

080324
M-131

Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for Maywood, New Jersey



U.S. Department of Energy

080324

M-131

91-564



Department of Energy

Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831—

August 19, 1991

Mr. Robert J. Wing
Federal Facilities Section
U.S. Environmental Protection Agency
Region II
Jacob K. Javits Federal Building
New York, New York 10278

Dear Mr. Wing:

QUARTERLY REPORT FOR THE MAYWOOD AND WAYNE SITES AS REQUIRED BY THE FEDERAL FACILITY AGREEMENTS

The purpose of this letter is to transmit the quarterly report for the Maywood and Wayne sites as required by Section XX(A) of the Federal Facility Agreement (FFA) for each site. If you have any comments on the format or content of these reports, please provide them to me before the next quarterly reports are to be issued.

If you have any questions, please contact me at (FTS) 626-1830 or (615) 576-1830.

Sincerely,

A handwritten signature in black ink, appearing to read "William M. Seay".

William M. Seay, Deputy Director
Former Sites Restoration Division

Enclosures: As stated

cc: M. E. Redmon, BNI
W. McNeill, SAIC
J. Gratz, EPA Region II

QUARTERLY REPORT FOR THE WAYNE SITE
FEDERAL FACILITY AGREEMENT REQUIREMENT XX(A)

Reporting Period 4/22/91 - 7/22/91
Report Date: 8/16/91

I. GENERAL INFORMATION

The Federal Facility Agreement (FFA) between the Department of Energy (DOE) and Environmental Protection Agency (EPA) became effective April 22, 1991.

DOE has issued copies of the FFA to the contractors responsible for performing work under the FFA as required by Section XXVII.

II. FFA COMPLIANCE

On June 4, DOE submitted proposed schedules for deliverables as required under Section XVI of the FFA. Comments on these schedules were received from EPA on July 12; a meeting between DOE and EPA will be held on August 20 to discuss related issues.

On May 29 and May 30, DOE initiated discussions with EPA and NJDEP regarding the identification of state and federal applicable or relevant and appropriate requirements (ARAR) as required by Section XI; we have received no response to date.

On May 29, under Section XXII, DOE notified EPA that Mr. William Seay will be acting project manager for the Wayne site until a replacement is identified.

On May 31, DOE informed EPA, per Section III, of the two primary contractors responsible for specific tasks under the FFA.

On June 21, a conference call was held between DOE and EPA in lieu of a meeting as required by Section XIV of the FFA. This call provided for an exchange of general information.

The NESHAPS air emissions annual report was sent to Mr. Paul Giardina, Radiation Branch Manager, EPA Region II; a copy is attached as required by Section XXVIII. Also attached is a copy of a calculation showing that the radon flux potential at the Wayne site is much less than the 40 CFR 61.192 standard, therefore radon flux measurements were not made at Wayne.

III. ON-SITE ACTIVITIES

None.

IV. ENVIRONMENTAL DOCUMENTATION

The work plan, field sampling plan, quality assurance project plan, health and safety plan, and community relations plan were submitted to EPA and NJDEP on June 28, as draft finals for review and comment. A partial list of comments from EPA were received on August 1 with the complete set of comments received on August 7; no comments have been received from NJDEP to date.

V. PLANNED SIGNIFICANT EVENTS

DOE and EPA will meet on August 20 to discuss the schedules for deliverables under Section XVI of the FFA. This meeting will also serve as the required 60-day meeting under Section XIV.

DOE plans to have a new project manager for the New Jersey sites, including Wayne, in August. We will notify EPA when the new project manager is on board.

Hopefully, the work plan and ancillary documents will have all comments resolved between DOE and EPA during the upcoming quarter.

DOE is currently planning to complete the field work associated with the remaining remedial investigation of the Wayne site this fall. Work is planned to start in October although it may be affected by the timing of the public meeting.

After the quarterly report for period 7/22/91 through 10/21/91, DOE will issue an annual report for the period of April 22 through December 31 as required by Section XX(B) of the FFA. Beginning in 1992, quarterly and annual reports will correspond to calendar quarters and years.

**Department of Energy**

Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

July 16, 1991

Mr. Paul A. Giardina
Radiation Branch Manager
U.S. Environmental Protection Agency, Region II
Jacob K. Javits Federal Building
New York, New York 10278

Dear Mr. Giardina:

RESULTS OF RADON FLUX MONITORING AT THE MIDDLESEX SAMPLING PLANT (MSP), NIAGARA FALLS STORAGE SITE (NFSS), MAYWOOD INTERIM STORAGE SITE (MISS), AND NEW BRUNSWICK LABORATORY (NBLs)

Please find enclosed radon flux monitoring data collected at the following sites in Region II under the Formerly Utilized Sites Remedial Action Program (FUSRAP): MSP, NFSS, MISS, and NBLs. This report has been prepared for your information in the spirit of a draft Memorandum of Understanding between DOE and EPA to provide data with respect to 40 CFR Part 61, Subpart Q. Enclosed are the data for each interim storage pile at MSP, NFSS, and MISS, as well as data for the entire site at MISS. Also enclosed is the data gathered from a designated waste area at the NBLs site. A sample location map for each site is also provided.

Results of sampling indicate that the sites are in compliance with the radon flux standard of 20 pCi/m²/s. The storage pile at MSP designated on the location map as the MML cleanup pile had a range of radon flux rates from 0.03 - 0.04 pCi/m²/s and an average of 0.038 pCi/m²/s; the storage pile designated as the Phases I and II cleanup pile had a range of radon flux rates from 0.03 - 0.52 pCi/m²/s and an average of 0.157 pCi/m²/s. The waste containment facility at NFSS had a radon flux rate range of 0.04 - 0.72 pCi/m²/s and an average of 0.067 pCi/m²/s. The small interim waste piles labeled Pile 1 and Pile 2 on the location map had a range of radon flux rates of 0.09 - 0.09 pCi/m²/ and 0.07 - 0.09 pCi/m²/s respectively. Pile 1 had an average radon flux rate of 0.09 pCi/m²/s and Pile 2 had an average flux rate of 0.086 pCi/m²/s. The MISS storage pile had a radon flux rate that ranged from 0.02 - 1.76 pCi/m²/s and had an average of 0.117 pCi/m²/s. The entire Maywood site, excluding the storage pile, had a radon flux range from 0.02 - 36.7 pCi/m²/s and an average of 1.29 pCi/m²/s. The waste area at NBLs had a range of radon flux rates from 0.05 - 3.86 pCi/m²/s and an average of 0.475 pCi/m²/s.

Mr. Paul A. Giardina

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July 16, 1991

If you have any questions, please contact me at (615) 576-9634 or (FTS) 626-9634.

Sincerely,

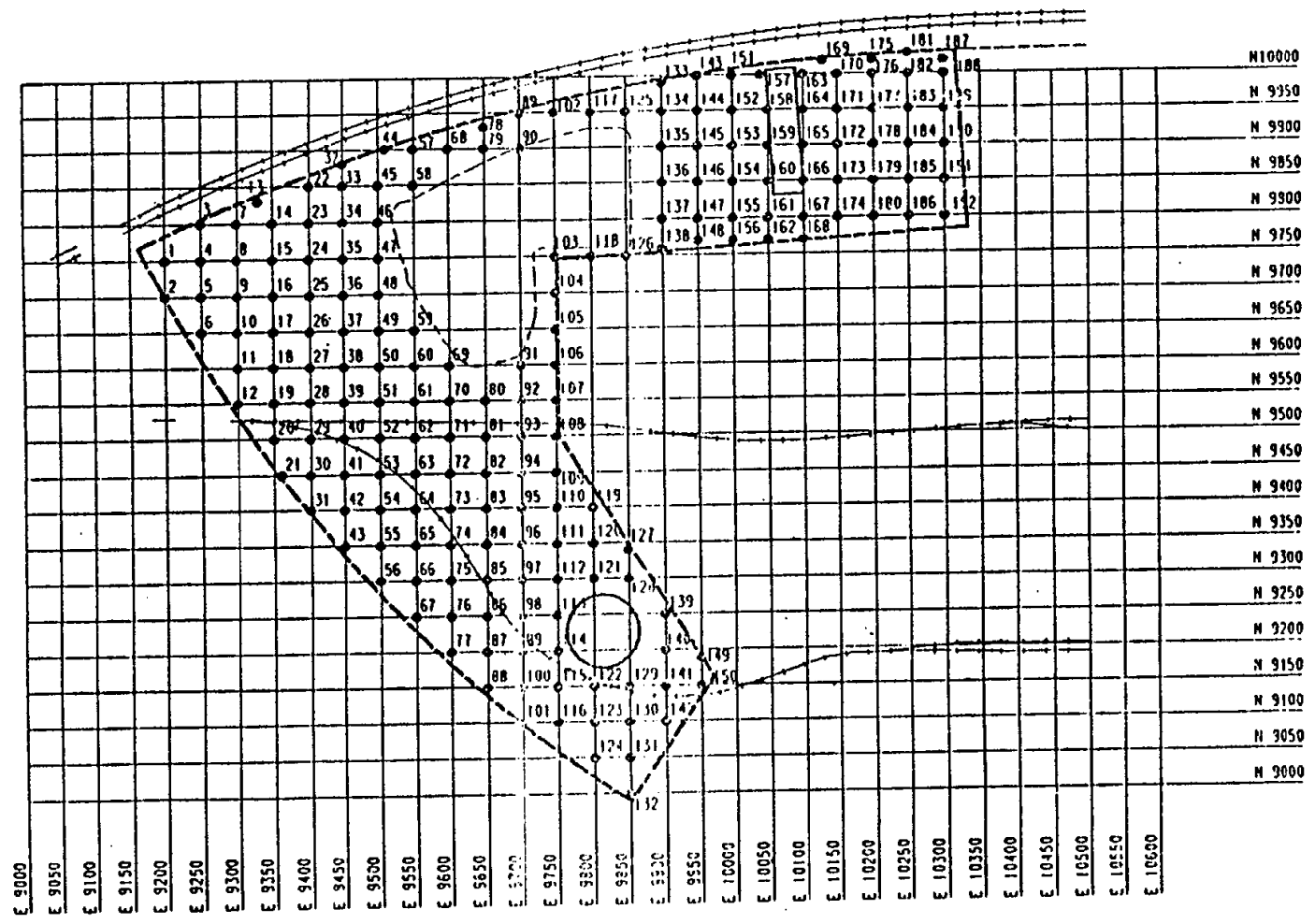


David G. Adler, Site Manager
Former Sites Restoration Division

Enclosure

cc: Weldon Dillow, DOE/ENVPD, w/e
Andrew Wallo III, DOE/HQ, w/e

076786



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RADON FLUX MONITORING STATIONS AT THE MAYWOOD INTERIM STORAGE SITE

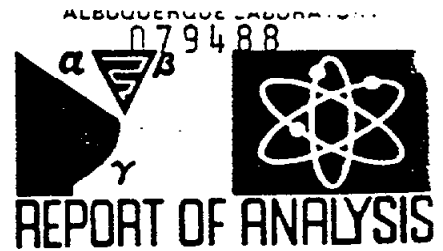
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Maywood RADON FLUX Locations

1	9200	9750	70	9800	9650	139	9900	9250
2	9200	9700	71	9800	9500	140	9900	9200
3	9250	9800	72	9800	9450	141	9900	9150
4	9250	9750	73	9800	9400	142	9900	9100
5	9250	9700	74	9800	9350	143	9950	10000
6	9250	9650	75	9800	9300	144	9950	9950
7	9300	9600	76	9800	9250	145	9950	9900
8	9300	9750	77	9800	9200	146	9950	9850
9	9300	9700	78	9850	9930	147	9950	9800
10	9300	9650	79	9650	9900	148	9950	9770
11	9300	9800	80	9650	9650	149	9950	9190
12	9300	9550	81	9650	9600	150	9950	9150
13	9330	9830	82	9650	9450	151	10000	10000
14	9350	9800	83	9650	9400	152	10000	9950
15	9350	9750	84	9650	9350	153	10000	9900
16	9350	9700	85	9650	9300	154	10000	9850
17	9350	9650	86	9650	9250	155	10000	9800
18	9350	9600	87	9650	9200	156	10000	9770
19	9350	9550	88	9650	9150	157	10050	10000
20	9350	9500	89	9700	9960	158	10050	9950
21	9380	9450	90	9700	9900	159	10050	9900
22	9400	9850	91	9700	9600	160	10050	9850
23	9400	9800	92	9700	9550	161	10050	9800
24	9400	9750	93	9700	9500	162	10050	9770
25	9400	9700	94	9700	9450	163	10100	10000
26	9400	9650	95	9700	9400	164	10100	9950
27	9400	9600	96	9700	9350	165	10100	9900
28	9400	9550	97	9700	9300	166	10100	9850
29	9400	9500	98	9700	9250	167	10100	9800
30	9400	9450	99	9700	9200	168	10100	9770
31	9400	9400	100	9700	9150	169	10150	10020
32	9450	9850	101	9700	9100	170	10150	10000
33	9450	9800	102	9750	9950	171	10150	9950
34	9450	9800	103	9750	9750	172	10150	9900
35	9450	9750	104	9750	9700	173	10150	9850
36	9450	9700	105	9750	9650	174	10150	9800
37	9450	9650	106	9750	9600	175	10200	10020
38	9450	9600	107	9750	9550	176	10200	10000
39	9450	9550	108	9750	9500	177	10200	9950
40	9450	9500	109	9750	9450	178	10200	9900
41	9450	9450	110	9750	9400	179	10200	9850
42	9450	9400	111	9750	9350	180	10200	9800
43	9450	9350	112	9750	9300	181	10250	10030
44	9510	9600	113	9750	9250	182	10250	10000
45	9500	9850	114	9750	9200	183	10250	9950
46	9500	9800	115	9750	9150	184	10250	9900
47	9500	9750	116	9750	9100	185	10250	9850
48	9500	9700	117	9800	9950	186	10250	9800
49	9500	9650	118	9800	9750	187	10300	10020
50	9500	9600	119	9800	9400	188	10300	10000
51	9600	9650	120	9800	9350	189	10300	9950
52	9600	9600	121	9800	9300	190	10300	9900
53	9600	9450	122	9800	9150	191	10300	9850
54	9500	9400	123	9800	9100	192	10300	9800
55	9500	9350	124	9800	9050			
56	9500	9300	125	9850	9950			
57	9550	9900	126	9850	9750			
58	9550	9850	127	9850	9340			
59	9550	9850	128	9850	9300			
60	9550	9800	129	9850	9150			
61	9550	9550	130	9850	9100			
62	9550	9500	131	9850	9050			
63	9550	9450	132	9850	9000			
64	9550	9400	133	9900	9990			
65	9550	9350	134	9900	9950			
66	9550	9300	135	9900	9900			
67	9550	9250	136	9900	9850			
68	9600	9900	137	9900	9800			
69	9600	9800	138	9900	9750			

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-001	6/3-6/4/91	Rn-222	6/5/91	0.07±0.02
138-RF-002	6/3-6/4/91	Rn-222	6/5/91	0.21±0.02
138-RF-003	6/3-6/4/91	Rn-222	6/5/91	0.31±0.02
138-RF-004	6/3-6/4/91	Rn-222	6/5/91	0.35±0.02
138-RF-005	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-006	6/3-6/4/91	Rn-222	6/5/91	0.14±0.02
138-RF-007	6/3-6/4/91	Rn-222	6/5/91	0.09±0.02
138-RF-008	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-009	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-010	6/3-6/4/91	Rn-222	6/5/91	0.04±0.01
138-RF-011	6/3-6/4/91	Rn-222	6/5/91	0.03±0.01
138-RF-012	6/3-6/4/91	Rn-222	6/5/91	0.04±0.01
138-RF-013	6/3-6/4/91	Rn-222	6/5/91	0.08±0.02
138-RF-014	6/3-6/4/91	Rn-222	6/5/91	0.15±0.02
138-RF-015	6/3-6/4/91	Rn-222	6/5/91	0.05±0.01
138-RF-016	6/3-6/4/91	Rn-222	6/5/91	0.02±0.01
138-RF-017	6/3-6/4/91	Rn-222	6/5/91	0.07±0.02
138-RF-018	6/3-6/4/91	Rn-222	6/5/91	0.19±0.02
138-RF-019	6/3-6/4/91	Rn-222	6/5/91	0.21±0.02
138-RF-020	6/3-6/4/91	Rn-222	6/5/91	0.08±0.02

REPORTED VIA TELEPHONE

PAGE 1 OF PAGE 12

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

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DA-

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-021	6/3-6/4/91	Rn-222	6/5/91	0.14±0.02
138-RF-022	6/3-6/4/91	Rn-222	6/5/91	0.49±0.02
138-RF-023	6/3-6/4/91	Rn-222	6/5/91	0.08±0.01
138-RF-024	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-025	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-026	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-027	6/3-6/4/91	Rn-222	6/5/91	0.11±0.01
138-RF-028	6/3-6/4/91	Rn-222	6/5/91	0.16±0.02
138-RF-029	6/3-6/4/91	Rn-222	6/5/91	0.04±0.01
138-RF-030	6/3-6/4/91	Rn-222	6/5/91	0.08±0.01
138-RF-031	6/3-6/4/91	Rn-222	6/5/91	0.19±0.02
138-RF-032	6/3-6/4/91	Rn-222	6/5/91	0.51±0.02
138-RF-033	6/3-6/4/91	Rn-222	6/5/91	0.75±0.02
138-RF-034	6/3-6/4/91	Rn-222	6/5/91	0.02±0.01
138-RF-035	6/3-6/4/91	Rn-222	6/5/91	<0.02
138-RF-036	6/3-6/4/91	Rn-222	6/5/91	0.03±0.01
138-RF-037	6/3-6/4/91	Rn-222	6/5/91	0.32±0.02
138-RF-038	6/3-6/4/91	Rn-222	6/5/91	0.13±0.01
138-RF-039	6/3-6/4/91	Rn-222	6/5/91	0.10±0.01
138-RF-040	6/3-6/4/91	Rn-222	6/5/91	0.20±0.02

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PAGE 2 OF 12 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

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D-1

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS 079488
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-041	6/3-6/4/91	Rn-222	6/5/91	0.11±0.01
138-RF-042	6/3-6/4/91	Rn-222	6/5/91	0.51±0.02
138-RF-043	6/3-6/4/91	Rn-222	6/5/91	0.24±0.02
138-RF-044	6/3-6/4/91	Rn-222	6/5/91	0.09±0.01
138-RF-045	6/3-6/4/91	Rn-222	6/5/91	0.20±0.02
138-RF-046	6/3-6/4/91	Rn-222	6/5/91	0.15±0.02
138-RF-047	6/3-6/4/91	Rn-222	6/5/91	0.20±0.02
138-RF-048	6/3-6/4/91	Rn-222	6/5/91	0.03±0.01
138-RF-049	6/3-6/4/91	Rn-222	6/5/91	0.02±0.01
138-RF-050	6/3-6/4/91	Rn-222	6/5/91	0.04±0.01
138-RF-051	6/5-6/6/91	Rn-222	6/7/91	2.42±0.03
138-RF-052	6/5-6/6/91	Rn-222	6/7/91	0.19±0.02
138-RF-053	6/5-6/6/91	Rn-222	6/7/91	0.20±0.02
138-RF-054	6/5-6/6/91	Rn-222	6/7/91	0.13±0.02
138-RF-055	6/5-6/6/91	Rn-222	6/7/91	1.70±0.03
138-RF-056	6/5-6/6/91	Rn-222	6/7/91	0.26±0.02
138-RF-057	6/6-6/7/91	Rn-222	6/10/91	0.14±0.02
138-RF-058	6/6-6/7/91	Rn-222	6/10/91	0.52±0.03
138-RF-059	6/5-6/6/91	Rn-222	6/7/91	0.03±0.01
138-RF-060	6/5-6/6/91	Rn-222	6/7/91	0.86±0.02

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PAGE 3 OF 12PAGE

TMA Eberline
Thermo Analytical Inc.

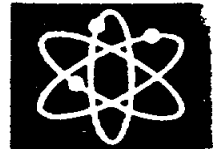
7021 PAN AMERICAN FREEWAY, N.E.
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PHONE (505) 345-3461

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CUSTOMER
ATTENTION
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CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34

0794 8a 

REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-061	6/5-6/6/91	Rn-222	6/7/91	0.22±0.02
138-RF-062	6/5-6/6/91	Rn-222	6/7/91	2.53±0.03
138-RF-063	6/5-6/6/91	Rn-222	6/7/91	0.02±0.02
138-RF-064	6/5-6/6/91	Rn-222	6/7/91	0.05±0.02
138-RF-065	6/5-6/6/91	Rn-222	6/7/91	0.22±0.02
138-RF-066	6/5-6/6/91	Rn-222	6/7/91	1.26±0.02
138-RF-067	6/5-6/6/91	Rn-222	6/7/91	0.16±0.02
138-RF-068	6/6-6/7/91	Rn-222	6/10/91	<0.04
138-RF-069	6/5-6/6/91	Rn-222	6/7/91	0.29±0.02
138-RF-070	6/5-6/6/91	Rn-222	6/7/91	0.22±0.02
138-RF-071	6/5-6/6/91	Rn-222	6/7/91	0.06±0.02
138-RF-072	6/5-6/6/91	Rn-222	6/7/91	<0.02
138-RF-073	6/5-6/6/91	Rn-222	6/7/91	0.03±0.01
138-RF-074	6/5-6/6/91	Rn-222	6/7/91	0.16±0.02
138-RF-075	6/5-6/6/91	Rn-222	6/7/91	0.62±0.02
138-RF-076	6/5-6/6/91	Rn-222	6/7/91	<0.03
138-RF-077	6/5-6/6/91	Rn-222	6/7/91	0.12±0.02
138-RF-078	6/6-6/7/91	Rn-222	6/10/91	<0.04
138-RF-079	6/6-6/7/91	Rn-222	6/10/91	0.17±0.02
138-RF-080	6/5-6/6/91	Rn-222	6/7/91	0.20±0.02

 REPORTED VIA TELEPHONE

PAGE 4 OF 12 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

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DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34

079488



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-081	6/5-6/6/91	Rn-222	6/7/91	0.49±0.02
138-RF-082	6/5-6/6/91	Rn-222	6/7/91	0.03±0.02
138-RF-083	6/5-6/6/91	Rn-222	6/7/91	<0.02
138-RF-084	6/5-6/6/91	Rn-222	6/7/91	0.03±0.02
138-RF-085	6/5-6/6/91	Rn-222	6/7/91	0.37±0.02
138-RF-086	6/5-6/6/91	Rn-222	6/7/91	0.04±0.01
138-RF-087	6/5-6/6/91	Rn-222	6/7/91	<0.02
138-RF-088	6/5-6/6/91	Rn-222	6/7/91	0.07±0.02
138-RF-089	6/6-6/7/91	Rn-222	6/10/91	0.07±0.02
138-RF-090	6/6-6/7/91	Rn-222	6/10/91	1.73±0.04
138-RF-091	6/5-6/6/91	Rn-222	6/7/91	0.08±0.02
138-RF-092	6/5-6/6/91	Rn-222	6/7/91	0.07±0.02
138-RF-093	6/5-6/6/91	Rn-222	6/7/91	0.06±0.02
138-RF-094	6/5-6/6/91	Rn-222	6/7/91	0.15±0.02
138-RF-095	6/5-6/6/91	Rn-222	6/7/91	0.23±0.02
138-RF-096	6/5-6/6/91	Rn-222	6/7/91	0.10±0.02
138-RF-097	6/5-6/6/91	Rn-222	6/7/91	0.15±0.02
138-RF-098	6/5-6/6/91	Rn-222	6/7/91	0.06±0.02
138-RF-099	6/5-6/6/91	Rn-222	6/7/91	0.05±0.02
138-RF-100	6/5-6/6/91	Rn-222	6/7/91	0.32±0.02

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PAGE 5 OF 12 PAGE

TMA Eberline
Thermo Analytical Inc.

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PHONE (505) 345-3461

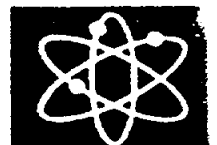
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DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34

079488



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-101	6/11-6/12/91	Rn-222	6/13/91	0.37±0.02
138-RF-102	6/11-6/12/91	Rn-222	6/13/91	0.19±0.02
138-RF-103	6/11-6/12/91	Rn-222	6/13/91	0.13±0.02
138-RF-104	6/11-6/12/91	Rn-222	6/13/91	<0.03
138-RF-105	6/11-6/12/91	Rn-222	6/13/91	0.05±0.02
138-RF-106	6/11-6/12/91	Rn-222	6/13/91	0.14±0.02
138-RF-107	6/11-6/12/91	Rn-222	6/13/91	<0.03
138-RF-108	6/11-6/12/91	Rn-222	6/13/91	0.20±0.02
138-RF-109	6/11-6/12/91	Rn-222	6/13/91	0.19±0.02
138-RF-110	6/11-6/12/91	Rn-222	6/13/91	0.44±0.02
138-RF-111	6/11-6/12/91	Rn-222	6/13/91	0.27±0.02
138-RF-112	6/11-6/12/91	Rn-222	6/13/91	<0.03
138-RF-113	6/11-6/12/91	Rn-222	6/13/91	0.14±0.02
138-RF-114	6/11-6/12/91	Rn-222	6/13/91	0.04±0.02
138-RF-115	6/11-6/12/91	Rn-222	6/13/91	1.65±0.03
138-RF-116	6/11-6/12/91	Rn-222	6/13/91	0.45±0.02
138-RF-117	6/11-6/12/91	Rn-222	6/13/91	0.12±0.02
138-RF-118	6/11-6/12/91	Rn-222	6/13/91	0.02±0.02
138-RF-119	6/11-6/12/91	Rn-222	6/13/91	0.08±0.01
138-RF-120	6/11-6/12/91	Rn-222	6/13/91	0.11±0.01

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PAGE 6 OF 12 PAGE

TMA Eberline
Thermo Analytical Inc.

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PHONE (505) 345-3461

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Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34

0791 837B



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-121	6/11-6/12/91	Rn-222	6/13/91	<0.03
138-RF-122	6/11-6/12/91	Rn-222	6/13/91	0.25±0.02
138-RF-123	6/11-6/12/91	Rn-222	6/13/91	7.85±0.05
138-RF-124	6/11-6/12/91	Rn-222	6/13/91	2.24±0.03
138-RF-125	6/11-6/12/91	Rn-222	6/13/91	0.29±0.02
138-RF-126	6/11-6/12/91	Rn-222	6/13/91	0.05±0.02
138-RF-127	6/11-6/12/91	Rn-222	6/13/91	0.06±0.01
138-RF-128	6/11-6/12/91	Rn-222	6/13/91	0.07±0.02
138-RF-129	6/11-6/12/91	Rn-222	6/13/91	0.15±0.02
138-RF-130	Sample Was Lost			
138-RF-131	6/11-6/12/91	Rn-222	6/13/91	0.13±0.02
138-RF-132	6/11-6/12/91	Rn-222	6/13/91	0.14±0.02
138-RF-133	5/30-5/31/91	Rn-222	6/3/91	0.12±0.02
138-RF-134	5/30-5/31/91	Rn-222	6/3/91	0.03±0.02
138-RF-135	6/11-6/12/91	Rn-222	6/13/91	0.05±0.02
138-RF-136	6/11-6/12/91	Rn-222	6/13/91	0.46±0.02
138-RF-137	6/11-6/12/91	Rn-222	6/13/91	0.08±0.02
138-RF-138	6/11-6/12/91	Rn-222	6/13/91	0.09±0.02
138-RF-139	6/11-6/12/91	Rn-222	6/13/91	0.16±0.02
138-RF-140	6/11-6/12/91	Rn-222	6/13/91	0.05±0.02

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CITY
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Michael McDougall
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Oak Ridge, TN. 37831-0350
74-34



TYPE OF ANALYSIS **Radon Flux** CUSTOMER ORDER NUMBER SAMPLES RECEIVED 6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-141	6/11-6/12/91	Rn-222	6/13/91	0.09±0.02
138-RF-142	6/11-6/12/91	Rn-222	6/13/91	0.03±0.01
138-RF-143	5/30-5/31/91	Rn-222	6/3/91	0.07±0.02
138-RF-144	5/30-5/31/91	Rn-222	6/3/91	<0.03
138-RF-145	5/30-5/31/91	Rn-222	6/3/91	<0.03
138-RF-146	5/30-5/31/91	Rn-222	6/3/91	0.04±0.02
138-RF-147	5/30-5/31/91	Rn-222	6/3/91	<0.3
138-RF-148	5/30-5/31/91	Rn-222	6/3/91	0.03±0.02
138-RF-149	6/11-6/12/91	Rn-222	6/13/91	0.27±0.02
138-RF-150	6/11-6/12/91	Rn-222	6/13/91	0.21±0.02
138-RF-151	5/30-5/31/91	Rn-222	6/3/91	0.13±0.02
138-RF-152	5/30-5/31/91	Rn-222	6/3/91	0.15±0.02
138-RF-153	5/30-5/31/91	Rn-222	6/3/91	0.08±0.02
138-RF-154	5/30-5/31/91	Rn-222	6/3/91	0.03±0.02
138-RF-155	5/30-5/31/91	Rn-222	6/3/91	0.03±0.02
138-RF-156	5/30-5/31/91	Rn-222	6/3/91	0.32±0.02
138-RF-157	5/30-5/31/91	Rn-222	6/3/91	4.16±0.05
138-RF-158	5/30-5/31/91	Rn-222	6/3/91	0.16±0.02
138-RF-159	5/30-5/31/91	Rn-222	6/3/91	0.80±0.03
138-RF-160	5/30-5/31/91	Rn-222	6/3/91	1.04±0.03

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Michael McDougall
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Oak Ridge, TN. 37831-0350
74-34



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-161	5/30-5/31/91	Rn-222	6/3/91	2.14±0.04
138-RF-162	5/30-5/31/91	Rn-222	6/3/91	0.23±0.02
138-RF-163	5/30-5/31/91	Rn-222	6/3/91	14.30±0.08
138-RF-164	5/30-5/31/91	Rn-222	6/3/91	0.33±0.02
138-RF-165	5/30-5/31/91	Rn-222	6/3/91	10.45±0.07
138-RF-166	5/30-5/31/91	Rn-222	6/3/91	0.87±0.03
138-RF-167	5/30-5/31/91	Rn-222	6/3/91	0.11±0.02
138-RF-168	5/30-5/31/91	Rn-222	6/3/91	0.15±0.02
138-RF-169	5/30-5/31/91	Rn-222	6/3/91	0.47±0.03
138-RF-170	5/30-5/31/91	Rn-222	6/3/91	1.16±0.03
138-RF-171	5/30-5/31/91	Rn-222	6/3/91	4.81±0.05
138-RF-172	5/30-5/31/91	Rn-222	6/3/91	22.00±0.10
138-RF-173	5/30-5/31/91	Rn-222	6/3/91	25.65±0.11
138-RF-174	5/30-5/31/91	Rn-222	6/3/91	27.04±0.11
138-RF-175	5/30-5/31/91	Rn-222	6/3/91	0.13±0.02
138-RF-176	5/30-5/31/91	Rn-222	6/3/91	0.06±0.02
138-RF-177	5/30-5/31/91	Rn-222	6/3/91	0.23±0.02
138-RF-178	5/30-5/31/91	Rn-222	6/3/91	0.68±0.03
138-RF-179	5/30-5/31/91	Rn-222	6/3/91	21.90±0.10
138-RF-180	5/30-5/31/91	Rn-222	6/3/91	36.71±0.13

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PAGE 9 OF 12 PAGE

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Thermo Analytical Inc.

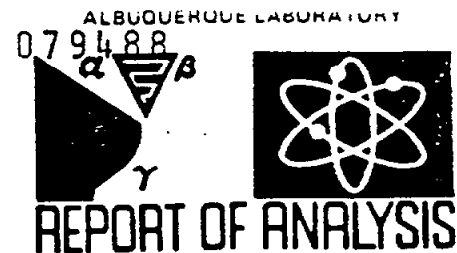
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PHONE (505) 345-3461

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ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34



TYPE OF ANALYSIS **Radon Flux** CUSTOMER ORDER NUMBER SAMPLES RECEIVED **6/25/91**

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
138-RF-181	5/30-5/31/91	Rn-222	6/3/91	0.71±0.03	
138-RF-182	5/30-5/31/91	Rn-222	6/3/91	0.07±0.02	
138-RF-183	5/30-5/31/91	Rn-222	6/3/91	1.13±0.03	
138-RF-184	5/30-5/31/91	Rn-222	6/3/91	0.19±0.02	
138-RF-185	5/30-5/31/91	Rn-222	6/3/91	2.53±0.04	
138-RF-186	5/30-5/31/91	Rn-222	6/3/91	17.16±0.09	
138-RF-187	5/30-5/31/91	Rn-222	6/3/91	1.49±0.03	
138-RF-188	5/30-5/31/91	Rn-222	6/3/91	0.57±0.03	
138-RF-189	5/30-5/31/91	Rn-222	6/3/91	0.29±0.02	
138-RF-190	5/30-5/31/91	Rn-222	6/3/91	0.36±0.02	
138-RF-191	5/30-5/31/91	Rn-222	6/3/91	1.31±0.03	
138-RF-192	5/30-5/31/91	Rn-222	6/3/91	2.51±0.04	
138-RF-010	6/3-6/4/91	Rn-222	6/5/91	0.04±0.01	LQC
138-RF-027	6/3-6/4/91	Rn-222	6/5/91	0.09±0.01	FQC
138-RF-029	6/3-6/4/91	Rn-222	6/5/91	0.09±0.01	FQC
138-RF-030	6/3-6/4/91	Rn-222	6/5/91	0.04±0.01	FQC
138-RF-030	6/3-6/4/91	Rn-222	6/5/91	0.08±0.01	LQC
138-RF-031	6/3-6/4/91	Rn-222	6/5/91	0.03±0.01	FQC
138-RF-032	6/3-6/4/91	Rn-222	6/5/91	0.44±0.02	FQC
138-RF-032	6/3-6/4/91	Rn-222	6/5/91	0.42±0.02	LQC

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Thermo Analytical Inc.

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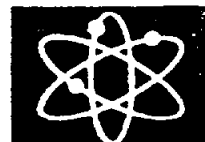
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DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-34

ALBUQUERQUE LABORATORY
079488



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
138-RF-036	6/3-6/4/91	Rn-222	6/5/91	<0.02	LQC
138-RF-050	6/3-6/4/91	Rn-222	6/5/91	0.37±0.02	FQC
138-RF-053	6/5-6/6/91	Rn-222	6/7/91	0.15±0.02	FQC
138-RF-058	6/6-6/7/91	Rn-222	6/10/91	0.53±0.03	LQC
138-RF-061	6/5-6/6/91	Rn-222	6/7/91	0.23±0.02	LQC
138-RF-064	6/5-6/6/91	Rn-222	6/7/91	0.07±0.02	FQC
138-RF-066	6/5-6/6/91	Rn-222	6/7/91	1.33±0.03	FQC
138-RF-077	6/5-6/6/91	Rn-222	6/7/91	0.44±0.02	FQC
138-RF-077	6/5-6/6/91	Rn-222	6/7/91	0.45±0.02	LQC
138-RF-087	6/5-6/6/91	Rn-222	6/7/91	<0.02	FQC
138-RF-087	6/5-6/6/91	Rn-222	6/7/91	<0.03	LQC
138-RF-091	6/5-6/6/91	Rn-222	6/7/91	0.08±0.02	FQC
138-RF-098	6/5-6/6/91	Rn-222	6/7/91	0.06±0.02	LQC
138-RF-098	6/5-6/6/91	Rn-222	6/7/91	0.07±0.02	FQC
138-RF-100	6/5-6/6/91	Rn-222	6/7/91	0.32±0.02	LQC
138-RF-103	6/11-6/12/91	Rn-222	6/13/91	0.14±0.02	LQC
138-RF-106	6/11-6/12/91	Rn-222	6/13/91	0.13±0.02	LQC
138-RF-116	6/11-6/12/91	Rn-222	6/13/91	1.07±0.02	FQC
138-RF-121	6/11-6/12/91	Rn-222	6/13/91	<0.03	FQC
138-RF-126	6/11-6/12/91	Rn-222	6/13/91	0.04±0.02	LQC

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PAGE 11 OF 12 PAGE

TMA Eberline
Thermo Analytical Inc.

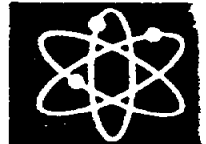
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Michael McDougall
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Oak Ridge, TN. 37831-0350
74-34



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 6/25/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
138-RF-133	5/30-5/31/91	Rn-222	6/3/91	0.15±0.02	FQC
138-RF-135	6/11-6/12/91	Rn-222	6/13/91	0.06±0.02	LQC
138-RF-136	6/11-6/12/91	Rn-222	6/13/91	0.10±0.02	FQC
138-RF-143	5/30-5/31/91	Rn-222	6/3/91	0.10±0.02	FQC
138-RF-143	5/30-5/31/91	Rn-222	6/3/91	0.11±0.02	LQC
138-RF-146	5/30-5/31/91	Rn-222	6/3/91	<0.03	FQC
138-RF-160	5/30-5/31/91	Rn-222	6/3/91	1.40±0.03	FQC
138-RF-160	5/30-5/31/91	Rn-222	6/3/91	1.36±0.03	LQC

FQC = Duplicate "Field Quality Control" Sample at same location.
LQC = Duplicate "Laboratory Quality Control" Analyses.

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PAGE 12 OF 12 PAGE

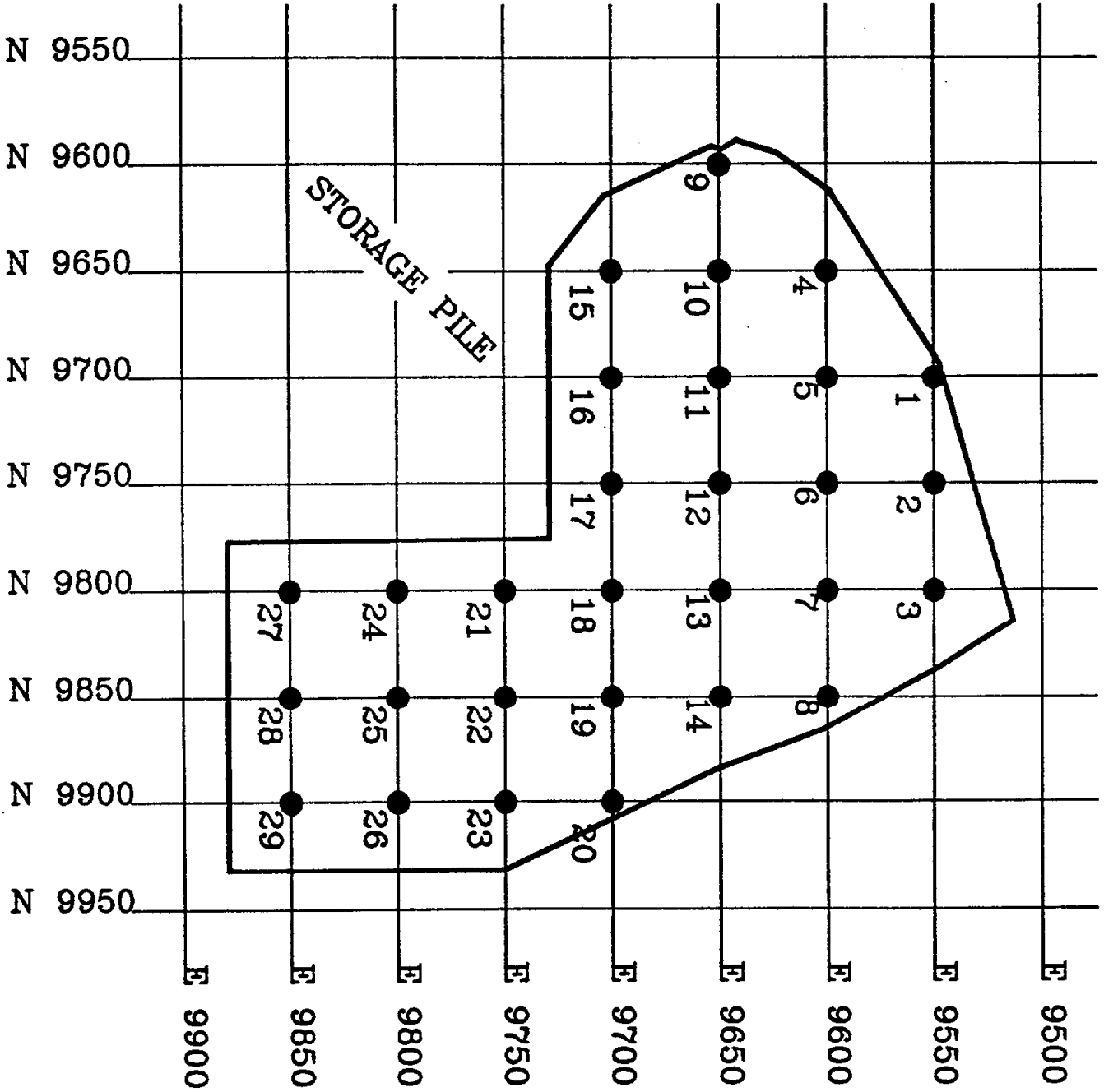
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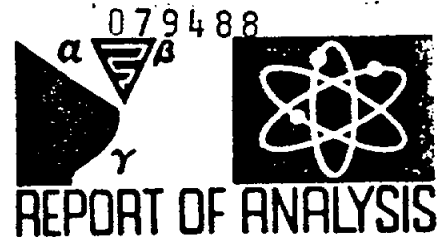
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MAYWOOD INTERIM STORAGE PILE



CUSTOMER
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Bechtel National, Inc. - MISS Storage Pile
Michael McDougall
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Oak Ridge, TN. 37831-0350



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/7/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
138-RF-01	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-02	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-03	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-04	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-05	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-06	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-07	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-08	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-09	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-010	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-011	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-012	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-013	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-014	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-015	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-016	5/28-5/29/91	Rn-222	5/30/91	1.76±0.03
138-RF-017	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-018	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-019	5/28-5/29/91	Rn-222	5/30/91	<0.03
138-RF-020	5/28-5/29/91	Rn-222	5/30/91	1.04±0.02

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6/12/91

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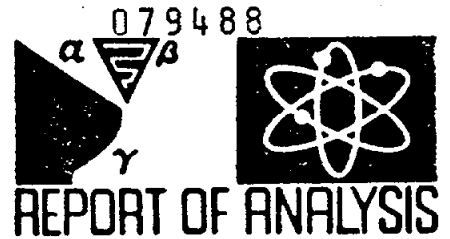
M. R. McDougall

DATE

6/12/91

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MISS Storage Pile
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350



TYPE OF ANALYSIS **Radon Flux** CUSTOMER ORDER NUMBER SAMPLES RECEIVED **6/7/91**

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
138-RF-021	5/28-5/29/91	Rn-222	5/30/91	0.02±0.02	
138-RF-022	5/28-5/29/91	Rn-222	5/30/91	<0.03	
138-RF-023	5/28-5/29/91	Rn-222	5/30/91	<0.03	
138-RF-024	5/28-5/29/91	Rn-222	5/30/91	<0.02	
138-RF-025	5/28-5/29/91	Rn-222	5/30/91	0.02±0.01	
138-RF-026	5/28-5/29/91	Rn-222	5/30/91	<0.02	
138-RF-027	5/28-5/29/91	Rn-222	5/30/91	<0.02	
138-RF-028	5/28-5/29/91	Rn-222	5/30/91	<0.02	
138-RF-029	5/28-5/29/91	Rn-222	5/30/91	<0.02	
138-RF-030	5/28-5/29/91	Rn-222	5/30/91	<0.02	
138-RF-03	5/28-5/29/91	Rn-222	5/30/91	<0.03	FQC
138-RF-03	5/28-5/29/91	Rn-222	5/30/91	<0.03	LQC
138-RF-010	5/28-5/29/91	Rn-222	5/30/91	<0.03	FQC
138-RF-016	5/28-5/29/91	Rn-222	5/30/91	1.76±0.03	LQC
138-RF-021	5/28-5/29/91	Rn-222	5/30/91	0.02±0.01	LQC
138-RF-021	5/28-5/29/91	Rn-222	5/30/91	<0.03	FQC

FQC = Duplicate "Field Quality Control" Measurement At The Same Location.
LQC = Duplicate "Laboratory Quality Control" Analyses.

REPORTED VIA TELEPHONE

PAGE 2 OF 2 PAGE

TMA Eberline
Thermo Analytical Inc.
7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

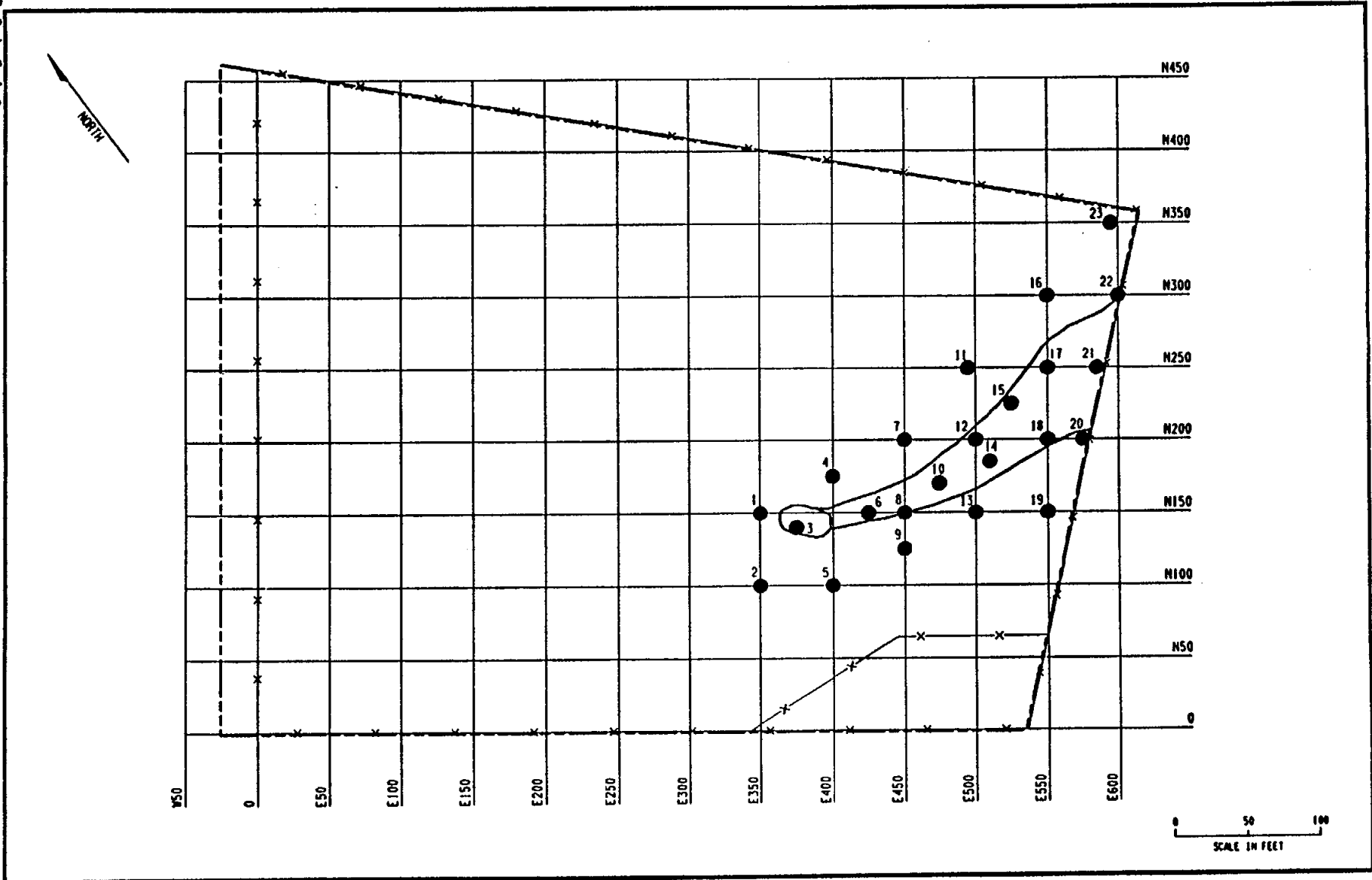
ok
meb
6/12/91

APPROVED BY *M. L. Max*

DATE

6/21

079488



144F006.0GN F1

RADON FLUX MONITORING STATIONS AT THE NEW BRUNSWICK SITE

079488

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NBL
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-35



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 6/11/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
44-RF-001	5/29-5/30/91	Rn-222	5/31/91	0.34±0.02
144-RF-002	5/29-5/30/91	Rn-222	5/31/91	0.07±0.02
44-RF-003	5/29-5/30/91	Rn-222	5/31/91	0.14±0.02
44-RF-004	5/29-5/30/91	Rn-222	5/31/91	0.19±0.02
144-RF-005	5/29-5/30/91	Rn-222	5/31/91	0.31±0.02
44-RF-006	5/29-5/30/91	Rn-222	5/31/91	0.22±0.02
144-RF-007	5/29-5/30/91	Rn-222	5/31/91	0.72±0.02
44-RF-008	5/29-5/30/91	Rn-222	5/31/91	0.10±0.02
44-RF-009	5/29-5/30/91	Rn-222	5/31/91	0.34±0.02
144-RF-010	5/29-5/30/91	Rn-222	5/31/91	0.62±0.02
44-RF-011	5/29-5/30/91	Rn-222	5/31/91	0.10±0.02
144-RF-012	5/29-5/30/91	Rn-222	5/31/91	3.86±0.04
44-RF-013	5/29-5/30/91	Rn-222	5/31/91	0.14±0.02
44-RF-014	5/29-5/30/91	Rn-222	5/31/91	0.29±0.02
144-RF-015	5/29-5/30/91	Rn-222	5/31/91	2.01±0.03
44-RF-016	5/29-5/30/91	Rn-222	5/31/91	0.51±0.02
144-RF-017	5/29-5/30/91	Rn-222	5/31/91	0.22±0.02
44-RF-018	5/29-5/30/91	Rn-222	5/31/91	0.08±0.02
44-RF-019	5/29-5/30/91	Rn-222	5/31/91	0.10±0.02
44-RF-020	5/29-5/30/91	Rn-222	5/31/91	0.15±0.02

 REPORTED VIA TELEPHONE

PAGE 1 OF 2 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

M. McDougall

DATE

6/11/91

079488

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NBL
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-35



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/11/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
144-RF-021	5/29-5/30/91	Rn-222	5/31/91	0.11±0.02	
144-RF-022	5/29-5/30/91	Rn-222	5/31/91	0.12±0.02	
144-RF-023	5/29-5/30/91	Rn-222	5/31/91	0.10±0.02	
144-RF-003	5/29-5/30/91	Rn-222	5/31/91	0.16±0.02	FQC
144-RF-008	5/29-5/30/91	Rn-222	5/31/91	0.15±0.02	FQC
144-RF-012	5/29-5/30/91	Rn-222	5/31/91	3.79±0.04	LQC
144-RF-015	5/29-5/30/91	Rn-222	5/31/91	2.00±0.03	LQC
144-RF-016	5/29-5/30/91	Rn-222	5/31/91	0.50±0.02	LQC
144-RF-023	5/29-5/30/91	Rn-222	5/31/91	0.05±0.02	FQC

FQC = Duplicate "Field Quality Control" Sample at Same Location.

LQC = Duplicate "Laboratory Quality Control" Analyses.

 REPORTED VIA TELEPHONE

PAGE 2 OF 2 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

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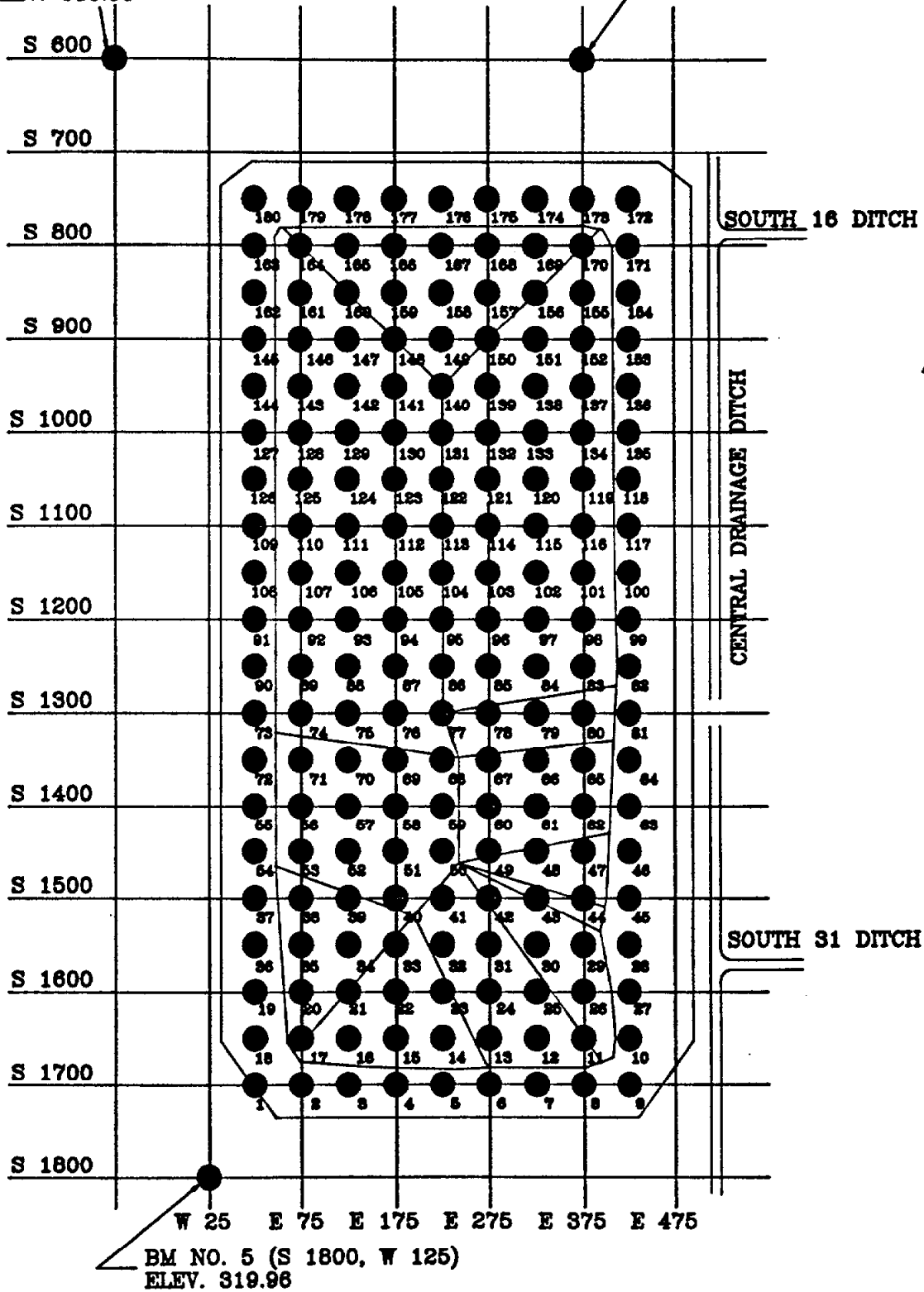
ok
ms
6/11/91
M. E. McDougall

DATE

Ch...

BM NO. 6 (S 600, W 125)
ELEV. 318.38

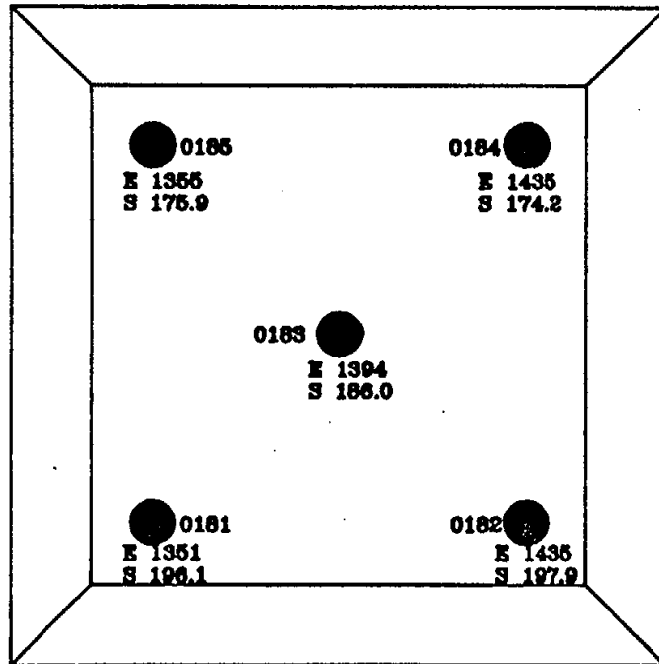
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ELEV. 316.80



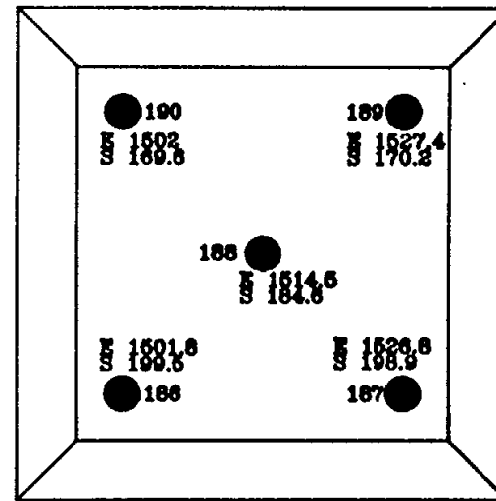
SURVEY GRID FOR THE NFSS WASTE
CONTAINMENT STRUCTURE



PILE 1



PILE 2



INTERIM PILES AT NFSS

079488

079488

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-001	4/09-4/10/91	Rn-222	4/15/91	0.06±0.03
202-RF-002	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-003	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-004	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-005	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-006	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-007	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-008	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-009	Sample Lost			
202-RF-010	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-011	Sample Lost			
202-RF-012	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-013	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-014	4/09-4/10/91	Rn-222	4/15/91	<0.04
202-RF-015	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-016	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-017	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-018	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-019	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-020	4/09-4/10/91	Rn-222	4/15/91	<0.05

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PAGE 1 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

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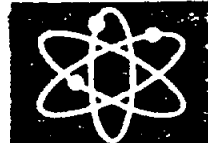
OK 4/24/91
Renee Echols

4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-020A	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-021	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-022	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-023	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-024	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-025	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-026	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-027	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-028	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-029	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-030	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-031	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-032	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-033	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-034	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-035	4/09-4/10/91	Rn-222	4/15/91	<0.06
202-RF-036	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-037	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-038	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-039	4/09-4/10/91	Rn-222	4/15/91	<0.05

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PAGE 2 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

Renee Echols

4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
02-RF-040	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-040A	4/09-4/10/91	Rn-222	4/15/91	<0.05
02-RF-041	4/09-4/10/91	Rn-222	4/15/91	<0.06
202-RF-042	4/09-4/10/91	Rn-222	4/15/91	<0.06
02-RF-043	4/09-4/10/91	Rn-222	4/15/91	<0.06
02-RF-044	4/09-4/10/91	Rn-222	4/15/91	<0.06
202-RF-045	4/09-4/10/91	Rn-222	4/15/91	<0.06
02-RF-046	4/09-4/10/91	Rn-222	4/15/91	<0.06
202-RF-047	4/09-4/10/91	Rn-222	4/15/91	<0.05
02-RF-048	4/09-4/10/91	Rn-222	4/15/91	<0.05
02-RF-049	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-050	4/09-4/10/91	Rn-222	4/15/91	<0.05
02-RF-051	4/09-4/10/91	Rn-222	4/15/91	<0.05
202-RF-052	4/09-4/10/91	Rn-222	4/15/91	<0.05
02-RF-053	4/09-4/10/91	Rn-222	4/15/91	<0.05
02-RF-054	4/09-4/10/91	Rn-222	4/16/91	0.05±0.04
02-RF-055	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-056	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-057	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-058	4/09-4/10/91	Rn-222	4/16/91	<0.06

REPORTED VIA TELEPHONE

PAGE 3 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

DE MAM 4/24/91
Renee Echols

4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488

813



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-059	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-060	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-060A	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-061	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-062	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-063	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-064	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-065	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-066	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-067	4/09-4/10/91	Rn-222	4/16/91	<0.05
202-RF-068	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-069	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-070	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-071	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-072	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-073	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-074	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-075	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-076	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-078	4/09-4/10/91	Rn-222	4/16/91	<0.06

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PAGE 4 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

OK [unclear] 4/24/91
Renee Echols

4/24/91

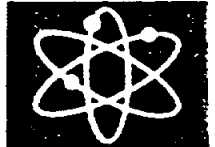
DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488

D-0



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-079	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-080	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-080A	4/09-4/10/91	Rn-222	4/16/91	<0.05
202-RF-081	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-082	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-083	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-084	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-085	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-086	4/09-4/10/91	Rn-222	4/16/91	0.07±0.04
202-RF-087	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-088	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-089	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-090	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-091	4/09-4/10/91	Rn-222	4/16/91	0.72±0.05
202-RF-092	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-093	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-094	4/09-4/10/91	Rn-222	4/16/91	<0.05
202-RF-095	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-096	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-097	4/09-4/10/91	Rn-222	4/16/91	<0.06

REPORTED VIA TELEPHONE

PAGE 5 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

0124/91 4/24/91
Renee Echols

4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488
A-7813
Y



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
02-RF-098	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-099	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-100	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-100A	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-101	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-102	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-103	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-104	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-105	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-106	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-107	4/09-4/10/91	Rn-222	4/16/91	<0.05
202-RF-108	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-109	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-110	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-111	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-112	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-113	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-114	4/09-4/10/91	Rn-222	4/16/91	<0.06
202-RF-115	4/09-4/10/91	Rn-222	4/16/91	<0.06
02-RF-116	4/09-4/10/91	Rn-222	4/17/91	<0.07

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PAGE 6 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

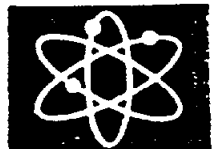
C. L. ...
Rene Echols

4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488
a
07/31
γ



REPORT OF ANALYSIS

TYPE OF ANALYSIS **Radon Flux** CUSTOMER ORDER NUMBER SAMPLES RECEIVED **4/23/91**

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-117	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-118	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-119	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-120	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-120A	4/09-4/10/91	Rn-222	4/17/91	<0.06
202-RF-121	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-122	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-123	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-124	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-125	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-126	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-127	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-128	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-129	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-130	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-131	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-132	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-133	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-134	4/09-4/10/91	Rn-222	4/17/91	0.06±0.05
202-RF-135	4/09-4/10/91	Rn-222	4/17/91	<0.08

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PAGE 7 OF 11 PAGE

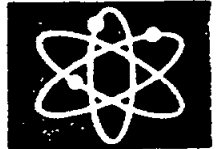
TMA Eberline
Thermo Analytical Inc.
7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

OK M/M 4/24/91
APPROVED BY *Renee Echols* 4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

079488
D-081 α β γ



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-136	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-137	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-138	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-139	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-140	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-140A	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-141	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-142	4/09-4/10/91	Rn-222	4/17/91	<0.07
202-RF-143	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-144	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-145	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-146	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-147	4/09-4/10/91	Rn-222	4/17/91	0.08±0.05
202-RF-148	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-149	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-150	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-151	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-152	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-153	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-154	4/09-4/10/91	Rn-222	4/17/91	<0.08

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PAGE 8 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3451

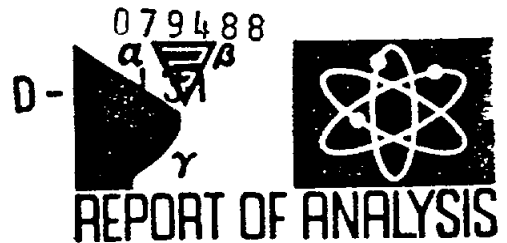
APPROVED BY

Signature: Renee Echols

4/24/91 DATE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
02-RF-155	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-156	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-157	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-158	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-159	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-160	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-160A	4/09-4/10/91	Rn-222	4/17/91	<0.06
02-RF-161	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-162	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-163	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-164	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-165	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-166	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-167	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-168	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-169	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-170	4/09-4/10/91	Rn-222	4/17/91	<0.08
02-RF-171	4/09-4/10/91	Rn-222	4/17/91	<0.08
202-RF-172	4/09-4/10/91	Rn-222	4/18/91	<0.09
02-RF-173	4/09-4/10/91	Rn-222	4/18/91	<0.09

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PAGE 9 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

DIC. FROM 4/23/91
Renee Echols

4/24/91 DATE

079488

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32

D-08



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-174	4/09-4/10/91	Rn-222	4/18/91	<0.07
202-RF-175	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-176	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-177	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-178	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-179	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-180	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-180A	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-181	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-181A	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-182	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-183	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-184	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-185	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-186	4/09-4/10/91	Rn-222	4/18/91	<0.07
202-RF-187	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-188	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-189	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-190	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-190A	4/09-4/10/91	Rn-222	4/18/91	<0.09

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PAGE 10 OF 11 PAGE

TMA Eberline

Thermo Analytical Inc.

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ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

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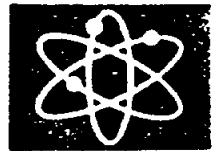
D. Eberline
Rene Eberline

4/24/91 DATE

079488

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - NFSS
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350
74-32



REPORT OF ANALYSIS

TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

4/23/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
202-RF-002 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-004 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-017 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-025 (QA)	4/09-4/10/91	Rn-222	4/18/91	0.09±0.06
202-RF-035 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-042 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-045 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-069 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-071 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.07
202-RF-089 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-105 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-111 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-120A (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-127 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-136 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-147 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-154 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-168 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-172 (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09
202-RF-190A (QA)	4/09-4/10/91	Rn-222	4/18/91	<0.09

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PAGE 11 OF 11 PAGE

TMA Eberline
Thermo Analytical Inc.

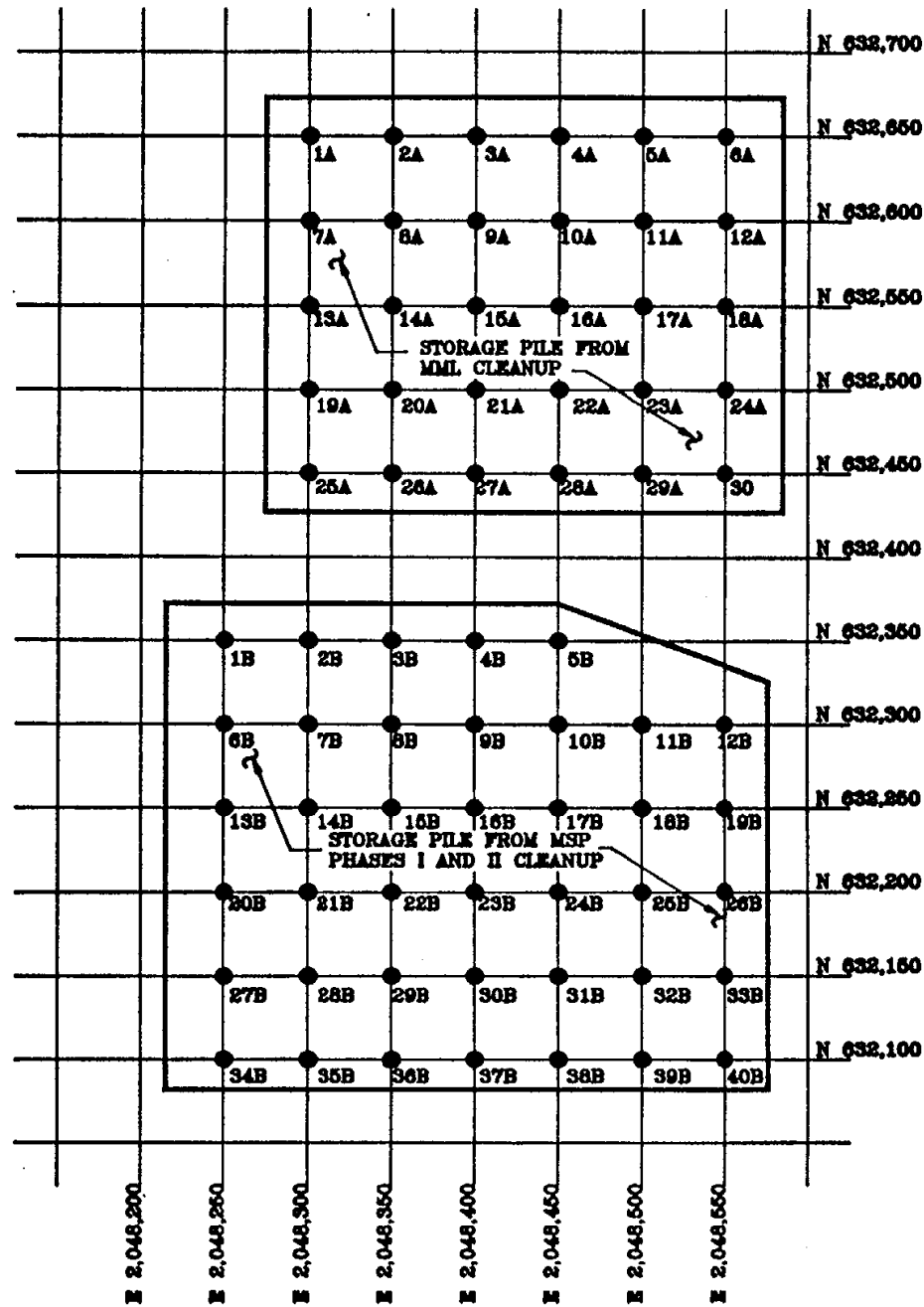
7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

Renee Echols

4/24/91 DATE

079488



B4:SITE118:V1

MIDDLESEX INTERIM STORAGE PILE

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MSP Storage Piles ⁰⁷⁹⁴⁸⁸
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350



TYPE OF ANALYSIS **Radon Flux** CUSTOMER ORDER NUMBER SAMPLES RECEIVED **6/6/91**

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
118-RF-01A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-02A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-03A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-04A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-05A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-06A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-07A	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-08A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-09A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-10A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-11A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-12A	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-13A	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-14A	5/20-5/21/91	Rn-222	5/24/91	0.03±0.02
118-RF-15A	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-16A	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-17A	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-18A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-19A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-20A	5/20-5/21/91	Rn-222	5/24/91	<0.04

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PAGE 1 OF 5 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

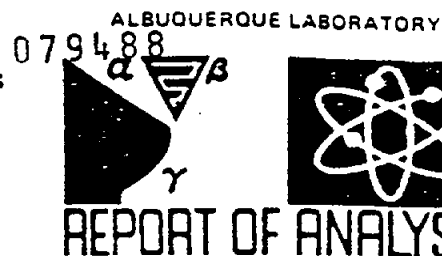
APPROVED BY

M. R. McDougall

2A
6/10/91

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MSP Storage Piles
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350



TYPE OF ANALYSIS **Radon Flux** CUSTOMER ORDER NUMBER SAMPLES RECEIVED 6/6/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
118-RF-21A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-22A	5/20-5/21/91	Rn-222	5/24/91	0.04±0.02
118-RF-23A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-24A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-25A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-26A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-27A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-28A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-29A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-30A	5/20-5/21/91	Rn-222	5/24/91	<0.04
118-RF-01B	5/20-5/21/91	Rn-222	5/24/91	0.05±0.02
118-RF-02B	5/20-5/21/91	Rn-222	5/24/91	0.28±0.02
118-RF-03B	5/20-5/21/91	Rn-222	5/24/91	0.32±0.02
118-RF-04B	5/20-5/21/91	Rn-222	5/23/91	0.25±0.02
118-RF-05B	5/20-5/21/91	Rn-222	5/23/91	0.06±0.02
118-RF-06B	5/20-5/21/91	Rn-222	5/23/91	0.06±0.02
118-RF-07B	5/20-5/21/91	Rn-222	5/24/91	0.04±0.02
118-RF-08B	5/20-5/21/91	Rn-222	5/23/91	<0.03
118-RF-09B	5/20-5/21/91	Rn-222	5/24/91	0.05±0.02
118-RF-10B	5/20-5/21/91	Rn-222	5/24/91	0.10±0.02

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PAGE 2 OF 5 PAGE

TMA Eberline
Thermo Analytical Inc.
7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

M.R. McDougall

6/10

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MSP Storage Piles
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350

079488



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/6/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec
118-RF-11B	5/20-5/21/91	Rn-222	5/24/91	0.09±0.02
118-RF-12B	5/20-5/21/91	Rn-222	5/24/91	0.52±0.03
118-RF-13B	5/20-5/21/91	Rn-222	5/24/91	0.14±0.02
118-RF-14B	5/20-5/21/91	Rn-222	5/24/91	<0.03
118-RF-15B	5/20-5/21/91	Rn-222	5/24/91	0.05±0.02
118-RF-16B	5/20-5/21/91	Rn-222	5/24/91	0.19±0.02
118-RF-17B	5/20-5/21/91	Rn-222	5/24/91	0.19±0.02
118-RF-18B	5/20-5/21/91	Rn-222	5/24/91	0.05±0.02
118-RF-19B	5/20-5/21/91	Rn-222	5/24/91	0.15±0.02
118-RF-20B	5/20-5/21/91	Rn-222	5/23/91	0.13±0.02
118-RF-21B	5/20-5/21/91	Rn-222	5/24/91	0.05±0.02
118-RF-22B	5/20-5/21/91	Rn-222	5/24/91	0.07±0.02
118-RF-23B	5/20-5/21/91	Rn-222	5/23/91	0.04±0.02
118-RF-24B	5/20-5/21/91	Rn-222	5/23/91	0.21±0.02
118-RF-25B	5/20-5/21/91	Rn-222	5/24/91	0.21±0.02
118-RF-26B	5/20-5/21/91	Rn-222	5/24/91	0.19±0.02
118-RF-27B	5/20-5/21/91	Rn-222	5/23/91	0.38±0.02
118-RF-28B	5/20-5/21/91	Rn-222	5/23/91	0.09±0.02
118-RF-29B	5/20-5/21/91	Rn-222	5/23/91	<0.03
118-RF-30B	5/20-5/21/91	Rn-222	5/23/91	0.12±0.02

 REPORTED VIA TELEPHONE

PAGE 3 OF 5 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

M. R. Mc Dougall

6/10/91

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MSP Storage Piles 0791:88
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/6/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
118-RF-31B	5/20-5/21/91	Rn-222	5/24/91	0.16±0.02	
118-RF-32B	5/20-5/21/91	Rn-222	5/23/91	0.51±0.02	
118-RF-33B	5/20-5/21/91	Rn-222	5/23/91	0.39±0.02	
118-RF-34B	5/20-5/21/91	Rn-222	5/23/91	<0.03	
118-RF-35B	5/20-5/21/91	Rn-222	5/23/91	0.28±0.02	
118-RF-36B	5/20-5/21/91	Rn-222	5/23/91	<0.03	
118-RF-37B	5/20-5/21/91	Rn-222	5/23/91	0.16±0.02	
118-RF-38B	5/20-5/21/91	Rn-222	5/23/91	0.25±0.02	
118-RF-39B	5/20-5/21/91	Rn-222	5/24/91	0.27±0.02	
118-RF-40B	5/20-5/21/91	Rn-222	5/24/91	0.04±0.02	
118-RF-07A	5/20-5/21/91	Rn-222	5/24/91	0.04±0.02	LQC
118-RF-09A	5/20-5/21/91	Rn-222	5/24/91	<0.04	FQC
118-RF-23A	5/20-5/21/91	Rn-222	5/24/91	0.05±0.02	LQC
118-RF-28A	5/20-5/21/91	Rn-222	5/24/91	<0.04	LQC
118-RF-29A	5/20-5/21/91	Rn-222	5/24/91	<0.04	FQC
118-RF-30A	5/20-5/21/91	Rn-222	5/24/91	<0.04	LQC
118-RF-04B	5/20-5/21/91	Rn-222	5/23/91	0.25±0.02	LQC
118-RF-09B	5/20-5/21/91	Rn-222	5/23/91	0.03±0.02	FQC
118-RF-10B	5/20-5/21/91	Rn-222	5/24/91	0.17±0.02	FQC

 REPORTED VIA TELEPHONE

PAGE 4 OF 5 PAGE

TMA Eberline
Thermo Analytical Inc.

221 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

M.R. McDaniel

DATE

6/10/91

079488

ALBUQUERQUE LABORATORY

CUSTOMER
ATTENTION
ADDRESS
CITY
W.O. NO.

Bechtel National, Inc. - MSP Storage Piles
Michael McDougall
P.O. Box 350
Oak Ridge, TN. 37831-0350



TYPE OF ANALYSIS

Radon Flux

CUSTOMER ORDER NUMBER

SAMPLES RECEIVED

6/6/91

Customer Identification	Date Collected	Type of Analysis	Date Analyzed	pCi/M ² /sec	
118-RF-15B	5/20-5/21/91	Rn-222	5/24/91	0.06±0.02	LQC
118-RF-25B	5/20-5/21/91	Rn-222	5/24/91	0.19±0.02	LQC
118-RF-27B	5/20-5/21/91	Rn-222	5/23/91	0.38±0.02	LQC
118-RF-28B	5/20-5/21/91	Rn-222	5/23/91	0.08±0.02	FQC
118-RF-39B	5/20-5/21/91	Rn-222	5/23/91	0.18±0.02	FQC

FQC = Duplicate "Field Quality Control" Sample At same Location.
LQC = Duplicate "Laboratory Quality Control" Analyses.

REPORTED VIA TELEPHONE

PAGE 5 OF 5 PAGE

TMA Eberline
Thermo Analytical Inc.

7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY

DATE

6/10/91



Department of Energy
Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

01 • 4 / 0
079116

June 28, 1991

Mr. Paul A. Giardina
Radiation Branch Manager
U.S. Environmental Protection Agency, Region II
Jacob K. Javits Federal Building
New York, New York 10278

Dear Mr. Giardina:

NESHAPs 1990 AIR EMISSIONS ANNUAL REPORTS FOR FUSRAP SITES

Please find enclosed the 1990 National Emissions Standards for Hazardous Air Pollutants (NESHAPs) Annual Report for Calendar Year 1990 for the Department of Energy (DOE) site in the Formerly Utilized Sites Remedial Action Program (FUSRAP) in Region II. The enclosed report has been prepared for your information in the spirit of a draft Memorandum of Understanding (MOU) between DOE and the EPA that will address, among several issues, procedures for complying with the radionuclide NESHAPs requirements under 40 CFR 61, Subpart H.

The annual report was prepared based on DOE-Headquarters guidance for DOE Field Operations to fulfill the NESHAPs requirements under 40 CFR 61, Subpart H. Radionuclide emission rates for non-radon emitters were calculated using the EPA-approved dose model AIRDOS-PC, as directed in 40 CFR Section 61.93.

Sites for which annual reports have been prepared include the following six sites:

- Colonie Interim Storage Site (CISS)
- Maywood Interim Storage Site (MISS)
- Middlesex Sampling Plant (MSP)
- New Brunswick Laboratory Site (NBLS)
- Niagara Falls Storage Site (NFSS)
- Wayne Interim Storage Site (WISS)

The information in the annual reports has been organized by site and source for ease of review.

If you have any questions, please contact me or David Adler at FTS 626-9634.

Sincerely,

William M. Seay, Deputy Director
Former Sites Restoration Division

EW-93:Oldham

Enclosure

cc w/enclosure:
D. G. Adler, EW-93
W. D. Dillow, SE-311
A. Wallo III, EH-232, FORS

U.S. Department of Energy
Air Emissions Annual Report
(under Subpart H, 40 CFR Section 61.94)
Calendar Year 1990

Site Name: Colonie Interim Storage Site (CISS), Colonie, New York

Operations Office Information

Office: Oak Ridge Operations - Former Sites Restoration Division

Address: P.O. Box 2001

Oak Ridge, TN 37831-8723

Contact: David Adler Phone: (FTS) 626-9636
(615) 576-9634

Site Information

Operator: Bechtel National, Inc.

Site Address: 1130 Central Avenue

Colonie, NY 12205

Contact: Cathy Hickey Phone: (FTS) 626-1677
(615) 576-1677

Mailing Address: P.O. Box 350

Oak Ridge, TN 37831-0350

Section I. Facility Information

Site Description

The Colonie site occupies 4.5 ha (11.2 acres) and is 6.4 km (3.8 mi) northwest of downtown Albany and about 4.8 km (3.0 mi) southeast of the Village of Colonie. It consists of former industrial property and one plant building where National Lead Industries, Inc. manufactured a variety of products using depleted uranium.

The residential population of the town of Colonie is approximately 74,600. The land use in the vicinity of CISS is primarily industrial and residential. Central Avenue runs along the northeastern side of the CISS property; the Conrail main line and a railroad siding border it on the southern side. Residential properties lie beyond the railroad tracks.

Based on historical weather data from 1951 to 1980, the average annual daily maximum temperature for the Albany area is 21.9°C (41.4°F). The highest average monthly (July) temperature is 21.9°C (71.4°F) and the lowest is -6.1°C (21.1°F) (January). Average annual precipitation is 91.5 cm (35.7 in.) with average annual snowfall of 146.1 cm (57 in.). Winds in the area blow predominantly from the south at a mean speed of 14.3 km/h (8.9 mph).

Source Description

The source is a storage pile of 394 m² (471 yd²) in areal extent covered by a 99 percent vegetative cover.

Section II. Air Emissions Data

<u>Point Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
None	N.A.	N.A.	N.A.

<u>Area Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
394 m ²	Vegetative cover	99 percent	300 m

<u>Radionuclide</u>	<u>Annual Quantity (Ci/yr)</u>
U-238	4.743 x 10 ⁻⁸
U-234	4.609 x 10 ⁻⁸
U-235	2.104 x 10 ⁻⁹

N.A. = Not Applicable

Section III. Dose Assessments

Description of Dose Model

The effective dose equivalent for a hypothetical maximally-exposed individual was calculated in a two-step process. The first step consisted of modeling the release of particulates from the site using the methodology given in DOE's Remedial Action Priority System (RAPS) Mathematical Formulation. After the particulate release rate was determined, this information, along with local meteorological data for 1990, was used in the EPA's AIRDOS computer model. In the second step, the AIRDOS model was then used to calculate the effective dose equivalent for a hypothetical individual at 300 m (984 ft) from the site. To model a worst-case scenario, the distance of 300 m (984 ft) was used for the calculation because of the limits of the model; the input distance could not be decreased beyond a minimum of 300 m (984 ft).

Summary of Input Parameters

Average temperature for 1990 was 8.0°C (46.4°F)

Total precipitation for 1990 was 89.0 cm (34.7 in.)

For the wind speed, the AIRDOS file LEA0435.WND was used in the calculations

The maximally exposed individual was assumed to be 300 m (984 ft) from the site for the entire year

Compliance Assessment

Effective Dose Equivalent: 0.0002 (mrem/yr)

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: William M. SEAY

Signature: William M. Seay

Date: 6/28/91

U.S. Department of Energy
Air Emissions Annual Report
(under Subpart H, 40 CFR Section 61.94)
Calendar Year 1990

Site Name: Maywood Interim Storage Site (MISS), Maywood,
New Jersey

Operations Office Information

Office: Oak Ridge Operations - Former Sites Restoration Division

Address: P.O. Box 2001

Oak Ridge, TN 37831-8723

Contact: David Adler Phone: (FTS) 626-9634
(615) 576-9634

Site Information

Operator: Bechtel National, Inc.

Site Address: 100 North Hunter Avenue

Maywood, NJ 07607

Contact: Mike Redmon Phone: (FTS) 626-4718
(615) 576-4718

Mailing Address: P.O. Box 350

Oak Ridge, TN 37831-0350

Section I. Facility Information

Site Description

The site is located in a highly developed area in the Borough of Maywood and the Township of Rochelle Park in Bergen County, New Jersey. MISS is located approximately 19 km (12 mi) north-northwest of New York City and 21 km (13 mi) northeast of Newark, New Jersey. MISS is bounded by New Jersey Route 17 on the west; a railroad line on the north; and commercial/industrial areas on the south and east. Residential areas are located north of the railroad and within 274 m (300 yd) to the west. The site is a fenced lot occupying approximately 4.7 ha (11.7 acres).

MISS was established to provide interim storage for low-level radioactive soils found in the vicinity of the former Maywood Chemical Works. From 1916 through 1956, the Maywood Chemical Works processed monazite sand for industrial uses. Process wastes were placed in surface impoundments onsite. Some of these process wastes were later used as mulch and fill on nearby properties, contaminating them with radioactive thorium.

In 1954, after the enactment of the Atomic Energy Act, the Atomic Energy Commission (AEC) issued a license to the Maywood Chemical Works for the processing and manufacture of radioactive material. The Maywood Chemical Works stopped processing thorium in 1956 and was sold to the Stepan Company in 1959. Based on AEC inspections and information, remedial actions were performed by the Stepan Company to consolidate some of the radioactively contaminated soil.

From 1980 to 1984, subsequent radiological surveys identified additional areas of contamination, both onsite and offsite. In 1984, DOE negotiated a lease for Stepan Company land on which MISS would be established. In 1985, the land was transferred to DOE ownership and currently provides interim storage for contaminated materials removed from vicinity properties.

Based on historical weather data from 1951 to 1980, the mean monthly temperature ranges from a low of -2.6°C (27.4°F) in January to a high of 22.9°C (73.2°F) in July. The mean annual precipitation is about 123.8 cm (48.3 in.). The wind blows predominantly from the southwest at approximately 16.4 km/h (10.2 mph).

Source Description

The source area consists of an interim storage pile with a surface area of 6,719 m² (8,036 yd²) and the remainder of the site area which is approximately 40,619 m² (48,580 yd²). The pile is completely covered with an impervious synthetic liner and the rest of the site is covered with vegetation. There is no input in the AIRDOS model to express the efficiency of the synthetic liner in controlling particulate emissions. The efficiency of the liner was assumed to be the same as 99 percent vegetative cover in order to run the model.

Section II. Air Emissions Data

<u>Point Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
None	N.A.	N.A.	N.A.

<u>Area Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
Pile A: 6,719 m ²	Synthetic pile cover	99 percent	300 m
Rest of the area: 40,619.2 m ²	Vegetative cover	99 percent	300 m

<u>Radionuclide</u>	<u>Annual Quantity (Ci/yr)</u>
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Pile A

U-238	1.392 x 10 ⁻⁷
U-235	1.352 x 10 ⁻⁷
U-234	6.173 x 10 ⁻⁹
Ra-226	8.188 x 10 ⁻⁹
Th-232	1.146 x 10 ⁻⁷

Rest of the area

U-238	2.080 x 10 ⁻⁶
U-235	2.021 x 10 ⁻⁶
U-234	9.227 x 10 ⁻⁸
Ra-226	6.172 x 10 ⁻⁷
Th-232	4.047 x 10 ⁻⁶

N.A. = Not applicable

Section III. Dose Assessments

Description of Dose Model

The effective dose equivalent for a hypothetical maximally-exposed individual was calculated in a two-step process. The first step consisted of modeling the release of particulates from the site using the methodology given in DOE's Remedial Action Priority System (RAPS) Mathematical Formulation. After the particulate release rate was determined, this information, along with local meteorological data for 1990, was used in the EPA's AIRDOS computer model. In the second step, the AIRDOS model was then used to calculate the effective dose equivalent for a hypothetical individual at 300 m (984 ft) from the site. To model a worst case scenario, the distance of 300 m (984 ft) was used for the calculation because of the limits of the model; the input distance could not be decreased beyond a minimum of 300 m (984 ft).

Summary of Input Parameters

Average temperature for 1990 was 12.1°C (53.8°F)

Total precipitation for 1990 was 121.5 cm (47.4 in.)

For the wind speed, the AIRDOS file LEA0435.WND was used in the calculations

The maximally exposed individual was assumed to be 300 m (984 ft) from the site for the entire year

Compliance Assessment

Effective Dose Equivalent: 0.0083 (mrem/yr)

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: William M. Sety

Signature: William M. Sety

Date: 6/28/91

U.S. Department of Energy
Air Emissions Annual Report
(under Subpart H, 40 CFR Section 61.94)
Calendar Year 1990

Site Name: Middlesex Sampling Plant (MSP), Middlesex, New Jersey

Operations Office Information

Office: Oak Ridge Operations - Former Sites Restoration Division

Address: P.O. Box 2001

Oak Ridge, TN 37831-8723

Contact: David Adler Phone: (FTS) 626-9634
(615) 576-9634

Site Information

Operator: Bechtel National, Inc.

Site Address: 239 Mountain Avenue

Middlesex, NJ 08846

Contact: Mike Redmon Phone: (FTS) 626-4718
(615) 576-4718

Mailing Address: P.O. Box 350

Oak Ridge, TN 37831-0350

Section I. Facility Information

Site Description

The site is located in the Borough of Middlesex, New Jersey. The MSP site occupies 3.9 ha (9.6 acres). There are four buildings on the site which is surrounded by a high chain-link fence. Most of the site is paved with asphalt. Building A was used as the administrative offices; Building B was a garage; Building C was a process building where ore was weighed, sampled and assayed; and Building D was a boiler house, the source of steam for the process building.

Based on historical weather data from 1951 to 1980, the average annual temperature is 11.6°C (52.9°F). The highest average monthly (July) temperature is 23.8°C (74.8°F) and the lowest is -1.1°C (30.1°F) (January). Average annual precipitation is 107 cm (41.7 in.) with an average annual snowfall of 69.9 cm (27.3 in.). Approximately 15 million people reside within 80 km (50 mi) of Middlesex, New Jersey.

Source Description

Waste source material at the site consists of two interior storage piles with surface areas of 8,838 m² (10,570 yd²) and 6,673 m² (7,981 yd²). The remaining area was considered a separate source and covers 23,330.6 m² (27,903 yd²). The site is covered predominantly with asphalt. There is no input in the AIRDOS model to express the efficiency of the asphalt in controlling particulate emissions. The efficiency of the asphalt was assumed to be the same as 99 percent vegetative cover in order to run the model.

Section II. Air Emissions Data

<u>Point Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
None	N.A.	N.A.	N.A.

<u>Area Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
File A: 8,838 m ²	Synthetic pile cover	99 percent	300 m
File B: 6,673 m ²	Synthetic pile cover	99 percent	300 m
Rest of the area: 23,330.6 m ²	Asphalt and vegetative cover	99 percent	300 m

<u>Radionuclide</u>	<u>Annual Quantity (Ci/yr)</u>
---------------------	--------------------------------

File A

U-238	5.385 x 10 ⁻⁷
U-234	5.232 x 10 ⁻⁷
U-235	2.290 x 10 ⁻⁸
Ra-226	5.385 x 10 ⁻⁷

File B

U-238	4.066 x 10 ⁻⁷
U-234	3.940 x 10 ⁻⁷
U-235	1.730 x 10 ⁻⁸
Ra-226	4.066 x 10 ⁻⁷

Rest of the area

U-238	8.571 x 10 ⁻⁷
U-234	8.327 x 10 ⁻⁷
U-235	3.780 x 10 ⁻⁸
Ra-226	6.038 x 10 ⁻⁷
Th-232	4.025 x 10 ⁻⁸

N.A. = Not applicable

Section III. Dose Assessments

Description of Dose Model

The effective dose equivalent for both the hypothetical maximally-exposed individual was calculated in a two-step process. The first step consisted of modeling the release of particulates from the site using the methodology given in DOE's Remedial Action Priority System (RAPS) Mathematical Formulation. After the particulate release rate was determined, this information, along with local meteorological data for 1990, was used in the EPA's AIRDOS computer model. In the second step, the AIRDOS model was then used to calculate the effective dose equivalent for a hypothetical individual at 300 m (984 ft) from the site. To model a worst-case scenario, the distance of 300 m (984 ft) was used for the calculation because of the limits of the model; the input distance could not be decreased beyond a minimum of 300 m (984 ft).

Summary of Input Parameters

Average temperature for 1990 was 12.1°C (53.8°F)

Total precipitation for 1990 was 121.5 cm (47.4 in.)

For the wind speed, the AIRDOS file LEA0435.WND was used in the calculations

The maximally exposed individual was assumed to be 300 m (984 ft) from the site for the entire year.

Compliance Assessment

Effective Dose Equivalent: 0.0034 (mrem/yr)

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: William M. SEAY

Signature: 

Date: 6/28/91

U.S. Department of Energy
Air Emissions Annual Report
(under Subpart H, 40 CFR Section 61.94)
Calendar Year 1990

Site Name: Niagara Falls Storage Site (NFSS), Youngstown, New York

Operations Office Information

Office: Oak Ridge Operations - Former Sites Restoration Division

Address: P.O. Box 2001

Oak Ridge, TN 37831-8723

Contact: David Adler Phone: (FTS) 626-9634
(615) 576-9634

Site Information

Operator: Bechtel National, Inc.

Site Address: 1397 Pletcher Road

Youngstown, NY 14174

Contact: Cathy Hickey Phone: (FTS) 626-1677
(615) 576-1677

Mailing Address: P.O. Box 350

Oak Ridge, TN 37831-0350

Section I. Facility Information

Site Description

NFSS occupies approximately 77.0 ha (190 acres) and is located in northwestern New York within the Township of Lewiston. The site is approximately 6.0 km (3.7 mi) south of Lake Ontario and 16 km (9.9 mi) north of the City of Niagara Falls. The first materials to arrive at the site were low-grade radioactive residues and by-products from the Linde Air Products Division. These residues were stored in buildings.

The primary areas of population near NFSS are the Towns of Lewiston, (population 16,200), Niagara (population 9,650), Porter (population 7,250), and Niagara Falls City (population 71,400). The nearest residence to the site is 1.1 km (0.68 mi) southwest of the site.

Based on historical weather data from 1951 to 1980, the average monthly temperature range is -4.7°C to 21.5°C (23.5°F to 70.7°F) with a mean annual temperature of 5.9°C (47.6°F). The mean annual precipitation is 96.2 cm (37.5 in.). Snowfall averages 140 cm/yr (55 in./yr). The average monthly wind speed ranges from 16 km/hr (9.9 mph) to 23 km/hr (14 mph).

Source Description

NFSS occupies approximately 77.0 ha (190 acres) and is covered by a 99 percent vegetative cover.

Section II. Air Emissions Data

<u>Point Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
None	N.A.	N.A.	N.A.

<u>Area Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
44,516 m ²	Vegetative Cover	99 percent	300 m

<u>Radionuclide</u>	<u>Annual Quantity (Ci/yr)</u>
U-238	5.605 x 10 ⁻⁶
U-234	5.446 x 10 ⁻⁶
U-235	2.480 x 10 ⁻⁷
Ra-226	3.420 x 10 ⁻⁴

N.A. = Not applicable

Section III. Dose Assessments

Description of Dose Model

The effective dose equivalent for both the hypothetical maximally-exposed individual was calculated in a two-step process. The first step consisted of modeling the release of particulates from the site using the methodology given in DOE's Remedial Action Priority System (RAPS) Mathematical Formulation. After the particulate release rate was determined, this information, along with local meteorological data for 1990, was used in the EPA's AIRDOS computer model. In the second step, the AIRDOS model was then used to calculate the effective dose equivalent for a hypothetical individual at 300 m (984 ft) from the site. To model a worst-case scenario, the distance of 300 m (984 ft) was used for the calculation because of the limits of the model; the input distance could not be decreased beyond a minimum of 300 m (984 ft).

Summary of Input Parameters

Average temperature for 1990 was 9.0°C (48.2°F)

Total precipitation for 1990 was 114 cm (44.5 in.)

For the wind speed, the AIRDOS file 1AG0905.WND was used in the calculations

The maximally exposed individual was assumed to be 300 m (984 ft) from the site for the entire year.

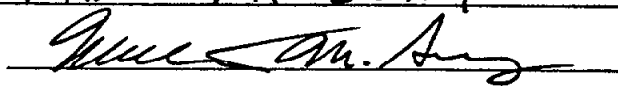
Compliance Assessment

Effective Dose Equivalent: 0.3400 (mrem/yr)

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: William M. SEAY

Signature: 

Date: 6/28/91

U.S. Department of Energy
Air Emissions Annual Report
(under Subpart H, 40 CFR Section 61.94)
Calendar Year 1990

Site Name: New Brunswick Laboratory Site (NBLs), New Brunswick,
New Jersey

Operations Office Information

Office: Oak Ridge Operations - Former Sites Restoration Division

Address: P.O. Box 2001

Oak Ridge, TN 37831-8723

Contact: David Adler Phone: (FTS) 626-9634
(615) 576-9634

Site Information

Operator: Bechtel National, Inc.

Site Address: 986 Jersey Avenue

New Brunswick, NJ 08903

Contact: Mike Redmon Phone: (FTS) 626-4718
(615) 576-4718

Mailing Address: P.O. Box 350

Oak Ridge, TN 37831-0350

Section I. Facility Information

Site Description

The New Brunswick Laboratory Site (NBLs) is located in Middlesex County approximately 3.2 km (2.0 mi) south-southwest of downtown New Brunswick, New Jersey, and 48 km (30 mi) southwest of New York City. NBLs is a vacant, grass-covered lot and covers 2.3 ha (5.6 acres). Jersey Avenue forms the northwest boundary of the site.

From 1948 to 1977, NBLs was used by DOE and its predecessors as a general nuclear chemistry laboratory for analytical and standards assay work relating to nuclear and nonnuclear materials utilized by the reactor and weapons programs.

Site remediation was initiated in the late 1970s and included deactivation and preliminary decontamination of the site. Follow-up surveys indicated that more extensive cleanup would be required. Each onsite structure was dismantled and removed from the site. In addition, leaking drains, piping, and the surrounding soil were excavated and removed from the site.

Subsequent characterization of radioactive and chemical contamination at NBLs indicated both onsite and offsite areas of contamination remaining.

Based on historical weather data from 1951 to 1980, the mean monthly temperature ranges from a low of -1.1°C (30.1°F) in January to a high of 23.8°C (74.8°F) in July. The mean annual precipitation is about 125.1 cm (48.8 in.). The wind blows predominantly from the southwest at approximately 16.4 km/h (10.2 mph).

Source Description

The source area is consists of a vacant lot that is 23,000 m² (27,510 yd²) and has a 99 percent of vegetative cover.

Section II. Air Emissions Data

<u>Point Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
None	N.A.	N.A.	N.A.

<u>Area Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
23,000 m ²	Vegetative Cover	99 percent	300 m

<u>Radionuclide</u>	<u>Annual Quantity (Ci/yr)</u>
U-238	3.203 x 10 ⁻⁶
U-234	3.1128 x 10 ⁻⁶
U-235	1.145 x 10 ⁻⁷
Th-232	1.08 x 10 ⁻⁷
Ra-226	3.74 x 10 ⁻⁷

N.A. = Not applicable

Section III. Dose Assessments

Description of Dose Model

The effective dose equivalent for a hypothetical maximally-exposed individual was calculated in a two-step process. The first step consisted of modeling the release of particulates from the site using the methodology given in DOE's Remedial Action Priority System (RAPS) Mathematical Formulation. After the particulate release rate was determined, this information, along with local meteorological data for 1990, was used in the EPA's AIRDOS computer model. In the second step, the AIRDOS model was then used to calculate the effective dose equivalent for a hypothetical individual at 300 m (984 ft) from the site. To model a worst case scenario, the distance of 300 m (984 ft) was used for the calculation because of the limits of the model; the input distance could not be decreased beyond a minimum of 300 m (984 ft).

Summary of Input Parameters

Average temperature for 1990 was 12.0 °C (53.6°F)

Total precipitation for 1990 was 122.0 cm (47.6 in.)

For the wind speed, the AIRDOS file 7NY_NY.WND was used in the calculations

The maximally exposed individual was assumed to be 300 m (984 ft) from the site for the entire year


Compliance Assessment

Effective Dose Equivalent: 0.0040 (mrem/yr)

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: William M. SEAY

Signature:  Date: 6/28/91

U.S. Department of Energy
Air Emissions Annual Report
(under Subpart H, 40 CFR Section 61.94)
Calendar Year 1990

Site Name: Wayne Interim Storage Site (WISS), Wayne, New Jersey

Operations Office Information

Office: Oak Ridge Operations - Former Sites Restoration Division

Address: P.O. Box 2001

Oak Ridge, TN 37831-8723

Contact: David Adler Phone: (FTS) 626-9634
(615) 576-9634

Site Information

Operator: Bechtel National, Inc.

Site Address: 868 Black Oak Ridge Road

Wayne, NJ 07470

Contact: Mike Redmon Phone: (FTS) 626-4718
(615) 576-4718

Mailing Address: P.O. Box 350

Oak Ridge, TN 37831-0350

Section I. Facility Information

Site Description

The site is located in a highly developed area of northern New Jersey, approximately 32 km (20 mi) north-northwest of Newark, New Jersey and approximately 58 km (36 mi) northwest of New York City. WISS is located at the intersection of Black Oak Ridge Road and Pompton Plains Cross Road in Wayne Township, Passaic County. The site is roughly rectangular in shape and covers approximately 2.6 ha (6.4 acres). The only building at WISS is a two-story office building.

WISS was established in 1984 to provide interim storage for soils containing low levels of thorium found in the vicinity of the former Rare Earths, Inc./W. R. Grace plant located in Wayne, New Jersey. From 1948 through 1971 these companies processed monazite sand to extract thorium and rare earths. In 1954, after the Atomic Energy Act was passed, the facility received an Atomic Energy Commission license to process the monazite sand. After processing ceased in 1971, the facility was licensed for storage only. The storage license was discontinued in 1975 following site decommissioning.

WISS is surrounded by commercial and residential properties. Residential properties border WISS on both the north and northeast, while commercial properties form southeast and southwest boundaries. A truck garden farm lies approximately 91 m (300 ft) northwest of the site.

Based on historical weather data 1951 to 1980, the mean monthly temperature ranges from a low of -2.6°C (27.4°F) in January to a high of 22.4°C (72.4°F) in July. The mean annual precipitation is about 122.6 cm (47.8 in.). The wind blows predominantly from the southwest at approximately 16.4 km/h (10.2 mph).

Source Description

The source area is $8,680\text{ m}^2$ ($10,380\text{ yd}^2$) in areal extent and consists of the surface area of the interim storage pile and the remainder of the site. The pile is completely covered with an impervious synthetic material and the rest of the site is covered with vegetation. There is no input in the AIRDOS model to express the efficiency of the synthetic liner in controlling particulate emissions. The efficiency of the liner was assumed to be the same as 99 percent vegetative cover in order to run the model.

Section II. Air Emissions Data

<u>Point Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
None	N.A.	N.A.	N.A.

<u>Area Source</u>	<u>Type Control</u>	<u>Efficiency</u>	<u>Distance to Receptor</u>
8,680 m ²	Synthetic pile cover	99 percent	300 m
	Vegetative cover		

<u>Radionuclide</u>	<u>Annual Quantity (Ci/yr)</u>
U-238	6.346 x 10 ⁻⁸
U-234	2.815 x 10 ⁻⁹
U-235	6.167 x 10 ⁻⁸
Ra-226	1.693 x 10 ⁻⁸
Th-230	2.433 x 10 ⁻⁸
Th-232	1.269 x 10 ⁻⁷

N.A. = Not applicable

Section III. Dose Assessments

Description of Dose Model

The effective dose equivalent for a hypothetical maximally-exposed individual was calculated in a two-step process. The first step consisted of modeling the release of particulates from the site using the methodology given in DOE's Remedial Action Priority System (RAPS) Mathematical Formulation. After the particulate release rate was determined, this information, along with local meteorological data for 1990, was used in the EPA's AIRDOS computer model. In the second step, the AIRDOS model was then used to calculate the effective dose equivalent for a hypothetical individual at 300 m (984 ft) from the site. To model a worst case scenario, the distance of 300 m (984 ft) was used for the calculation because of the limits of the model; the input distance could not be decreased beyond a minimum of 300 m (984 ft).

Summary of Input Parameters

Average temperature for 1990 was 12.1°C (53.8°F)

Total precipitation for 1990 was 121.5 cm (47.4 in.)

For the wind speed, the AIRDOS file LEA0405.WND was used in the calculations

The maximally exposed individual was assumed to be 300 m (984 ft) from the site for the entire year.


Compliance Assessment

Effective Dose Equivalent: 0.0003 (mrem/yr)

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: William M. Seay

Signature:  Date: 6/28/91



CALCULATION SHEET

137-05/137-17

CALC. NO. _____ REV. NO. _____

ORIGINATOR E. M. McNamee DATE 1-22-78 CHECKED _____ DATE _____PROJECT FUSRAP JOB NO. 14501 - 137/139SUBJECT Radon Flux Calculations for WISS SHEET NO. 1 of 3

and CISS

Purpose: The purpose of these calculations are to calculate the average radon flux from the Wayne Interim Storage Site (WISS) and the Colonie Interim Storage Site (CISS). These calculated flux values will then be compared to the flux standard given in 40 CFR Part 61.192 of 80 pCi/m³/s.

Scope: The radon flux rate for the subject sites will be calculated by using a graph of flux rate/concentration versus the thickness of the contaminated soil. Once the appropriate flux rate/concentration is selected from the graph, this number will be multiplied by the average Ra-226 concentration to calculate the average flux rate.

References: (1) Oak Ridge National Laboratory, "Radiological Survey of the Seaway Industrial Park, Tonawanda, New York, "Oak Ridge, TN, DOE/EV-00051a, May 1978.

(2) Colonie data was obtained from the Colonie RI data (unpublished).

(3) Letter Hovey to Ahrens, "NJ PDES/DWG Permit No. NJ0055051 for WISS; Waste Pile Analysis Results," May 13, 1987 (CN 044850).

(4) Letter Hovey to Gross, "NJ PDES/DWG Permit No. NJ0055051 for WISS; Waste Pile Analysis Results," August 18, 1989 (CN 063210).



CALCULATION SHEET

CALC. NO. _____ REV. NO. _____

ORIGINATOR E.M. M. Alimer DATE 1-22-90

CHECKED _____ DATE _____

PROJECT FELSRAD

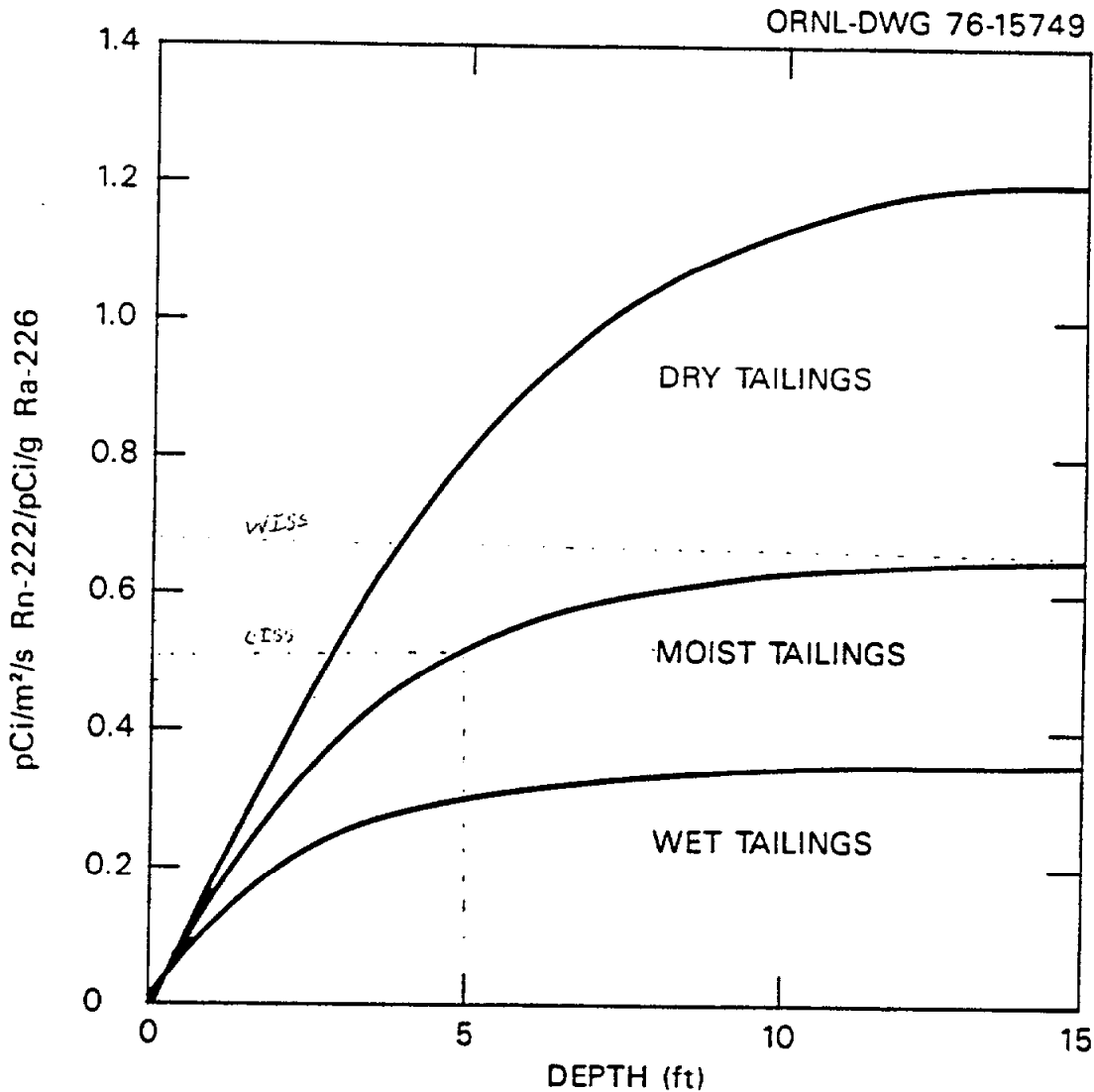
JOB NO. 14501 - 137/139

SUBJECT Radon Flux Calculations for WISS

SHEET NO. 2 of 3

and CISS

Calculations: The following flux calculations will use the blow graph to determine the flux rate/concentration for each site. This graph can be found in Reference 1.



CISS

- Assumptions
- 1) Average concentration of Rn-222 = 3 pCi/g
 - 2) Average depth = 5 ft
 - 3) The soil has the same emanation rate as moist tailings.

Formula: Flux rate = (Flux rate/concentration) (concentration)



CALCULATION SHEET

CALC. NO. _____ REV. NO. _____

ORIGINATOR E. M. Williams DATE 1-22-90

CHECKED _____ DATE _____

PROJECT FLISSRP2JOB NO. 14501-137/139SUBJECT Radon Flux Calculations for WISSSHEET NO. 3 of 3

and CISS

CISS (cont.)

$$\text{Flux rate} = \left(0.5 \frac{\text{pCi}/\text{m}^2/\text{s}}{\text{pCi}/\text{g}} \right) (3 \text{ pCi}/\text{g}) = \boxed{1.5 \text{ pCi}/\text{m}^2/\text{s}}$$

The calculated radon flux rate of 1.5 pCi/m²/s is much less than the radon flux standard of 20 pCi/m²/s given in 40 CFR 61.192.

WISS Assumptions: 1) Average concentration of Ra-226 = 1.6 pCi/g.
 2) Average depth = 15 ft
 3) The soil has the same emanation rate as moist tailings.

Formulas: Flux rate = (Flux rate/concentration) (concentration)

$$\text{Flux rate} = \left(0.7 \frac{\text{pCi}/\text{m}^2/\text{s}}{\text{pCi}/\text{g}} \right) (1.6 \text{ pCi}/\text{g}) = \boxed{1.1 \text{ pCi}/\text{m}^2/\text{s}}$$

The calculated radon flux rate of 1.1 pCi/m²/s is much less than the radon flux standard of 20 pCi/m²/s given in 40 CFR 61.192.