

Transportation

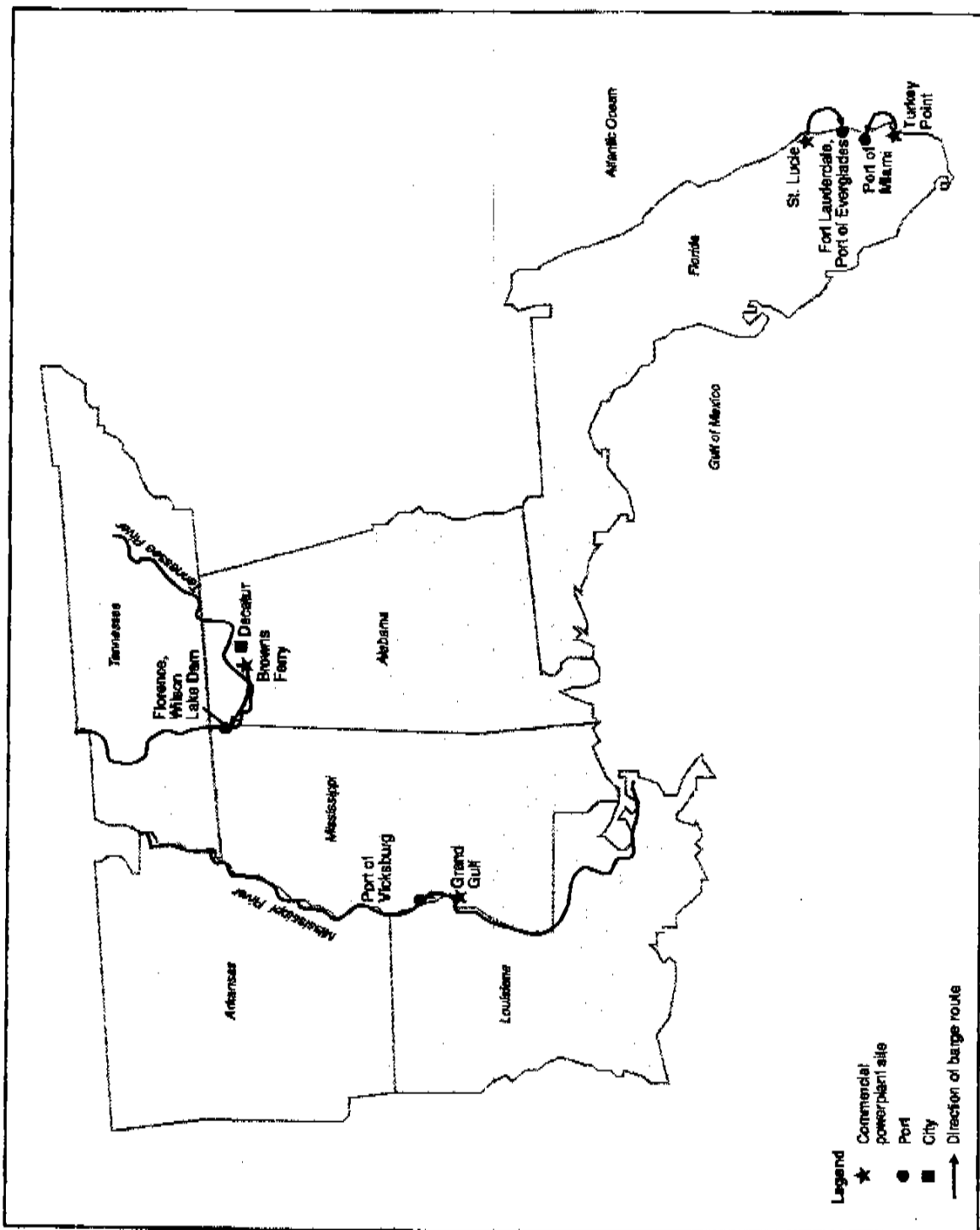


Figure J-9. Routes analyzed for barge transportation from sites to nearby railheads (page 2 of 4).

*Transportation*

**Table J-27. Barge shipments and ports.**

Plant name	State	Number of shipments			Barge ports assumed for barge-to-rail intermodal transfer
		Proposed Action	Module 1	Module 2	
Browns Ferry 1	AL	122	247	248	Wilson Loading Dock
Browns Ferry 2	AL	0	0	1	Wilson Loading Dock
Browns Ferry 3	AL	51	120	121	Wilson Loading Dock
Diablo Canyon 1	CA	60	148	150	Port Huememe
Diablo Canyon 2	CA	61	160	162	Port Huememe
Haddam Neck	CT	40	40	42	Port of New Haven
St. Lucie 1	FL	12	13	16	Port Everglades
St. Lucie 2	FL	61	147	150	Port Everglades
Turkey Point 3	FL	52	85	87	Port of Miami
Turkey Point 4	FL	52	86	88	Port of Miami
Calvert Cliffs 1	MD	169	320	323	Port of Baltimore
Calvert Cliffs 2	MD	0	0	3	Port of Baltimore
Pilgrim	MA	24	18	19	Port of Boston
Palisades	MI	70	122	125	Port of Muskegon
Grand Gulf 1	MS	80	215	216	Port of Vicksburg
Cooper Station	NE	42	124	125	Port of Omaha
Hope Creek	NJ	67	105	106	Port of Wilmington
Oyster Creek 1	NJ	64	110	111	Port of Newark
Salem 1	NJ	59	101	103	Port of Wilmington
Salem 2	NJ	54	108	110	Port of Wilmington
Indian Point 1	NY	0	0	1	Port of Jersey City
Indian Point 2	NY	35	34	36	Port of Jersey City
Indian Point 3	NY	22	19	21	Port of Jersey City
Surry 1	VA	197	330	332	Port of Norfolk
Surry 2	VA	0	0	2	Port of Norfolk
Kewaunee	WI	64	110	111	Port of Milwaukee
Point Beach 1	WI	130	213	215	Port of Milwaukee
Point Beach 2	WI	0	0	2	Port of Milwaukee
<b>Totals</b>		<b>1,575</b>	<b>2,952</b>	<b>3,004</b>	

carriers on navigable waterways and that these shipments would follow direct routing from the sites to nearby railheads. For both modes, intermodal transfers would be necessary to transfer the casks to railcars.

The analysis estimated radiological impacts during transport for workers and the general population. For heavy-haul truck shipments, workers included vehicle drivers and escorts. For barge shipments, workers included five crew members on board during travel. In both the heavy-haul truck and barge cases, the workers would be far enough from the cask such that the major exposure would occur during periodic walkaround inspections. In both cases, consistent with the as-low-as-reasonably-achievable requirement guiding worker exposure, the analysis assumed that only one individual would perform these inspections. The general population for truck shipments included persons within 800 meters (about 2,600 feet) of the road (offlink), persons sharing the road (onlink), and persons at stops. The general population for barging included persons within a range of 200 to 1,000 meters (about 660 to 3,300 feet) of the route. Consistent with normal barge operations, the periodic walkaround inspections would occur while the barge was in motion and there was sufficient crew on board to eliminate the need for intermediate rest stops. Consistent with the RADTRAN 5 modeling, onlink exposures to members of the public during barging were assumed to be negligible. Incident-free unit risk factors were developed to calculate occupational and general population collective doses. Table J-28 lists the unit risk factors for heavy-haul truck and barge shipments. These factors reflect the effects of slower operating speeds for those vehicles in comparison to those for legal-weight trucks.

Table J-29 lists the incident-free impacts using the three shipment scenarios listed above. Impacts of intermodal transfers are included in the results. Occupational impacts would include the estimated radiological exposures of security escorts.