

11.0 LIST OF PREPARERS

This Environmental Report was developed and prepared by Tetra Tech, Inc., Germantown, Maryland. The following staff contributed to the development of this Environmental Report:

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APPENDIX A

Existing CFFF Permits, Licenses and Certifications

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Table A-1 CFFF Permits, Licenses and Certifications

Document Type	Document Number	Compliance Agency	Location
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 175771	175771	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 175838	175838	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 210487	210487	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 210488	210488	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 288425	288425	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 422816	422816	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 422852	422852	City of Columbia	Columbia
City of Columbia Cross Connection Control Program - Potable Water Backflow Prevention Device Field Test - Serial Number 98013	98013	City of Columbia	Columbia
Boiler #1: North American No. 1, NB 15282, Capacity 12,075 LBS/HR, MFG 1984	N/A	CNA Risk Control Inspection Company	Columbia
Boiler #2: North America No. 2, NB 78, Capacity 11,725 LBS/HR, MFG. 1986	N/A	CNA Risk Control Inspection Company	Columbia
Boiler #3: Powermaster Boiler No. NB 28830, Capacity 5,900 LBS/HR, MFG. 1974	N/A	CNA Risk Control Inspection Company	Columbia

Table A-1 CFFF Permits, Licenses and Certifications (continued)

Document Type	Document Number	Compliance Agency	Location
Radio Station Authorization – FCC Registration Number 0003183183	0000996765	Federal Communications Commission (FCC)	Columbia
Radio Station Authorization – FCC Registration Number 0004236279	0001186664	FCC	Columbia
Radio Station Authorization – FCC Registration Number 0014091151	0002369329	FCC	Columbia
ISO 9001:2000 Certificate of Approval	UQA 0102162	Lloyd's Register Quality Assurance	Columbia
EPA ID NO. SCD047559331	SCD047559331	N/A	Columbia
Pressure Vessels in test loops	N/A	N/A	Columbia
Design Information Questionnaire, SNM-1107, Docket 1151	1151	U.S. Nuclear Regulatory Commission (NRC)	Columbia
Fundamental Nuclear Material Control Plan, SNM-1107 Docket 1151	1151	NRC	Columbia
License SNM-1107 Docket 1151	1151	NRC	Columbia
Mississauga Metals & Alloys, Inc. Export License	XW003	NRC	Columbia
Physical Security Plan, SNM-1107, Docket 1151	1151	NRC	Columbia
SNM-1107 Docket 1151 - Authorizations and Exemptions - Calcium Fluoride Disposal	1151	NRC	Columbia
Transitional Facility Attachment, SNM-1107, Docket 1151	1151	NRC	Columbia
Cafeteria Business and Professional License	2006-3740-2892	Richland County, South Carolina	Columbia
Columbia Plant Business and Professional License	2006-21040-20192	Richland County, South Carolina	Columbia
Hazardous Materials Registration Certificate	10353	Richland County, South Carolina	Columbia
CLIA Laboratory Certification Program	42D0867917	South Carolina Department of Health and Environmental Control (SC-DHEC)	Columbia

Table A-1 CFFF Permits, Licenses and Certifications (continued)

Document Type	Document Number	Compliance Agency	Location
Environmental Laboratory Certification Program	40561001	SC-DHEC	Columbia
Infectious Waste Generator Registration	SC40-0332G	SC-DHEC	Columbia
Injection Well Operating Permit	251M	SC-DHEC	Columbia
National Pollutant Discharge Elimination System (NPDES) Permit	SC0001848	SC-DHEC	Columbia
NPDES General Permit for Storm Water Discharges	SCR000000	SC-DHEC	Columbia
Office of Environmental Quality Control Bureau of Air Quality Operating Permit	1900-0050	SC-DHEC	Columbia
Radioactive Material License	094	SC-DHEC	Columbia
South Carolina Radioactive Waste Transport Permit	0046-39-06-X	SC-DHEC	Columbia
South Carolina Registration for radiation producing machines and other sources of ionizing radiation	40-0846	SC-DHEC	Columbia
Elevator Permit 40-0006	40-0006	South Carolina Department of Labor, Licensing and Regulation (SC-DLLR)	Columbia
Elevator Permit 40-0008	40-0008	SC-DLLR	Columbia
Elevator Permit 40-1368	40-1368	SC-DLLR	Columbia
Cafeteria Retail License	40 52785 8	State of South Carolina Department of Revenue	Columbia
Tennessee Radioactive Waste License-for-Delivery (Columbia Site Usage)	T-SC004-L06	State of Tennessee Department of Environmental and Conservation Division of Radiological Health	Columbia
Generator Site Access Permit (Columbia Site Usage)	0207001421	Utah Department of Environmental Control	Columbia

Table A-1 CFFF Permits, Licenses and Certifications (continued)

Document Type	Document Number	Compliance Agency	Location
Miscellaneous Columbia Support Documents			
Chem-Nuclear Systems, LLC Duratek Consolidation and Services Facility - Radioactive Material License (Columbia Controlled Site Copy)	287-04	SC-DHEC	Barnwell, SC (Non Westinghouse Location)
Duratek Tennessee Radioactive Material License (Columbia Controlled Site Copy)	R-73016-I04	State of Tennessee Department of Environmental and Conservation Division of Radiological Health	Duratek

Source: Westinghouse, 2006d

Table A-2 Stakeholder List for Environmental Report

Agency	Point of Contact	Area of Interest
Federal Agencies		
U.S. Department of Energy National Nuclear Security Administration 1000 Independence Ave., SW Washington, DC 20585	Hitesh Nigam, NEPA Compliance Officer	Nonproliferation issues
U.S. Department of Energy Savannah River Site Savannah River Operations Office Office of External Affairs P.O. Box A Aiken, SC 29802		Emergency response coordination
U.S. Department of Homeland Security Federal Emergency Management Agency R4 3003 Chamblee Tucker Road Atlanta, GA 30341	Dr. William R. Straw, Regional Environmental Officer	Facility security/terrorism
U.S. Department of the Interior U.S. Fish and Wildlife Service Ecological Services, Region 4 1875 Century Blvd., NE Suite 200 Atlanta, GA 30345-3319	Ms. Cynthia Bohn	Compliance with Endangered Species Act
Native American Tribes		
American Indian Center of South Carolina 655 St. Andrews Road, #111 Columbia, SC 29210	Judy M. Orr-Rabon, Chairman	External relations with Tribal organizations in/near Richland County
Catawba Indian Tribe P.O. Box 188 Catawba, SC 29704	Chief Gilbert Blue	External relations with Tribal organizations in/near Richland County

Table A-2 Stakeholder List for Environmental Report (continued)

Agency	Point of Contact	Area of Interest
Native American Tribes (continued)		
Catawba Indian Nation P.O. Box 188 Catawba, SC 29704	Vice Chief Buck George	External relations with Tribal organizations in/near Richland County
Catawba Indian Nation Catawba Cultural Preservation Project Tribal Historic Preservation Office P.O. Box 750 Rock Hill, SC 29731	Dr. Wenonah G. Haire	Compliance with National Historic Preservation Act and Native American Graves Protection and Repatriation Act
Midlands Intertribal Indian Center P.O. Box 7512 Columbia, SC 29202	Terence Little Water	External relations with Tribal organizations in/near Richland County
SC Indian Affairs Commission 15 Old Clayton Court Columbia, SC 29205	Terence Lily Little Water, Executive Director	External relations with Tribal organizations in/near Richland County
State Agencies		
SC Department of Health and Environmental Control Bureau of Land and Waste Management 2600 Bull Street Columbia, SC 29201		Protection of public health—agency has oversight over nuclear facilities
SC Governor's Nuclear Advisory Council South Carolina Energy Office 1201 Main Street Suite 430 Columbia, SC 29201		External relations with State of South Carolina governmental energy oversight organizations

Table A-2 Stakeholder List for Environmental Report (continued)

Agency	Point of Contact	Purpose of Consultation
State Agencies (continued)		
SC Institute of Archaeology and Anthropology 1321 Pendleton Street USC Anthropology Columbia, SC 29208-0001		Compliance with National Historic Preservation Act
SC State Historic Preservation Office Department of Archives and History 8301 Parklane Road Columbia, SC 29223-4905	Rodger E. Stroup	Compliance with National Historic Preservation Act
SC State Energy Office Suite 820 1201 Main Street Columbia, SC 29201-1200	Mitch Perkins	External relations with State of South Carolina governmental energy oversight organizations

Table A-3 Other Potential Stakeholders

Federal Agencies	Tribal Organizations (historically in/near Richland County)
U.S. Department of the Interior Atlanta Regional Office 75 Spring Street, SW, Suite 1144 Atlanta, GA 30303	Eastern Cherokee, Southern Iroquois, and United Tribes of South Carolina P.O. Box 7062 Columbia SC 29202
U.S. Department of the Interior U.S. Geological Survey 720 Gracern Road, Suite 129 Columbia, SC 29210-7658	Eastern Shawnee Tribe of Oklahoma P.O. Box 350 Seneca, MO 64865
U.S. Department of the Interior Bureau of Indian Affairs, Eastern Regional Office 711 Stewarts Ferry Pike Nashville, TN 37214-2751	Eastern Band of Cherokee Cultural Resource Development P.O. Box 455 Cherokee, NC 28719
U.S. Department of the Interior National Park Service Congaree National Park 100 National Park Road Hopkins, SC 29061	Seminole Nation of Oklahoma P.O. Box 1498 Wewoka, OK 74884
U.S. Department of the Interior National Park Service, SE Regional Office Atlanta Federal Center, 1924 Building – 100 Alabama Street SW Atlanta, GA 30303	State Agencies
U.S. Department of Transportation Office of Transportation Policy 1200 New Jersey Avenue, SE Washington, DC 20590-0001	SC State Clearinghouse/SC NEPA Point of Contact Office of State Budget 1201 Main Street, Suite 870 Columbia, SC 29201
Federal Energy Regulatory Commission 888 First Street, NE, Room 6A-01, PJ-1 Washington, DC 20426	SC Department of Parks, Recreation and Tourism Suite 110 Columbia SC 29201
Federal Energy Regulatory Commission Atlanta Regional Office 3125 Presidential Pkwy., Suite 300 Atlanta, GA 30340-3700	SC Department of Health and Environmental Control Water Pollution Control 2600 Bull Street Columbia, SC 29201
International Trade Commission 500 East E Street SW, Room 511-K Washington, DC 20436	SC Department of Natural Resources Land, Water, and Conservation Division 1201 Main Street Columbia, SC 29202
	SC Council for Economic Development P.O. Box 927 Columbia, SC 29223-4905

Table A-3 Other Potential Stakeholders (continued)

Economic Development/Corporate Organizations	Advocacy Organizations (active in nuclear issues in South Carolina)
Columbia, SC, Office of Economic Development 1201 Main Street Suite 250 Columbia, SC 29201	The Carolina Peace Resource Center P.O. Box 7933 Columbia, SC 29202
Central SC Alliance 120a Main Street Suite 100 Columbia, SC 29201	Friends of the Earth 1717 Massachusetts Ave., NW Suite 600 Washington, DC 20036
Duke Energy P.O. Box 1090 Charlotte, NC 28201-1090	Environmentalists, Inc. 1339 Sinkler Road Columbia, SC 29206-4551
South Carolina E&G Columbia, SC 29218	Nuclear Watch South P.O. Box 8574 Atlanta, GA 31106
Progress Energy P.O. Box 1551 Raleigh, NC 27602-1551	Women's Action for New Direction Atlanta Chapter 250 Georgia Ave., SE Suite 202 Atlanta, GA 30312
	Catawba Riverkeeper 2295 Stearns Road Edgemoor, SC 29712

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APPENDIX B

Site Hazardous Chemicals and Transportation Aspects

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Table B-1 Listing of Hazardous and Extremely Hazardous Chemicals¹

	CHEMICAL	UN / NA ² Number	CAS ³	Quantity (lbs)		Extremely Hazardous?
				Maximum	Typical	
1	Chlorine	UN1007	7782-50-5	750	450	Y
2	Hydrogen Fluoride	UN1790	7664-39-3	80,698	32,279	Y
3	Nitric Acid	UN2031	7697-37-2	175,140	87,570	Y
4	Sulfur Dioxide	UN1079	7446-09-5	600	450	Y
5	Sulfuric Acid	UN1830	7664-93-9	18,300	18,300	Y
6	#2 Fuel Oil	NA1993	68476-30-2	511,000	153,300	N
7	Ammonium Hydroxide	NA2672	1336-21-6	2,027,970	983,941	N
8	Calcium Hydroxide	--	1305-62-0	92,260	73,808	N
9	Calcium Oxide	UN1910	1305-78-8	140,000	70,000	N
10	Liquid Argon	UN1951	7440-37-1	70,312	23,080	N
11	Liquid Hydrogen	UN1966	1333-74-0	10,400	10,400	N
12	Liquid Nitrogen	UN1977	7727-37-9	183,733	34,772	N
13	Oxygen	UN1072	7782-44-7	1,000	1,000	N
14	Sodium Hydroxide	UN1824	1310-73-2	213,640	149,548	N
15	Sodium Silicate	UN1719	1344-09-8	58,000	5,800	N
16	Uranium Hexafluoride	UN2927	7783-81-5	1,736,855	inventory	N
17	URANIUM OXIDE (U ₃ O ₈)	UN2918	1344-59-8	19,142	inventory	N
18	URANIUM OXIDE (UO ₂)	UN2918	1344-57-6	1,206,114	inventory	N
19	Uranyl Nitrate	UN2980	36478-76-9	450,630	225,315	N

Table B-1 Listing of Hazardous and Extremely Hazardous Chemicals (continued)

Additional Bulk Chemicals On-Site but < 10,000 lb Threshold						
	CHEMICAL	UN / NA ² Number	CAS ³	Quantity (lbs)		Extremely Hazardous?
				Maximum	Typical	
20	Acetone	UN1090	67-64-1	2,901		N
21	Ammonium Fluoride	UN2505	12125-01-8	1,078		N
22	Beryllium Compounds		7440-41-7	988		N
23	Erbium Oxide		12061-16-4	4,410	2,205	N
24	Freon 11, CFC-11		75-69-4	5,361		N
25	Freon, CFC-12		75-71-8	5,084		N
26	Gasoline	UN1203	86290-81-5	6,092	1,218	N
27	Helium	UN1046	7440-59-7	1,980		not listed
28	Hydrochloric Acid	UN1789	7647-01-0	2,167		N
29	Kerosene	UN1223	64742-81-0 or 8008-20-6	2,203		N
30	Nickel Chloride		7718-54-9	1,629		N
31	Nickel Hydroxide		12054-48-7	4,433		N
32	Nickel Sulfate		7786-81-4	2,169		N
33	Perchlorethylene	UN1897	127-18-4	5,144		N
34	Tributyl Phosphate		126-73-8	1,786		not listed
35	Uranyl Nitrate Crystals	UN2981	10102-06-4	N/A	N/A	N

¹ Basis – 10,000 lbs Hazardous Substances and 500 lbs Extremely Hazardous Substances

² UN / NA – United Nations / North American numbers for hazardous materials

³ CAS – Chemical Abstract Service number for hazardous materials

⁴ Use of anhydrous ammonia at CFFF was eliminated in August 2011, and replaced by aqueous ammonium hydroxide (Westinghouse 2012a and 2012e).

Source: Westinghouse 2014 g

Table B-2 Transportation of Radioactive Materials and Chemicals

Material	No-Action Alternative	
	Shipments/yr	Quantity per Shipment
Chemicals, L		
Ammonium hydroxide	8	20 tons
Fuel oil	10	1,000 gal
Kerosene	3	140 gal
Hydrofluoric acid	10	20 tons
Sodium Hydroxide	73	24 tons
Nitric acid	55	4,000 gal
Calcium hydroxide	51	25 tons
Sodium silicate	4	21 tons
Hydrogen	47	8.0x10 ⁵ scf
Nitrogen	278	1.0x10 ⁶ scf
Argon	52	2.5x10 ⁵ scf
Helium	47	9.7x10 ⁴ scf
Radioactive materials, kg		
Uranium hexafluoride	240	7,500 kg
Uranyl Nitrate	147	850 kg-U
Fuel rod assemblies	295	10
Solid waste, m³		
Low-level radioactive waste	18	1,200 ft ³
Non-radioactive waste	4	2,500 lb
Total Shipments/yr (all types)	1,342	-

¹ scf – standard cubic feet
Source: Westinghouse 2014k

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APPENDIX C

Ecological Resources

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Table C-1 Plants Observed on the Site

Common Name	Scientific Name
Loblolly pine	<i>Pinus taeda</i>
Overcup oak	<i>Quercus lyrata</i>
Swamp chestnut oak	<i>Q. michauxii</i>
Southern red oak	<i>Q. falcata</i>
Cherrybark oak	<i>Q. falcata</i> var. <i>pagodaefolia</i>
Scarlet oak	<i>Q. coccinea</i>
Water oak	<i>Q. nigra</i>
White oak	<i>Q. alba</i>
Willow oak	<i>Q. phellos</i>
White ash	<i>Fraxinus americana</i>
Carolina ash	<i>F. caroliniana</i>
Shagbark hickory	<i>Carya ovata</i>
Mockernut hickory	<i>C. tomentosa</i>
Shellbark hickory	<i>C. laciniosa</i>
Bitternut hickory	<i>C. cordiformes</i>
Sweet gum	<i>Liquidambar styraciflua</i>
American elm	<i>Ulmus americana</i>
Winged elm	<i>U. alata</i>
Red maple	<i>Acer rubrum</i>
Yellow poplar	<i>Liriodendron tulipifera</i>
American beech	<i>Fagus grandifolia</i>
Black cherry	<i>Prunus serotina</i>
Water tupelo	<i>Nyssa aquatica</i>
Black locust	<i>Robinia pseudoacacia</i>
Redbud	<i>Cercis canadensis</i>
Poison ivy	<i>Rhus radicans</i>
Smooth sumac	<i>R. glabra</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Greenbrier	<i>Smilax bona-nox</i>
Trumpet vine	<i>Campsis radicans</i>
Virginia creeper	<i>Parthenocissus quinquefolia</i>
Common privet	<i>Ligustrum vulgare</i>
Cross vine	<i>Bignonia capreolata</i>
Blackberry	<i>Rubus</i> sp
Lead bush	<i>Amorpha fruticosa</i>
Wild onion	<i>Allium</i> sp
Smartweed	<i>Polygonum</i> sp
Broomsedge	<i>Andropogon virginicus</i>

Table C-1 Plants Observed on the Site (continued)

Common Name	Scientific Name
Great mullein	<i>Verbascum thapsus</i>
Sorrel	<i>Rumex hastatulus</i>
Sheep sorrel	<i>R. acetosella</i>
Queen Anne's lace	<i>Daucus carota</i>
Duckweed	<i>Spirodela sp</i>

Source: Westinghouse, 1975

Table C-2 Avifauna Observed in Open Field Areas

Common Name	Scientific Name
Turkey vulture	<i>Cathartes aura</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-shouldered hawk	<i>B. lineatus</i>
Bobwhite	<i>Colinus virginianus</i>
Killdeer	<i>Charadrius vociferus</i>
Mourning dove	<i>Zenaidura macroura</i>
Chimney swift	<i>Chaetura pelagica</i>
Tree sparrow	<i>Iridoprocne bicolor</i>
English sparrow	<i>Passer domesticus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Common grackle	<i>Quiscalus quiscula</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Field sparrow	<i>Spizella pusilla</i>
Chipping sparrow	<i>S. passerina</i>
Song sparrow	<i>Melospiza melodia</i>

Source: Westinghouse, 1975

Table C-3 Avifauna Observed in Swamp Edge Areas

Common Name	Scientific Name
Black duck	<i>Anas rubripes</i>
Wood duck	<i>Aix sponsa</i>
Marsh hawk	<i>Circus cyaneus</i>
Cattle egret	<i>Bubulcus ibis</i>
Great blue heron	<i>Ardea herodias</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Spotted sandpiper	<i>Actitis macularia</i>
Barred owl	<i>Strix varia</i>
Fish crow	<i>Corvus ossifragus</i>
Acadian flycatcher	<i>Empidonax virescens</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Gray catbird	<i>Dumetella carolinensis</i>
White-eyed vireo	<i>Vireo griseus</i>
Red-eyed vireo	<i>V. olivaceus</i>
Prothonotary warbler	<i>Protonotaria citrea</i>
Northern parula warbler	<i>Parula americana</i>
American redstart	<i>Setophaga ruticilla</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
American goldfinch	<i>Spinus tristis</i>
Song sparrow	<i>Melospiza melodia</i>

Source: Westinghouse, 1975

Table C-4 Avifauna Observed Along Borders of Old Fields and Woodlots

Common Name	Scientific Name
Turkey vulture	<i>Cathartes aura</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-shouldered hawk	<i>B. lineatus</i>
Common flicker	<i>Colaptes auratus</i>
Red-bellied woodpecker	<i>Centurus carolinus</i>
Hairy woodpecker	<i>Dendrocopus villosus</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Acadian flycatcher	<i>Empidonax virescens</i>
Blue jay	<i>Cyanocitta cristata</i>
Fish crow	<i>Corvus ossifragus</i>
Tufted titmouse	<i>Parus bicolor</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Mockingbird	<i>Mimus polyglottos</i>
Gray catbird	<i>Dumetella carolinensis</i>
Robin	<i>Turdus migratorius</i>
Wood thrush	<i>Hylocichla mustelina</i>
Blue-gray gnatcatcher	<i>Poliopitila caerulea</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Starling	<i>Sturnus vulgaris</i>
Solitary vireo	<i>Vireo solitarius</i>
White-eyed vireo	<i>V. griseus</i>
Worm-eating warbler	<i>Helmitheros vermivorous</i>
Northern parula warbler	<i>Parula americana</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Black-throated green warbler	<i>D. virens</i>
Black-throated blue warbler	<i>D. caerulescens</i>
Prairie warbler	<i>D. discolor</i>
Yellowthroat	<i>Geothlypis trichas</i>
Yellow-breasted chat	<i>Icteria virens</i>
Summer tanager	<i>Piranga rubra</i>
Cardinal	<i>Richmondia cardinalis</i>
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
Indigo bunting	<i>Passerina cyanea</i>

**Table C-4 Avifauna Observed Along Borders of Old Fields and Woodlots
(continued)**

Common Name	Scientific Name
American goldfinch	<i>Spinus tristis</i>
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Field sparrow	<i>Spizella pusilla</i>
White-throated sparrow	<i>Zonotrichia albicollis</i>
Song sparrow	<i>Melospiza meibdia</i>

Source: Westinghouse, 1975

Table C-5 Avifauna Observed in all Areas on and Near the Plant Site

Common Name	Scientific Name
Black duck	<i>Anas rubripes</i>
Wood duck	<i>Aix sponsa</i>
Turkey vulture	<i>Cathartes aura</i>
Marsh hawk	<i>Circus cyaneus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-shouldered hawk	<i>B. lineatus</i>
Bobwhite	<i>Colinus virginianus</i>
Cattle egret	<i>Bubulcus ibis</i>
Great blue heron	<i>Ardea herodias</i>
Killdeer	<i>Charadrius vociferus</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Spotted sandpiper	<i>Actitis macularia</i>
Mourning dove	<i>Zenaidura macroura</i>
Barred owl	<i>Strix varia</i>
Chimney swift	<i>Chaetura pelagica</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Common flicker	<i>Colaptes auratus</i>
Red-bellied woodpecker	<i>Centurus carolinus</i>
Hairy woodpecker	<i>Dendrocopus villosus</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Great crested flycatcher	<i>Myiarcus crinitus</i>
Acadian flycatcher	<i>Empidonax virescens</i>
Tree swallow	<i>Iridoprocne bicolor</i>
Blue jay	<i>Cyanocitta cristata</i>
Fish crow	<i>Corvus ossifragus</i>
Tufted titmouse	<i>Parus bicolor</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Mockingbird	<i>Minus polyglottos</i>
Gray catbird	<i>Dumetella carolinensis</i>
Robin	<i>Turdus migratorius</i>
Wood thrush	<i>Hylocichla mustelina</i>
Blue gray gnatcatcher	<i>Poliophtila caerulea</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Starling	<i>Sturnus vulgaris</i>
Solitary vireo	<i>Vireo solitarius</i>

Table C-5 Avifauna Observed in all Areas on and Near the Plant Site (continued)

Common Name	Scientific Name
White-eyed vireo	<i>V. griseus</i>
Pronthonotary warbler	<i>Protonotaria citrea</i>
Worm-eating warbler	<i>Helmitheros vermivorus</i>
Parula warbler	<i>Parula americana</i>
Northern yellow-rumped warbler	<i>Dendroica coronata</i>
Black-throated green warbler	<i>D. virens</i>
Black-throated blue warbler	<i>D. caerulescens</i>
Prairie warbler	<i>Dendroica discolor</i>
Yellowthroat	<i>Geothlypis trichas</i>
Yellow-breasted chat	<i>Icteria virens</i>
American redstart	<i>Setophaga ruticilla</i>
English sparrow	<i>Passer domesticus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Eastern meadowlark	<i>Sturnelia magna</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Common grackle	<i>Quiscalus quiscula</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Summer tanager	<i>Piranga rubra</i>
Cardinal	<i>Richmondia cardinalis</i>
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
Indigo bunting	<i>Passerina cyanea</i>
American goldfinch	<i>Spinus tristis</i>
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Vesper sparrow	<i>Poocetes gramineus</i>
Chipping sparrow	<i>Spizella passerina</i>
Field sparrow	<i>S. pusilla</i>
White-throated sparrow	<i>Zonotrichia albicollis</i>
Song sparrow	<i>Melospiza melodia</i>

Source: Westinghouse, 1975

Table C-6 Mammals of the Plant Site and Adjacent Areas

Common Name	Scientific Name
Opossum ¹	<i>Didelphis marsupialis</i>
Shorttail shrew	<i>Blarina brevicauda</i>
Least shrew	<i>Cryptotis parva</i>
Eastern mole	<i>Scalopus aquaticus</i>
Little brown myotis	<i>Myotis lucifugus</i>
Raccoon ¹	<i>Procyon lotor</i>
River otter ¹	<i>Lutra canadensis</i>
Striped skunk	<i>Mephitis mephitis</i>
Red fox	<i>Vulpes fulva</i>
Gray fox ¹	<i>Urocyon cinereoargenteus</i>
Bobcat ¹	<i>Lynx rufus</i>
Woodchuck	<i>Marmota monax</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern gray squirrel ¹	<i>Sciurus carolinensis</i>
Red squirrel ¹	<i>Tamiasciurus hudsonicus</i>
White-footed mouse ¹	<i>Peromyscus leucopus</i>
Golden mouse ¹	<i>Peromyscus nuttalli</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Muskrat	<i>Ondatra zibethica</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>
Eastern cottontail ¹	<i>Sylvilagus floridanus</i>
Wild boar	<i>Sus scrofa</i>
Eastern whitetail deer ¹	<i>Odocoileus virginianus</i>

¹ Mammals observed on site and adjacent areas during 1974 survey.

Source: Westinghouse, 1975

Table C-7 Mammals Common to Shore-Line Areas

Common Name	Scientific Name
Opossum	<i>Didelphis marsupialis</i>
Shorttail shrew	<i>Blarina brevicauda</i>
Least shrew	<i>Cryptotis parva</i>
Little brown myotis	<i>Myotis lucifugus</i>
Raccoon	<i>Procyon lotor</i>
River otter	<i>Lutra canadensis</i>
Striped skunk	<i>Mephitis mephitis</i>
Red fox	<i>Vulpes fulva</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Bobcat	<i>Lynx rufus</i>
Eastern chipmunk	<i>Tamias striatus</i>
White-footed mouse	<i>Peromyscus leucopus</i>
Muskrat	<i>Ondatra zibethica</i>
Eastern whitetail deer	<i>Odocoileus virginianus</i>

Source: Westinghouse, 1975

Table C-8 Mammals Common to Edge Areas of Old Fields and Woodlots

Common Name	Scientific Name
Opossum	<i>Didelphis marsupialis</i>
Shorttail shrew	<i>Blarina brevicauda</i>
Raccoon	<i>Procyon lotor</i>
Red fox	<i>Vulpes fulva</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Red squirrel	<i>Tamiasciurus hudsonicus</i>
White-footed mouse	<i>Peromyscus leucopus</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Eastern whitetail deer	<i>Odocoileus virginianus</i>

Source: Westinghouse, 1975

Table C -9 Mammals Common to Grassy Areas and Open Fields

Common Name	Scientific Name
Opossum	<i>Didelphis marsupialis</i>
Least shrew	<i>Cryptotis parva</i>
Eastern mole	<i>Scalopus aquaticus</i>
Striped skunk	<i>Mephitis mephitis</i>
Woodchuck	<i>Marmota monax</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>

Source: Westinghouse, 1975

Table C-10 Herpetofauna Observed on the Site and Adjoining Areas

Common Name	Scientific Name
<u>Amphibians</u>	
Green frog	<i>Rana clamitans melanota</i>
Bullfrog	<i>R. catesbeiana</i>
Southern leopard frog	<i>R. pipiens sphenoccephala</i>
Southern cricket frog	<i>Acris gryllus gryllus</i>
American toad	<i>Bufo americanus</i>
<u>Reptiles</u>	
Snapping turtle	<i>Chelydra serpentina</i>
Yellow-bellied turtle	<i>Pseudemys scripta scripta</i>
Eastern mud turtle	<i>Kinosternon subrubrum subrubrum</i>
Eastern painted turtle	<i>Chrysemys picta picta</i>
Eastern box turtle	<i>Terrapene carolina carolina</i>
Five-lined skink	<i>Eumeces fasciatus</i>
Banded water snake	<i>Natrix sipedon fasciata</i>
Red-bellied water snake	<i>N. erythrogaster erythrogaster</i>
Black rat snake	<i>Elaphe obsoleta obsoleta</i>
Eastern king snake	<i>Lampropeltis getulus</i>
Canebrake rattlesnake	<i>Crotalus horridus atricaudatus</i>

Source: Westinghouse, 1975

**Table C-11 Threatened or Endangered Species in South Carolina,
Possibly Occurring on the Site Area**

Common Name	Scientific Name
Eastern brown pelican	<i>Pelicanus occidentalis</i>
Southern bald eagle	<i>Haliaeetus leucocephalus leucocephalus</i>
American peregrine falcon	<i>Falco peregrinus aratum</i>
Red-cockaded woodpecker	<i>Dendrocopus borealis</i>
Bachman's warbler	<i>Vermivora bachmanii</i>
Eastern cougar	<i>Felis concolor</i>
American alligator	<i>Alligator mississippiensis</i>

Source: Westinghouse, 1975

**Table C-12 South Carolina Rare, Threatened and Endangered Species in Inventory,
Species Found in Richland County Data last Updated January 17, 2006**

Common Name	Scientific Name	Global Rank	State Rank	Legal Status
N/A	<i>Agalinis tenella</i>	G4Q	S?	SC
Narrow leaved bluestem	<i>Andropogon perangustatus</i>	G5T3T4	S1	SC
Piedmont three-awned grass	<i>Aristida condensata</i>	G4?	S?	SC
Elliott's aster	<i>Aster elliotii</i>	G3G4	S?	SC
Sandhills milkvetch	<i>Astragalus michauxii</i>	G3	S?	SC
Purple balduina	<i>Balduina atropurpurea</i>	G2G3	S?	SC
Winter grape-fern	<i>Botrychium lunarioides</i>	G4?	S?	SC
Pine-barrens reed-grass	<i>Calamovilfa brevipilis</i>	G4	S?	NC
Cherokee sedge	<i>Carex cherokeensis</i>	G4G5	SR	SC
Collins' sedge	<i>Carex collinsii</i>	G4	S1	SC
Ravenfoot sedge	<i>Carex crus-corvi</i>	G5	S?	SC
Elliott's sedge	<i>Carex elliotii</i>	G4?	S?	SC
Social sedge	<i>Carex socialis</i>	G4	S?	SC
N/A	<i>Carolina bay</i>	G?	S?	SC
Cayaponia	<i>Cayaponia boykinii</i>	G4	S?	SC
Southern horse-balm	<i>Collinsonia serotina</i>	G3G4	S?	SC
N/A	<i>Colonial waterbird</i>	G?	S?	SC
Star-nosed mole	<i>Condylura cristata</i>	G5	S3?	SC
Southeastern tickseed	<i>Coreopsis gladiata</i>	G3G5	S?	SC
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	G3G4	S2?	SE
Spinulose shield fern	<i>Dryopteris carthusiana</i>	G5	S?	SC
Smooth coneflower	<i>Echinacea laevigata</i>	G2	S1	FE/SE
Robbins spikerush	<i>Eleocharis robbinsii</i>	G4G5	S?	SC
Gravel elimia	<i>Elimia catenaria</i>	G4	S?	SC
Carolina darter	<i>Etheostoma collis</i>	G3	S?	SC
Banded killifish	<i>Fundulus diaphanus</i>	G5	S1	SC
Bald eagle	<i>Haliaeetus leucocephalus</i>	G4	S2	FT/SE
Southern hognose snake	<i>Heterodon simus</i>	G2	S?	SC
Pine barrens treefrog	<i>Hyla andersonii</i>	G4	S2S3	ST

**Table C-12 South Carolina Rare, Threatened and Endangered Species in Inventory,
Species Found in Richland County Data last Updated January 17, 2006 (continued)**

Common Name	Scientific Name	Global Rank	State Rank	Legal Status
Shoals spider-lily	<i>Hymenocallis coronaria</i>	G2Q	S2	NC
Creeping St. John's-wort	<i>Hypericum adpressum</i>	G2G3	S1	RC
Carolina St. John's-wort	<i>Hypericum nitidum</i>	G4	S?	SC
Sarvis holly	<i>Ilex amelanchar</i>	G4	S3	SC
Red standing-cypress	<i>Ipomopsis rubra</i>	G4G5	S?	SC
Pinebarren rush	<i>Juncus abortivus</i>	G4G5	S?	SC
Piedmont pinweed	<i>Lechea torreyi</i>	G4G5	S?	SC
Small-head gayfeather	<i>Liatris microcephala</i>	G3G4	S?	SC
Bog spicebush	<i>Lindera subcoriacea</i>	G2	S?	RC
Lobelia	<i>Lobelia sp 1</i>	G?	S?	SC
Spatulate seedbox	<i>Ludwigia spathulata</i>	G3G4	S?	SC
Carolina bugleweed	<i>Lycopus cokeri</i>	G3	S?	SC
Rough-leaved loosestrife	<i>Lysimachia asperulifolia</i>	G3	S1	FE/SE
Carolina bird-in-a-nest	<i>Macbridea caroliniana</i>	G2G3	S?	SC
Bigleaf magnolia	<i>Magnolia macrophylla</i>	G5	S?	SC
Pyramid magnolia	<i>Magnolia pyramidata</i>	G4	S1	RC
Piedmont water-milfoil	<i>Myriophyllum laxum</i>	G3	S2	RC
Nestronia	<i>Nestronia umbellula</i>	G4	S2	SC
Redlip shiner	<i>Notropis chiliticus</i>	G4	S1?	SC
Adder's-tongue	<i>Ophioglossum vulgatum</i>	G5	S?	SC
Canby's dropwort	<i>Oxypolis canbyi</i>	G2	S1	FE/SE
Bead-grass	<i>Paspalum bifidum</i>	G5	S?	SC
Red-cockaded woodpecker	<i>Picoides borealis</i>	G3	S2	FE/SE
Pine-leaved golden aster	<i>Pityopsis pinifolia</i>	G4	S?	SC
NA	<i>Plagiochila sullivantii</i>	G2	S?	SC
Algae-like pondweed	<i>Potamogeton confervoides</i>	G4	S1	SC
Alabama black cherry	<i>Prunus alabamensis</i>	G4	S?	SC
Whisk fern	<i>Psilotum nudum</i>	G5	S1S2	SC
Crestless plume orchid	<i>Pteroglossaspis ecristata</i>	G2	S2	SC

**Table C-12 South Carolina Rare, Threatened and Endangered Species in Inventory,
Species Found in Richland County Data last Updated January 17, 2006 (continued)**

Common Name	Scientific Name	Global Rank	State Rank	Legal Status
Awed meadowbeauty	<i>Rhexia aristosa</i>	G3	S2	SC
Blacknose dace	<i>Rhinichthys atratulus</i>	G5	S1	SC
May white	<i>Rhododendron eastmanii</i>	G2	S2	SC
Drowned hornedrush	<i>Rhynchospora inundata</i>	G3G4	S?	SC
Beak rush	<i>Rhynchospora macra</i>	G3	S?	SC
Few-flowered beaked-rush	<i>Rhynchospora oligantha</i>	G4	S?	SC
Pale beakrush	<i>Rhynchospora pallida</i>	G3	S?	SC
Chapman beakrush	<i>Rhynchospora stenophylla</i>	G4	S?	SC
Sweet pitcher-plant	<i>Sarracenia rubra</i>	G3	S4	SC
Canby bulrush	<i>Scirpus etuberculatus</i>	G3G4	S?	SC
Eastern fox squirrel	<i>Sciurus niger</i>	G5	S4	SC
Eastern spotted skunk	<i>Spilogale putorius</i>	G5	S4	SC
Squawfoot	<i>Strophitus undulatus</i>	G5	S?	SC
Swamp rabbit	<i>Sylvilagus aquaticus</i>	G5	S2S3	SC
White false-asphodel	<i>Tofieldia glabra</i>	G3	S?	SC
Aethusa-like trepocarpus	<i>Trepocarpus aethusae</i>	G4G5	S?	SC
Chapman's redtop	<i>Tridens chapmanii</i>	G?	S?	SC
Barn-owl	<i>Tyto alba</i>	G5	S4	SC
Black bear	<i>Ursus americanus</i>	G5	S3?	SC
Weak nettle	<i>Urtica chamaedryoides</i>	G4G5	S?	SC
Rayner's blueberry	<i>Vaccinium crassifolium ssp sempervirens</i>	G4G5T1	S1	NC
Eastern creekshell	<i>Villosa delumbis</i>	G4	S?	SC
Nuttall warea	<i>Warea cuneifolia</i>	G4	S?	SC

Source: SC Department of Natural Resources Web site

Key:

GRANK - the Nature Conservancy rating of degree of endangerment world-wide:

- G1 Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction
- G2 Imperiled globally because of rarity or factor(s) making it vulnerable
- G3 Either very rare throughout its range or found locally in a restricted range, or having factors making it vulnerable
- G4 Apparently secure globally, though it may be rare in parts of its range
- G5 Demonstrably secure globally, though it may be rare in parts of its range
- GH Of historical occurrence throughout its range, with possibility of rediscovery
- GX Extinct throughout its range
- G? Status unknown

SRANK - the Nature Conservancy rating of degree of endangerment in South Carolina

- S1 Critically imperiled state-wide because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation
- S2 Imperiled state-wide because of rarity or factor(s) making it vulnerable
- S3 Rare or uncommon in state
- S4 Apparently secure in state
- S5 Demonstrably secure in state
- SA Accidental in state (usually birds or butterflies that are far outside normal range)
- SE Exotic established in state
- SH Of historical occurrence in state, with possibility of rediscovery
- SN Regularly occurring in state, but in a migratory, non-breeding form
- SR Reported in state, but without good documentation
- SX Extirpated from state
- S? Status unknown

STATUS - legal status

- FE Federal Endangered
- FT Federal Threatened
- PE Proposed for Federal listing as Endangered
- PT Proposed for Federal listing as Threatened
- C Candidate for Federal listing
- NC Of Concern, National (unofficial - plants only)
- RC Of Concern, Regional (unofficial - plants only)
- SE State Endangered (official state list - animals only)
- ST State Threatened (official state list - animals only)
- SC Of Concern, State
- SX State Extirpated