

M-180
083686 01

Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for Maywood, New Jersey



U.S. Department of Energy

Bechtel

Oak Ridge Corporate Center
151 Lafayette Drive
P.O. Box 350
Oak Ridge, Tennessee 37831-0350

Job No. 14501, FUSRAP Project
DOE Contract No. DE-AC05-91OR21949
Code: 7315/WBS: 138

Facsimile: (615) 220-2100

DEC 12 1991

U.S. Department of Energy
Oak Ridge Operations
P.O. Box 2001
Oak Ridge, TN 37831-8723

Attention: Susan M. Cange, Site Manager
Former Sites Restoration Division

Subject: Gamma Exposure Rate Surveys of Five Streets
in Maywood, New Jersey

Dear Ms. Cange:

Per your request gamma exposure rate surveys were performed on five streets in Maywood, New Jersey that are adjacent to or in near proximity of the Maywood Interim Storage Site (MISS). The surveys were conducted on November 22, 1991, by TMA/Eberline personnel as directed by Bechtel National, Inc. (BNI). The streets surveyed were: a portion of West Central Avenue, Lenox Avenue, West Magnolia Avenue, Thoma Avenue, and Taplin Avenue.

The purpose of the surveys was to determine whether or not the interim storage pile at the MISS is contributing significantly to background radiation in the area. The average background gamma radiation exposure rate for the Maywood area is 9 $\mu\text{R}/\text{h}$. Data collected during these surveys indicated gamma exposure rate measurements ranging from 7 to 15.9 $\mu\text{R}/\text{h}$. None of the measurements obtained were significantly above background and all were less than 20 $\mu\text{R}/\text{h}$ which would be approximately equal to DOE's limit of 100 mR/yr for the general public.

Review of the data indicate that there is no significant contribution to background gamma radiation exposure from the MISS. A description of the survey methodology and data interpretation along with a map showing the survey locations and the actual gamma exposure rate measurements for each street is enclosed.



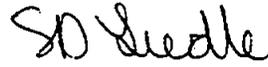
Bechtel National, Inc.

Susan M. Cange

2

If you have any questions or if further information is needed,
please call me at 6-3997 or Mike Redmon at 6-4718.

Very truly yours,



S. D. Liedle
Project Manager - FUSRAP

cc: M. E. Redmon, BNI

Enclosures: As Stated

METHODOLOGY:

Five streets were requested for inclusion in this survey. These streets are all parallel with the Maywood Interim Storage Site (MISS). The streets surveyed, beginning with the street closest to the MISS, were: West Central Avenue, Lenox Avenue, West Magnolia Avenue, Thoma Avenue, and Taplin Avenue. West Central Avenue was surveyed from Ramapo Avenue to 207 West Central Avenue. The remaining four streets were surveyed from their beginning at Maywood Avenue to their end point.

The area surveyed on all five streets was of sufficient size to provide exposure rate data from properties that are immediately adjacent to or in near proximity to the MISS pile as well as those properties "in line" with the pile from West Central Avenue to Taplin Avenue (which is the first street past the Maywood Town Hall/Public Library). The area surveyed did not include additional side streets between each of the above streets.

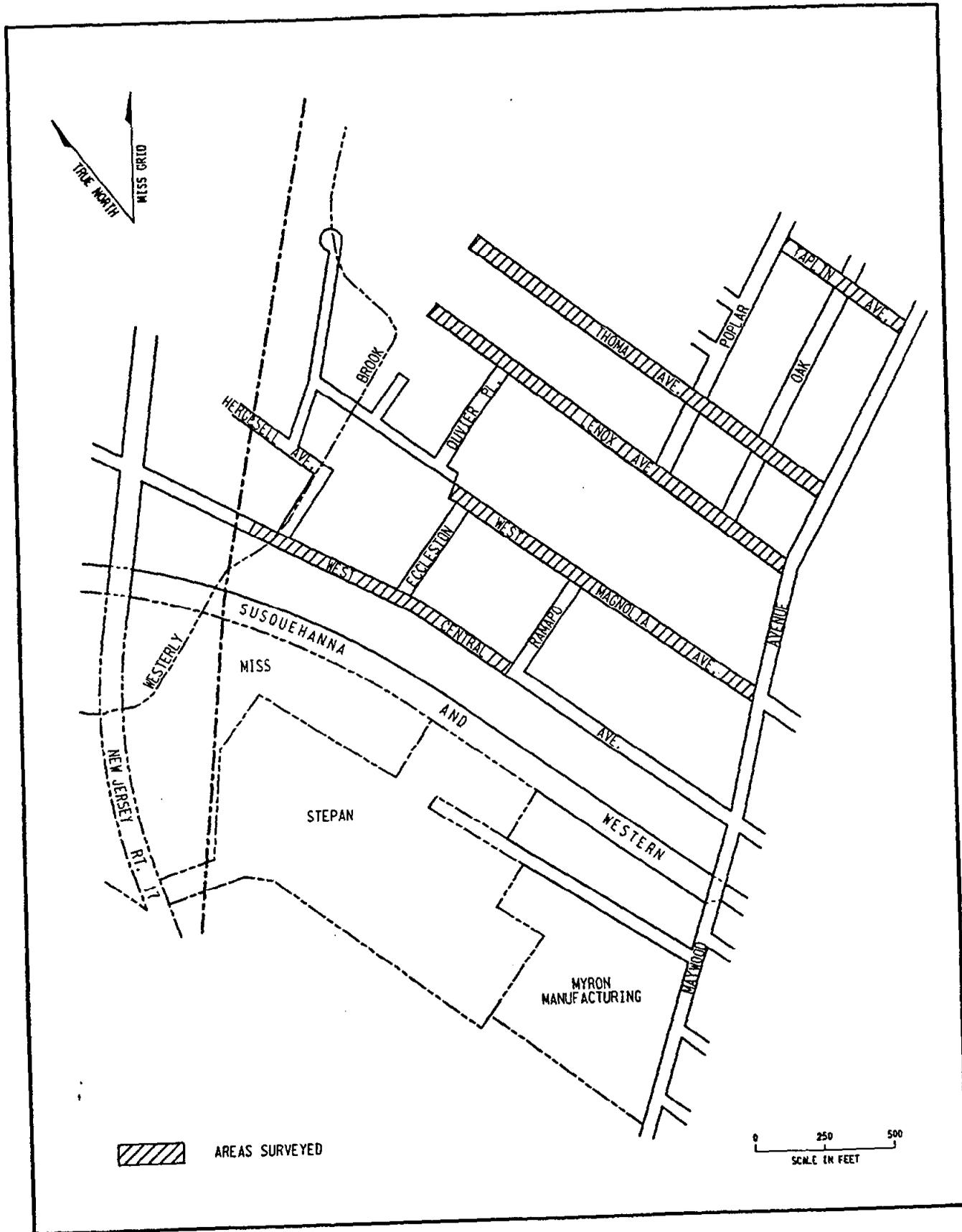
Gamma exposure rate measurements were obtained, using a pressurized ionization chamber (PIC), at 50 ft intervals along both sides of each street surveyed. This resulted in a measurement being taken in front of approximately every other residence along both sides of the street in a zigzag pattern so that no two measurements were obtained from opposing locations. The PIC instrument has a response to gamma radiation that is proportional to exposure in microrentgens per hour ($\mu\text{R}/\text{h}$).

Data obtained from the radiological measurements of each street are provided in the attached tables and the street locations are shown in the attached figure.

DATA INTERPRETATION:

The average background gamma exposure rate measurement for this area is $9 \mu\text{R}/\text{h}$ (Levin 1968). The DOE limit for gamma radiation to members of the general public is 100 milliroentgens per year (mR/yr) above background with 1000 μR being equivalent to 1 mR. The DOE limit of 100 mR/yr may be converted to an hourly exposure rate of approximately $11 \mu\text{R}/\text{h}$ above background which assumes an occupancy rate of 365 days per year and 24 hours per day. As such, any measurement above $20 \mu\text{R}/\text{h}$ ($11 \mu\text{R}/\text{h}$ plus $9 \mu\text{R}/\text{h}$ background) may result in an annual exposure above DOE's limit.

None of the measurements obtained in this survey were significantly above background and all were less than $20 \mu\text{R}/\text{h}$ which would be approximately equal to DOE's limit of 100 mR/yr for the general public. Review of this data indicates that there is no significant contribution to background gamma radiation exposure from the MISS.



138F113.DGN

MAP OF GAMMA EXPOSURE RATE SURVEY
ON 5 MAYWOOD STREETS

GAMMA EXPOSURE RATE MEASUREMENTS

WEST CENTRAL AVENUE

NOVEMBER 22, 1991

<u>Location or House Number</u>	<u>Measurement (μR/h)</u>
204	9.2
207	8.2
Corner of bridge over Westerly Brook - MISS side	8.4
187	8.5
PSE&G Substation Driveway (across from 183 West Central Avenue)	8.3
179	8.7
PSE&G Substation Driveway (across from 175 West Central Avenue)	8.5
167	7.9
PSE&G Substation (across from 161 West Central Avenue)	9.4
271 Eccleston/Corner of W. Central Avenue	9.1
146	8.9
270 Eccleston/Corner of W. Central Avenue	8.9
136	8.8
131	9.0
126 or 128 (no house number shown)	8.9
121	9.1
116	9.4
111	9.6
106	9.3
Corner of Ramapo Avenue and West Central Avenue	9.5

GAMMA EXPOSURE RATE MEASUREMENTS

LENOX AVENUE

NOVEMBER 22, 1991

<u>Location or House Number</u>	<u>Measurement (μR/h)</u>
381 Maywood Avenue/Corner of Lenox Avenue	8.1
391 Maywood Avenue/Corner of Lenox Avenue	8.1
19	8.2
20	8.5
24	8.3
Middle of street (intersection of Lenox Avenue and Oak Street)	7.3
36	8.2
373 Oak Street (Lenox Avenue side of backyard)	8.4
48	8.9
55	7.8
63	8.9
66	8.5
70	8.5
75	7.9
80 and 82	8.2
81	7.4
90	9.2
95	7.9
96	7.9
103	8.0
107 (Corner of Lenox Avenue and Wilhelm)	8.3
110	8.1
118	7.9
127	8.2
132	8.4
135	7.8
140	7.4
143	7.5
148	7.5
155	8.2
158	7.1

GAMMA EXPOSURE RATE MEASUREMENTS

WEST MAGNOLIA AVENUE

NOVEMBER 22, 1991

<u>Location or House Number</u>	<u>Measurement (μR/h)</u>
4	9.8
341 Maywood Avenue/Magnolia Avenue side	10.1
18	9.2
19	8.6
28	9.5
33	9.5
37	9.8
38	9.7
48 and 50	9.7
53	9.8
No house number shown (across from number 57)	9.9
63	9.6
66	10.2
67	10.1
Middle of street (intersection of Ramapo Avenue and W. Magnolia Avenue)	15.2
81	9.8
Backyard (across from number 85)	9.5
89	10.4
98	10.2
101	9.6
106	10.1
113	9.3
118	9.9
121	9.7
Middle of street (intersection of Eccleston and W. Magnolia Avenue)	15.9

GAMMA EXPOSURE RATE MEASUREMENTS

THOMA AVENUE

NOVEMBER 22, 1991

<u>Location or House Number</u>	<u>Measurement (μR/h)</u>
9	7.0
First Presbyterian Church	8.0
17	7.4
22	7.6
25	7.6
Middle of street (intersection of Thoma Avenue and Oak Street)	7.0
39	8.3
385 Oak Street (Thoma Avenue side of backyard)	8.2
45	8.4
49	7.5
50	8.3
56	9.1
Middle of street (intersection of Thoma Avenue and Poplar Street)	7.8
65	7.8
68	7.6
79	8.1
80	8.0
87	8.1
90	7.7
92	7.5
95	8.1
96	8.7
103	7.6
108	8.8
115	8.9
118	8.5
123	8.6

GAMMA EXPOSURE RATE MEASUREMENTS

TAPLIN AVENUE

NOVEMBER 22, 1991

<u>Location or House Number</u>	<u>Measurement (μR/h)</u>
491 Maywood Avenue/Corner of Taplin Avenue	9.1
Lutheran Church	9.0
491 Maywood Avenue (Taplin Avenue side of driveway)	7.5
24	7.9
Corner of Taplin Avenue and Oak Street)	7.8
34	7.6
453 Oak Street (Taplin Avenue side of backyard)	8.4
40	8.3
456 Poplar Avenue (Taplin Avenue side of backyard)	7.2
54	7.9