

Table of Contents

1.0	Introduction	1-1
1.1	Proposed Action	1-2
1.2	Project Description	1-3
1.2.1	Ownership and Applicant	1-3
1.2.2	Site Location	1-3
1.2.3	Reactor Information	1-3
1.2.4	Cooling System Information	1-3
1.2.5	Transmission System Information	1-5
1.2.6	Proposed Action and Constraints	1-5
1.2.7	Major Activity Start and Completion Dates	1-6
1.3	Status Of Reviews, Approvals and Consultations	1-12
1.3.1	Federal Agencies	1-12
1.3.2	State Agencies	1-15
1.3.3	Local Agencies	1-20
1.4	References	1-31
2.0	Environmental Description	2-1
2.1	Station Location	2-2
2.2	Land	2-8
2.2.1	The Site and Vicinity	2-8
2.2.2	Transmission Corridors and Offsite Areas	2-10
2.2.3	The Region	2-11
2.2.4	References	2-13
2.3	Water	2-36
2.3.1	Hydrology	2-36
2.3.2	Water Use	2-63
2.3.3	Water Quality	2-79
2.4	Ecology	2-427
2.4.1	Terrestrial Ecology	2-427
2.4.2	Aquatic Ecology	2-445
2.4.3	References	2-460
2.5	Socioeconomics	2-525
2.5.1	Demography	2-525
2.5.2	Community Characteristics	2-532
2.5.3	Historical Properties	2-564
2.5.4	Environmental Justice	2-571
2.6	Geology	2-735
2.6.1	Geologic Setting	2-735
2.6.2	Stratigraphy	2-735
2.6.3	Geologic Impact Evaluation	2-739
2.6.4	References	2-740
2.7	Meteorology and Air Quality	2-744
2.7.1	General Climate	2-744
2.7.2	Regional Air Quality	2-745
2.7.3	Severe Weather Phenomena	2-746
2.7.4	Local Meteorology	2-749
2.7.5	Maximum Terrain Heights and Topographic Maps	2-755

2.7.6	Atmospheric Dispersion Factors	2-756
2.7.7	Noise	2-758
2.7.8	References	2-760
2.8	Related Federal Project Activities	2-1456
2.8.1	Land Acquisition and Use of Electrical Transmission corridors	2-1456
2.8.2	Cooling Water source and Supply	2-1456
2.8.3	Other Federal Actions Affecting Construction or Operation	2-1457
2.8.4	Federal Agency Plans Used to Justify the Need for Power	2-1457
2.8.5	Planned Federal Projects Contingent on Plant Construction or Operation	2-1457
2.8.6	Non-Federal Potential Impacts	2-1457
2.8.7	References	2-1457
3.0	Plant Description	3-1
3.1	External Appearance and Plant Layout	3-2
3.1.1	References	3-4
3.2	Reactor Power Conversion System	3-12
3.2.1	General	3-12
3.3	Plant Water Use	3-16
3.3.1	Water Consumption	3-16
3.3.2	Water Treatment	3-18
3.3.3	References	3-20
3.4	Cooling System	3-26
3.4.1	Description and Operational Modes	3-26
3.4.2	Component Description	3-29
3.4.3	References	3-32
3.5	Radwaste Systems and Source Terms	3-47
3.5.1	Source Terms	3-47
3.5.2	Radioactive Liquid Processing System	3-50
3.5.3	Radioactive Gaseous Treatment Systems	3-56
3.5.4	Solid Radioactive Waste System	3-62
3.5.5	Process and Effluent Monitoring	3-66
3.5.6	References	3-70
3.6	Non-Radioactive Waste Systems	3-129
3.6.1	Effluents Containing Chemicals or Biocides	3-129
3.6.2	Sanitary System Effluents	3-129
3.6.3	Other Effluents	3-130
3.6.4	References	3-134
3.7	Power Transmission System	3-150
3.7.1	Substation and Connecting Circuits	3-151
3.7.2	Electrical Design Parameters	3-153
3.7.3	Noise Levels	3-153
3.7.4	Structural Design	3-154
3.7.5	Inspection and Maintenance	3-154
3.7.6	Compliance and Siting	3-154
3.7.7	References	3-155
3.8	Transportation of Radioactive Materials	3-158
3.8.1	Reactor Data	3-158
3.8.2	Onsite Storage Facilities for Irradiated Fuel	3-158
3.8.3	Treatment and Packaging of Radioactive Materials other than Irradiated Fuel	3-158
3.8.4	Transportation System for Fuel and Other Radioactive Waste	3-159

3.8.5	Transportation Distance from the Plant to the Storage Facility.....	3-159
3.8.6	Conclusions	3-159
3.8.7	References	3-159
4.0	Environmental Impacts of Construction.....	4-1
4.1	Land Use Impacts	4-2
4.1.1	The Site and Vicinity	4-2
4.1.2	Transmission Corridors and Offsite Areas	4-4
4.1.3	Historic properties	4-5
4.1.4	References	4-7
4.2	Water-Related Impacts	4-11
4.2.1	Hydrologic Alterations	4-11
4.2.2	Water Use Impacts	4-18
4.3	Ecological Impact	4-31
4.3.1	Terrestrial Ecosystems	4-31
4.3.2	Aquatic Ecosystems	4-42
4.3.3	References	4-49
4.4	Socioeconomic Impacts	4-55
4.4.1	Physical Impacts	4-55
4.4.2	Social and Economic Impacts	4-59
4.4.3	Environmental Justice Impacts	4-71
4.5	Radiation Exposure to Construction Workers	4-87
4.5.1	Site Layout	4-87
4.5.2	Radiation sources at BBNPP	4-87
4.5.3	Historical Dose Rates	4-87
4.5.4	Projected Dose Rates at BBNPP	4-88
4.5.5	Compliance with Dose Rate Regulations	4-93
4.5.6	Collective Doses to BBNPP Workers	4-94
4.5.7	Radiation Protection and ALARA Program	4-94
4.5.8	References	4-95
4.6	Measures and Controls to Limit Adverse Impacts during Construction	4-130
4.7	Nonradiological Health Impacts	4-149
4.7.1	Public Health	4-149
4.7.2	Occupational Health	4-149
4.7.3	References	4-150
5.0	Environmental impacts of station operation	5-1
5.1	Land Use Impacts	5-2
5.1.1	The Site and Vicinity	5-2
5.1.2	Transmission Corridors and Outside Areas	5-4
5.1.3	Historic Properties and Cultural Resources	5-5
5.1.4	References	5-8
5.2	Water Related Impacts	5-10
5.2.1	Hydrologic Alterations and Plant Water Supply	5-10
5.2.2	Water Use Impacts	5-12
5.2.3	Water Quality Impacts	5-14
5.2.4	References	5-16
5.3	Cooling System Impacts	5-19
5.3.1	Intake System	5-19
5.3.2	Discharge System	5-25

5.3.3	Heat Discharge System	5-31
5.3.4	Impacts to Members of the Public	5-39
5.4	Radiological Impacts of Normal Operations	5-59
5.4.1	Exposure Pathways	5-59
5.4.2	Radiation Doses to Members of the public	5-62
5.4.3	Impacts to Members of the Public	5-63
5.4.4	Impacts to Biota other than Members of the Public	5-66
5.5	Environmental Impact of Waste	5-105
5.5.1	Nonradioactive Waste System Impacts	5-105
5.5.2	Mixed Waste Impacts	5-107
5.6	Transmission System Impacts	5-110
5.6.1	Terrestrial Ecosystems	5-110
5.6.2	Aquatic Ecosystems	5-115
5.6.3	Impacts to Members of the Public	5-118
5.7	Uranium Fuel Cycle Impacts	5-124
5.7.1	Land Use	5-127
5.7.2	Water Use	5-127
5.7.3	Fossil Fuel Impacts	5-127
5.7.4	Chemical Effluents	5-128
5.7.5	Radioactive Effluents	5-129
5.7.6	Radioactive Wastes	5-130
5.7.7	Occupational Dose	5-130
5.7.8	Transportation	5-130
5.7.9	Fuel Cycle	5-131
5.7.10	References	5-131
5.8	Socioeconomic Impacts	5-136
5.8.1	Physical Impacts of Station Operation	5-136
5.8.2	Social and Economic	5-140
5.8.3	Environmental Justice Impacts	5-149
5.9	Decommissioning	5-157
5.9.1	NRC Generic Environmental Impact Statement Regarding Decommissioning	5-157
5.9.2	Decommissioning Cost Analysis Summary	5-157
5.9.3	References	5-158
5.10	Measures and Controls to Limit Adverse Impacts during Operation	5-159
5.10.1	Impacts during Operation	5-159
5.10.2	References	5-160
5.11	Transportation of Radioactive Materials	5-176
5.11.1	Fuel Cladding Environmental Impact	5-177
5.11.2	Heat (Irradiated Fuel Cask in Transit) Environmental Impact	5-177
5.11.3	Incident-Free Dose and Traffic Density Impact Analysis	5-178
5.11.4	Summary and Conclusion	5-183
5.11.5	References	5-183
5.12	Nonradiological Health Impacts	5-192
5.12.1	Public Health	5-192
5.12.2	Occupational Health	5-192
5.12.3	References	5-193
6.0	Environmental Measurements and Monitoring Programs	6-1
6.1	Thermal Monitoring	6-2
6.1.1	Preapplication Monitoring	6-2

6.1.2	Preoperational Monitoring	6-3
6.1.3	Operational Monitoring	6-3
6.1.4	References	6-4
6.2	Radiological Monitoring	6-7
6.2.1	Pathways Monitored	6-8
6.2.2	Land Use Census	6-9
6.2.3	Environmental Monitoring Program Sample Types	6-9
6.2.4	Sample Size	6-10
6.2.5	Radiological Environmental Monitoring Program Reports	6-10
6.2.6	Quality Assurance program	6-11
6.2.7	REMP Modifications for BBNPP	6-11
6.2.8	References	6-12
6.3	Hydrological Monitoring	6-49
6.3.1	Preapplication Monitoring	6-49
6.3.2	Construction and pre-Operational Monitoring	6-50
6.3.3	Operational Monitoring	6-51
6.3.4	References	6-52
6.4	Meteorological Monitoring	6-54
6.4.1	Pre-Application and pre-Operational Meteorological Measurement program	6-54
6.4.2	Operational Meteorological Measurement program	6-56
6.4.3	References	6-58
6.5	Ecological Monitoring	6-67
6.5.1	Terrestrial Ecology and Land Use	6-67
6.5.2	Aquatic Ecology	6-69
6.5.3	References	6-73
6.6	Chemical Monitoring	6-74
6.6.1	Preapplication Monitoring	6-74
6.6.2	Construction and Preoperational Monitoring	6-77
6.6.3	Operational Monitoring	6-77
6.6.4	References	6-79
6.7	Summary of Monitoring Programs	6-82
6.7.1	Preapplication Monitoring	6-82
6.7.2	Construction and Preoperational Monitoring	6-82
6.7.3	Operational Monitoring	6-82
6.7.4	References	6-82
7.0	Environmental Impacts of Postulated Accidents Involving Radioactive Materials	7-1
7.1	Design Basis Accidents	7-2
7.1.1	References	7-3
7.2	Severe Accidents	7-43
7.2.1	Methodology	7-43
7.2.2	Consequences to Population Groups	7-45
7.2.3	Conclusions	7-47
7.2.4	References	7-48
7.3	Severe Accident Mitigation Alternatives	7-52
7.3.1	SAMDA Analysis Methodology	7-52
7.3.2	Severe Accident Cost Impact and Maximum Benefit for BBNPP	7-53
7.3.3	Results and Summary	7-54
7.3.4	References	7-55
7.4	Transportation Accidents	7-59

7.4.1	Radiological Impacts	7-60
7.4.2	Non-Radiological Impacts	7-62
7.4.3	Summary and Conclusion	7-64
7.4.4	References	7-64
8.0	Need For Power	8-1
8.0.1	References	8-5
8.1	Description of Power System	8-7
8.1.1	Systematic Process	8-11
8.1.2	Comprehensive Process	8-12
8.1.3	Confirmation Process	8-12
8.1.4	Consideration of Uncertainty	8-12
8.1.5	Conclusion	8-13
8.1.6	References	8-13
8.2	Power Demand	8-20
8.2.1	Power and Energy Requirements	8-20
8.2.2	Factors Affecting Power Growth and Demand	8-22
8.2.3	References	8-27
8.3	Power Supply	8-40
8.3.1	References	8-49
8.4	Assessment of Need for Power	8-67
8.4.1	Assessment of the Need for New Capacity	8-67
8.4.2	Other Benefits of New Nuclear Capacity	8-69
8.4.3	Summary of Need for Power	8-70
8.4.4	References	8-71
9.0	Alternatives To The Proposed Action	9-1
9.1	No-Action Alternative	9-2
9.1.1	References	9-4
9.2	Energy Alternatives	9-6
9.2.1	Alternatives Not Requiring New Generating Capacity	9-6
9.2.2	Alternatives that Require New Generating Capacity	9-12
9.2.3	Assessment of Reasonable Alternative Energy Sources and Systems	9-26
9.2.4	References	9-35
9.3	Alternative Sites	9-50
9.3.1	Site Selection Process	9-50
9.3.2	Proposed and Alternative Site Evaluation	9-61
9.3.3	Summary and Conclusions	9-80
9.3.4	References	9-81
9.4	Alternative Plant and Transmission Systems	9-104
9.4.1	Heat Dissipation Systems	9-104
9.4.2	Circulating Water Systems	9-112
9.4.3	Transmission systems	9-119
9.4.4	References	9-120
10.0	Environmental Consequences of the Proposed Action	10-1
10.1	Unavoidable Adverse Environmental Impacts	10-2
10.1.1	Unavoidable Adverse Environmental Impacts of Construction	10-2
10.1.2	Unavoidable Adverse Environmental Impacts of Operations	10-2

10.1.3 Summary of Unavoidable Adverse Environmental Impacts from Construction and Operations	10-2
10.1.4 References	10-5
10.2 Irreversible and Irretrievable Commitments of Resources.....	10-14
10.2.1 Irreversible Environmental Commitments	10-14
10.2.2 Irretrievable Commitments of Resources	10-15
10.2.3 References	10-16
10.3 Relationship Between Short-term Uses and Long-term Productivity of the Human Environment.....	10-23
10.3.1 Construction and Long-Term Productivity	10-23
10.3.2 Operation and Long-Term Productivity	10-24
10.3.3 Summary of Relationship between Short-Term and Long-Term Productivity	10-25
10.3.4 References	10-25
10.4 Benefit-Cost Balance	10-26
10.4.1 Benefits	10-26
10.4.2 Costs	10-30
10.4.3 Summary	10-32
10.4.4 References	10-33
10.5 Cumulative Impacts.....	10-47
10.5.1 Cumulative Impacts from Construction	10-47
10.5.2 Cumulative Impacts of Operations	10-51
10.5.3 Cumulative Impacts Summary.....	10-56
10.5.4 References	10-56

List of Tables

Table 1.3-1— Federal, State and Local Authorizations	1-21
Table 2.2-1— Land Use on the BBNPP Site.	2-15
Table 2.2-2— Land Use Categories within 6 mi (10 km) Vicinity	2-16
Table 2.2-3— State Controlled Lands within 6 mi (10 km) Vicinity	2-17
Table 2.2-4— Trust Land within 6 mi (10 km) Vicinity	2-18
Table 2.2-5— Land Use Categories within 50 mi (80 km) Region.	2-19
Table 2.2-6— Land Use Categories within 50 mi (80 km) Region.	2-20
Table 2.2-7— Land Use Categories within Luzerne County	2-21
Table 2.2-8— Land Use Categories within Columbia County	2-22
Table 2.2-9— Trust Lands within 50 mi (80 km) Region	2-23
Table 2.2-10— County and Local Parks within 50 mi (80 km) Region.	2-24
Table 2.2-11— State Park Lands within 50 mi (80 km) Region	2-25
Table 2.2-12— State Game Lands within 50 mi (80 km) Region.	2-26
Table 2.2-13— State Forest Lands within 50 mi (80 km) Region	2-27
Table 2.2-14— Wild and Natural Areas within 50 mi (80 km) Region	2-28
Table 2.3-1— Approximate Length and Average Gradient of Creeks Located near BBNPP	2-92
Table 2.3-2— Annual Peak Streamflow for Wilkes-Barre, PA USGS Station No. 01536500, (1787 through 2006)	2-93
Table 2.3-3— Monthly Streamflow for Danville, PA USGS Station No. 01540500, (1905 through 2006) ..	2-96
Table 2.3-4— Mean Daily Streamflow for Wilkes-Barre, PA USGS Station No. 01536500, (1899 through 2006)	2-100
Table 2.3-5— Maximum Daily Streamflow for Wilkes-Barre, PA USGS Station No. 01536500, (1899 through 2006)	2-101
Table 2.3-6— Minimum Daily Streamflow for Wilkes-Barre, PA USGS Station No. 01536500, (1899 through 2006)	2-102
Table 2.3-7— Annual Peak Streamflow for Danville, PA USGS Station No. 01540500, (1905 through 2006)	2-103
Table 2.3-8— Monthly Streamflow for Wilkes-Barre, PA USGS Station No. 01536500, (1899 through 2006)	2-106
Table 2.3-9— Mean Daily Streamflow for Danville, PA USGS Station No. 01540500, (1905 through 2006)	2-110
Table 2.3-10— Maximum Daily Streamflow for Danville, PA USGS Station No. 01540500, (1905 through 2006)	2-111
Table 2.3-11— Minimum Daily Streamflow for Danville, PA USGS Station No. 01540500, (1905 through 2006)	2-112
Table 2.3-12— Susquehanna River Basin Upstream Dam Information	2-113
Table 2.3-13— Physical Characteristics of Groundwater Wells in the North Branch Susquehanna River Basin, Pennsylvania	2-115
Table 2.3-14— Yields and Specific Capacities of Wells in the North Branch Susquehanna River Basin, Pennsylvania	2-116
Table 2.3-15— Specific Capacities of Wells in the Berwick-Bloomsburg-Danville Area, Pennsylvania ..	2-117
Table 2.3-16— Effect of Lithology on Well Yields, Berwick-Bloomsburg - Danville Area, Pennsylvania ..	2-118
Table 2.3-17— Computed Water Budget Components for Selected Drainage Basins in the North Branch Susquehanna River Basin, Pennsylvania	2-119
Table 2.3-18— BBNPP Monitoring Wells and Construction Details.	2-120
Table 2.3-19— Monthly Groundwater Elevation Measurements, BBNPP	2-122
Table 2.3-20— Monthly Groundwater Elevation Measurements, BBNPP	2-124
Table 2.3-21— Monthly Surface Water Elevation Measurements, BBNPP.	2-126
Table 2.3-22— Monthly Surface Water Elevation Measurements, BBNPP.	2-127
Table 2.3-23— Horizontal Hydraulic Gradients	2-128

Table 2.3-24— Vertical Hydraulic Gradients and Flow Directions	2-129
Table 2.3-25— Hydraulic Conductivity Values Based on Slug Tests	2-131
Table 2.3-26— Hydraulic Properties Based on Pumping Tests	2-132
Table 2.3-27— Hydraulic Conductivity Values of Bedrock (Mahantango Shale) Based on Packer Tests	2-133
Table 2.3-28— Summary of Hydraulic Property Testing at the SSES	2-135
Table 2.3-29— Surface Water Users in Luzerne County.....	2-137
Table 2.3-30— SSES Unit 1 & 2 Monthly Consumptive Water Use.....	2-139
Table 2.3-31— Major Public Water Suppliers within Luzerne and Columbia Counties	2-140
Table 2.3-32— SSES Cooling Tower Blowdown Discharge Rate Permit No. PA0047325	2-141
Table 2.3-33— Water Pollution Control Facilities in Luzerne County	2-142
Table 2.3-34— Water Use in the Upper Susquehanna River Basin, Pennsylvania, in 1970	2-144
Table 2.3-35— Groundwater Wells Located within a 25 Mile (40-km) Radius of BBNPP (Listed in Pennsylvania Groundwater Information System).....	2-145
Table 2.3-36— Groundwater Wells Located within a 5 Mile (8-km) Radius of BBNPP (Listed in Pennsylvania Groundwater Information System)	2-291
Table 2.3-37— Groundwater Withdrawals within a 25 Mile (40-km) Radius of BBNPP (Listed by Pennsylvania Department of Environmental Protection).....	2-300
Table 2.3-38— Groundwater Withdrawals within a 5 Mile (8-km) Radius of BBNPP (Listed by Pennsylvania Department of Environmental Protection).....	2-310
Table 2.3-39— Drinking Water Wells Used for Public Water Supplies, Luzerne and Columbia Counties	2-311
Table 2.3-40— Summary of BBNPP Surface Water Data for 2008	2-328
Table 2.3-41— Summary of BBNPP Ground Water Data for 2008	2-332
Table 2.3-42— Organic Chemical and Radiological Parameters ⁽¹⁾ Analyzed in Groundwater Samples from BBNPP Site, February 2008 ⁽²⁾	2-335
Table 2.3-43— Summary of Water Quality Data For The Susquehanna River, 1968-1977	2-336
Table 2.3-44— Water Quality in the Susquehanna River Between 2002 and 2006 (yearly averages of SSES quarterly data).....	2-337
Table 2.3-45— BBNPP Surface Water Quality Data, Field Measurements	2-339
Table 2.3-46— BBNPP Groundwater Quality Data, Field Measurements	2-343
Table 2.4-1— Important Terrestrial Species and Habitats at the BBNPP OCA	2-465
Table 2.4-2— Pennsylvania Mammals Observed or that are likely to Occur in the Vicinity of BBNPP Site.....	2-468
Table 2.4-3— Birds Observed or Likely to Occur in the Vicinity of BBNPP OCA.....	2-472
Table 2.4-4— Pennsylvania Reptiles and Amphibians Observed or Likely to Occur in the Vicinity of BBNPP Site. Modified After Pennsylvania Fish and Boat Commission List of Native, Extant, Reptiles and Amphibians (PFBC 2008a).....	2-481
Table 2.4-5— Number and Percent Composition of Fish Collected from Three Ponds Located within the BBNPP Site, November 8, 2007	2-484
Table 2.4-6— Number and Percent Composition of Fish Collected from Three Ponds Located within the Proposed BBNPP Site, July 2008	2-485
Table 2.4-7— Number and Percent Composition of Fish Collected from Three Stations in Walker Run Located within the Proposed BBNPP Site, November 8, 2007.....	2-486
Table 2.4-8— Number and Percent Composition of Fish Collected from Five Stations in Walker Run Located within and Downstream of the Proposed BBNPP Site, April 7 and 8, 2008	2-487
Table 2.4-9— Number and Percent Composition of Fish Collected from Five Stations in Walker Run Located within and Downstream of the Proposed BBNPP Site, July 2008.....	2-488
Table 2.4-10— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 1 in Walker Run, November 8, 2007	2-489
Table 2.4-11— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 2 in Walker Run, November 8, 2007	2-491
Table 2.4-12— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 1 in Walker Run, April 7, 2008	2-493

Table 2.4-13— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 2 in Walker Run, April 7, 2008.....	2-495
Table 2.4-14— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 4 in Walker Run, April 8, 2008.....	2-497
Table 2.4-15— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 5 in Walker Run, April 8, 2008.....	2-498
Table 2.4-16— Number and Percent Composition of Fish Collected by Seining at SSES on the Susquehanna River, 2004-2007	2-499
Table 2.4-17— Number and Percent Composition of Fish Collected by Seining at Bell Bend on the Susquehanna River, 2004-2007	2-500
Table 2.4-18— Number and Percent Composition of Fish Collected by Electrofishing at SSES on the Susquehanna River, 2004-2007	2-501
Table 2.4-19— Number and Percent Composition of Fish Collected by Electrofishing at Bell Bend on the Susquehanna River, 2004-2007	2-502
Table 2.4-20— Number and Percent Total of Benthic Macroinvertebrates Collected with a Dome Sampler at SSES (replicate 1) in the Susquehanna River, August 15, 2007.....	2-503
Table 2.4-21— Number and Percent Total of Benthic Macroinvertebrates Collected with a Dome Sampler at SSES (replicate 2) in the Susquehanna River, August 15, 2007.....	2-504
Table 2.4-22— Number and Percent Total of Benthic Macroinvertebrates Collected with a Dome Sampler at Bell Bend (replicate 1) in the Susquehanna River, August 15, 2007	2-505
Table 2.4-23— Number and Percent Total of Benthic Macroinvertebrates Collected with a Dome Sampler at Bell Bend (replicate 2) in the Susquehanna River, August 15, 2007	2-506
Table 2.4-24— Species of Mussels Observed During Survey of Susquehanna River Completed Near the Proposed BBNPP Site, October 2007	2-507
Table 2.4-25— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 1 in Walker Run on July 14, 2008.....	2-508
Table 2.4-26— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 2 in Walker Run on July 15, 2008.....	2-509
Table 2.4-27— Number and Percent Composition of Benthic Macroinvertebrates collected with a Kick Net at Station 4 in Walker Run on July 14, 2008.....	2-510
Table 2.4-28— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 5 in Walker Run on July 14, 2008.....	2-511
Table 2.4-29— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net at Station 6 in Walker Run on July 15, 2008.....	2-512
Table 2.4-30— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net in Unnamed Tributary 2 on July 16, 2008.....	2-513
Table 2.4-31— Number and Percent Composition of Benthic Macroinvertebrates Collected with a Kick Net in Unnamed Tributary 3 on July 16, 2008.....	2-514
Table 2.4-32— Occurrence of Butterfly Species of Concern Host Plants at BBNPP	2-515
Table 2.4-33— List of Fish Species Collected with Seine or Electrofishing Boat in the Susquehanna River at SSES and Bell Bend, 2004 to 2007	2-517
Table 2.5-1— The Counties of Residence for Existing SSES Units 1 and 2 Operational Employees	2-584
Table 2.5-2— Select Demographic and Economic Characteristics of Residential Population By Distance from the BBNPP Site, 2000	2-585
Table 2.5-3— Historical and Projected Population in Columbia and Luzerne Counties and Pennsylvania from 1970 to 2080	2-586
Table 2.5-4— Select Demographic and Economic Characteristics of Persons in Columbia Luzerne Counties, the Commonwealth of Pennsylvania, and the U.S. 2000 to 2006.....	2-587
Table 2.5-5— Demographic and Economic Characteristics of Residential Populations in Select Cities and Communities within Luzerne County and Columbia County, 2000	2-588
Table 2.5-6— Resident and Transient Populations, by Sector and Distance from BBNPP Site, 2000.....	2-589
Table 2.5-7— Commuting Patterns to and from the Region of Interest (Columbia and Luzerne	

Counties	2-591
Table 2.5-8— Current Population and Population Projections For the BBNPP Low Population Zone ...	2-592
Table 2.5-9— The Population Projections from 2000 to 2080 Within 50 mi (80 km) of the BBNPP Site .	2-593
Table 2.5-10— Population Projections by Sector and Distance from the BBNPP Site from 2000 to 2080	2-594
Table 2.5-11— Civilian Labor Force Data for Luzerne County, Columbia County, Scranton-Wilkes-Barre-Hazleton Metropolitan Statistical Area, Pennsylvania, and the U.S., 2000 and 2006	2-606
Table 2.5-12— Employment by Industry Sectors and Class of Workers in Luzerne County, Columbia County, and the ROI, 2000 and 2006	2-608
Table 2.5-13— Top 10 Employers in Luzerne County and Columbia County, Second Quarter 2006 ...	2-609
Table 2.5-14— Income Characteristics in Luzerne County, Columbia County, Scranton-Wilkes-Barre-Hazleton Metropolitan Statistical Area, Pennsylvania, and the U.S., 2000 and 2006	2-610
Table 2.5-15— Mean Earnings in Luzerne County, Columbia County, Scranton-Wilkes-Barre-Hazleton Metropolitan Statistical Area, Pennsylvania, and the U.S., 2000 and 2006	2-611
Table 2.5-16— Occupied Housing Units and Vacant (available) Housing Units in Luzerne County, Columbia County, and the ROI, 2000 and 2006	2-612
Table 2.5-17— New Housing Units (both Single-family and Multi-family) Authorized for Construction, Luzerne County, Columbia County, and the Region of Interest, 2000 to 2006	2-613
Table 2.5-18— Apartment and Townhouse Complexes within about 30 Mi (48 km) of Berwick, Pennsylvania.	2-614
Table 2.5-19— Hotels, Motels, and Bed & Breakfasts within about 30 Mi (48 km) of Berwick, Pennsylvania.	2-616
Table 2.5-20— Public Schools Located in Luzerne County and Columbia County	2-620
Table 2.5-21— Private Schools Located in Luzerne County and Columbia County	2-623
Table 2.5-22— Boat Launches in Luzerne County and Columbia County, Listed Alphabetically by City.	2-625
Table 2.5-23— Charter Boats/Fishing Guides Services in Luzerne County and Columbia County, Listed Alphabetically by City.	2-626
Table 2.5-24— The Campgrounds and RV Parks within about 30 Mi (48 km) of Berwick, Pennsylvania .	2-627
Table 2.5-25— The Property and Income Tax Rates in Luzerne County and Columbia County, 2008 ...	2-628
Table 2.5-26— The Fiscal Year 2007 Actual County Revenues and Expenditures in Luzerne County ...	2-629
Table 2.5-27— The Fiscal Year 2006 Actual County Revenues and Expenditures in Columbia County .	2-630
Table 2.5-28— Major Public Water Suppliers in Luzerne County and Columbia County	2-631
Table 2.5-29— Environmental Protection Agency Safe Drinking Water Information System, Luzerne County and Columbia County	2-632
Table 2.5-30— Sewer Districts/Systems in Luzerne County and Columbia County	2-634
Table 2.5-31— Fire/EMS Departments in Luzerne County and Columbia County.	2-635
Table 2.5-32— Assessment of Archeological Potential for BBNPP Phase Ia Project APE	2-639
Table 2.5-33— Summary of Previously Surveyed Archeological Sites Identified in the Project APE Along the West Bank of the Susquehanna River	2-640
Table 2.5-34— Previously Recorded Architectural Resources within the 0.5 mi (0.8 km) Radius of the Proposed Project	2-641
Table 2.5-35— The Summary of Surveyed Architectural and Historic Resources in Project Viewshed .	2-642
Table 2.5-36— Summary of Surveyed Architectural and Historical Resources in Phase Ia Project Footprint, West of Susquehanna River	2-645
Table 2.5-37— Summary of Identified Archeological Sites in Phase Ib Project APE	2-646
Table 2.5-38— Summary of Identified Isolated Finds in Phase Ib Project APE	2-647
Table 2.5-39— Summary of Potentially NRHP-Eligible Archeological Sites in Phase Ib Project APE	2-648
Table 2.5-40— Summary of NRHP-Eligible Architectural and Historical Resources in Phase Ib Project Footprint	2-649

Table 2.5-41— Columbia County Historic Landmarks Listed on the Federal Register of Historic Places	2-650
Table 2.5-42— Luzerne County Historic Landmarks Listed on the Federal Register	2-651
Table 2.5-43— Summary of Identified Cultural Resources by NRHP Eligibility Status	2-652
Table 2.5-44— NRHP-Listed Cultural Resources Within 10 mi (16 km) of the Bell Bend Project (7 Records)	2-653
Table 2.5-45— NRHP-Eligible Cultural Resources Within 10 mi (16 km) of the Bell Bend Project (51 Records)	2-654
Table 2.5-46— NRHP-Ineligible Cultural Resources Within 10 mi (16 km) of the Bell Bend Project (126 Records)	2-658
Table 2.5-47— NRHP-Undetermined Cultural Resources Within 10 mi (16 km) of the Bell Bend Project (494 Records)	2-665
Table 2.5-48— Unmapped Cultural Resources Within 10 mi (16 km) of the Bell Bend Project (45 Records)	2-707
Table 2.5-49— Census Block Groups within 50 mi (80 km) of BBNPP with Minority and Low-Income Populations, 2000	2-710
Table 2.5-50— Census Block Groups and Percentages of Minority People within 50 mi (80 km) of the BBNPP Site, 2000	2-712
Table 2.5-51— Minority Populations in Luzerne County, Columbia County, the Scranton-Wilkes-Barre-Hazleton MSA, and Commonwealth of Pennsylvania, 2000 and 2006	2-713
Table 2.5-52— Census Block Groups and Percentages of Households within 50 mi (80 km) of BBNPP with Low-Income Populations, 2000	2-714
Table 2.5-53— Low-Income Populations in Luzerne County, Columbia County, the Scranton-Wilkes-Barre-Hazleton MSA, and Commonwealth of Pennsylvania, 2000 and 2006	2-715
Table 2.5-54— Deer Harvests in Wildlife Management Units	2-716
Table 2.5-55— Deer Harvests in Luzerne County, Columbia County, and the ROI	2-717
Table 2.5-56— Spring and Fall Turkey Harvests by Management Area	2-718
Table 2.5-57— Black Bear Harvests in Luzerne County, Columbia County, and the ROI	2-719
Table 2.5-58— Beaver Harvests in Luzerne County, Columbia County, and the ROI	2-720
Table 2.6-1— Site Specific Stratigraphic Column	2-742
Table 2.7-1— National Ambient Air Quality Standards	2-763
Table 2.7-2— Tornadoes Reported in Luzerne County, Pennsylvania	2-764
Table 2.7-3— Tornadoes Reported in Columbia County, Pennsylvania	2-765
Table 2.7-4— Total and Average Numbers of Tropical Storms and Hurricanes	2-766
Table 2.7-5— Tropical Storms and Hurricanes Passing Within 100 Miles (161' km) of Berwick, Pennsylvania	2-767
Table 2.7-6— Monthly Mean Number of Days with Thunderstorms	2-769
Table 2.7-7— Drought Events Reported in Luzerne County, Pennsylvania	2-770
Table 2.7-8— Drought Events Reported in Columbia County, Pennsylvania	2-772
Table 2.7-9— Fifty Knots or Greater High Wind Events in Luzerne County, Pennsylvania	2-774
Table 2.7-10— Fifty Knots or Greater High Wind Events in Columbia County, Pennsylvania	2-776
Table 2.7-11— Hail Events in Luzerne County, Pennsylvania	2-778
Table 2.7-12— Hail Events in Columbia County, Pennsylvania	2-780
Table 2.7-13— Ice Storm Events in Luzerne County, Pennsylvania	2-782
Table 2.7-14— Ice Storm Events in Columbia County, Pennsylvania	2-783
Table 2.7-15— Snow Storm Events in Luzerne County, Pennsylvania	2-785
Table 2.7-16— Probable Maximum Winter Precipitation (PMWP) Values	2-787
Table 2.7-17— Snow Storm Events in Columbia County, Pennsylvania	2-788
Table 2.7-18— SSES Daily Average and Extreme Temperatures (2001-2006)	2-790
Table 2.7-19— SSES Daily Average and Extreme Dew Point Temperatures (2001-2006)	2-836

Table 2.7-20— Williamsport, PA, Daily Average and Extreme Temperature and Dew Point Temperature Values (2000-2005).....	2-881
Table 2.7-21— SSES Monthly Mean Temperatures (2001-2006)	2-928
Table 2.7-22— SSES Monthly Mean Extreme Maximum Temperatures (2001-2006)	2-929
Table 2.7-23— SSES Monthly Mean Extreme Minimum Temperatures (2001-2006).....	2-930
Table 2.7-24— SSES Monthly Mean Daily Maximum Temperatures (2001-2006)	2-931
Table 2.7-25— SSES Monthly Mean Daily Minimum Temperatures (2001-2006).....	2-932
Table 2.7-26— SSES Maximum Hourly Temperatures (2001-2006).....	2-933
Table 2.7-27— SSES Minimum Hourly Temperatures (2001-2006)	2-934
Table 2.7-28— SSES Monthly Mean Dew Point Temperatures (2001-2006).....	2-935
Table 2.7-29— Number of SSES Hourly Temperature Values Greater Than or Less Than Indicated Value and Percent Frequency of Occurrence (2001-2006).....	2-936
Table 2.7-30— SSES Monthly Mean Relative Humidity (2001-2006).....	2-937
Table 2.7-31— Monthly Mean Temperatures (1971-2000) for Sites Around Bell Bend Nuclear Power Plant.....	2-938
Table 2.7-32— Monthly Mean Daily Maximum Temperatures (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-939
Table 2.7-33— Monthly Mean Daily Minimum Temperatures (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-940
Table 2.7-34— Monthly Mean Wet Bulb Temperatures (1978-2000) for Sites Around Bell Bend Nuclear Power Plant	2-941
Table 2.7-35— Monthly Mean Dew Point Temperatures (1978-2000) for Sites Around Bell Bend Nuclear Power Plant	2-942
Table 2.7-36— Monthly Mean Relative Humidity (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-943
Table 2.7-37— Daily Variation of Monthly Mean Relative Humidity (%) (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-944
Table 2.7-38— Mean Number of Days with Maximum Hourly Temperature Value Greater than or Equal to 90°F (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-945
Table 2.7-39— Mean Number of Days with Maximum Hourly Temperature Value Less than or Equal to 32°F (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-946
Table 2.7-40— Mean Number of Days with Minimum Hourly Temperature Value Less than or Equal to 32°F (1971-2000) for Sites Around Bell Bend Nuclear Power Plant	2-947
Table 2.7-41— Mean Number of Days with Minimum Hourly Temperature Value Less than or Equal to 0°F (1971-2000) for Sites Around Bell Bend Nuclear Power Plant.....	2-948
Table 2.7-42— Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperature Values for Wilkes-Barre/Scranton, PA (1972-2001)	2-949
Table 2.7-43— Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperature Values for Wilkes-Barre/Scranton, PA (1972-2001)	2-950
Table 2.7-44— Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperature Values for Allentown, PA (1972-2001)	2-951
Table 2.7-45— Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperature Values for Allentown, PA (1972-2001)	2-952
Table 2.7-46— The Extreme Annual Dry Bulb Temperature Values for Wilkes-Barre/Scranton, PA (1972 - 2001).....	2-953
Table 2.7-47— The Extreme Annual Dry Bulb Temperature Values for Allentown, PA (1972 - 2001) ...	2-954
Table 2.7-48— Heating Degree Days for Sites Around Bell Bend Nuclear Power Plant (1971-2000) for Base Temperature of 32°F	2-955
Table 2.7-49— Cooling Degree Days for Sites Around Bell Bend Nuclear Power Plant (1971-2000) for Base Temperature of 65°F	2-956
Table 2.7-50— SSES Monthly and Annual Precipitation (2001-2006).....	2-957

Table 2.7-51— SSES Monthly and Annual Percent Frequency (%) of Precipitation Occurrence (2001-2006)	2-958
Table 2.7-52— SSES Hourly Rainfall Rate Distribution (2001-2006).....	2-959
Table 2.7-53— SSES Measured Extreme Precipitation Hourly Values (2001-2006)	2-960
Table 2.7-54— Mean Monthly and Annual Precipitation for Sites Around Bell Bend Nuclear Power Plant (1971-2000)	2-961
Table 2.7-55— Mean Monthly and Annual Snowfall for Sites Around Bell Bend Nuclear Power Plant (1971-2000).....	2-962
Table 2.7-56— Monthly Mean Number of Days with Precipitation for Sites Around Bell Bend Nuclear Power Plant (1971-2000)	2-963
Table 2.7-57— Monthly Mean Number of Days with Heavy Fog for Sites Around Bell Bend Nuclear Power Plant (1964-2006)	2-964
Table 2.7-58— SSES 33' (10m) 2001-2006 Annual JFD.....	2-965
Table 2.7-59— SSES 33' (10m) 2001-2006 Winter JFD	2-973
Table 2.7-60— SSES 33' (10m) 2001-2006 Spring JFD	2-981
Table 2.7-61— SSES 33' (10m) 2001-2006 Summer JFD	2-989
Table 2.7-62— SSES 33' (10m) 2001-2006 Autumn JFD.....	2-997
Table 2.7-63— SSES 33' (10m) 2001-2006 January JFD	2-1005
Table 2.7-64— SSES 33' (10m) 2001-2006 February JFD	2-1013
Table 2.7-65— SSES 33' (10m) 2001-2006 March JFD.....	2-1021
Table 2.7-66— SSES 33' (10m) 2001-2006 April JFD	2-1029
Table 2.7-67— SSES 33' (10m) 2001-2006 May JFD.....	2-1037
Table 2.7-68— SSES 33' (10m) 2001-2006 June JFD	2-1045
Table 2.7-69— SSES 33' (10m) 2001-2006 July JFD	2-1053
Table 2.7-70— SSES 33' (10m) 2001-2006 August JFD.....	2-1061
Table 2.7-71— SSES 33' (10m) 2001-2006 September JFD.....	2-1069
Table 2.7-72— SSES 33' (10m) 2001-2006 October JFD	2-1077
Table 2.7-73— SSES 33' (10m) 2001-2006 November JFD	2-1085
Table 2.7-74— SSES 33' (10m) 2001-2006 December JFD	2-1093
Table 2.7-75— SSES 197' (60m) 2001-2006 Annual JFD	2-1101
Table 2.7-76— SSES 197' (60m) 2001-2006 Winter JFD	2-1109
Table 2.7-77— SSES 197' (60m) 2001-2006 Spring JFD	2-1117
Table 2.7-78— SSES 197' (60m) 2001-2006 Summer JFD	2-1125
Table 2.7-79— SSES 197' (60m) 2001-2006 Autumn JFD	2-1133
Table 2.7-80— SSES 197' (60m) 2001-2006 January JFD.....	2-1141
Table 2.7-81— SSES 197' (60m) 2001-2006 February JFD.....	2-1149
Table 2.7-82— SSES 197' (60m) 2001-2006 March JFD	2-1157
Table 2.7-83— SSES 197' (60m) 2001-2006 April JFD.....	2-1165
Table 2.7-84— SSES 197' (60m) 2001-2006 May JFD	2-1173
Table 2.7-85— SSES 197' (60m) 2001-2006 June JFD.....	2-1181
Table 2.7-86— SSES 197' (60m) 2001-2006 July JFD.....	2-1189
Table 2.7-87— SSES 197' (60m) 2001-2006 August JFD	2-1197
Table 2.7-88— SSES 197' (60m) 2001-2006 September JFD	2-1205
Table 2.7-89— SSES 197' (60m) 2001-2006 October JFD	2-1213
Table 2.7-90— SSES 197' (60m) 2001-2006 November JFD	2-1221
Table 2.7-91— SSES 197' (60m) 2001-2006 December JFD	2-1229
Table 2.7-92— Monthly Mean Wind Speed and Prevailing Wind Direction (tens of degrees) for Sites Around Bell Bend Nuclear Power Plant.....	2-1237
Table 2.7-93— Monthly Maximum Two-Minute Wind Speed and Direction (tens of degrees) for Sites Around Bell Bend Nuclear Power Plant.....	2-1238
Table 2.7-94— Monthly Maximum Five-Second Wind Speed and Direction (tens of degrees) for Sites Around Bell Bend Nuclear Power Plant.....	2-1239

Table 2.7-95— SSES 33' (10m) Wind Direction Persistence Summary for 2001	2-1240
Table 2.7-96— SSES 33' (10m) Wind Direction Persistence Summary for 2002	2-1242
Table 2.7-97— SSES 33' (10m) Wind Direction Persistence Summary for 2003	2-1244
Table 2.7-98— SSES 33' (10m) Wind Direction Persistence Summary for 2004	2-1246
Table 2.7-99— SSES 33' (10m) Wind Direction Persistence Summary for 2005	2-1248
Table 2.7-100— SSES 33' (10m) Wind Direction Persistence Summary for 2006	2-1250
Table 2.7-101— SSES 33' (10m) Average Wind Direction Persistence Summary for Years 2001-2006 .	2-1252
Table 2.7-102— SSES 197' (60m) Wind Direction Persistence Summary for 2001	2-1254
Table 2.7-103— SSES 197' (60m) Wind Direction Persistence Summary for 2002	2-1257
Table 2.7-104— SSES 197' (60m) Wind Direction Persistence Summary for 2003	2-1260
Table 2.7-105— SSES 197' (60m) Wind Direction Persistence Summary for 2004	2-1263
Table 2.7-106— SSES 197' (60m) Wind Direction Persistence Summary for 2005	2-1265
Table 2.7-107— SSES 197' (60m) Wind Direction Persistence Summary for 2006	2-1267
Table 2.7-108— SSES 197' (60m) Average Wind Direction Persistence Summary for Years 2001-2006	2-1270
Table 2.7-109— SSES 33' (10m) Annual Stability Persistence Summary for Year 2001.....	2-1272
Table 2.7-110— SSES 33' (10m) Annual Stability Persistence Summary for Year 2002.....	2-1274
Table 2.7-111— SSES 33' (10m) Annual Stability Persistence Summary for Year 2003.....	2-1276
Table 2.7-112— SSES 33' (10m) Annual Stability Persistence Summary for Year 2004.....	2-1278
Table 2.7-113— SSES 33' (10m) Annual Stability Persistence Summary for Year 2005.....	2-1280
Table 2.7-114— SSES 33' (10m) Annual Stability Persistence Summary for Year 2006.....	2-1283
Table 2.7-115— SSES 33' (10m) Annual Stability Persistence Summary for the Years 2001 - 2006	2-1285
Table 2.7-116— SSES 197' (60m) Annual Stability Persistence Summary for Year 2001	2-1286
Table 2.7-117— SSES 197' (60m) Annual Stability Persistence Summary for Year 2002	2-1288
Table 2.7-118— SSES 197' (60m) Annual Stability Persistence Summary for Year 2003	2-1290
Table 2.7-119— SSES 197' (60m) Annual Stability Persistence Summary for Year 2004	2-1292
Table 2.7-120— SSES 197' (60m) Annual Stability Persistence Summary for Year 2005	2-1294
Table 2.7-121— SSES 197' (60m) Annual Stability Persistence Summary for Year 2006	2-1297
Table 2.7-122— SSES 197' (60m) Annual Stability Persistence Summary for the Years 2001 - 2006 ...	2-1300
Table 2.7-123— Temperature Inversion Frequency and Persistence, Year 2001	2-1301
Table 2.7-124— Temperature Inversion Frequency and Persistence, Year 2002	2-1302
Table 2.7-125— Temperature Inversion Frequency and Persistence, Year 2003	2-1303
Table 2.7-126— Temperature Inversion Frequency and Persistence, Year 2004	2-1304
Table 2.7-127— Temperature Inversion Frequency and Persistence, Year 2005	2-1305
Table 2.7-128— Temperature Inversion Frequency and Persistence, Year 2006	2-1306
Table 2.7-129— Design Input for AEOLUS3 Normal Effluent χ/Q Runs	2-1307
Table 2.7-130— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for a Mixed Mode Release With Building Wake from 0.5 to 5 Miles.....	2-1315
Table 2.7-131— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for a Mixed Mode Release With Building Wake from 7.5 to 50 Miles.....	2-1316
Table 2.7-132— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Site Boundary Receptors	2-1317
Table 2.7-133— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for a Mixed Mode Release With Building Wake for Nearest Residents	2-1318
Table 2.7-134— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Gardens	2-1319
Table 2.7-135— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Milk Animals.....	2-1320
Table 2.7-136— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Meat Animals.....	2-1321
Table 2.7-137— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake from 0.5 to 5 Miles	2-1322
Table 2.7-138— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed	

Mode Release With Building Wake from 7.5 to 50 Miles	2-1323
Table 2.7-139— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Site Boundary Receptors.....	2-1324
Table 2.7-140— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Residents	2-1325
Table 2.7-141— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Gardens.....	2-1326
Table 2.7-142— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Milk Animals	2-1327
Table 2.7-143— Normal Effluent Annual Average, Decayed, Depleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Meat Animals	2-1328
Table 2.7-144— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for a Mixed Mode Release With Building Wake from 0.5 to 5 Miles	2-1329
Table 2.7-145— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for a Mixed Mode Release With Building Wake from 7.5 to 50 Miles	2-1330
Table 2.7-146— Normal Effluent Annual Average, Undecayed, Undepleted Gamma X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Site Boundary Receptors	2-1331
Table 2.7-147— Normal Effluent Annual Average, Undecayed, Undepleted Gamma X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Residents	2-1332
Table 2.7-148— Normal Effluent Annual Average, Undecayed, Undepleted X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Gardens	2-1333
Table 2.7-149— Normal Effluent Annual Average, Undecayed, Undepleted Gamma X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Milk Animals	2-1334
Table 2.7-150— Normal Effluent Annual Average, Undecayed, Undepleted Gamma X/Q Values (sec/m^3) for Mixed Mode Release With Building Wake for Nearest Meat Animals	2-1335
Table 2.7-151— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake from 0.5 to 5 Miles.....	2-1336
Table 2.7-152— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake from 7.5 to 50 Miles	2-1337
Table 2.7-153— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake for Site Boundary Receptors	2-1338
Table 2.7-154— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake for Nearest Residents.....	2-1339
Table 2.7-155— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake for Nearest Gardens	2-1340
Table 2.7-156— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake for Nearest Milk Animals.....	2-1341
Table 2.7-157— Normal Effluent Annual Average D/Q Values ($1/\text{m}^2$) for Mixed Mode Release With Building Wake for Nearest Meat Animals.....	2-1342
Table 2.7-158— Ground Level, Normal Effluent, Sector Average, Undepleted, Undecayed, Atmospheric Dispersion Factors (sec/m^3)	2-1343
Table 2.7-159— Ground Level, Normal Effluent, Sector Average, Depleted, Decayed, Atmospheric Dispersion Factors (sec/m^3)	2-1345
Table 2.7-160— Ground Level, Normal Effluent, Sector Average, Undepleted, Undecayed, Atmospheric Deposition Factors (sec/m^3).....	2-1347
Table 2.7-161— Ground Level, Normal Effluent, Sector Average, Depleted, Decayed, Atmospheric Deposition Factors ($1/\text{m}^2$).....	2-1349
Table 2.7-162— The Design Input for a 50% Percentile Atmospheric Dispersion Factor Computer Run.....	2-1351
Table 2.7-163— 0-2 Hour 50 th Percentile Accident Atmospheric Dispersion Factors for the EAB (0.43 miles)	2-1352
Table 2.7-164— The 50th Percentile Accident Atmospheric Dispersion Factors for the LPZ	

(1.5 miles).....	2-1353
Table 2.7-165— Monthly and Annual Average Mixing Height Values (m)	2-1354
Table 2.7-166— Monthly and Annual Average Mixing Height Values (ft).....	2-1355
Table 2.7-167— Summary of Ambient Environmental Sound Levels (dBA) for Commonly Used Metrics to Assess Noise Impacts	2-1356
Table 2.7-168— 24-Hour Day/Night Sound Levels for a 13 Day Sampling Period during Leaf-Off Seasonal Conditions at the BBNPP Site.....	2-1357
Table 3.3-1— Anticipated Water Use	3-21
Table 3.3-2— Water Treatment Systems.....	3-23
Table 3.4-1— Minimal and Nominal Essential Service Water System Flows and Heat Loads at Different Operation Modes Per Train.....	3-33
Table 3.4-2— Circulating Water System Cooling Tower Design Specifications	3-34
Table 3.4-3— Essential Service Water System Cooling Tower Design Specifications	3-35
Table 3.5-1— Parameters Used in the Calculation of Fission Product Activity in Reactor (Design Basis).....	3-72
Table 3.5-2— Reactor Coolant Radionuclide Concentrations.....	3-73
Table 3.5-3— Secondary Coolant Radionuclide Concentrations	3-76
Table 3.5-4— Principal Parameters Used In Estimating Realistic Releases of Radioactive Materials in Effluents (GALE Code Input Parameters)	3-79
Table 3.5-5— Average Radioactivity Concentrations in the Spent Fuel Pool (SFP) Area	3-83
Table 3.5-6— Liquid Waste Release Source Term Inputs	3-85
Table 3.5-7— Annual Liquid Effluent Releases (English Units)	3-86
Table 3.5-8— Annual Gaseous Effluent Releases (English Units)	3-90
Table 3.5-9— Gaseous Waste Release Source Term Inputs	3-94
Table 3.5-10— Annual Solid Waste Generation Volumes (English Units)	3-96
Table 3.5-11— Liquid Waste Management System Tank Capacity	3-98
Table 3.5-12— Liquid Waste Management System Process Parameters.....	3-99
Table 3.5-13— Radioactivity Input to the Liquid Waste System.....	3-100
Table 3.5-14— Radioactivity Input to the Liquid Waste System.....	3-101
Table 3.5-15— Radioactive Liquid Releases Due to Anticipated Operational Occurrences	3-103
Table 3.5-16— Summary of Radioactive Liquid Releases Including Anticipated Operational Occurrences	3-105
Table 3.5-17— Obtainable Dose Benefits for Liquid Waste System Augment	3-106
Table 3.5-18— Liquid Waste System Augment Total-Body Dose Cost-Benefit Analysis	3-107
Table 3.5-19— Liquid Waste System Augment Thyroid Dose Cost-Benefit Analysis	3-108
Table 3.5-20— Annual Radioactive Gaseous Releases Due to Anticipated Operational Occurrences	3-109
Table 3.5-21— Obtainable Dose Benefits for Gaseous Waste System Augment	3-111
Table 3.5-22— Gaseous Waste System Augment Total-Body / Thyroid Dose Cost Benefit Analysis.....	3-112
Table 3.5-23— Radiation Monitors	3-113
Table 3.6-1— Chemicals Used in Water Treatment Systems	3-136
Table 3.6-2— Estimated Concentrations of Chemical Additives and Byproducts in Water Treatment System Discharges.....	3-138
Table 3.6-3— Intake Source Water Quality a, b	3-140
Table 3.6-4— Sanitary Sewer Discharge Limits.....	3-141
Table 3.6-5— Non-Radioactive Gaseous Effluents	3-142
Table 3.6-6— Anticipated CWS Blowdown Concentrations	3-143
Table 3.6-7— Anticipated ESWS Blowdown Concentrations.....	3-144
Table 3.6-8— Anticipated Reverse Osmosis Reject Concentrations	3-145
Table 3.6-9— Anticipated Effluent Water Chemical Concentrations	3-146
Table 3.6-10— Hazardous Waste Generation Rates at SSES	3-148
Table 3.6-11— Residual Waste Generation Rates at SSES.....	3-149
Table 3.8-1— Annual Solid Radioactive Wastes	3-160
Table 3.8-2— Transportation Environmental Impact Comparison	3-161

Table 4.1-1— Construction Areas Acreage and Operations Area Acreage, Land Use and Zoning.	4-9
Table 4.2-1— Estimated Fresh Water Demand During BBNPP Construction.....	4-29
Table 4.3-1— Impacts to Plant Communities and Other Habitats in Acres (Hectares) for Construction of Proposed BBNPP	4-52
Table 4.4-1— Typical Noise Levels of Construction Equipment.....	4-75
Table 4.4-2— Projected Levels of Service at Key Intersections During Construction of BBNPP as Compared to Future No-Build Condition	4-76
Table 4.4-3— Estimated Average FTE Construction Workers, by Construction Year/Quarter at the BBNPP	4-77
Table 4.4-4— Total Peak Onsite Nuclear Plant Construction Labor Force Requirements (based on an average of single power plants)	4-78
Table 4.4-5— Peak Onsite Nuclear Power Plant Construction Craft Force Requirements (based on an average of single power plants).....	4-79
Table 4.4-6— Nuclear Power Plant Craft Labor Force Composition by Phases of Construction (in percent).....	4-80
Table 4.4-7— Estimates of In-Migrating Construction Workforces in Luzerne County and Columbia County, 20% In-Migration Scenario, from 2012-2017	4-81
Table 4.4-8— Estimates of In-Migrating Construction Workforces in Luzerne County and Columbia County, 35% In-Migration Scenario, from 2012-2017	4-82
Table 4.4-9— Total Work Force Potential During BBNPP Construction, SSES Units 1 and 2 Operations, and SSES Outage Periods	4-83
Table 4.4-10— Summary of Level of Service (LOS) at Selected Intersections Following Mitigation	4-84
Table 4.5-1— Radiation Sources at SSES Units 1 and 2	4-97
Table 4.5-2— Historical All-Source Compliance for Offsite General Public.....	4-99
Table 4.5-3— FTE for BBNPP Construction Workers	4-100
Table 4.5-4— Gaseous Dose Rate Type and Coefficients	4-101
Table 4.5-5— Historic Gaseous Releases For 2001 Through 2006	4-102
Table 4.5-6— Historical Liquid Releases for Input to LADTAPII.....	4-103
Table 4.5-7— Historical Dilutions for Input to LADTAPII.....	4-104
Table 4.5-8— Historical Shoreline Dose	4-105
Table 4.5-9— Historic and Projected Loading of SSES ISFSI.....	4-106
Table 4.5-10— Condensate Storage Tank Source Terms	4-107
Table 4.5-11— LLRWHF Source Term.....	4-109
Table 4.5-12— SEALAND Container Source Term	4-110
Table 4.5-13— Maximum Dose by Zone for 2200 Hours.....	4-111
Table 4.5-14— Effluent Dose Rates by Zone	4-112
Table 4.5-15— Projected Construction Worker Census 2010 to 2015	4-113
Table 4.5-16— Occupancy by Construction Zone.....	4-114
Table 4.5-17— Collective Dose to BBNPP Construction Workers.....	4-115
Table 4.6-1— A Summary of Measures and Controls to Limit Adverse Impacts During Construction ..	4-132
Table 4.6-2— Summary of Construction and Preconstruction Related Impacts.....	4-142
Table 5.2-1— RWSS Demand for Normal Operations.....	5-17
Table 5.2-2— Estimated Fresh Water Demand During BBNPP Construction.....	5-18
Table 5.3-1— Parameter Values for the Simulations	5-42
Table 5.3-2— Protected Use Receiving Water Body Temperatures °F (°C)	5-43
Table 5.3-3— Simulation Summary with Scenario Descriptions	5-44
Table 5.3-4— Near-Field Plume Area (ft ²) and Volume (ft ³)	5-45
Table 5.3-5— Near-Field Plume Area (m ²) and Volume (m ³)	5-46
Table 5.3-6— Extreme Period Analysis of Plume Size.....	5-47
Table 5.3-7— CWS Cooling Tower Design Parameters	5-48
Table 5.3-8— Modeled Plume Parameters.....	5-49
Table 5.3-9— Maximum Salt Deposition Rate.....	5-50

Table 5.3-10— Total number and percent composition of fish and crayfish collected in impingement samples at the SSES River Intake Structure from April 22 , 2008 to April 20, 2009.	5-51
Table 5.3-11— Total number and percent composition of each life stage of fish collected in entrainment samples from SSES River Intake Structure from April 22 to August 13, 2008.	5-52
Table 5.4-1— Near Field Environmental Dilution Values (50 feet from the discharge) for BBNPP Discharges to the Susquehanna River	5-70
Table 5.4-2— Surface Far Field Dilution Values for BBNPP Discharges to the Susquehanna River	5-71
Table 5.4-3— Present Average Susquehanna River Recreational Fishing Harvest.	5-72
Table 5.4-4— Liquid Pathway Parameters	5-73
Table 5.4-5— Recreational Liquid Pathway Usage Parameters for MEI	5-74
Table 5.4-6— Irrigated Food Crops Production Rates.	5-75
Table 5.4-7— Gaseous Pathway Parameters	5-76
Table 5.4-8— Gaseous Pathway Consumption Factors for the MEI.	5-77
Table 5.4-9— Milk Production gal/yr (l/yr)	5-78
Table 5.4-10— Meat Production lb/yr (kg/yr)	5-80
Table 5.4-11— Vegetable Production lb/yr (kg/yr)	5-82
Table 5.4-12— Leafy Vegetable Production lb/yr (kg/yr)	5-84
Table 5.4-13— Distance to Nearest Gaseous Dose Receptors.	5-86
Table 5.4-14— Receptor Locations for Gaseous Effluent Maximum Dose Evaluations	5-87
Table 5.4-15— 50 Mi (80 km) Population Doses from Gaseous Effluents	5-88
Table 5.4-16— Whole Body Dose from Liquid Effluent to MEI	5-89
Table 5.4-17— Limiting Organ Dose from Liquid Effluent to MEI	5-90
Table 5.4-18— Summary Liquid Effluent Annual Dose to MEI	5-91
Table 5.4-19— General Population Doses from Liquid Effluents	5-92
Table 5.4-20— Gaseous Pathway Doses for Maximally Exposed Individuals (MEI)	5-93
Table 5.4-21— BBNPP Gaseous Effluent MEI Dose Summary	5-94
Table 5.4-22— Site Boundary Air Concentration by Nuclide	5-95
Table 5.4-23— Annual Historical Dose Compliance with 40 CFR 190 for SSES Units 1 & 2	5-97
Table 5.4-24— 40 CFR 190 Annual Site Dose Compliance	5-98
Table 5.4-25— Important Biota Species and Analytical Surrogates	5-99
Table 5.4-26— Biota Exposure Pathways	5-100
Table 5.4-27— Terrestrial Biota Parameters.	5-101
Table 5.4-28— Biota Residence Time	5-102
Table 5.4-29— Dose to Biota from all Sources	5-103
Table 5.4-30— Biota Doses Compared to the 40 CFR 190 Whole Body Dose Criterion (25 mrem/yr) ...	5-104
Table 5.5-1— Anticipated Water Chemical Concentrations in the Susquehanna River Downstream of BBNPP Discharge.	5-109
Table 5.7-1— NRC Table S-3 of Uranium Fuel Cycle Environmental Dataa Compared to the U.S. EPR Configuration (Normalized to Model LWR Annual Fuel Requirement (WASH-1248) or Reference Reactor Year (NUREG-0116))	5-132
Table 5.7-2— Average Nominal Annual Fuel Cycle Requirements (U.S. EPR Scaled to the 1,000 MWe Reference LWR)	5-135
Table 5.8-1— Estimated Cooling Tower Sound in A-weighted Levels at Seven Community Receptors ..	5-153
Table 5.8-2— Estimates of In-Migrating Operational Workforces in Luzerne County and Columbia County, from 2018 to 2058.	5-154
Table 5.8-3— Intersection LOS: Future Build Conditions	5-155
Table 5.10-1— The Summary of Measures and Controls to Limit Adverse Impacts During Operation ..	5-161
Table 5.11-1— Summary of Environmental Impacts of Transportation of Fuel and Waste to and from One Light Water Reactor, taken from 10 CFR 51.52 Table S-4.	5-185
Table 5.11-2— Decay Heat for EPR Irradiated Fuel Assembly	5-186
Table 5.11-3— RADTRAN & TRAGIS Model Input Parameters	5-187
Table 5.11-4— Annual EPR Solid Radioactive Waste	5-189

Table 5.11-5— Summary of Annual Transportation Radiological Dose Impact for the EPR	5-190
Table 5.11-6— ORIGEN2.1 Decay Heat Input Parameters for EPR Irradiated Fuel	5-191
Table 6.2-1— Effluent Exposure Pathways and Environmental Sampling Media	6-14
Table 6.2-2— The Existing Radiological Environmental Monitoring Program for SSES Units 1 and 2 ...	6-15
Table 6.2-3— Existing Environmental Monitoring Sites for SSES Units 1 and 2	6-18
Table 6.2-4— BBNPP Radiological Environmental Monitoring Program	6-23
Table 6.2-5— Operational BBNPP Radiological Environmental Monitoring Program Locations(d)	6-26
Table 6.2-6— The Reporting Levels for Radioactivity Concentrations in Environmental Samples(a)	6-30
Table 6.2-7— Lower Limits of Detection (LLD) for Environmental Media	6-31
Table 6.2-8— Typical Sample Sizes for Environmental Media	6-32
Table 6.2-9— Background Radiation and Radioactivity Concentrations Measured Pre-Operationally* at SSES	6-33
Table 6.3-1— SSES Units 1 and 2 NPDES Hydrological Monitoring Program	6-53
Table 6.4-1— SSES Meteorological Tower Instrument Types, Specifications and Accuracies for Pre-Application and Pre-Operational Programs	6-60
Table 6.4-2— Distances from the SSES Meteorological Tower to Nearby Obstructions to Air Flow	6-61
Table 6.4-3— BBNPP Meteorological Tower Instrument Types, Specifications and Accuracies for Operation Program	6-62
Table 6.4-4— Distances from the U.S. EPR Major Buildings to the BBNPP Meteorological Tower	6-63
Table 6.4-5— Distances from BBNPP Met Tower to Nearby Obstructions to Air Flow	6-64
Table 6.6-1— Required Water Sampling Protocol	6-80
Table 6.7-1— Thermal Monitoring	6-83
Table 6.7-2— Radiological Monitoring	6-84
Table 6.7-3— Hydrological Monitoring	6-85
Table 6.7-4— Meteorological Monitoring	6-87
Table 6.7-5— Terrestrial Ecology Monitoring	6-88
Table 6.7-6— Aquatic Ecology Monitoring	6-89
Table 6.7-7— Chemical Monitoring	6-90
Table 7.1-1— Design Basis Accidents	7-4
Table 7.1-2— U.S. EPR Design Basis Primary Coolant Activity	7-6
Table 7.1-3— U.S. EPR Design Basis Secondary Coolant Activity	7-9
Table 7.1-4— U.S. EPR Bounding Core Inventory	7-12
Table 7.1-5— 50th Percentile BBNPP Site Atmospheric Dispersion Factors	7-15
Table 7.1-6— Steam System Piping Failure	7-16
Table 7.1-7— Reactor Coolant Pump Locked Rotor Accident / Broken Shaft	7-17
Table 7.1-8— Failure of Small Lines Carrying Primary Coolant Outside Containment ¹	7-18
Table 7.1-9— Steam Generator Tube Rupture	7-19
Table 7.1-10— Loss of Coolant Accident	7-20
Table 7.1-11— Fuel Handling Accident	7-21
Table 7.1-12— Rod Ejection Accident	7-22
Table 7.1-13— Summary of the DBA Radiological Consequences at Offsite Receptors from BBNPP	7-23
Table 7.1-14— Radionuclide Releases to Atmosphere for Steam System Piping Failure with Pre-Accident Iodine Spike	7-24
Table 7.1-15— Radionuclide Releases to Atmosphere for Steam System Piping Failure with Accident- Induced (Coincident) Iodine Spike	7-26
Table 7.1-16— Radionuclide Releases to Atmosphere for Steam System Piping Failure with Accident-Induced 3.3% Clad Failure and 0.58% Fuel Overheat	7-28
Table 7.1-17— Radionuclide Releases to Atmosphere for Pump Locked Rotor Accident (LRA) with Accident-Induced 9.5% Clad Failure	7-32
Table 7.1-18— Radionuclide Releases to Atmosphere for Design-Basis Small Line Break	7-33
Table 7.1-19— Radionuclide Releases to Atmosphere for SGTR with a Pre-Accident Iodine Spike	7-34

Table 7.1-20— Radionuclide Releases to Atmosphere for a SGTR with Accident Induced (Coincident) Iodine Spike	7-36
Table 7.1-21— Radionuclide Releases to Atmosphere for Design Basis LOCA	7-38
Table 7.1-22— Radionuclide Releases to Atmosphere for Fuel Handling Accident	7-41
Table 7.1-23— Radionuclide Releases to Atmosphere for Rod Ejection Accident (REA) with Accident-Induced 37.6% Clad Failure	7-42
Table 7.2-1— Release Category Descriptions	7-49
Table 7.2-2— Source Term Input to MACCS2	7-50
Table 7.2-3— U.S. EPR Severe Accidents Analysis Impacts - 50-Mile Radius and 2050 Population	7-51
Table 7.3-1— Severe Accident Cost Impact	7-56
Table 7.3-2— SAMDA Candidates - Already Implemented	7-57
Table 7.4-1— 10 CFR 51.52 Summary Table S-4 Excerpt Environmental Impact of Transportation of Fuel and Waste to and from One Light-Water-Cooled Nuclear Power Reactor Accidents in Transport	7-65
Table 7.4-2— RADTRAN/TRAGIS Model Irradiated Fuel Input Parameters	7-66
Table 7.4-3— Irradiated Fuel Source Term	7-67
Table 7.4-4— Irradiated Fuel BBNPP Model Accident, Fatality & Injury Rates	7-68
Table 7.4-5— Irradiated Fuel and Radwaste Models Severity & Release Fractions	7-69
Table 7.4-6— New Fuel BBNPP Transportation Fatality and Injury Rates	7-70
Table 7.4-7— EPR Radwaste Annual Generation	7-71
Table 7.4-8— RADTRAN/TRAGIS Model Radwaste Input Parameters	7-72
Table 7.4-9— Radwaste Annual Source Term	7-73
Table 7.4-10— Radwaste BBNPP Transportation Accident, Fatality and Injury Rates	7-74
Table 7.4-11— Population Dose from Transportation Accidents	7-75
Table 7.4-12— EPR Summary of Annual Transportation Accident Non-Radiological Impact	7-76
Table 8.1-1— PPL EU Historic and Future Energy Demand	8-15
Table 8.1-2— PPL EU Actual and Projected Peak Load (MW)	8-16
Table 8.1-3— PPL EU Actual and Projected Residential Energy Demand (GWh)	8-17
Table 8.1-4— PPL EU Actual and Projected Commercial Energy Demand (GWh)	8-18
Table 8.1-5— PPL EU Actual and Projected Industrial Energy Demand (GWh)	8-19
Table 8.2-1— PJM RTO Historic Unrestricted Peak (MW)	8-29
Table 8.2-2— PJM Mid-Atlantic Summer Unrestricted Peak Forecast (MW)	8-30
Table 8.2-3— PJM Mid-Atlantic Winter Unrestricted Peak Forecast (MW)	8-31
Table 8.2-4— PJM Mid-Atlantic Historical Summer Peaks (MW)	8-32
Table 8.2-5— PJM Mid-Atlantic Historical Winter Peaks (MW)	8-33
Table 8.3-1— PJM Installed Capacity by Fuel Type in 2007	8-50
Table 8.3-2— PJM Generation Fuel Mix for 2007	8-51
Table 8.3-3— PJM Capacity Additions	8-52
Table 8.3-4— PJM Queued Capacity by Fuel Type in Pennsylvania	8-53
Table 8.3-5— PJM Queued Generation Interconnection Requests in the ROI/Primary Market Area	8-54
Table 8.3-6— Capacity Additions (MW) in Active or Under-Construction Queues by Control Zone	8-57
Table 8.3-7— Existing PJM Capacity (MW): 2007	8-58
Table 8.3-8— PJM Queued LTFTS Requests (12/31/2007)	8-59
Table 8.3-9— PJM Queued ARR Requests (12/31/2007)	8-60
Table 8.3-10— Generator Deactivations	8-61
Table 8.3-11— Distribution of PJM Energy Resources	8-65
Table 8.3-12— Historical Reserve Requirement Study (RRS) Parameters	8-66
Table 8.4-1— Demand, Capability, and Margins 2007 – 2016 (Summer)	8-72
Table 9.2-1— Impacts Comparison Table	9-42
Table 9.2-2— Air Emissions from Alternative Power Generation Facilities	9-49
Table 9.3-1— State and Federal Threatened and Endangered Species in Montour County, Pennsylvania	9-84

Table 9.3-2— Demographic Characteristics of the Montour Site Area.	9-85
Table 9.3-3— State and Federal Threatened and Endangered Species in Warren County, New Jersey. . .	9-86
Table 9.3-4— Demographic Characteristics of the Proposed Martins Creek, Warren County, New Jersey Site Area.	9-87
Table 9.3-5— State and Federal Threatened and Endangered Species in Mifflin County, Pennsylvania. .	9-88
Table 9.3-6— Demographic Characteristics of the Sandy Bend Site Area.	9-90
Table 9.3-7— Summary Comparison of Alternative Sites.	9-91
Table 9.4-1— Comparison of Cooling Tower Evaluation Criteria.	9-121
Table 9.4-2— Environmental Impacts of Alternative Cooling Tower Systems	9-122
Table 9.4-3— Alternate Intake Systems.	9-123
Table 10.1-1— Construction-Related Unavoidable Adverse Environmental Impacts	10-6
Table 10.1-2— Operations-Related Unavoidable Adverse Environmental Impacts	10-11
Table 10.2-1— Summary of Historical Data - Materials Consumed by Nuclear Power Plant Construction in the United States During the 1970's	10-18
Table 10.2-2— U.S. EPR Estimated Construction Materials (Tons)	10-19
Table 10.2-3— Estimated Inventories of Construction Supplies Based on U.S. Merchant Wholesalers Data 2000, 2005 and 2006	10-20
Table 10.2-4— U.S. Mineral Production in 2000, 2005 and Estimated for 2006	10-21
Table 10.2-5— Percent Capacity Utilization Rates by Industry	10-22
Table 10.4-1— Benefits and Costs of the Proposed Project Summarized	10-34

List of Figures

Figure 1.2-1— BBNPP Site 50 Mi (80 km) Region	1-7
Figure 1.2-2— BBNPP Site 10 mi (16 km) Region	1-8
Figure 1.2-3— General Cooling System Flow Diagram for BBNPP	1-9
Figure 1.2-4— Aerial View of SSES Units 1 and 2 with BBNPP Superimposed	1-10
Figure 1.2-5— BBNPP Site 500 kV and 230 kV Regional Circuit Corridors	1-11
Figure 2.1-1— BBNPP Site and Proposed New Plant Layout	2-3
Figure 2.1-2— BBNPP Site 50 Mile (80 km) Region	2-4
Figure 2.1-3— BBNPP Site 8 mi (13 km) Region	2-5
Figure 2.1-4— Oblique Aerial Photo Showing BBNPP Project Area	2-6
Figure 2.1-5— Area Uses During Construction	2-7
Figure 2.2-1— BBNPP Land Use within the Owner Controlled Area	2-29
Figure 2.2-2— BBNPP 6 mi (10 km) Land Use	2-30
Figure 2.2-3— BBNPP Site Topographic Map	2-31
Figure 2.2-4— BBNPP Site Zoning Map	2-32
Figure 2.2-5— BBNPP Site 500 kV and 230 kV Regional Circuit Corridors	2-33
Figure 2.2-6— BBNPP Land Use within a 50 mi (80 km) Radius	2-34
Figure 2.2-7— BBNPP Major Public and Trust Lin 50 mile (80 km) Region	2-35
Figure 2.3-1— Susquehanna River Basin and Sub-basins	2-349
Figure 2.3-2— Site Area Topographic Map 5 Mile (8 km) Radius	2-350
Figure 2.3-3— Walker Run Watershed	2-351
Figure 2.3-4— Site Utilization Layout	2-352
Figure 2.3-5— Site Drainage Flow Pattern	2-353
Figure 2.3-6— Elevation Profile of the NBSR in PA	2-354
Figure 2.3-7— USGS Stream Gauges within a 50-Mile (80-km) Radius	2-355
Figure 2.3-8— Mean, Maximum and Minimum Streamflows for the Wilkes-Barre, PA USGS 01536500, 1900 through 2006	2-356
Figure 2.3-9— Mean, Maximum and Minimum Streamflows for the Danville, PA USGS 01540500, 1905 through 2006	2-357
Figure 2.3-10— Temperature for the Danville USGS 01540500, 1946 through 1976	2-358
Figure 2.3-11— Susquehanna River Bathymetry Near Intake and Blowdown Structures	2-359
Figure 2.3-12— Flood Insurance Map, Panel 1 of 4	2-360
Figure 2.3-13— Flood Insurance Map, Panel 2 of 4	2-361
Figure 2.3-14— Flood Insurance Map, Panel 3 of 4	2-362
Figure 2.3-15— Flood Insurance Map, Panel 4 of 4	2-363
Figure 2.3-16— Dams within the Susquehanna River Basin	2-364
Figure 2.3-17— Physiographic Provinces of Pennsylvania	2-365
Figure 2.3-18— Glacial Deposits of Pennsylvania	2-366
Figure 2.3-19— Geologic Map of the BBNPP Site and Vicinity	2-367
Figure 2.3-20— Stratigraphy and Geologic Cross Section of the Berwick Anticlinorium	2-368
Figure 2.3-21— Surficial Deposits at BBNPP Site and Vicinity	2-369
Figure 2.3-22— Legend of Surficial Deposits	2-370
Figure 2.3-23— Frequency Distribution of Nondomestic Well Yields Grouped According to Dominant Rock Type	2-371
Figure 2.3-24— Frequency Distribution of Nondomestic Well Yields Grouped According to Topographic Setting	2-372
Figure 2.3-25— Distribution of Water-Bearing Zones With Depth	2-373
Figure 2.3-26— Average Annual Precipitation in the North Branch of the Susquehanna River Basin in Pennsylvania, 1941 - 1970	2-374
Figure 2.3-27— Percent Frequency Distribution of Annual Precipitation in the Southern Part of the North Branch Susquehanna River Basin, 1931 - 1980	2-375

Figure 2.3-28— Locations of Drainage Basins Where Long-Term Water Budget Analyses Have Been Performed	2-376
Figure 2.3-29— Percent Frequency Distribution of Annual Runoff from Wapwallopen Creek, Pennsylvania, 1920 - 1980	2-377
Figure 2.3-30— Hydrographs of Two USGS Monitoring Wells in Luzerne County Screened in Glacial Overburden	2-378
Figure 2.3-31— Hydrographs of Two USGS Monitoring Wells in Luzerne County Screened in the Catskill Formation	2-379
Figure 2.3-32— Locations of Groundwater Monitoring Wells	2-380
Figure 2.3-33— Locations of BBNPP Surface Water Monitoring Stations	2-381
Figure 2.3-34— Locations of Hydrogeological Cross Sections	2-382
Figure 2.3-35— Hydrogeological Cross Section A-A'	2-383
Figure 2.3-36— Hydrogeological Cross Section B-B'	2-384
Figure 2.3-37— Thickness Map of the Glacial Overburden Aquifer	2-385
Figure 2.3-38— Topography of Bedrock Surface	2-386
Figure 2.3-39— Topography of Bedrock Surface in the Power Block Area	2-387
Figure 2.3-40— Groundwater Elevations versus Time, Well Clusters MW301 and MW302	2-388
Figure 2.3-41— Groundwater Elevations versus Time, Well Clusters MW303 and MW304	2-389
Figure 2.3-42— Groundwater Elevations versus Time, Well Clusters MW305 and MW306	2-390
Figure 2.3-43— Groundwater Elevations versus Time, Well Clusters MW307 and MW308	2-391
Figure 2.3-44— Groundwater Elevations versus Time, Well Clusters MW309 and MW310	2-392
Figure 2.3-45— Water Level Fluctuations In MW301 Cluster Area Based on Pressure Transducer Data	2-393
Figure 2.3-46— Water Level Fluctuations In MW302 Cluster Area Based on Pressure Transducer Data	2-394
Figure 2.3-47— Potentiometric Surface Map of Glacial Overburden Aquifer, October 2007	2-395
Figure 2.3-48— Potentiometric Surface Map of Glacial Overburden Aquifer, January 2008	2-396
Figure 2.3-49— Potentiometric Surface Map of Glacial Overburden Aquifer, March 2008	2-397
Figure 2.3-50— Potentiometric Surface Map of Glacial Overburden Aquifer, July 2008	2-398
Figure 2.3-51— Potentiometric Surface Map of Shallow Bedrock Aquifer, October 2007	2-399
Figure 2.3-52— Potentiometric Surface Map of Shallow Bedrock Aquifer, January 2008	2-400
Figure 2.3-53— Potentiometric Surface Map of Shallow Bedrock Aquifer, March 2008	2-401
Figure 2.3-54— Potentiometric Surface Map of Shallow Bedrock Aquifer, July 2008	2-402
Figure 2.3-55— Potentiometric Surface Map of Deep Bedrock Aquifer, October 2007	2-403
Figure 2.3-56— Potentiometric Surface Map of Deep Bedrock Aquifer, January 2008	2-404
Figure 2.3-57— Potentiometric Surface Map of Deep Bedrock Aquifer, March 2008	2-405
Figure 2.3-58— Potentiometric Surface Map of Deep Bedrock Aquifer, July 2008	2-406
Figure 2.3-59— Areas Known or Suspected of Having Upward-Flowing Groundwater from Bedrock	2-407
Figure 2.3-60— Vertical Distribution of Fractures in MW301C Between 45 and 345 Feet Below Ground Surface	2-408
Figure 2.3-61— Distribution of Fracture Dip Directions in Monitoring Well MW301C	2-409
Figure 2.3-62— Distribution of Fracture Dip Angles in Monitoring Well MW301C	2-410
Figure 2.3-63— Vertical Distribution of Fractures in MW310C Between 24 and 200 Feet Below Ground Surface	2-411
Figure 2.3-64— Distribution of Fracture Dip Directions in Monitoring Well MW310C	2-412
Figure 2.3-65— Distribution of Fracture Dip Angles in Monitoring Well MW310C	2-413
Figure 2.3-66— Surface Water Withdrawal Within Luzerne County	2-414
Figure 2.3-67— Surface Water Withdrawal Within 5 Mile (8 km) Radius	2-415
Figure 2.3-68— Water Pollution Control Facility Locations Within a 5 Mile (8 km) Radius	2-416
Figure 2.3-69— Water Pollution Control Facility Locations Within Luzerne County	2-417
Figure 2.3-70— Sole Source Aquifers Located in USEPA Region 3	2-418
Figure 2.3-71— Groundwater Use in the Susquehanna River Basin in 1995	2-419
Figure 2.3-72— Groundwater Well Locations Within a 25-Mile (40-km) Radius	2-420
Figure 2.3-73— Groundwater Well Locations within a 5-Mile (8-km) Radius	2-421

Figure 2.3-74— Groundwater Withdrawal within a 25-Mile (40-km) Radius	2-422
Figure 2.3-75— Groundwater Withdrawal within a 5-Mile (8-km) Radius	2-423
Figure 2.3-76— Groundwater Production Wells at SSES	2-424
Figure 2.3-77— Potentially Stressed Areas and Water Challenged Areas in the Susquehanna River Basin	2-425
Figure 2.3-78— Relationship Between Total Mineral Solids and Flow Rates in the Susquehanna River	2-426
Figure 2.4-1— Topographic Map of the BBNPP Site	2-518
Figure 2.4-2— Plant Community Map	2-519
Figure 2.4-3— Location of the Onsite Ponds and Aquatic Biota Collection Stations in Walker Run	2-520
Figure 2.4-4— Location of Electrofishing (EF) and Seining (SN) Stations in the Susquehanna River ...	2-521
Figure 2.4-5— Location of Benthic Macroinvertebrate Collection Stations in the Susquehanna River ..	2-522
Figure 2.4-6— Location of Mussel Survey Stations in the Susquehanna River	2-523
Figure 2.4-7— Important Terrestrial Habitats in the Vicinity of BBNPP	2-524
Figure 2.5-1— BBNPP 50 Mile (80 km) Radius Map	2-721
Figure 2.5-2— BBNPP 10 Mile (16km) Radius Map	2-722
Figure 2.5-3— BBNPP Low Population Zone	2-723
Figure 2.5-4— Locations Surveyed as Part of the Phase 1A Reconnaissance	2-724
Figure 2.5-5— Phase 1b Project Location	2-725
Figure 2.5-6— Previously Recorded Cultural Resources within 1 mi (1.6 km) of the Phase 1a Project Area	2-726
Figure 2.5-7— Surveyed Architectural and Historic Resources in the Project Viewshed	2-727
Figure 2.5-8— Phase 1b Project APE Showing Testing Locations and Identified Archeological Sites ...	2-728
Figure 2.5-9— Black or African-American Minority Population	2-729
Figure 2.5-10— Asian Minority Population	2-730
Figure 2.5-11— Some Other Minority Population	2-731
Figure 2.5-12— Aggregate Minority Population	2-732
Figure 2.5-13— Hispanic or Latin American Minority Population	2-733
Figure 2.5-14— Low Income Population	2-734
Figure 2.6-1— Map of Regional Physiographic Provinces	2-743
Figure 2.7-1— Annual Average Number of Tornadoes, 1950-1995	2-1358
Figure 2.7-2— Annual Average Number of Strong-Violent (F2-F5) Tornadoes, 1950-1995	2-1359
Figure 2.7-3— Annual Thunderstorm Frequency	2-1360
Figure 2.7-4— Five-Year Lightning Flash Density Map	2-1361
Figure 2.7-5— SSES 10 m January Precipitation Wind Rose	2-1362
Figure 2.7-6— SSES 10 m February Precipitation Wind Rose	2-1363
Figure 2.7-7— SSES 10 m March Precipitation Wind Rose	2-1364
Figure 2.7-8— SSES 10 m April Precipitation Wind Rose	2-1365
Figure 2.7-9— SSES 10 m May Precipitation Wind Rose	2-1366
Figure 2.7-10— SSES 10 m June Precipitation Wind Rose	2-1367
Figure 2.7-11— SSES 10 m July Precipitation Wind Rose	2-1368
Figure 2.7-12— SSES 10 m August Precipitation Wind Rose	2-1369
Figure 2.7-13— SSES 10 m September Precipitation Wind Rose	2-1370
Figure 2.7-14— SSES 10 m October Precipitation Wind Rose	2-1371
Figure 2.7-15— SSES 10 m November Precipitation Wind Rose	2-1372
Figure 2.7-16— SSES 10 m December Precipitation Wind Rose	2-1373
Figure 2.7-17— SSES 10 m Annual Precipitation Wind Rose	2-1374
Figure 2.7-18— SSES 60 m January Precipitation Wind Rose	2-1375
Figure 2.7-19— SSES 60 m February Precipitation Wind Rose	2-1376
Figure 2.7-20— SSES 60 m March Precipitation Wind Rose	2-1377
Figure 2.7-21— SSES 60 m April Precipitation Wind Rose	2-1378
Figure 2.7-22— SSES 60 m May Precipitation Wind Rose	2-1379
Figure 2.7-23— SSES 60 m June Precipitation Wind Rose	2-1380

Figure 2.7-24— SSES 60 m July Precipitation Wind Rose	2-1381
Figure 2.7-25— SSES 60 m August Precipitation Wind Rose	2-1382
Figure 2.7-26— SSES 60 m September Precipitation Wind Rose	2-1383
Figure 2.7-27— SSES 60 m October Precipitation Wind Rose	2-1384
Figure 2.7-28— SSES 60 m November Precipitation Wind Rose	2-1385
Figure 2.7-29— SSES 60 m December Precipitation Wind Rose	2-1386
Figure 2.7-30— SSES 60 m Annual Precipitation Wind Rose	2-1387
Figure 2.7-31— SSES 10 m January Precipitation Rate Wind Rose	2-1388
Figure 2.7-32— SSES 10 m February Precipitation Rate Wind Rose	2-1389
Figure 2.7-33— SSES 10 m March Precipitation Rate Wind Rose	2-1390
Figure 2.7-34— SSES 10 m April Precipitation Rate Wind Rose	2-1391
Figure 2.7-35— SSES 10 m May Precipitation Rate Wind Rose	2-1392
Figure 2.7-36— SSES 10 m June Precipitation Rate Wind Rose	2-1393
Figure 2.7-37— SSES 10 m July Precipitation Rate Wind Rose	2-1394
Figure 2.7-38— SSES 10 m August Precipitation Rate Wind Rose	2-1395
Figure 2.7-39— SSES 10 m September Precipitation Rate Wind Rose	2-1396
Figure 2.7-40— SSES 10 m October Precipitation Rate Wind Rose	2-1397
Figure 2.7-41— SSES 10 m November Precipitation Rate Wind Rose	2-1398
Figure 2.7-42— SSES 10 m December Precipitation Rate Wind Rose	2-1399
Figure 2.7-43— SSES 60 m January Precipitation Rate Wind Rose	2-1400
Figure 2.7-44— SSES 60 m February Precipitation Rate Wind Rose	2-1401
Figure 2.7-45— SSES 60 m March Precipitation Rate Wind Rose	2-1402
Figure 2.7-46— SSES 60 m April Precipitation Rate Wind Rose	2-1403
Figure 2.7-47— SSES 60 m May Precipitation Rate Wind Rose	2-1404
Figure 2.7-48— SSES 60 m June Precipitation Rate Wind Rose	2-1405
Figure 2.7-49— SSES 60 m July Precipitation Rate Wind Rose	2-1406
Figure 2.7-50— SSES 60 m August Precipitation Rate Wind Rose	2-1407
Figure 2.7-51— SSES 60 m September Precipitation Rate Wind Rose	2-1408
Figure 2.7-52— SSES 60 m October Precipitation Rate Wind Rose	2-1409
Figure 2.7-53— SSES 60 m November Precipitation Rate Wind Rose	2-1410
Figure 2.7-54— SSES 60 m December Precipitation Rate Wind Rose	2-1411
Figure 2.7-55— SSES 10m Annual Wind Rose	2-1412
Figure 2.7-56— SSES 10m Winter Wind Rose	2-1413
Figure 2.7-57— SSES 10m Spring Wind Rose	2-1414
Figure 2.7-58— SSES 10m Summer Wind Rose	2-1415
Figure 2.7-59— SSES 10m Fall Wind Rose	2-1416
Figure 2.7-60— SSES 10m January Wind Rose	2-1417
Figure 2.7-61— SSES 10m February Wind Rose	2-1418
Figure 2.7-62— SSES 10m March Wind Rose	2-1419
Figure 2.7-63— SSES 10m April Wind Rose	2-1420
Figure 2.7-64— SSES 10m May Wind Rose	2-1421
Figure 2.7-65— SSES 10m June Wind Rose	2-1422
Figure 2.7-66— SSES 10m July Wind Rose	2-1423
Figure 2.7-67— SSES 10m August Wind Rose	2-1424
Figure 2.7-68— SSES 10m September Wind Rose	2-1425
Figure 2.7-69— SSES 10m October Wind Rose	2-1426
Figure 2.7-70— SSES 10m November Wind Rose	2-1427
Figure 2.7-71— SSES 10m December Wind Rose	2-1428
Figure 2.7-72— SSES 60m Annual Wind Rose	2-1429
Figure 2.7-73— SSES 60m Winter Wind Rose	2-1430
Figure 2.7-74— SSES 60m Spring Wind Rose	2-1431
Figure 2.7-75— SSES 60m Summer Wind Rose	2-1432

Figure 2.7-76— SSES 60m Fall Wind Rose	2-1433
Figure 2.7-77— SSES 60m January Wind Rose	2-1434
Figure 2.7-78— SSES 60m February Wind Rose	2-1435
Figure 2.7-79— SSES 60m March Wind Rose	2-1436
Figure 2.7-80— SSES 60m April Wind Rose	2-1437
Figure 2.7-81— SSES 60m May Wind Rose	2-1438
Figure 2.7-82— SSES 60m June Wind Rose	2-1439
Figure 2.7-83— SSES 60m July Wind Rose	2-1440
Figure 2.7-84— SSES 60m August Wind Rose	2-1441
Figure 2.7-85— SSES 60m September Wind Rose	2-1442
Figure 2.7-86— SSES 60m October Wind Rose	2-1443
Figure 2.7-87— SSES 60m November Wind Rose	2-1444
Figure 2.7-88— SSES 60m December Wind Rose	2-1445
Figure 2.7-89— Wilkes-Barre/Scranton, PA, Wind Rose	2-1446
Figure 2.7-90— Allentown, PA, Wind Rose	2-1447
Figure 2.7-91— Williamsport, PA, Wind Rose	2-1448
Figure 2.7-92— Maximum Terrain Heights, With Respect to Plant Grade, 0-5 Miles Downwind of Bell Bend by Compass Sector	2-1449
Figure 2.7-93— Maximum Terrain Heights, With Respect to Plant Grade, 0-50 Miles Downwind of Bell Bend by Compass Sector	2-1450
Figure 2.7-94— Topographical Features Within 5 Miles (8 Kilometers) of Bell Bend	2-1451
Figure 2.7-95— Topographical Features Within 50 Miles (80 Kilometers) of Bell Bend	2-1452
Figure 2.7-96— Monthly Average Mixing Heights	2-1453
Figure 2.7-97— Baseline BBNPP Leaf-off Sound Survey Measurement Locations	2-1454
Figure 2.7-98— Measured Hourly Residual (L90) Sound Levels at Survey	2-1455
Figure 3.1-1— Site Area Topographical Map	3-5
Figure 3.1-2— Aerial View of Susquehanna Steam Electric Station Units 1 and 2 with Bell Bend NPP Superimposed	3-6
Figure 3.1-3— Ground Level View Looking Southwest with the Bell Bend Structures Superimposed	3-7
Figure 3.1-4— Ground Level View Looking Northeast with the Bell Bend Structures Superimposed	3-8
Figure 3.1-5— Ground Level View Looking East with Bell Bend Structures Superimposed	3-9
Figure 3.1-6— Ground Level View Looking Northwest with the Bell Bend Structures Superimposed ...	3-10
Figure 3.1-7— Architectural Rendering of Bell Bend NPP	3-11
Figure 3.2-1— Reactor Power Conversion System	3-15
Figure 3.3-1— Anticipated Water Use Diagram	3-25
Figure 3.4-1— General Cooling System Flow Diagram for BBNPP	3-36
Figure 3.4-2— View of Waste Water Retention Basin for BBNPP	3-37
Figure 3.4-3— Circulating Water System Intake/Discharge Structure Location Plan	3-38
Figure 3.4-4— Plan View of CWS Makeup Water Intake Structure	3-39
Figure 3.4-5— Section View of CWS Makeup Water Intake Structure	3-40
Figure 3.4-6— View of Discharge Outfall for Discharge System for BBNPP	3-41
Figure 3.4-7— CWS Cooling Tower Elevation View	3-42
Figure 3.4-8— Plan View of ESWEMS Pumphouse	3-43
Figure 3.4-9— Section View of ESWEMS Pumphouse	3-44
Figure 3.4-10— ESWEMS Retention Pond	3-45
Figure 3.4-11— CWS Makeup Water Intake Structure Construction Cofferdam	3-46
Figure 3.5-1— Radwaste Effluent Flow Path	3-121
Figure 3.5-2— Liquid Radwaste Storage System	3-122
Figure 3.5-3— Liquid Waste Processing Evaporator and Centrifuge	3-123
Figure 3.5-4— Liquid Radwaste Processing Demineralizer System	3-124
Figure 3.5-5— Gaseous Waste Processing and Sources	3-125
Figure 3.5-6— Gaseous Waste Processing System	3-126

Figure 3.5-7— Controlled Area Ventilation Flow Diagram	3-127
Figure 3.5-8— Solid Waste System Flow Diagram	3-128
Figure 3.7-1— BBNPP Site 500 kV and 230 kV Regional Circuit Corridors	3-156
Figure 3.7-2— Site Topography and Generalized Transmission Line Corridor	3-157
Figure 4.1-1— BBNPP Site Zoning and Grading Layout	4-10
Figure 4.2-1— BBNPP Site Grading Plan	4-30
Figure 4.3-1— BBNPP Owner Controlled Area (OCA) Vegetation Impacts	4-53
Figure 4.3-2— BBNPP Wetland Impacts	4-54
Figure 4.4-1— BBNPP Traffic Impact Assessment Study Area	4-85
Figure 4.4-2— Cumulative Overlapping 50 mi (80 km) Zones for Nuclear Power Plants Surrounding BBNPP	4-86
Figure 4.5-1— Site Layout	14-16
Figure 4.5-2— CST and RWST Locations on Plant Grid	14-17
Figure 4.5-3— Source Locations	14-18
Figure 4.5-4— Annual Dose Rate in 2017 in Units of mrem 8760 hours	14-19
Figure 4.5-5— Worker Zone Locations	14-20
Figure 4.5-6— ISFSI Distance Equation	14-21
Figure 4.5-7— ISFSI Satellite Image	14-22
Figure 4.5-8— SSES ISFSI (blue border) with TLDs and Grid	14-23
Figure 4.5-9— TLD (ID 13S2) Data Verifying Time Correlation Function	14-24
Figure 4.5-10— Dose vs Distance for CSTs	14-25
Figure 4.5-11— Dose vs Distance for LLRWHF	14-26
Figure 4.5-12— Dose vs Distance for SEALAND Containers	14-27
Figure 4.5-13— Dose vs Distance for Steam Dryer Storage Vault	14-28
Figure 4.5-14— Dose vs Distance for Turbine Building	14-29
Figure 5.3-1— Temperature Rise Above Ambient at the Surface for the Combined BBNPP and SSES Blowdown Discharges for August	5-53
Figure 5.3-2— Temperature Rise Above Ambient at the Surface for the BBNPP Blowdown Discharge for August	5-54
Figure 5.3-3— Temperature Rise Above Ambient at the Surface for the Combined BBNPP and SSES Blowdown Discharges for January	5-55
Figure 5.3-4— Temperature Rise Above Ambient at the Surface for the BBNPP Blowdown Discharge for January	5-56
Figure 5.3-5— Total Number of Fish and Crayfish Collected in Impingement Samples at the SSES CWS, April 22, 2008 to August 12, 2008	5-57
Figure 5.3-6— Total Number of Fish Collected in Entrainment Samples at the SSES River Intake Structure, April 22, 2008 to June 4, 2008	5-58
Figure 5.8-1— Predicted Sound Contours (dBA) of the Cooling Towers During BBNPP Operation	5-156
Figure 6.1-1— Existing SSES and Proposed BBNPP Discharge and Temperature Monitoring Stations ...	6-6
Figure 6.2-1— Existing SSES TLD Monitoring Locations within One Mile of Plant	6-36
Figure 6.2-2— Existing SSES TLD Monitoring Locations that are One to Five Miles from the Plant	6-37
Figure 6.2-3— Existing SSES TLD Monitoring Locations that are Greater than Five Miles from the Plant	6-38
Figure 6.2-4— Existing SSES Environmental Sampling Locations that are within One Mile of the Plant	6-39
Figure 6.2-5— Existing SSES Environmental Sampling Locations from One to Five Miles of the Plant ...	6-40
Figure 6.2-6— Existing SSES Environmental Sampling Locations Greater than Five Miles	6-41
Figure 6.2-7— BBNPP TLD Monitoring Locations Within One Mile of Plant	6-42
Figure 6.2-8— BBNPP TLD Monitoring Locations from One to Five Miles from Plant	6-43
Figure 6.2-9— BBNPP TLD Monitoring Locations Greater than 5 miles from Plant	6-44
Figure 6.2-10— BBNPP Environmental Sampling Locations Within One Mile of Plant	6-45
Figure 6.2-11— BBNPP Environmental Sampling Locations from One to Five from Plant	6-46
Figure 6.2-12— BBNPP Environmental Sampling Locations that are Greater than 5 Miles from the Plant	6-47

Figure 6.2-13— BBNPP Ground Water Sampling Locations that are within the Protected Area Boundary	6-48
Figure 6.4-1— Topography within a 1-Mile (1.6 km) Radius of the Site	6-65
Figure 6.4-2— Topography within a 5-Mile (8 km) Radius of the Site	6-66
Figure 8.0-1— Primary Market Area - Region of Interest	8-6
Figure 8.2-1— PJM Real - Time Load Duration Curve 2003-2007	8-34
Figure 8.2-2— 1990-2006 Average Electric Price in Pennsylvania	8-35
Figure 8.2-3— 1990-2006 Average Electric Price in New Jersey	8-36
Figure 8.2-4— 1990-2006 Average Electric Price in Delaware	8-37
Figure 8.2-5— 1990-2006 Average Electric Price in Maryland	8-38
Figure 8.2-6— 1990-2006 Average Electric Price in Virginia	8-39
Figure 9.3-1— Region of Interest	9-92
Figure 9.3-2— Candidate Area Exclusionary Criteria	9-93
Figure 9.3-3— Candidate Areas	9-94
Figure 9.3-4— Potential Sites	9-95
Figure 9.3-5— Candidate Sites	9-96
Figure 9.3-6— BBNPP Vicinity Map	9-97
Figure 9.3-7— Montour Site Vicinity Map	9-98
Figure 9.3-8— Montour Site Census Tracts	9-99
Figure 9.3-9— Martins Creek Site Vicinity Map	9-100
Figure 9.3-10— Martins Creek Site Census Tracts	9-101
Figure 9.3-11— Sandy Bend Site Vicinity Map	9-102
Figure 9.3-12— Sandy Bend Site Census Tracts	9-103