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Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for Maywood, New Jersey



U.S. Department of Energy

**Department of Energy**

Field Office, Oak Ridge
P.O. Box 2001
Oak Ridge, Tennessee 37831— 8723

May 6, 1993

Mr. Jeffrey Gratz
Federal Facilities Section
U. S. Environmental Protection Agency
Region II
Jacob K. Javits Federal Building
26 Federal Plaza
New York, New York 10278

Dear Mr. Gratz:

MAYWOOD SITE - RESPONSE TO REQUEST FOR GROUNDWATER MONITORING RESULTS

The purpose of this letter is to provide the third quarter, 1992 groundwater monitoring results from the Maywood Interim Storage Site. We agreed to provide these results during our meeting of April 14. For your information these results will be contained in the 1992 Site Environmental Report for Maywood. The report is currently in draft.

Sincerely,

A handwritten signature in cursive script that reads "Susan M. Cange".

Susan M. Cange, Site Manager
Former Sites Restoration Division

Enclosure

Table 3-9
Radiological Results in Groundwater at MISS, 1992

Sampling Location	Sample Date	Total U	Ra-226 (Concentration Units = $10^{-9}\mu\text{Ci/ml}$)	Ra-228	Th-232
<u>Overburden</u>					
MISS-1AA	10/16/92	3.99	0.99	2.30	9.58
MISS-2A	10/19/92	1.08	2.40	3.80	0.87
MISS-3A	10/19/92	1.22	0.71	2.50	2.46
MISS-5A	10/14/92	22.95	0.39	4.00	6.13
MISS-6A	10/21/92	2.30	0.21 UJ	1.30 UJ	0.00 UJ
MISS-7A	NS	NS	NS	NS	NS
B38W19S	10/20/92	0.59	0.08 UJ	1.50	0.09 UJ
<u>Bedrock</u>					
MISS-1B	10/15/92	0.95	0.35	-0.10 UJ	0.04 UJ
MISS-2B	10/15/92	0.26	0.06 UJ	3.30 J	0.00 UJ
B38W03B	10/15/92	0.05	0.03 UJ	3.70 J	0.06 UJ
MISS-5B	10/14/92	0.11	0.15 UJ	4.40 J	-0.01 UJ
MISS-7B	10/13/92	5.35	0.17 UJ	3.90 J	0.10 UJ
B38W18D	10/14/92	3.45	0.31	4.20 J	0.03 UJ
B38W19D	10/13/92	0.24	0.51	5.30 J	0.00 UJ
<u>Background</u>					
B38W02D	10/21/92	0.44	0.02 UJ	8.70 J	0.26 UJ

Notes:

NS = not sampled

U = not detected at listed detection limit

J = estimated value

$1 \times 10^{-9} \mu\text{Ci/ml}$ is equivalent to 0.037 Bq/L. $1 \times 10^{-9} \mu\text{Ci/ml}$ is equivalent to 1 pCi/L. DOE guidelines for total uranium, radium-226, radium-228, and thorium-232 are 600×10^{-9} , 100×10^{-9} , 100×10^{-9} , and $50 \times 10^{-9} \mu\text{Ci/ml}$, respectively.

Measured background has not been subtracted.

Sampling locations are shown in Figure 3-4.

Table 3-10
Average Annual Concentrations of Total Uranium, Radium-226, and
Thorium-232 in Groundwater at MISS, 1987 - 1992

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Sampling Location	Average Annual Concentration					Concentration 1992
	1987	1988	1989	1990	1991	
Total Uranium ($10^{-9}\mu\text{Ci/ml}$)						
<u>Overburden</u>						
MISS-1AA	NS	NS	NS	NS	NS	3.99
MISS-2A	2.4	1.4	2.1	3	3	1.08
MISS-3A	2.0	1.5	1.2	3	1	1.22
MISS-5A	NS	NS	NS	NS	NS	22.95
MISS-6A	12.1	8.4	8.0	6	2	2.30
MISS-7A	NS	NS	NS	NS	NS	NS
B38W19S	NS	NS	NS	NS	NS	0.59
<u>Bedrock</u>						
MISS-1B	3.3	2.4	2.2	3	3	0.95
MISS-2B	2.1	0.8	1.0	3	3	0.26
B38W03B	NS	NS	NS	NS	3.3 U	0.05
MISS-5B	1.5	0.7	1.5	3	3	0.11
MISS-7B	5.0	6.3	7.0	4	5	5.35
B38W18D	NS	NS	4.8	3	7	3.45
B38W19D	NS	NS	NS	NS	NS	0.24
<u>Background</u>						
B38W02D	NS	NS	2.2	3	1	0.44
Radium-226 ($10^{-9}\mu\text{Ci/ml}$)						
<u>Overburden</u>						
MISS-1AA	NS	NS	NS	NS	NS	0.99
MISS-2A	0.4	1.0	1.3	0.9	0.8	2.40
MISS-3A	0.6	1.2	1.6	1.0	1.9	0.71
MISS-5A	NS	NS	NS	NS	NS	0.39
MISS-6A	0.5	2.0	1.3	0.8	1.0	0.21 UJ
MISS-7A	NS	NS	NS	NS	NS	NS
B38W19S	NS	NS	NS	NS	NS	0.08 UJ
<u>Bedrock</u>						
MISS-1B	0.4	0.9	1.4	0.7	0.3	0.35
MISS-2B	0.4	0.7	1.0	0.6	0.3	0.06 UJ
B38W03B	NS	NS	NS	NS	0.14	0.03 UJ
MISS-5B	0.3	0.7	1.0	0.6	0.2	0.15 UJ
MISS-7B	0.3	1.5	0.8	0.5	0.2	0.17 UJ
B38W18D	NS	NS	0.7	0.5	1.4	0.31
B38W19D	NS	NS	NS	NS	NS	0.51
<u>Background</u>						
B38W02D	NS	NS	0.9	1.0	1.2	0.02 UJ

Table 3-10 (continued)

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Sampling Location	Average Annual Concentration					Concentration 1992
	1987	1988	1989	1990	1991	
Thorium-232 (10^{-9} μCi/ml)						
<u>Overburden</u>						
MISS-1AA	NS	NS	NS	NS	NS	9.58
MISS-2A	0.1 U	0.4	0.5	0.3	0.2	0.87
MISS-3A	0.1 U	0.7	0.5	0.3	0.6	2.46
MISS-5A	NS	NS	NS	NS	NS	6.13
MISS-6A	0.3	0.2 U	0.5	0.4	0.5	0.00 UJ
MISS-7A	NS	NS	NS	NS	NS	NS
B38W19S	NS	NS	NS	NS	NS	0.09 UJ
<u>Bedrock</u>						
MISS-1B	0.3 U	0.3 U	0.3 U	0.3	0.1	0.04 UJ
MISS-2B	0.1 U	0.3 U	0.3	0.2	0.1	0.00 UJ
B38W03B	NS	NS	NS	NS	0.04 U	0.06 UJ
MISS-5B	0.1 U	0.2 U	0.3 U	0.1	0.1	-0.01 UJ
MISS-7B	0.1 U	0.3 U	0.2 U	0.2	0.1	0.10 UJ
B38W18D	NS	NS	0.3	0.1	1.2	0.03 UJ
B38W19D	NS	NS	NS	NS	NS	0.00 UJ
<u>Background</u>						
B38W02D	NS	NS	0.3	0.8	0.2	0.26 UJ

Notes:

NS = not sampled

U = not detected at listed detection limit

J = estimated value

1987 - 1991 average annual concentrations based on average of 2 to 4 samples per year

1992 concentration values based on one sample

1×10^{-9} μ Ci/ml is equivalent to 0.037 Bq/L. 1×10^{-9} μ Ci/ml is equivalent to 1 pCi/L. DOE guidelines for total uranium, radium-226, and thorium-232 are 600×10^{-9} , 100×10^{-9} , and 50×10^{-9} μ Ci/ml, respectively.

Measured background has not been subtracted.

Sampling locations are shown in Figure 3-4.

Total uranium concentrations were determined by using fluorometric analysis during 1986 through 1990 and the first three quarters of 1991 and by kinetic phosphorescence analysis during the fourth quarter of 1991 and in 1992.

**Table 3-11
Metals Results for Groundwater at MISS, 1992**

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	Ag	Al	As	B	Ba	Be	Cd	Co	Cr	Cu	Fe
	(Concentration Units = $\mu\text{g/L}$)										
NJGWQS ¹	20		8		2000	20	4		100		
SDWA MCL ²			50		2000		5		100		
Sampling Location											
<u>Overburden</u>											
MISS-1AA	10.0 U	4570.0	2.2 J	124.0	81.0	1.0 U	7.0 U	9.0 U	19.4	20.2	3770.0
MISS-2A	10.0 U	691.0	2780.0 J	1690.0	14.0 U	1.0 U	7.0 U	9.0 U	654.0	204.0	1440.0
MISS-3A	10.0 U	15800.0	304.0 J	13.0 U	390.0	1.4	7.0 U	20.3	33.5	66.7	134000.0
MISS-5A	10.0 U	303.0	10.0 U	653.0	200.0 U	5.0 U	5.0 U	50.0 U	10.0 U	25.0 U	9600.0
MISS-6A	10.0 U	746.0 J	5.7	1520.0	87.2	1.0 U	7.0 U	9.0 U	9.0 U	85.7	3530.0 J
MISS-7A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
B38W19S	10.0 UJ	153.0 J	3.1 J	1340.0	43.3	1.0 U	7.0 U	9.0 U	9.0 U	8.0 U	1170.0
<u>Bedrock</u>											
MISS-1B	10.0 U	49.0 U	2.0 U	84.8	82.6	1.0 U	7.0 U	9.0 U	9.0 U	8.0 U	2420.0
MISS-2B	10.0 U	100.0	2.0 U	1650.0	14.0 U	1.0 U	7.0 U	9.0 U	9.0 U	8.0 U	8460.0
B38W03B	10.0 U	70.4	2.0 U	131.0	15.6	1.0 U	7.0 U	9.0 U	9.0 U	8.0 U	25800.0
MISS-5B	10.0 U	200.0 U	10.0 U	1190.0	200.0 U	5.0 U	5.0 U	50.0 U	10.0 U	25.0 U	3260.0
MISS-7B	10.0 U	200.0 U	25.2 J	1550.0	200.0 U	5.0 U	5.0 U	50.0 U	10.0 U	25.0 U	3710.0
B38W18D	10.0 U	510.0	10.0 J	414.0	200.0 U	5.0 U	5.0 U	50.0 U	38.8	25.0 U	14900.0
B38W19D	10.0 U	200.0 U	41.8 J	1880.0	200.0 U	5.0 U	5.2	50.0 U	10.0 U	25.0 U	3260.0
<u>Background</u>											
B38W02D	10.0 U	2860.0 J	2.0 U	51.7	450.0	1.0 U	7.0 U	9.0 U	9.0 U	8.0 U	2860.0 J

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Table 3-11 (continued)

	Li	Mn	Mo	Ni	Pb	Sb	Se	Tl	V	Zn
	(Concentration Units = $\mu\text{g/L}$)									
NJGWQS ¹					10	20	50	10		5000
SDWA MCL ²					15					
Sampling Location										
<u>Overburden</u>										
MISS-1AA	358.0	261.0	5.0 U	20.0 U	2.0 U	60.0 U	2.0 U	2.0 UJ	8.0 U	45.6
MISS-2A	8680.0	101.0	5.0 U	20.0 U	4.6 J	60.0 U	2.0 U	2.0 UJ	51.0	29.8 J
MISS-3A	158.0	1330.0	89.2	20.0 U	26.4 J	60.0 U	2.0 U	2.0 UJ	31.4	114.0
MISS-5A	1190.0	824.0	100.0 U	40.0 U	3.0 U	60.0 U	5.0 U	10.0 UJ	50.0 U	22.5
MISS-6A	6290.0	421.0	5.0 U	20.0 U	11.6 J	60.0 U	2.0 U	2.0 UJ	19.0	629.0
MISS-7A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
B38W19S	2120.0	545.0	5.0 U	20.0 U	2.0 U	60.0 U	2.0 UJ	2.0 UJ	43.6	7.0 U
<u>Bedrock</u>										
MISS-1B	104.0	338.0	5.0 U	20.5	2.0 U	60.0 U	2.0 U	2.0 UJ	8.0 U	21.7
MISS-2B	13900.0	5830.0	5.0 U	20.0 U	2.0 U	60.0 U	2.6	2.0 UJ	8.0 U	15.2
B38W03B	52.2	8480.0	16.0	20.0 U	2.0 U	60.0 U	2.0 U	2.0 UJ	8.0 U	18.9
MISS-5B	3210.0	3590.0	100.0 U	40.0 U	3.0 U	60.0 U	5.0 U	10.0 UJ	50.0 U	20.0 U
MISS-7B	4840.0	3060.0	100.0 U	40.0 U	3.0 U	60.0 U	5.0 U	10.0 UJ	50.0 U	20.0 U
B38W18D	2610.0	5120.0	100.0 U	40.0 U	3.0 U	60.0 U	5.0 U	10.0 UJ	50.0 U	114.0
B38W19D	6390.0	2970.0	100.0 U	40.0 U	3.0 U	60.0 U	5.0 U	10.0 UJ	50.0 U	20.0 U
<u>Background</u>										
B38W02D	27.0 U	2530.0	5.0 U	20.0 U	2.0 U	60.0 U	2.0 U	2.0 UJ	12.7	19.0

Notes:

NS = not sampled

U = not detected at listed detection limit

J = estimated value

1. New Jersey Groundwater Quality Standards (February 1993).
2. Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCL).

Table 3-12
Summary of Arsenic, Chromium, Lead, Boron, and Lithium
Concentrations in Groundwater (October 1992 Results)

	As	Cr (Concentration Units = $\mu\text{g/L}$)	Pb	B	Li
NJGWQS ¹	8	100	10	--	--
SDWA MCL ²	50	100	15	--	--
Sampling Location					
<u>Overburden</u>					
MISS-1AA	2.2 J	19.4	2.0 U	124.0	358.0
MISS-2A	2780.0 J	654.0	4.6 J	1690.0	8680.0
MISS-3A	304.0 J	33.5	26.4 J	13.0 U	158.0
MISS-5A	10.0 U	10.0 U	3.0 U	653.0	1190.0
MISS-6A	5.7	9.0 U	11.6 J	1520.0	6290.0
MISS-7A	NS	NS	NS	NS	NS
B38W19S	3.1 J	9.0 U	2.0 U	1340.0	2120.0
<u>Bedrock</u>					
MISS-1B	2.0 U	9.0 U	2.0 U	84.8	104.0
MISS-2B	2.0 U	9.0 U	2.0 U	1650.0	13900.0
B38W03B	2.0 U	9.0 U	2.0 U	131.0	52.2
MISS-5B	10.0 U	10.0 U	3.0 U	1190.0	3210.0
MISS-7B	25.2 J	10.0 U	3.0 U	1550.0	4840.0
B38W18D	10.0 J	38.8	3.0 U	414.0	2610.0
B38W19D	41.8 J	10.0 U	3.0 U	1880.0	6390.0
<u>Background</u>					
B38W02D	2.0 U	9.0 U	2.0 U	51.7	27.0 U

Notes:

- NS = not sampled
U = not detected at listed detection limit
J = estimated value

1. New Jersey Groundwater Quality Standards (February 1993).
2. Safe Drinking Water Act Maximum Contaminant Levels.

Table 3-13
Major Ions in Groundwater at MISS (October 1992 Results)

Sampling Location	Ca	Mg	Na (Concentration Units = mg/L)	K	Cl	SO ₄
<u>Overburden</u>						
MISS-1AA	670.00	11.50	6.63 J	4.27	NA	NA
MISS-2A	158.00	9.92	1590.00 J	16.00	NA	NA
MISS-3A	45.60	8.14	23.50 J	29.20	NA	NA
MISS-5A	604.00	91.90	27.00 J	91.60	NA	NA
MISS-6A	184.00	12.00	52.20	58.80	NA	NA
MISS-7A	NS	NS	NS	NS	NS	NS
B38W19S	520.00	76.40	31.20	50.10	NA	NA
<u>Bedrock</u>						
MISS-1B	115.00	22.90	61.30 J	7.77	NA	NA
MISS-2B	358.00	49.70	1740.00	58.90	NA	NA
B38W03B	425.00	61.90	173.00	11.20	NA	NA
MISS-5B	378.00	90.40	605.00 J	290.00	NA	NA
MISS-7B	206.00	70.90	1550.00 J	27.60	124.0	2940.0
B38W18D	174.00	16.00	37.20 J	7.81	NA	NA
B38W19D	248.00	46.90	533.00 J	392.00	211.0	1340.0
<u>Background</u>						
B38W02D	100.00	4.80	8.50	1.34 U	14.6	30.2

Notes:

NA = no analysis requested

NS = not sampled

J = estimated value

Table 3-14
Organic Compounds Detected in Groundwater at MISS, 1992.

	NJGWQS ¹	SDWA MCL ²	MISS-1B	MISS-2B	MISS-5B	MISS-7B
	(Concentration Units = $\mu\text{g/L}$)					
Benzene	1	5		3 J	200	
Chloroform	6		15			
Tetrachloroethene	1	5	15			43
Trichloroethene	1	5				2 J
1,1,1 Trichloroethane	30	200				1 J
1,2 Dichloroethene	10/100 ³	70/100 ⁴	1 J			10
1,1 Dichloroethene	2	7				2 J
1,1 Dichloroethane	70					1 J
Toluene	1000	1000			2 J	

Notes:

J = estimated value

1. New Jersey Groundwater Quality Standards (February 1993).
2. Safe Drinking Water Act Maximum Contaminant Level.
3. NJGWQ Standard for 1,2 Dichloroethene (cis) = 10 $\mu\text{g/L}$,
1,2 Dichloroethene (trans) = 100 $\mu\text{g/L}$.
4. SDWA MCL for 1,2 Dichloroethene (cis) = 70 $\mu\text{g/L}$, 1,2 Dichloroethene (trans) = 100 $\mu\text{g/L}$.