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Dear Colleague:

In accordance with our agreement at the November 27-28 transportation meeting in Oak Ridge, I am enclosing a set of 12 maps showing the population density and routing data which were used to evaluate the population exposure information recently published in the repository environmental assessments. Each map shows one of the six regions within which the nine possible repository sites are located, as well as the 21 reactor centroids from which regional radioactive material shipments were assumed to originate. One group of six maps covers rail shipments and a second group covers truck shipments. The final dose numbers reported in the environmental assessment reports were calculated from this data source using the RADTRAN-II code.

The three population zones used in the RADTRAN-II model are identified on the maps and accompanying tables as rural, suburban, and urban. The fraction of the transportation distance through each of these population zones has been computed and is given in the tables. An additional table is included which identifies the location of the 21 reactor centroids.

A second set of maps which will identify the average annual spent fuel flows from specific reactor sites to candidate repository sites is now being prepared. A copy will be sent to you upon completion.

truly,

Robert E. Philpott Storage and Transportation Systems Office of Civilian Radioactive Waste Management

Enclosures

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End to lite. to Colleague for. Philpott - 1/18/85

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Centroid	Highway node	Rail node
IN	Marble Hill Reactor, IN	Madison, IN
он	Massillon, OH	Massillon, OH
MI	Ionia, MI	Ionia, MI
TX	Bryan, TX	Bryan, TX
NJ	Willingboro, NJ	Burlington, NJ
NY	Oneonta, NY	Oneonta, NY
MA	Marlborough, MA	Marlborough, MA
MN	Red Wing, MN	Red Wing, MN
IA	Red Oak, IA	Red Oak IA
IL	Mendota, IL	Mendota, IL
WI	Two Rivers, WI	Two Rivers, WI
TN	Winchester, TN	Dechard, TN
NC	Monroe, NC	Monroe, NC
GA	Abbeville, GA	Abbeville, GA
FL	Okeechobee, FL	Marcy, FL
VA	Richmond, VA	Richmond, VA
LA	Monroe, LA	Monroe, LA
KS	Coffeyville, KS	Coffeyville, KS
Southern CA	Indio, CA	Ferrum, CA
Northern CA	Kancho Seco Keactor, CA	Rancho Seco, CA
WA.	Yakima, WA	Yakima, WA
DHLW	Savannah River Plant, SC	Dunbarton, SC
WVHLW	West Valley, NY	West Valley, NY

Centroid Names for Population Density Calculations

103

	Distance	Pop	ulation zone ()	ζ)
	(miles)	Rural	Suburban	Urban
IN	2221	85.75	13.00	1.26
OH	2316	80.38	18.77	0.85
	2160		20.17	1.12
MI		78.71		
TX	2044	87.12	12.60	0.28
NJ	2739	75.43	23.72	0.84
NY	2731	76.26	22.42	1.32
MA	2924	74.15	24.81	1.04
MN	1592	86.44	12.98	0.57
IA	· 1581	88.68	11.12	0.13
IL	1923	87.68	12.20	0.11
WI	1857	86.24	13.57	0.20
TN	2329	83.88	15.04	1.08
NC	2690	79.34	19.57	1.09
GA	2637	81.43	17.30	1.27
FL.	3023	81.31	17.59	1.10
VA	2741	82.48	16.34	1.18
LA	2180	85.64	14.24	0.12
KS	1768	87.90	11.78	0.31
Southern CA	1198	77.94	17.92	4.14
Northern CA	738	82.51	16.38	1.11
WA	85	56.48	43.52	0
DHLW	2666	80.99	18.08	0.94
WVHLW	2485	77.50	21.11	1.40

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Population densities for highway routes from reactor centroids, Savannah River, SC and West Valley, NY to the Basalt Formation Region, WA candidate repository site

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	Distance (miles)			
		Rural	Suburban	Urban
IN	2006	86.17	12.06	1.78
		N -1		
ОН	2216	83.77	15.33	0.90
MI	2060	82.25	16.55	1.20
TX	1439	87.54	11.69	0.96
NJ	2610	76.63	21.42	1.95
NY	2631	78.92	19.69	1.39
MA	2824	76.51	22.40	1.09
MIN	1776	89.12	10.34	0.54
IA	1445	90.80	8.53	0.66
IL	1787	89 [°] - 29	10.17	0.53
WI	1990	84.56	14.29	1.15
TN	1992	85.95	12.78	1.27
NC	2358	80.17	18.57	1242
GA	2183	84.35	14.84	0.82
FL	2516	83.81	15.49	U.71
VA	2523	82.50	16.28	1.22
LA	1615	85.32	13.73	0.96
KS	1407	87.04	11.66	1.30
Southern CA	370	81.47	10.05	0.47
Northern CA	603	86.40	10.37	3.22
WA	999	93.74	6.26	0
DHLW	2272	80.97	17.74	1.29
WVHLW	2385	80.30	18.18	1.15

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Population densities for highway routes from reactor centroids, Savannah River, SC and West Valley, NY to the Tuff Formation Region, NV, candidate repository site

	Distance	Pop	ulation zone ()	6)
	(miles)	Rural	Suburban	Urban
IN	1577	83.97	13.79	2.25
ОН	1787	81.27	17.62	1.11
MI	1631	79.10	19.39	1.51
TX	1133	89.08	10.52	0.50
NJ	2181	73.17	24.50	2.33
NY	2202	75.94	22.41	1.65
MA	2395	73.35	25.36	1.28
MN	1347	87.46	11.83	0.71
IA	1016	89.30	9.76	0.95
IL	1358	87.70	11.59	0.70
WI	1561	81.91	10.64	1.46
TN	1686	86.70	12.28	1.01
NC	2052	79.91	19.05	1.03
GA	1877	84.75	14.74	0.52
FL	2210	84.07	15.49	0.44
VA	2097	80.07	18.03	1.91
LA	1309	86.12	13.33	0.56
KS	950	92 . 17 ·	· 7.83	. 0
Southern CA	661	95.12	4.87	υ
Northern CA	982	84.76	13.27	1.96
WA	979	80.90	18.63	0.48
DHLW	1965	80.80	18.12	1.08
WVHLW	1956	77.16	20.99	1.84

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Population densities for highway routes from reactor centroids, Savannah River, SC and West Valley, NY to the Paradox Dome Region, UT, candidate repository sites

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	Distance	Pop	ulation zone ()	%)
	(miles)	Rural	Suburban	Urban
IN	1101	80.04	18.40	1.56
ОН	1346	73.14	25.40	1.45
MI	1290	68.36	29.60	2.06
TX	540	84.30	15.69	0
NJ .	1715	67.45	30.05	2.50
NY	1799	70.41	28.49	1.10
MA	1974	67.61	30.61	1.78
MN	1046	82.54	16.79	0.67
IA	719	90.77	9.23	0
IL	1048	76.27	22.64	1.10
WI	1273	68.97	28.44	2.49
TN	1076	81.40	17.55	1.05
NC	1442	73.07	25.86	1.06
GA	1267	79.36	20.33	0.32
FL	1600	79.59	20.17	0.25
VA	1607	77.52	21.45	1.05
LA	699	77.58	22.19	0.23
KS	491	79.05	20.06	0.88
Southern CA	961	92.92	6.49	0.59
Northern CA	1375	82.65	16.94	0.42
WA	1579	86.23	13.11	0.66
DHLW	1356	74.34	24.51	1.14
WVHLW	1557	70.89	27.86	1.25

Population densities for highway routes from reactor centroids, Savannah River, SC and West Valley, NY to the Permian Basin Region, TX, candidate repository sites

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	Distance	Рор	ulation zone ()	%)
	(miles)	Rural	Suburban	Urban
TN	701	70 77	13 10	2 14
IN	721	79.77	18.10	2.14
OH	1012	74.34	22.42	3.23
MI	996	71.59	27.06	1.36
TX	251	86.66	12.86	0.47
NJ	1313	62.21	34.48	3.30
NY	1443	67.27	32.31	0.42
MA	1580	58.57	38.56	2.87
MN	999	79.33	20.67	U
IA	732	78.77	20.48	0.76
IL	766	72.09	26.90	1.02
WI	933	71.00	24.43	4.57
TN	582	73.77	25.61	0.61
NC	843	63.19	36.11	0.70
GA	638	80.72	19.28	U
FL	973	82.01	17.73	0.25
VA	1087	63.24	36.25	0.51
LA	70	73.55	26.45	U
KS	445	79.07	20.66	0.27
Southern CA	1534	83.05	15.20	1.75
Northern CA	1960	80.94	18.07	0.38
WA	2193	83.50	15.71	0.72
DHLW	750	71.37	26.56	2.08
WVHLW	1220	71.63	25.69	2.68

Population densities for highway routes from reactor centroids, Savannah River, SC and West Valley, NY to the Gulf Interior Region, LA, candidate repository site

	Distance	Рор	ulation zone (2	6)
•	(miles)	Kural	Suburban	Urban
IN	622	76.73	21.00	2.25
OH	913	71.75	24.84	3.41
MI	984	70.50	28.07	1.43
IX	557	65.17	32.33	2.50
J	1124	61.68	35.43	2.90
NY	1247	66.41	33.07	0.53
MA	1389	59.52	39.24	1.25
MN	1108	79.02	20.95	0.03
IA	928	78.74	20.64	0.63
IL	809	75.92	24.04	U. 04
WI	1018	69.16	26.41	4.44
TN	388	74.29	24.64	1.07
NC	648	60.27	38.74	0.99
GA	455	85.03	14.43	0.55
FL	678	93.98	5.67	0.36
VA	908	57.92	41.46	U.62
LA	228	78.96	21.05	U
KS	709	77.71	22.30	0
Southern CA	1824	82.20	16.45	1.35
Northern CA	2257	80.82	18.85	0.32
WA	2453	85.04	14.84	0.11
DHLW	556	70.69	26.49	2.81
WVHLW	1121	69.33	27.93	2.74

Population densities for highway routes from reactor centroids Savannah River, SC and West Valley, NY to the Gulf Interior Region, MS, candidate repository sites

	Distance	Рор	ulation zone ()	()
	(miles)	Rural	Suburban	Urban
IN	2354	88.28	10.78	U . 94
он	2368	83.11	15.49	1.40
MI	2314	83.47	15.69	0.85
TX	2521	88.44	11.03	0.54
NJ	2847	74.07	23.58	·2.34
NY	2986	82.83	16.09	1.08
MA	3026	71.98	25.51	2.52
MN	1651	89.59	9.73	0.67
IA	1726	91.53	8.45	0.02
IL	2009	88.40	11.06	0.55
WI	2265	84.06	15.01	0.93
TN	2471	85.97	13.10	U.93
NC	2962	82.14	16.79	1.08
GA	2855	83.34	15.63	1.04
FL	3283	82.47	16.93	0.89
VA	3141	82.46	16.49	1.05
LĄ	2473	89.4 0	10.26	U•34
KS	1968	91.32	8.23	0.44
Southern CA	1469	68.48	28.80	2.73
Northern CA	945	73.27	23.33	3.38
WA	119	65.56	34.43	υ
DHLW	2951	82.16	16.76	1.09
WVHLW	2672	81.31	17.03	1.64

Population densities for rail routes from reactor centroids, Savannah River, SC and West Valley, NY to the Basalt Formation Region, WA, candidate repository site

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	Distance	Рор	ulation zone ()	%)
	(miles)	Rural	Suburban	Urban
TN	21 6 2	87.09	11 40	1 40
IN	2142		11.49	1.42
ОН	2342	83.26	15.16	1.57
MI	2218	83.07	15.94	1.00
TX	1818	88.19	10.87	0.95
NJ	2808	75.20	21.96	2.78
NY	2774	81.60	16.94	1.46
MA	3019	74.28	23.22	2.49
MN	1825	87.38	11.23	1.39
IA	1499	90.98	8.44	0.58
IL	1857	90.13	9.41	U.46
WI	2053	82.51	16.06	1.42
TN	2259	84.68	13.96	1.36
NC	2750	80.82	17.70	1.47
GA	2643	82.04	16.51	1.43
FL	3071	81.33	17.44	1.23
VA	2929	81.23	17.35	1.42
LA	2261	88.35	10.90	0.75
KS	1756	90.15	88.8	0.98
Southern CA	355	85.86	13.14	0.99
Northern CA	707	68.55	29.79	1.66
WA	1293	88.32	11.00	0.67
DHLW	2739	80.78	17.73	1.48
WVHLW	2570	80.87	17.53	1.61

Population densities for rail routes from reactor centroids, Savannah River, SC and West Valley, NY to the Tuff Formation Region, NV, candidate repository site

	Distance	Рор	ulation zone ()	٤)
	(miles)	Rural	Suburban	Urban
IN	1639	87.37	11.02	1.61
ОН	1758	81.84	16.50	1.66
MI	1704	82.28	16.78	0.93
TX	1708	89.50	10.20	0.29
NJ	2237	70.45	26.73	2.82
NY	2257	78.97	19.30	1.72
МА	2416	68.09	28.90	3.02
MN	1356	88.46	10.03	1.51
IA	954	92.90	6.36	0.74
IL	1312	91.14	8.35	0.53
WI	1536	79.08	19.12	1.80
TN	1757	84.16	14.30	1.53
NC	2248	79.43	18,94	1.62
GA	2141	80.94	17,48	1.58
FL	2569	80.26	18.44	1.30
VA	2426	80.05	18.40	1.54
LA	1660	90.99	9.01	0
KS	1155	95.06	4.94	0
Southern CA	1512	74.94	22.96	2.10
Northern CA	989	82.68	14.94	2.37
WA	1099	84.07	15.51	0.42
DHLW	2236	79.39	18,98	1.64
WVHLW	2062	79.63	18,42	1.97

Population densities for rail routes from reactor centroids, Savannah River, SC and West Valley, NY to the Paradox Dome Region, UT, candidate repository sites

	Distance	Pop	ulation zone (.	%)
	(miles)	Rural	Suburban	Urban
IN	1386	78.82	19.65	1.53
ОН	1356	83.60	15.93	0.47
MI	1356	79.78	19.34	0.88
TX	636	84.45	14.53	1.03
NJ	1835	69.64	28.23	2.14
NY	1783	75.53	22.71	1.75
MA	2061	64.02	33.14	2.84
MN	1422	80.03	18.83	1.14
IA	782	88.03	11.02	0.35
IL	962	86.78	12.98	0.25
WI	1275	74.79	23.60	1.61
TN	1578	79.46	20.03	0.52
NC	1592	77.85	20.67	1.47
GA	1457	82.59	16.50	0.91
FL	1821	74.19	24.31	1.51
VA	1785	74.89	24.39	0.73
LA	879	78.50	20.26	1.23
KS	542	91.21	8.80	0
Southern CA	1085	93.95	5.22	0.81
Northern CA	1645	83.60	15.38	1.03
WA	2032	90.04	9.21	0.76
DHLW	1581	77.76	20.75	1.48
WVHLW	1685	78.15	20.93	0.92

Population densities for rail routes from reactor centroids, Savannah River, SC and West Valley, NY to the Permian Basin Region, TX candidate repository sites

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	Distance Population zone (%)			()
	(miles)	Rural	Suburban	Urban
Th	704	70.16	1 00 - 0.6	0.03
IN	788	79.14	20.86	0.01
OH	1345	79.48	19.43	1.07
MI	1102	75.12	24.29	0.58
TX	291	78.50	20.94	0.55
nj	1474	61.00	35.82	3.19
NY	1770	73.38	24.42	2.21
MA	1686	61.24	36.13	2.63
MN	1409	77.45	20.86	1.70
IA	796	83.06	16.58	0.37
IL	976	82.67	17.08	0.26
WI	1268	71.08	25.78	3.13
TN	630	78.26	19.98	1.75
NC	1148	68.08	29.09	2.82
GA	875	74.73	22.88	2.39
FL	1172	70.16	28.12	1.72
VA	1419	61.10	36.99	1.91
LA	76	79.42	20.58	0
KS	421	81.79	18.23	υ
Southern CA	1761	86.72	11.04	2.23
Northern CA	2321	81.04	10.93	2.04
WA	2515	88.68	11.19	0.13
DHLW	1188	75.04	23.27	1.70
WVHLW	1433	68.07	30.44	1.48

Population densities for rail routes from reactor centroids, Savannah River, SC and West Valley, NY to the Gulf Interior Region, LA, candidate repository site

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	Distance (miles)	Population zone (%)		
		Rural	Suburban	Urban
IN	801	80.94	19.06	0
ОН	999	76.03	23.28	0.67
MI	1084	74.56	24.55	0.88
TX	617	77.12	22.61	0.26
NJ	1465	62.99	33.78	3.22
NY	1493	71.81	26.26	1.93
MA	1677	62.98	34.37	2.67
MN	1180	71.84	24.26	3.91
IA	1052	81.81	17.41	0.79
IL	924	76.31	21.85	1.03
WI	966	68.06	26,90	5.03
TN	657	75.06	23.93	1.03
NC	736	73.46	24.50	2.06
GA	463	88.69	10.47	0.84
FL	761	75.91	23.59	0.49
VA	947	56.54	42.39	1.08
LA	256	75.39	24.63	U
KS '	762	79.84	20.16	U
Southern CA	2187	80.74	16.94	2.32
Northern CA	2747	77.16	20.70	2.15
WA	2771	87.64	12.05	0.31
DHLW	777	83.04	16.49	0.48
WVHLW	1446	69.04	29.48	1.48

Population densities for rail routes from reactor centroids, Savannah River, SC and West Valley, NY to the Gulf Interior Region, MS, candidate repository sites

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