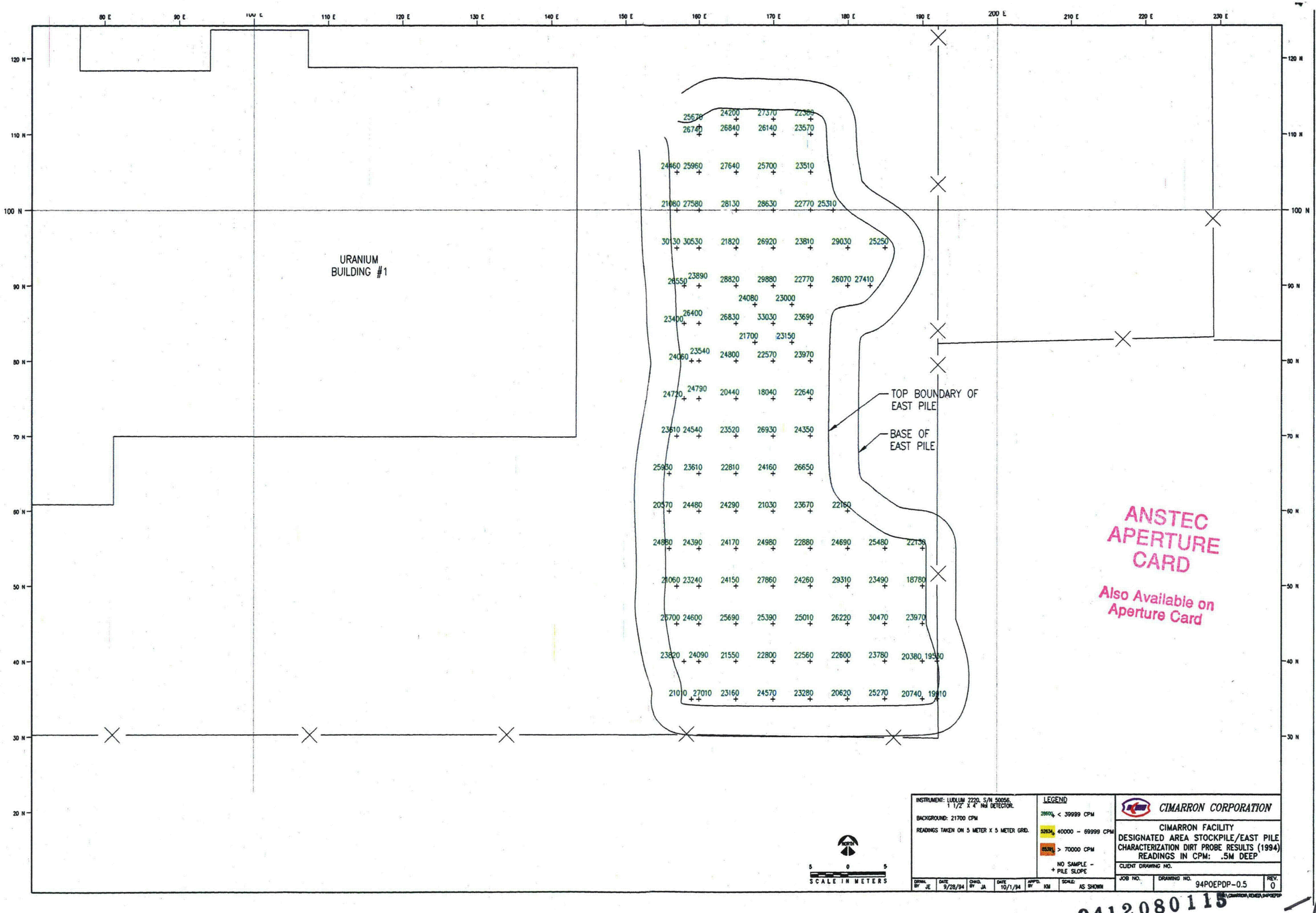

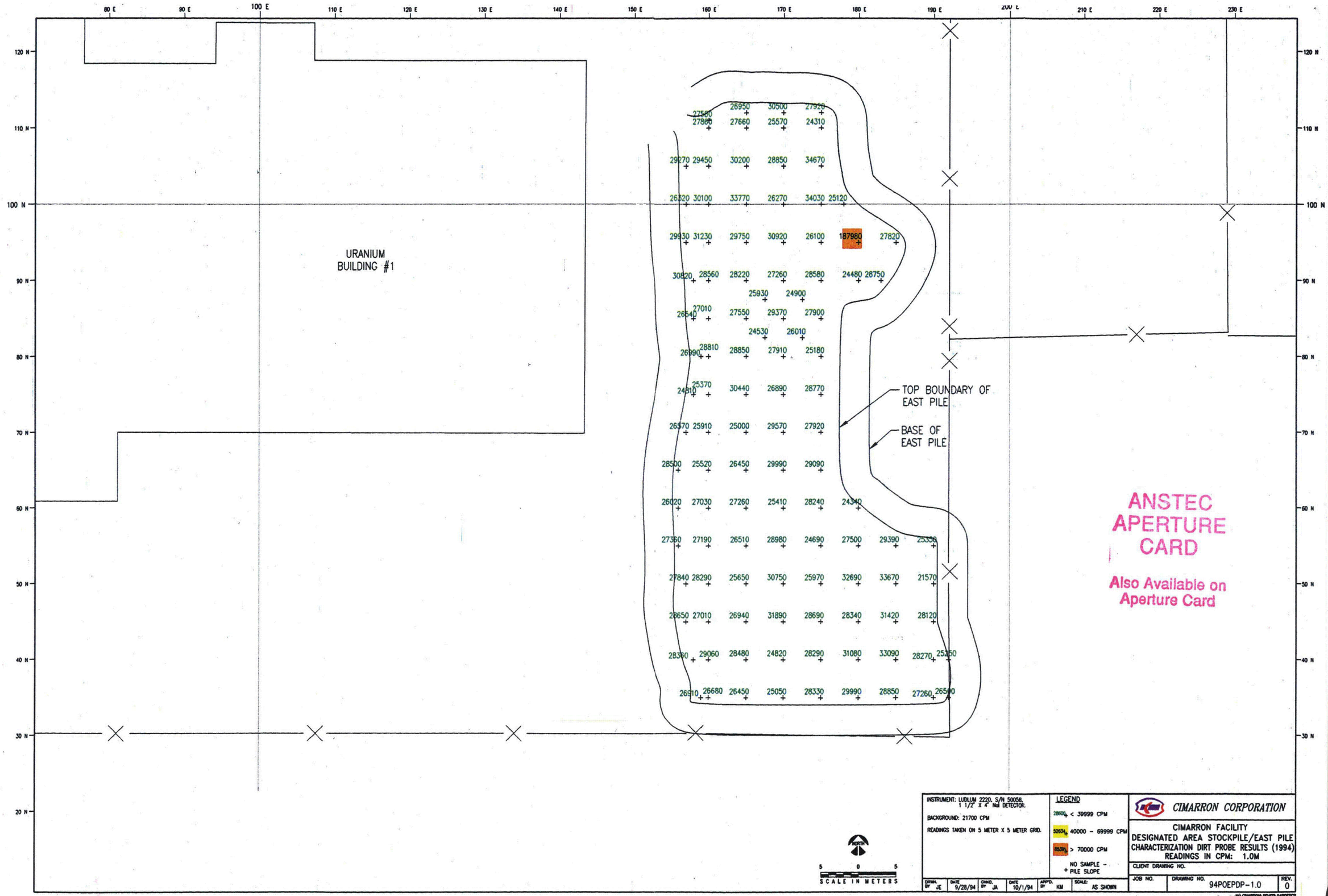

URANIUM
BUILDING #1

32500 26220 28340
28290 24960 41460
27450
28800 30200 28550 26790 39480
31220 29070 32970 27250 34670 28740
29700 36580 26490 28340 26640 29850 26470
26270 28860 28140 26720 27860 26150 27160
25130 25080
27770 27350 29030 27720 25630
21660 20380
28310 25830 30880 32270 25380
26300 26780 27630 25290 26120
27450 26730 21940 25460 28780
28500 27270 29710 28360 27960
26520 27340 22440 27940 32580 26930
27720 27190 27140 30270 26020 33330 32510 25280
28650 26700 28000 31170 26790 33870 29360 23460
29110 27000 28430 32630 34820 29590 33050 29620
27350 28140 30060 28780 28620 29380 31670 26790 26050
27010 28850 28830 24370 25860 29990 28180 26840 26820

TOP BOUNDARY OF EAST PILE

BASE OF EAST PILE

120 N 110 N 100 N 90 N 80 N 70 N 60 N 50 N 40 N 30 N 20 N

80 E 90 E 100 E 110 E 120 E 130 E 140 E 150 E 160 E 170 E 180 E 190 E 210 E 220 E 230 E

NORTH

5 0 5
SCALE IN METERS

INSTRUMENT: LUDLUM 2220, S/N 50056,
1 1/2" X 4" NaI DETECTOR.
BACKGROUND: 21700 CPM
READINGS TAKEN ON 5 METER X 5 METER GRID.

LEGEND
29600 < 39999 CPM
52634 40000 - 69999 CPM
85301 > 70000 CPM
NO SAMPLE -
+ PILE SLOPE

CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION DIRT PROBE RESULTS (1994)
READINGS IN CPM: 1.5M

CLIENT DRAWING NO.

DRAWN BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEPDP-1.5	0

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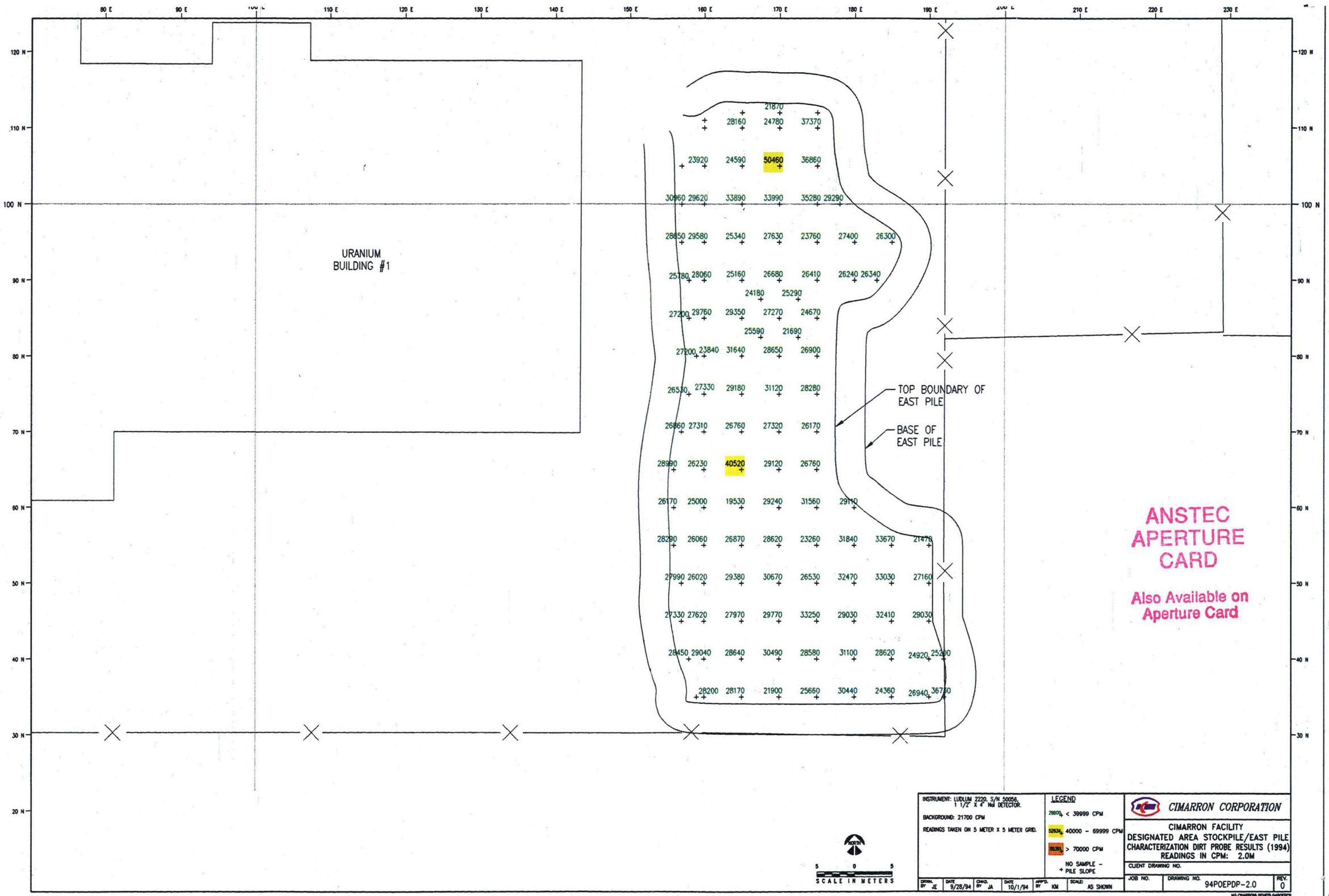
9412080115

136



INSTRUMENT: LUDLUM 2220, S/N 50056,
1 1/2" X 4" NaI DETECTOR.

BACKGROUND: 21700 CPM

READINGS TAKEN ON 5 METER X 5 METER GRID.

LEGEND

28600 < 39999 CPM

52534 40000 - 69999 CPM

85391 > 70000 CPM

NO SAMPLE -
+ PILE SLOPE

CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION DIRT PROBE RESULTS (1994)
READINGS IN CPM: 2.0M

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEPDP-2.0	0

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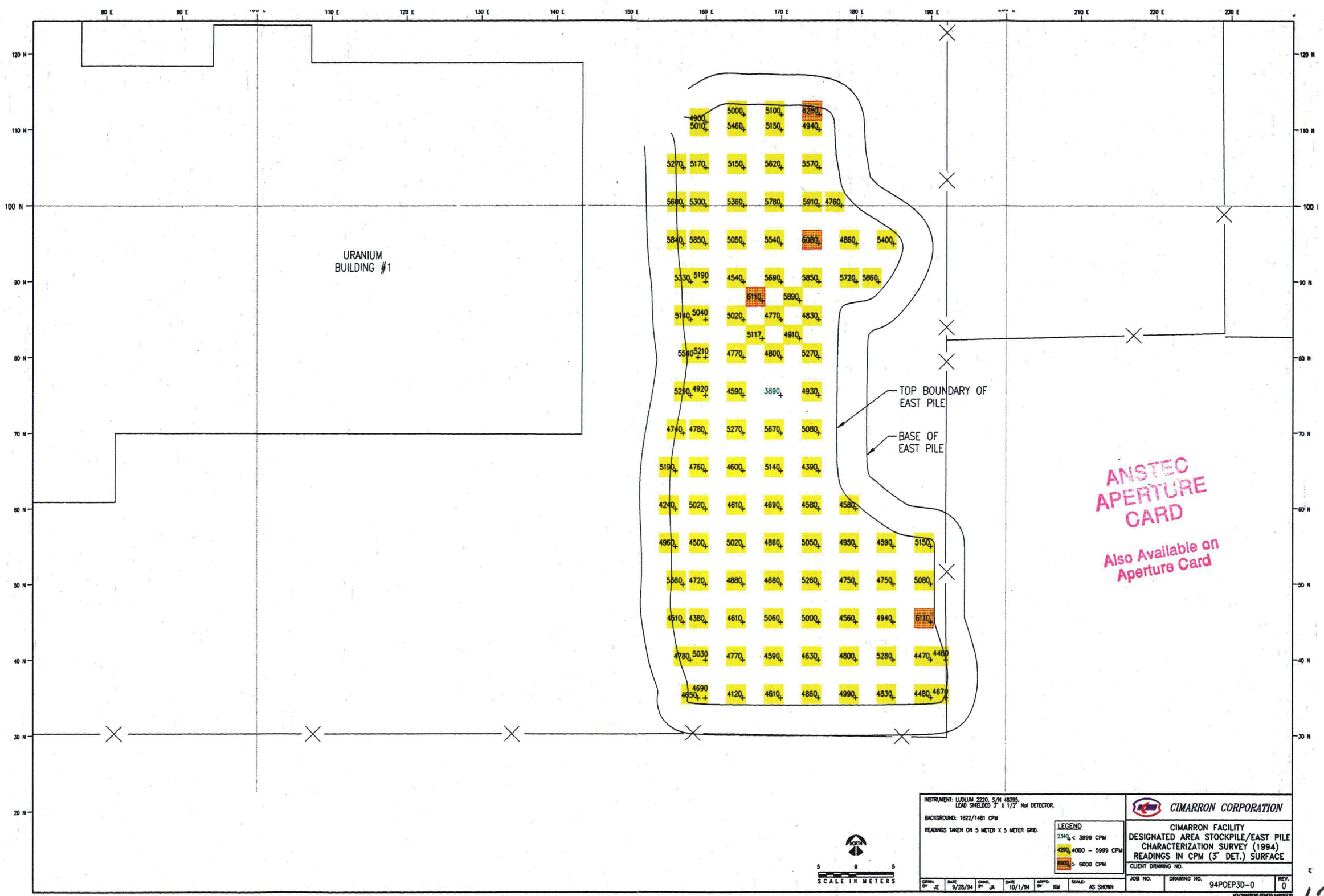

INSTRUMENT: LUDLUM 2220, S/N 48395.
LEAD SHIELDED 3" X 1/2" NaI DETECTOR.

BACKGROUND: 1622/1481 CPM

READINGS TAKEN ON 5 METER X 5 METER GRID.

LEGEND
2340 < 3999 CPM
4290 4000 - 5999 CPM
6100 > 6000 CPM

CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION SURVEY (1994)
READINGS IN CPM (3" DET.) SURFACE

CLIENT DRAWING NO.

DRWN. BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEP3D-0	0

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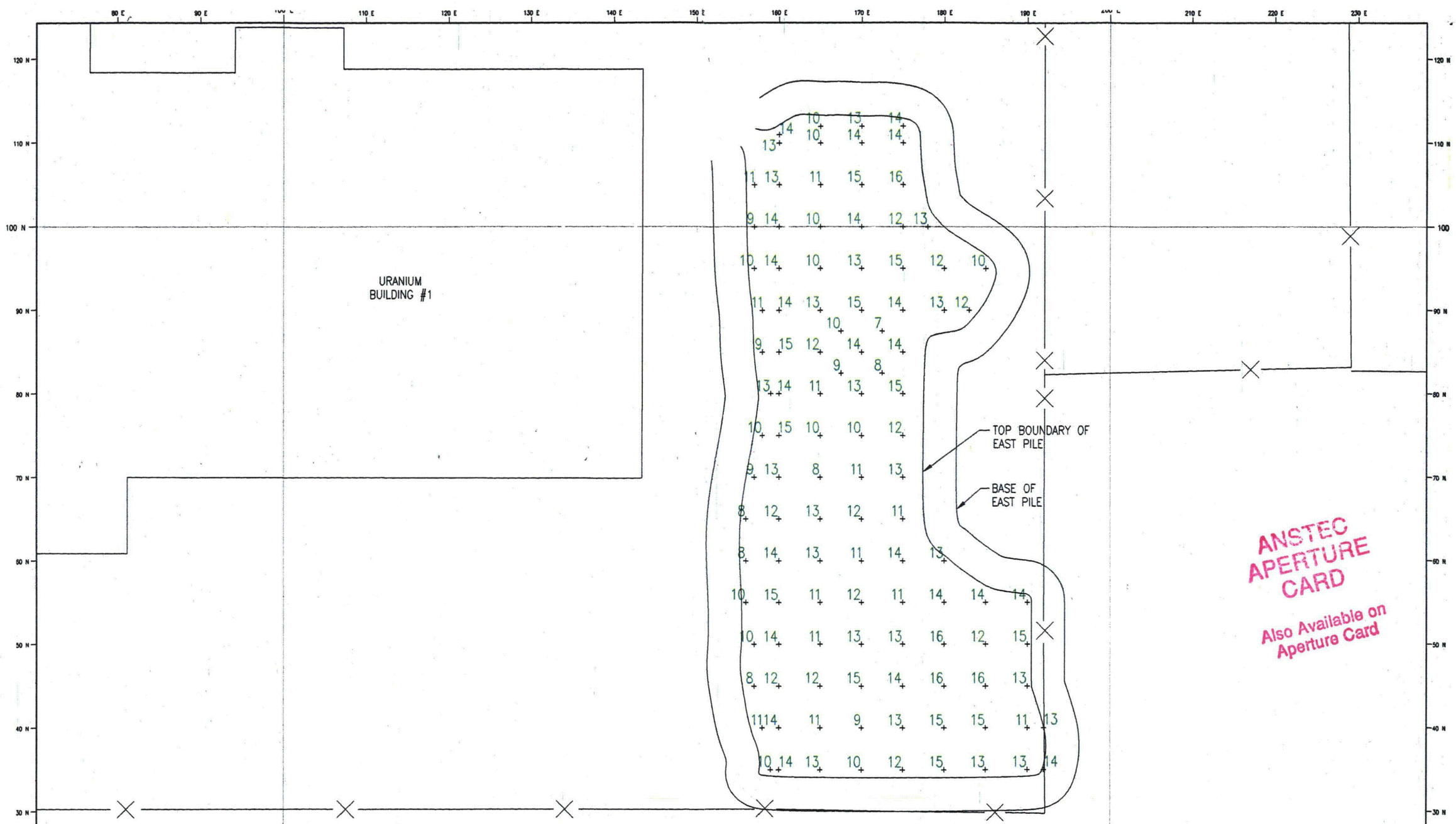

READINGS ARE IN MICRO-R/HR (μR/Hr).

INSTRUMENT: LUDLUM MICRO-R METER
MODEL NO: 125
SERIAL NO: 9081
BACKGROUND: 7 μR/Hr.

CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION MICRO-R SURVEY (1994)
AT LAND SURFACE

CLIENT DRAWING NO.

DRAWN BY	DATE	CHKD. BY	DATE	APPD. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEPUR-0	0

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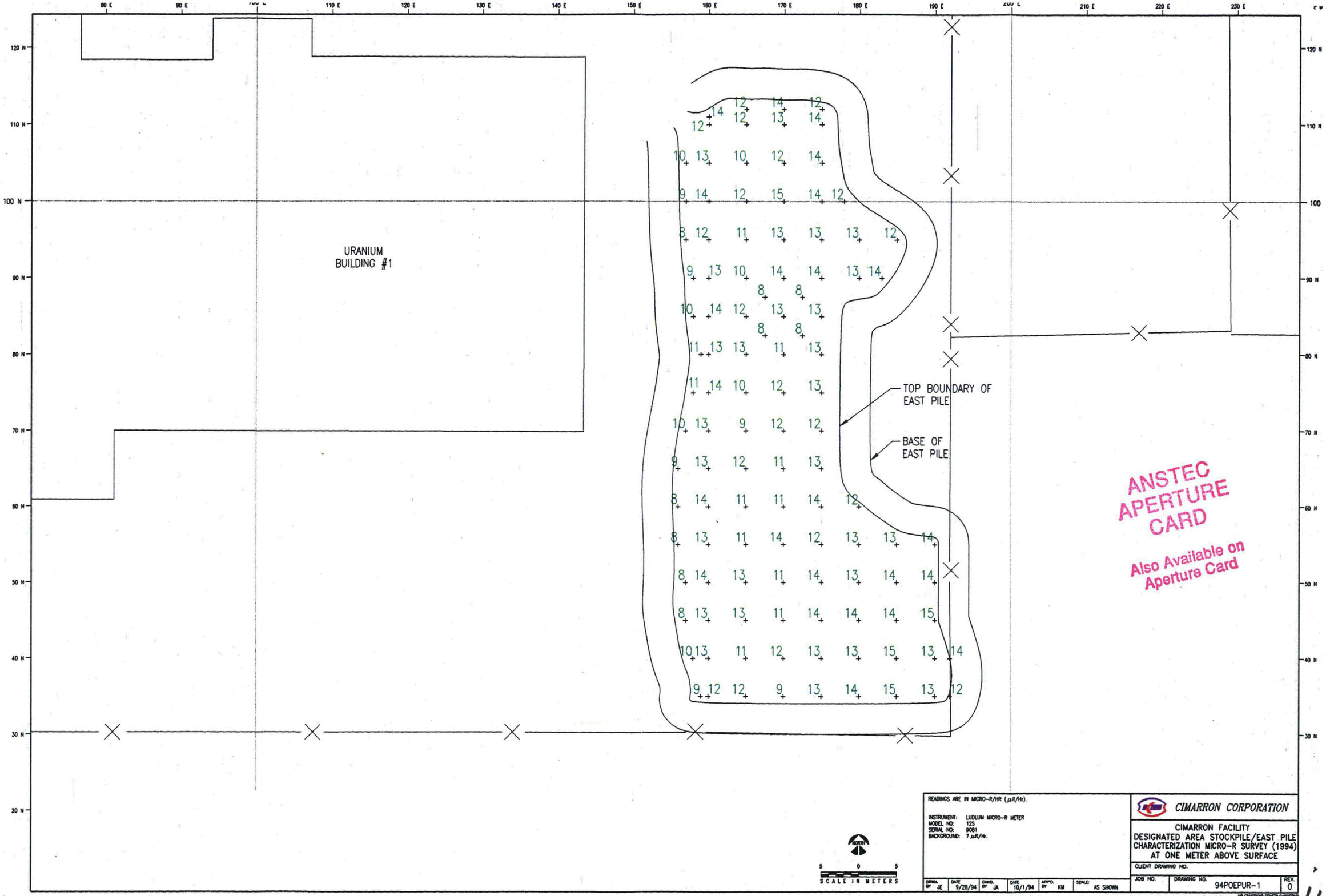

READINGS ARE IN MICRO-R/HR (μR/Hr).

INSTRUMENT: LUDLUM MICRO-R METER
MODEL NO: 125
SERIAL NO: 9081
BACKGROUND: 7 μR/Hr.

CIMARRON CORPORATION

CIMARRON FACILITY
DESIGNATED AREA STOCKPILE/EAST PILE
CHARACTERIZATION MICRO-R SURVEY (1994)
AT ONE METER ABOVE SURFACE

CLIENT DRAWING NO.

DRAWN BY	DATE	CHKD. BY	DATE	APP'D. BY	SCALE:	JOB NO.	DRAWING NO.	REV.
JE	9/28/94	JA	10/1/94	KM	AS SHOWN		94POEPUR-1	0

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