



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
DISTRICT I - P.O. Box 2536
Milan, NM 87021 Tel. #287-8845
RUSSELL F. RHOADES, Director

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

MEMORANDUM

TO: Jerry Stewart, Radiation Protection Bureau
FROM: Theodore G. Brough, Environmental Scientist III, Milan
DATE: October 12, 1982
SUBJECT: RADON MEASURED AT RANCHER'S JOHNNY M MINE

Four Radon gas samples were taken over the earth covered, cleaned up areas at the backfill operations of the Johnny M Mine. The results are as follows:

Sampling time September 1-3 (48 hour bag sample):

Near North Bore Hole = 0.49 pci/l

200 ft. W. of N. Bore Hole, over fill = 0.77 pci/l

Near South Bore Hole = 0.38 pci/l

300 ft. S. of South Bore, over fill = 0.91 pci/l

Simultaneous 24-hr. Radon measure at Feight, Sta. 414 = 1.99 pci/l
(average 2 yr. conc = 1.60 pci/l)

Simultaneous 48-hr. Radon measure at Milan, Sta. 211 = 0.67 pci/l
(average 2 hr. conc = 0.358 pci/l)

Since the concentrations at the two check points (414 and 211) were 1.60 and 1.86 times their respective 2-yr. averages, (av = 1.55 x), the Ranchers samples are deduced to be 1.55 times their respective annual averages. Correcting, we get as a probable annual average:

N Bore Hole area = $0.41 \pm .16$ pci/l

S Bore Hole area = $0.42 \pm .24$ pci/l.

jq

xc: Charles Landauer, Santa Fe
Jere Millard, Santa Fe
File

9808140030 821012
PDR ADOCK 04008914
C PDR

Handwritten:
Mark Turner
287-8886
Call around
8

Handwritten:
Memo 1

Memorandum for file

Radiochemical analysis of soil samples from Rancher's Johnny-M Mine. (Ra-226)

Analysis done by Eberline in their Albuquerque Laboratories.

The results, reported 11/10/82 were as follows:

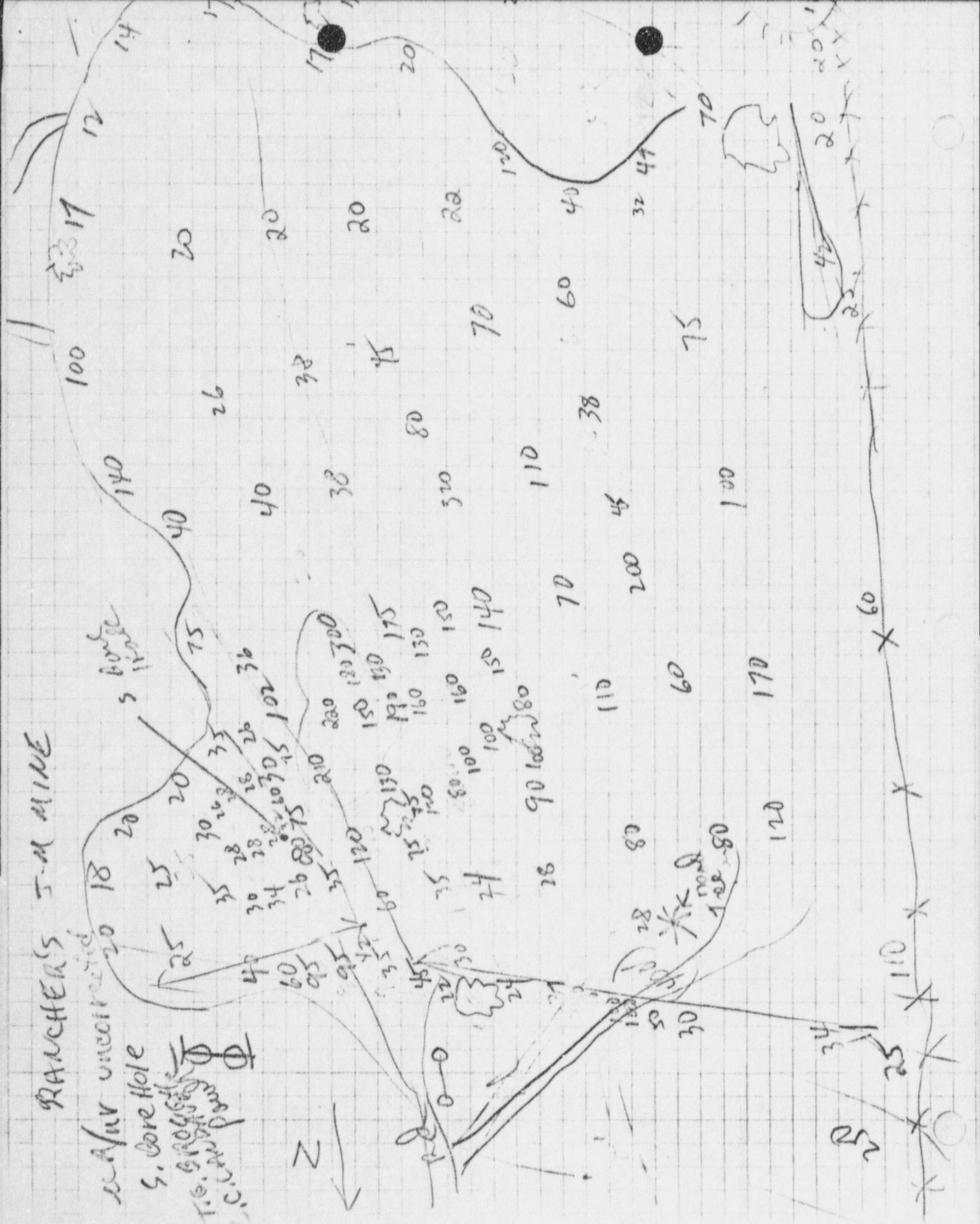
<u>SAMPLE</u>	<u>TYPE</u>	<u>DATE COLLECTED</u>	<u>Pci/g(dry)</u> Ra-226
R-N-1	N Bore hole, Westside. Composite of fill material from base of cliff (Samples X1, X2, X8, X9, composited)	9/1/82	45 $\pm$ 14
R-N-2	N Bore Hole, NE Side Composite of fill material from edges and side of Rd. fill (Samples X10, X11, X12, composited)	9/1/82	68 $\pm$ 10
R-N-3	N Bore Hole, across Fill Near bore hold (Samples X3, X4, X5, X6, X7, composited)	9/1/82	62 $\pm$ 19
R-S-1	S Bore Hole, composite of fill material from base of hills of SE border (6 samples composited)	9/1/82	24 $\pm$ 7
R-S-2	S Bore Hole, composite of samples taken across covered area from SE to NW (7 samples composited)	9/1/82	68 $\pm$ 20

Memo 2

RANCHER'S T-M MINE

WATER UNCOVERED
S. CORE HOLE
T.E. GRACEY
C. J. GRACEY

N
←



CUSTOMER EID
 ATTENTION Jere Millard
 ADDRESS Radiation Protection Bureau
 Santa Fe, New Mexico 87503
 CITY
 S.O. NO. 8188 (E-815)



Radiochemical analyses of soil samples.

TYPE OF ANALYSIS

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 9/23/82

Customer Identification	Date Collected	Type of Analysis	pCi/g (dry)	Total WT. wet/dry (g)
G-1 South Side Composite	8/25	Ra-226	0.5±0.2	1052/968
G-2 North Side Composite	8/25	Ra-226	0.5±0.2	1009/965
G-3 West Panel	8/25	Ra-226	1.5±0.5	299/257
R-N-1 N Bone Hole ^{W side}	9/1	Ra-226	45±14	1222/1154
R-N-2 N Bone Hole ^{N side}	9/1	Ra-226	68±20	1283/1225
R-N-3 N Bone Hole ^{Across over}	9/1	Ra-226	62±19	1134/1086
R-S-1 S Bone Hole = Fill	9/1	Ra-226	24±7	1112/1059
R-S-2 S Bone Hole = over covered area	9/1	Ra-226	68±20	1168/1115

2σ error = 41% for N Bone Hole
 = 95% for S Bone Hole

(Highest reading =

Standards for fill North = 207 ± 85 ^{nr/nr} ~ 292 max

South = 167 ± 159 ~ 326 max limit

Highest reading = 312

$$S.E._m = \sqrt{4 \times 6.1 \text{ CPM}} = \frac{15.4}{15.4}$$

$$S.E._1 = 3.74$$

$$= \frac{15.4}{15.4} = \sqrt{15.4} \sim \sqrt{14}$$

☐ REPORTED VIA TELEPHONE

☐ REPORTED VIA TWX

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Eberline

A DIVISION OF
Thermo Electron
 CORPORATION

Chandrashekar

11/10/82

DATE

FORM #

2/10/82	Meter	PIC	Ratio:	Swivel (ft)	Comp.	Gross
	in/hr		PIC/yr/hr	σ	Rad (in/yr)	cm
JM-1	5.5	15.29	2.78	.247	1.3	28.6
JM-2	4.63	(14.54)	(3.14)		1.7	15.76
JM-2A	4.25	16.38	3.85	.325		
JM-3	16.75	36.60	2.19	.279	1.6	9.18
JM-4	6.75	18.69	2.77	.336	2.1	7.52
JM-6					1.2	
JM-7	4.50	17.24	3.83	.523	3.7	3.66
JM-8	4.50	15.33	3.71	.307		
JM-9	4.5	(14.18)	(3.14)		1.6	4.04
JM-10	4.13	(12.97)	(3.14)		1.3	3.52
JM-11	4.50	19.40	4.31		1.5	2.33
JM-12	4.50	22.49	5.00	.638	3.3	2.58
JM-13	6.75	29.09	4.31	.505	0.9	6.02
JM-14	4.75	(14.92)	(3.14)		1.7	12.2
JM-15	4.25	(13.35)	(3.14)		1.3	6.86
JM-16	4.25	(13.35)	(3.14)		0.6	3.98
F11C	5.88	(25.34)	(4.31)		1.0	6.55
F11B	6.88	(29.65)	(4.31)		2.5	16.4
GA 507	40.0	(172.40)	(4.31)		5.5	49.98
GA 507A	50.	(215.50)	(4.31)		1.3	37.12
GA 507B	11.0	(47.41)	(4.31)		1.9	5.40

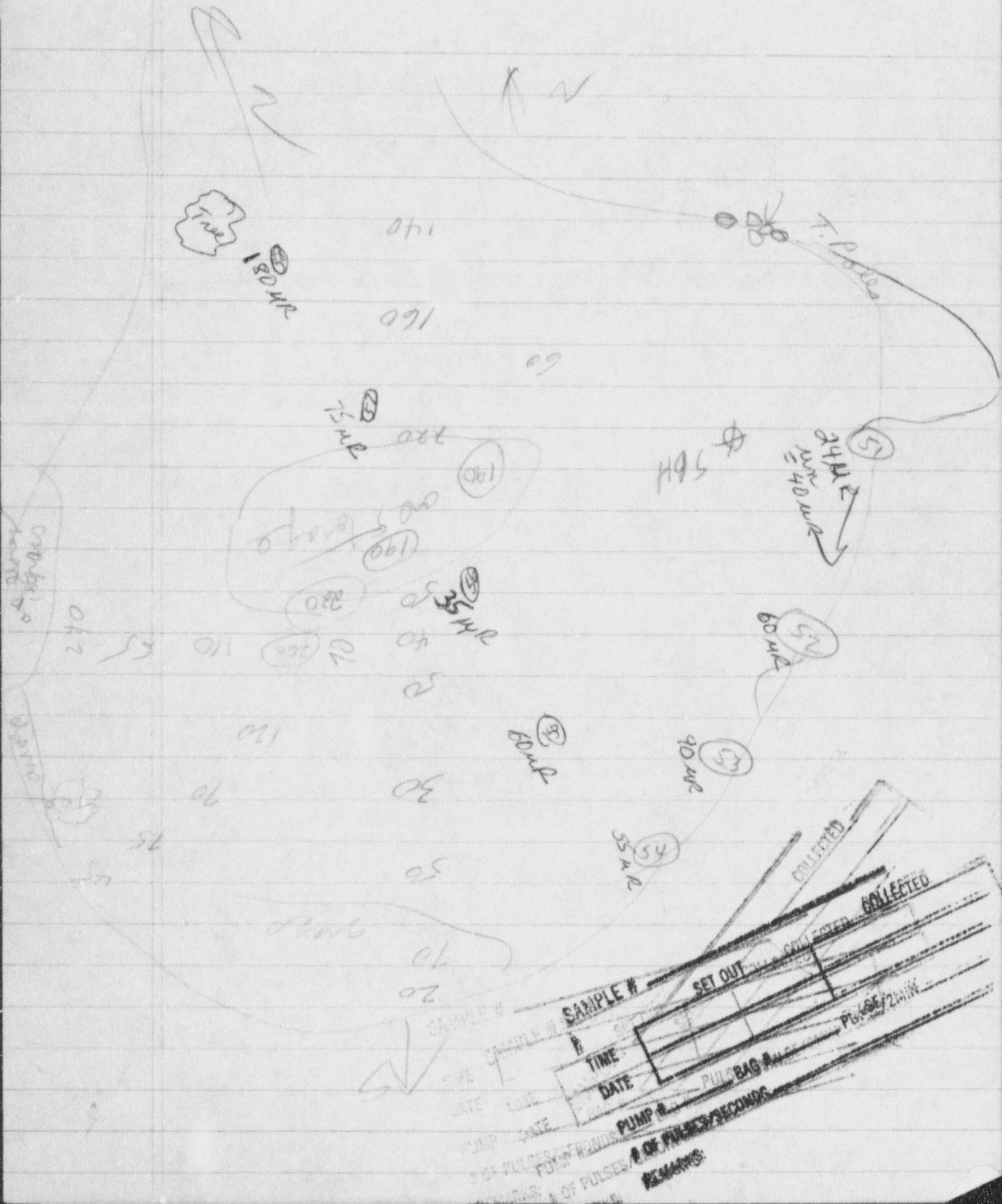
Sta	Sealant	Pick up	cool	Count	Back	Count	Δt	Δt	Δt	hrs	Net	tot	Pair	$\pm$	cor	
JM-2	2/10/82	11:55	2/12	12:11	6:23	16:00	56	121	21.95	1.24	65	176	0.2687	$\pm$	0.548	
JM-2	2/15	10:10	2/17	10:10	2:33	68:25	45	151	46.25	1.42	106	196	0.8049	$\pm$	1.063	
JM-1	2/17	10:03	2/19	10:10	2:14	15:37	44	99	29.50	1.25	55	143	0.3035	$\pm$	.0660	
JM-2	3/2	09:26	3/4	09:39	6:00	223	16:21	41	88				0.3342	$\pm$	.0804	
JM-1	2/10/82	11:55	2/12	12:05	5:20	16:00	45	129	28.08	1.24	84	174	0.2687	$\pm$	0.548	
JM-2	2/11/82		2/17										0.7621	$\pm$	1.002	
JM-1	2/12/82	09:22	3/4	09:35									0.0185	$\pm$	.0621	
JM-1	2/02/82		2/10/82										0.2762	$\pm$	.0741	
for	2/19/81	12:19	1/10/82	2:07	2:45	228	17:05	54	88	5.28	1.00	34	142	0.1971	$\pm$	.0691

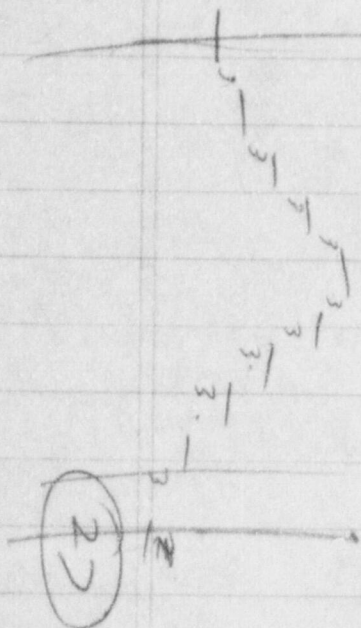
PAM-7
 serial 167 calibration check
 at meter (Elevated) March 6, 1983

28 days

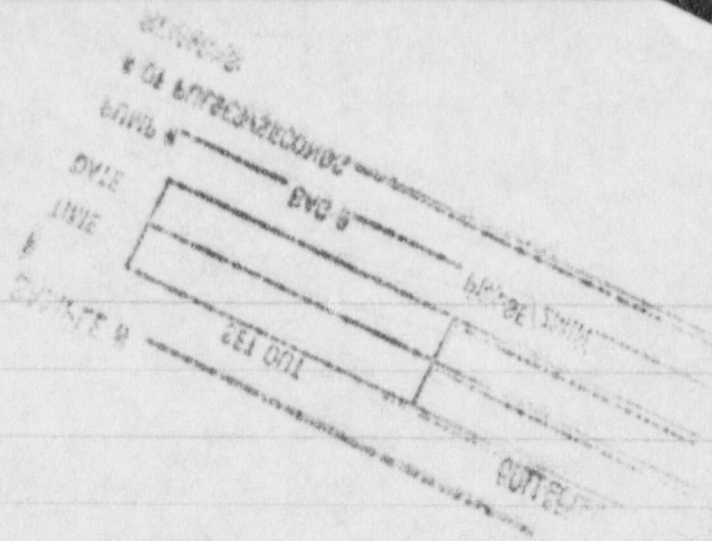
at	Scale	Reading	Ref Reading	Ratio	conversion factor
100 cm	25 scale	14	16.6	$1.2 \times$	$= 1.2 \times$ for 25 scale
80 cm	25	16	20.3	$1.3 \times$	
71 cm	25	20	23.2	$1.2 \times$	
100 cm	50	8.0 16.0	16.6	$1.04 \times$	$= 1.2 \times$ for 50 scale
60 cm	50	22	28.33	$1.29 \times$	
50 cm	50	30	36.40	$1.21 \times$	
40 cm	50	40	51.25	$1.28 \times$	$= 1.40 \times$ to 150
30 cm	500	60	83.3	$1.38 \times$	
20	500	125	175.	1.40	
15	500	190	393.	2.06	$= 2.10 \times$ 150 to 500
10	500	310	670.	2.16	
5	5000	1300	2650	2.00	

$2 \times$ for over 500





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GOMEZ
Homestake ENV
Feights
San MATED
Phillips
Am Lk P.O.
Anderson Trucking



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