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4.6 MEASURES AND CONTROLS TO LIMIT ADVERSE IMPACTS DURING CONSTRUCTION

This section summarizes potential adverse environmental impacts created by the LNP site preparation and construction activities discussed in previous sections of this Environmental Impacts of Construction chapter, along with associated measures and controls to limit those impacts.

4.6.1 REGULATORY CRITERIA

In accordance with NUREG-1555, potential adverse environmental impacts from construction activities are identified and addressed in this section, as well as the specific measures and controls to limit those adverse impacts.

4.6.2 ADVERSE ENVIRONMENTAL IMPACTS

PEF is committed to limiting, minimizing, and reducing adverse environmental impacts during construction activities wherever and whenever feasible and practical. Construction activities at the LNP site will result in certain adverse environmental impacts that are unavoidable.

Table 4.6-1 provides a summary of the impacts attributable to the cumulative impacts associated with the construction of the entire LNP. The “Potential Impact Significance” columns in **Table 4.6-1** list the elements identified in NUREG-1555 that relate to construction activities. **Table 4.6-1** summarizes the measures and controls to limit potential adverse environmental impacts during construction activities. The following list identifies elements with potential adverse environmental impacts that may be encountered during construction activities:

- Noise.
- Erosion and sediment.
- Air quality.
- Traffic.
- Effluents and wastes.
- Surface water.
- Groundwater.
- Land use protection/restoration.
- Water use protection/restoration.
- Terrestrial ecosystem.

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- Aquatic ecosystem.
- Socioeconomic.
- Radiation exposure to construction workers.
- Other (site-specific).

Table 4.6-1 uses the NRC's three-level standard of significance levels for each element (SMALL, MODERATE, or LARGE). These significance levels were determined by evaluating the potential effects after any controls or mitigation measures had been implemented. The significance levels used in the evaluation were developed using Council on Environmental Quality (CEQ) guidelines set forth in the footnotes to Table B-1 of 10 CFR 51, Subpart A, Appendix B:

- **SMALL** — Environmental effects are not detectable or are so minor they will neither destabilize nor noticeably alter any important attribute of the resource.
- **MODERATE** — Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
- **LARGE** — Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

The impact categories evaluated in this chapter are the same as those used in the "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," NUREG-1437, Volumes 1 and 2.

In addition to the cumulative impacts attributable to the construction of the entire LNP facility that are summarized in **Table 4.6-1**, a breakdown or separation of "construction" and "preconstruction" environmental impacts has been estimated in **Table 4.6-2** for the purpose of assessing impacts attributable specifically to the construction of "safety-related structures, systems, or components (SSCs)" as defined in 10 CFR 50.2, "Definitions," as modified by the definition of construction in 10 CFR 50.10 for LWA activities. All other construction activities can be considered to be either "preconstruction" or "other than construction" under the definition of construction in 10 CFR 50.2 and 10 CFR 50.10.

Table 4.6-2 provides estimates of the percentage of impacts attributable to "construction" and to "preconstruction," as well as a summary of the basis for the estimates. The estimated construction related impacts presented in the table were based primarily on two factors, namely the area associated with the construction of SSCs and the labor hours associated with the construction of SSCs. Information related to these two factors is provided as follows:

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- Construction Area — The LNP site consists of 3105 contiguous ac., exclusive of off-site linear facilities (heavy haul road, water pipelines, and electric transmission lines) or other supporting facilities such as the barge dock. The total estimated area that will be developed for the LNP is estimated to be approximately 926 ac., exclusive of electric transmission lines. Of these developed areas, approximately 50 ac. will be developed for SSCs (25 ac. each for LNP 1 and LNP 2). The area that will be developed for the construction of SSCs therefore represents approximately 4 percent of the total area that will ultimately be developed (excluding electric transmission lines). Because this estimate does not include electric transmission lines, it is considered to be a very conservative estimate. For the purposes of this assessment, the impacted area associated with SSCs is considered to be less than 5 percent.
- Labor Hours — Based on preliminary construction estimates for all phases of development of the LNP, the estimated labor hours associated with the construction of SSCs is approximately 62 percent of the total labor hours associated with the development of the entire LNP. For the purpose of this assessment, the labor hours associated with SSC construction and LWA activities is considered to be 60 percent.

4.6.3 MEASURES AND CONTROLS TO LIMIT ADVERSE IMPACTS

The following measures and controls will limit potential adverse environmental impacts related to construction activities for the LNP:

- Compliance with federal, state, and local laws, ordinances, and regulations intended to prevent or minimize adverse environmental effects (for example, solid waste management, erosion and sediment control, air emissions, noise control, stormwater management, spill response and cleanup, and hazardous waste management).
- Compliance with applicable requirements of existing permits and licenses (for example, Florida NPDES permit for blowdown discharge, Operating License) for the CREC and other permits and licenses required for construction of the LNP (for example, application to the NRC for approval to conduct certain LWA construction activities, USACE Section 404 Permit, a NPDES for stormwater discharge, a Prevention of Significant Deterioration air permit, a 316(b) demonstration for the proposed CWIS, and the Florida SCA process for addressing state and local permitting information and coordination requirements).
- Compliance with existing PEF processes and/or procedures applicable to construction environmental compliance activities for the LNP (for example, solid waste management, hazardous waste management, and spill prevention and response).
- Incorporation of environmental requirements into construction contracts.

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- Identification of environmental resources and potential effects during the development of this ER.

Construction activities at the proposed LNP will conform to the goals and criteria set forth in the regulatory guidelines and requirements. PEF will adhere to applicable local, state, and federal requirements during construction activities. Because technology may change between the time when the proposed LNP COLA is issued and a new facility is constructed, no specific commitments are implied in this presentation of potential mitigation measures and controls. The mitigation techniques presented herein represent BMP or standard industrial practices at the time of the LNP COLA submittal.

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**Table 4.6-1 (Sheet 1 of 8)
Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls			
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)
ER Section 4.1	Land Use Impacts															
ER Subsection 4.1.1.1 Long-Term Land Use Restrictions and Physical Changes of Site and Vicinity							S								<ol style="list-style-type: none"> 1. Impacts of changes to Levy County's current zoning and future land use designation for the LNP site. 2. Impacts on the LNP site. 3. Impacts associated with water pipeline corridor and appurtenant structures. 4. Impacts on agricultural and special uses at the LNP site. 5. Impacts on recreation. 6. Impacts on mineral resources 7. Impacts on nearby communities. 8. Impacts associated with access roadway upgrades. 	<ol style="list-style-type: none"> 1. Develop of revised future land use map and text amendment for Levy County comprehensive land use plan for submittal to FDCA and Levy County Board of County Commissioners. 2. Erosion control and stabilization measures; follow permit requirements; limit vegetation removal. 3. Erosion control and stabilization measures; follow permit requirements on CFBC; limit vegetation removal. 4. No special agricultural uses within the site boundary. 5. Coordination with appropriate groups/agencies as discussed in ER Section 1.2. 6. PEF to maintain control of mineral rights 7. Minimal expansion of infrastructure or demand on local infrastructure. 8. Erosion and sediment control and follow permit requirements.
ER Subsection 4.1.1.2 Short-Term Physical Changes in Land Use and Mitigation							S								<ol style="list-style-type: none"> 1. Impacts associated with access roadway upgrades. 2. Impacts associated with stormwater drainage system. 3. Impacts on site grading. 	<ol style="list-style-type: none"> 1. Erosion and sediment control and follow permit requirements. 2. Erosion and sediment control. 3. Permitting and mitigation as required. See ER Section 4.6.

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Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls			
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)
ER Subsection 4.1.1.3 Construction Impacts on the Geologic Environment							S								Impacts on mineral resources.	PEF to maintain control of mineral rights; no mineral rights outstanding or leased.
ER Subsection 4.1.2.1 Transmission Corridors							S								Impacts associated with construction of three new transmission corridors to three high-voltage substations and a 500-kV switchyard.	Follow BMPs, ROW preparation; erosion and sediment controls; minimize clearing; minimize effects on human populations, wetlands and water bodies, archaeological and historic sites, vegetation, and wildlife; and comply with permit and regulatory requirements and mitigation plans as required. See ER Subsection 2.2.2 and Section 3.7.
ER Subsection 4.1.2.2 Off-Site Areas							S								Impacts from construction of heavy haul road, barge slip access road, and makeup water and blowdown pipeline corridors.	Erosion and sediment controls; Construct stormwater drainage systems; follow stormwater BMPs; and comply with regulatory and permit requirements as required.
ER Subsection 4.1.2.3 Short-Term Physical Changes in Land Use and Mitigation							S								<ol style="list-style-type: none"> 1. Impacts on nearby structures and roadways. 2. Impacts associated with stormwater drainage system. 	<ol style="list-style-type: none"> 1. Minimal expansion of infrastructure, use of access roads, and use of restricted construction zones. See ER Subsection 2.2.2. 2. Erosion and sediment control. See ER Section 4.6.
ER Subsection 4.1.3 Historic Properties							S								Impacts of construction on or near archeological or historic properties.	Conduct additional surveys prior to construction and ground disturbing activities. Consultation with SHPO. See ER Subsection 2.5.3.

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Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls				
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)	
ER Section 4.2	Water-Related Impacts																
ER Subsection 4.2.1.1 Freshwater Streams		S				S										Hydrological impacts from construction at LNP site, along transmission line corridors, and pipeline routes.	Follow regulatory and permit requirements; erosion and sediment control; revegetation of disturbed land; use of BMPs; and minimize clearing and ground disturbance.
ER Subsection 4.2.1.2 Lakes and Impoundments						S										Impacts on surface water bodies including wetlands.	Implement sediment and erosion control; comply with regulatory and permit requirements; use of BMPs; and trenchless technologies. See ER Subsection 4.2.1.1 on grading and drainage.
ER Subsection 4.2.1.3 Cross Florida Barge Canal						S		S								Impacts on CFBC.	Implement sediment and erosion control; comply with regulatory and permit requirements; use of BMPs; and trenchless technologies. See ER Subsection 4.2.1.1 on grading and drainage.
ER Subsection 4.2.1.4 Groundwater						S	S									Hydrologic alterations from construction of the LNP.	Groundwater elevations will be monitored during construction and dewatering during construction will be kept to a minimum.
ER Subsection 4.2.1.5 Wetlands		S				S										Hydrological impacts from construction in wetlands.	Follow regulatory and permit requirements; erosion and sediment controls; use of silt fences; revegetation of disturbed land; minimize clearing and ground disturbance; compliance with FESC manual and ROMA plan; stockpiling, characterizing, and proper disposal of dredge spoils, if necessary.
ER Subsection 4.2.2.1 Freshwater Water Bodies						S		S								Impacts on CFBC and other surface water bodies.	Implement sediment and erosion control; comply with regulatory and permit requirements; use of BMPs; and trenchless technologies.

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Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls			
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)
ER Subsection 4.2.2.2 Wetlands						S			S						Impacts on wetlands at the LNP site.	Use of ROMA Plan.
ER Subsection 4.2.2.3 Groundwater Use							S		S						Impacts on groundwater use.	Groundwater elevations will be monitored during construction and dewatering during construction will be kept to a minimum. See ER Subsection 4.2.1.4.
ER Section 4.3	Ecological Impacts															
ER Subsection 4.3.1.1 Plant Site									S - M						<ol style="list-style-type: none"> 1. Impacts on terrestrial ecology associated with the LNP site. 2. Impacts on vegetative communities. 3. Impacts on wildlife. 	<ol style="list-style-type: none"> 1. Erosion and sediment controls; minimize land disturbance; dust control; manage stockpiles; comply with regulation and permit requirements; follow BMPs; use of designated staging areas; erosion and sediment controls; stabilization of disturbed areas. 2. Erosion and sediment controls; minimize land disturbance; dust control; manage stockpiles; comply with regulation and permit requirements; follow BMPs; use of designated staging areas; erosion and sediment controls; stabilization of disturbed areas. 3. Maintain noise level typical of construction projects and restrict use of elevated equipment to avoid avian collisions; coordination with state and federal regulatory agencies; avoid disturbance of bald eagle nest and occupants; compliance with applicable permit requirements for rare and listed species.
ER Subsection 4.3.2.1 On-site Pools						S				S					<ol style="list-style-type: none"> 1. Impacts from construction of the LNP on aquatic ecosystems in the LNP site. 2. Impacts on water quality. 	<ol style="list-style-type: none"> 1. Use of sediment basins 2. Sediment and erosion control.

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Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls			
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)
ER Subsection 4.3.2.2 Cooling Water Intake Structure											S				<ol style="list-style-type: none"> 1. Impacts construction of CWIS on the CFBC shoreline on aquatic ecology. 2. Impacts on water quality. 3. Impacts on vegetative communities. 4. Impacts on wildlife. 	<ol style="list-style-type: none"> 1. Regular maintenance of equipment; compliance with applicable regulations and BMPs; and use of cofferdams. 2. Erosion and sediment control during construction and dredging; maintenance and compliance with applicable permit requirements, and coordination with regulatory agencies. 3. Compliance with BMPs; coordination with regulatory agencies; and compliance with applicable regulatory and permit requirements. 4. Consultation with regulatory agencies for protection requirements for rare and listed species (for example, manatee); erosion and sediment controls, and compliance with applicable permit conditions.
ER Subsection 4.3.2.3 Cooling System Blowdown Discharge Pipeline											S				<ol style="list-style-type: none"> 1. Impacts of blowdown pipeline corridor construction on aquatic ecology. 2. Impacts on water quality. 3. Impacts on vegetative communities. 4. Impacts on wildlife. 	<ol style="list-style-type: none"> 1. Minimize disturbance, with applicable permit requirements, and coordination with regulatory agencies. 2. Coordination with regulatory agencies and compliance with applicable permit requirements. 3. Follow BMPs to manage and protect rare plants along pipeline ROWs; coordination with regulatory agencies; and compliance with applicable permit requirements. 4. Coordinate with regulatory agencies and compliance with applicable permit requirements.
ER Section 4.4	Socioeconomic Impacts															
ER Subsection 4.4.1.1 Noise	S														Impacts of construction-related noise.	Limit use of loud equipment or activities to day time, and coordinate with county and state regulatory agencies.

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Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls			
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)
ER Subsection 4.4.1.2 Air Quality			S												Impacts from construction activities on air quality.	Dust control; stabilization of disturbed areas; compliance with air pollution control regulations; control of open burning; mitigation measures on equipment as applicable; coordination with regulatory agencies; and compliance with applicable permit requirements.
ER Subsection 4.4.1.3 Visual Aesthetic Disturbances													S		Impact of construction activities on visual aesthetic disturbances.	Stabilization of cleared areas; restrictions on construction laydown areas; minimize disturbance and visual intrusion; controlled burning of logging debris; and removal of construction debris in a timely manner.
ER Subsection 4.4.2.3 Social Structure												S			Impacts on social structure.	Specific measures and controls are not needed; impacts on social structure anticipated to be minor.
ER Subsection 4.4.2.4 Housing												S			Impacts on housing availability from construction.	Specific measures and controls are not needed, minor housing impacts expected.
ER Subsection 4.4.2.5 Educational System												S			Impacts to educational systems from construction.	Consultation with local school systems, minor impacts anticipated.
ER Subsection 4.4.2.6 Recreation												S	S		Impacts of construction of LNP site to recreational facilities and opportunities.	Specific measures and controls are not needed; impacts on social structure anticipated to be minor.
ER Subsection 4.4.2.7 Public Services and Facilities												S			Impacts of construction to public services and facilities.	Specific measures and control not needed, minor impacts expected.

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Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls			
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs	Other (Site-Specific)
ER Subsection 4.4.2.8 Security Services														S	Impacts on site security and access restrictions.	Security forces, structures, and access restrictions will be necessary for the LNP site.
ER Subsection 4.4.2.9 Water and Wastewater Services														S	Impacts on water and wastewater services.	Current capacities of water and wastewater treatment facilities appear to be sufficient to meet demands; communication with appropriate utilities is ongoing.
ER Subsection 4.4.2.10 Transportation Facilities				S M											<ol style="list-style-type: none"> 1. Impacts on primary transportation routes providing access to the site. 2. Impacts on traffic related to construction of the LNP. 3. Impacts on log-hauling traffic. 4. Impacts of blowdown pipeline route on county transportation routes. 	<ol style="list-style-type: none"> 1. No specific measures and controls identified. 2. Coordination with FDOT, completion of transportation impact analysis, and evaluation of a temporary access road off US-19/US-98. 3. Traffic impacts are anticipated to be temporary and short in duration. 4. Coordination with FDOT and county, and completion of transportation impact analysis for West Canal Berm Road and CR-40.
ER Subsection 4.4.2.11 Distinctive Communities														S	Impacts on special or distinctive communities.	No special or distinctive communities identified; no specific measures are anticipated.
ER Subsection 4.4.3.1 Minority Populations														S	Impacts on racial, ethnic, and special groups in the region.	No impacts anticipated; no specific measures and controls identified.
ER Subsection 4.4.3.2 Low Income Populations														S	Impacts on low income populations.	No impacts anticipated; no specific measures and controls identified.

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Summary of Measures and Controls to Limit Adverse Impacts during Construction**

Section Reference	Potential Impact Significance ^{(a), (b)}											Impact Description or Activity	Specific Measures and Controls		
	Noise	Erosion and Sediment	Air Quality	Traffic	Effluents and Wastes	Surface Water	Groundwater	Land Use ^(c)	Water Use ^(d)	Terrestrial Ecosystem	Aquatic Ecosystem			Socioeconomic	Rad Exp to Const Wkrs
ER Section 4.5	Radiation Exposure to Workers														
ER Subsection 4.5.6 Radiation Protection and ALARA Program					S								S	Impacts on construction workers from direct radiation and to the radioactive effluents from LNP routine operation.	Implementation of radiation protection and ALARA program and compliance with regulatory agencies.

Notes:

- a) The assigned potential impact significance levels of (S)MALL, (M)ODERATE, or (L)ARGE are based on the assumption that mitigation measures and controls would be implemented.
- b) A blank in the elements column denotes "no impact" on that specific element because of the assessed activities.
- c) Land Use Protection/Restoration.
- d) Water Use Protection/Restoration.

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**Table 4.6-2 (Sheet 1 of 6)
Summary of Construction- and Preconstruction-Related Impacts for Safety-Related Structures, Systems, or Components**

Section Reference	Potential Impacts and Significance ^(a)	Estimated Impacts (%)		Basis of Estimate
		Construction ^(b)	Preconstruction	
ER Section 4.1 Land Use Impacts				
ER Subsection 4.1.1.1 Long-Term Land Use Restrictions and Physical Changes of Site and Vicinity	S – Land Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.1.1.2 Short-Term Physical Changes in Land Use and Mitigation	S – Land Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.1.1.3 Construction Impacts on the Geologic Environment	S – Land Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.1.2.1 Transmission Corridors	S – Land Use	0	100	Transmission corridors are not included in the definition of construction of SSCs.
ER Subsection 4.1.2.2 Off-Site Areas	S – Land Use	0	100	There are no off-site areas associated with the project that are included in the definition of construction of SSCs.
ER Subsection 4.1.2.3 Short-Term Physical Changes in Land Use and Mitigation	S – Land Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.1.3 Historic Properties	S – Land Use	0	100	The impact of historic properties will apply only to preconstruction activities because they will be identified prior to land clearing, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and laydown areas.

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Summary of Construction- and Preconstruction-Related Impacts for Safety-Related Structures, Systems, or Components**

Section Reference	Potential Impacts and Significance ^(a)	Estimated Impacts (%)		Basis of Estimate
		Construction ^(b)	Preconstruction	
ER Section 4.2	Water-Related Impacts			
ER Subsection 4.2.1.1	S – Erosion and Sediment	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 ac. (25 ac. each for LNP 1 and LNP 2) of the project area being developed (that is, 926 ac., excluding off-site electric transmission lines) (4%, restated as <5%).
	S – Surface Water			
ER Subsection 4.2.1.2	S – Erosion and Sediment	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 ac. (25 ac. each for LNP 1 and LNP 2) of the project area being developed (that is, 926 ac., excluding off-site electric transmission lines) (4%, restated as <5%).
	S – Surface Water			
ER Subsection 4.2.1.3	S – Erosion and Sediment	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 ac. (25 ac. each for LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
	S – Effluents and Wastes			
	S – Surface Water			
	S – Water Use			
ER Subsection 4.2.1.4	S – Erosion and Sediment	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 ac. (25 ac. each for LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
	S – Surface Water			
ER Subsection 4.2.1.5	S – Surface Water	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 ac. (25 ac. each for LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
	S – Groundwater			

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Summary of Construction- and Preconstruction-Related Impacts for Safety-Related Structures, Systems, or Components**

Section Reference	Potential Impacts and Significance ^(a)	Estimated Impacts (%)		Basis of Estimate
		Construction ^(b)	Preconstruction	
ER Subsection 4.2.2.1 Freshwater Surface Water	S – Surface Water S – Water Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.2.2.2 Wetlands	S – Surface Water S – Water Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.2.2.3 Groundwater	S – Groundwater S – Water Use	5	95	Estimates are based on the area of land use that will be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs will occur on no more than approximately 50 acres (25 acres each for units LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Section 4.3 Ecological Impacts				
ER Subsection 4.3.1.1 Plant Site	S to M – Terrestrial Ecosystems	0	100	Ecological impacts will occur during preconstruction activities and mobile wildlife species are expected to vacate the site until construction is complete. Native plants will not be significantly impacted because the area has already been heavily modified due to silvicultural operations and impacts will occur during land clearing and preparation.
ER Subsection 4.3.2.1 On-Site Pools	S – Surface Water S – Aquatic Ecosystem	0	100	Ecological impacts will occur during preconstruction activities and mobile wildlife species are expected to vacate the site until construction is complete. Native plants will not be significantly impacted because the area has already been heavily modified due to silvicultural operations and impacts will occur during land clearing and preparation.

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**Table 4.6-2 (Sheet 4 of 6)
Summary of Construction- and Preconstruction-Related Impacts for Safety-Related Structures, Systems, or Components**

Section Reference	Potential Impacts and Significance ^(a)	Estimated Impacts (%)		Basis of Estimate
		Construction ^(b)	Preconstruction	
ER Subsection 4.3.2.2 Cooling Water Intake Structure (CWIS)	S – Aquatic Ecosystem	0	100	All impacts attributable to the installation of these components will occur as a result of pre-construction activities that are not associated with the construction of any SSC.
ER Subsection 4.3.2.3 Cooling System Blowdown Discharge Pipeline	S – Aquatic Ecosystem	0	100	All impacts attributable to the installation of these components will occur as a result of pre-construction activities that are not associated with the construction of any SSC.
ER Section 4.4 Socioeconomic Impacts				
ER Subsection 4.4.1.1 Noise	S – Noise	35	65	Most perceptible noise impacts at off-site locations will occur during the most intense operations in the power block area and will include pile driving of SSCs. Estimates are based on the average of the percent of labor hours dedicated to safety-related structures, systems, or components (SSCs) (62%) and the percent of land dedicated to SSCs (<5%). (Average stated as 35%)
ER Subsection 4.4.1.2 Air Quality	S – Air Quality	35	65	Air emissions will occur in the vicinity of the SSCs (power block area) during construction. Estimates are based on the average of the percent of labor hours dedicated to constructing safety-related structures, systems, or components (SSCs) (62%) and the percent of land dedicated to SSCs (<5%). (Average stated as 35%)
ER Subsection 4.4.1.3 Visual Aesthetic Disturbances	S – Other (Site-Specific)	5	95	SSCs (power block buildings) with significant elevation will have only a very small area/footprint and will have very limited visibility from a minimum number of off-site locations. Land clearing or deforestation for SSCs will not be visible from off-site locations, nor will changes in vegetation. Large cranes may also be used during construction of the SSCs and will be operated in the small footprint/area of the SSCs. Estimates are based on the area of land use that will be dedicated to SSCs and the assumption that the construction of SSCs will occur on no more than approximately 50 ac. (25 ac. each for LNP 1 and LNP 2) of the project area being developed (that is, 926 acres, excluding off-site electric transmission lines) (4%, restated as <5%).
ER Subsection 4.4.2.3 Social Structure	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).

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**Table 4.6-2 (Sheet 5 of 6)
Summary of Construction- and Preconstruction-Related Impacts for Safety-Related Structures, Systems, or Components**

Section Reference	Potential Impacts and Significance ^(a)	Estimated Impacts (%)		Basis of Estimate
		Construction ^(b)	Preconstruction	
ER Subsection 4.4.2.4 Housing	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.5 Educational System	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.6 Recreation	S – Socioeconomic S – Other (Site-Specific)	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.7 Public Services and Facilities	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.8 Security Services	S – Other (Site-Specific)	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.9 Water and Wastewater Services	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.10 Transportation Facilities	S to M - Traffic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.2.11 Distinctive Communities	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).

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**Table 4.6-2 (Sheet 6 of 6)
Summary of Construction- and Preconstruction-Related Impacts for Safety-Related Structures, Systems, or Components**

Section Reference	Potential Impacts and Significance ^(a)	Estimated Impacts (%)		Basis of Estimate
		Construction ^(b)	Preconstruction	
ER Subsection 4.4.3 Environmental Justice	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.3.1 Minority Populations	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Subsection 4.4.3.2 Low Income Populations	S - Socioeconomic	60	40	Estimates are based on the percent of total project labor hours that will be dedicated to the construction of safety-related structures, systems, or components (SSCs), all of which will be in the power block areas for LNP 1 and LNP 2 (62%, restated as 60%).
ER Section 4.5 Radiation Exposure to Workers				
ER Subsection 4.5.6 Radiation Protection and ALARA Program	S – Effluent and Wastes S – Rad Exp to Constr Wkrs	30	70	Estimates are based on 50% of the workforce remaining during the completion of the SSCs for LNP 2 (half of 62%, restated as 30%).

Notes:

a) The assigned potential impact significance levels of (S)MALL, (M)ODERATE, or (L)ARGE are based on the assumption that mitigation measures and controls would be implemented.

b) "Construction," as defined in 10 CFR 50.2 "Definitions" and modified by 10 CFR 50.10(a), "Definitions," for LWA activities, refers to the construction of "safety-related structures, systems, or components (SSCs) of a facility and other activities as defined in 10 CFR 50.10(a)(1)(i) through 10 CFR 50.10(a)(1)(vii)"

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4.8 ACTIVITIES UNDERTAKEN UNDER A LIMITED WORK AUTHORIZATION

4.8.1 Proposed Limited Work Authorization Activities

The Limited Work Authorization (LWA) for the LNP will allow PEF to undertake activities in advance of approval of the COLA for the following items:

- Install perimeter diaphragm wall.
- Install permeation grouting in the Avon Park Formation.
- Prepare nuclear island foundation surface with dental concrete.
- Place roller compacted concrete under the nuclear islands.
- Install mud mat under the nuclear islands.
- Install waterproofing beneath the mud mat under the nuclear islands.
- Install rebar in the nuclear island concrete foundations.
- Erect safety related concrete placement forms.
- Install Turbine Building foundation drilled shafts.
- Install Annex Building foundation drilled shafts.
- Install Radwaste Building foundation drilled shafts.

The impacts associated with the construction of the LNP (which includes the LWA activities listed above) are described in the preceding sections of this chapter and specifically in ER Sections 4.1, 4.2, 4.3, 4.4, and 4.6. A description of each of the proposed LWA activities is provided in Part 6, “Limited Work Authorization” of the COLA. The estimated level of construction activity that will be associated with each individual LWA activity (expressed as a percent of SSC-related construction) is provided in Table 4.8-1.

4.8.2 Environmental Impacts of LWA Activities

The environmental impacts of Construction (SSC components) and Preconstruction activities were previously discussed in ER Section 4.6.2 and Summarized in ER Tables 4.6-1 and 4.6-2. The results of that assessment indicated that, with the exception of impacts on terrestrial ecosystems (as described in ER Section 4.3.1.1) and traffic (ER Section 4.4.2.10), all impacts attributable to facility construction will be “SMALL.” Both terrestrial ecosystem and traffic-related impacts were determined to be “SMALL to MODERATE.”

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However, it is noted that since all impacts to terrestrial ecosystems are expected to occur during the preconstruction phases of the project (i.e., during land clearing and site preparation), LWA-related construction activities will have no significant impact on terrestrial ecosystems. While there will be impacts on local traffic during LWA construction-related activities, they will not occur during the period of peak construction activity at the site and those impacts are expected to represent only a small portion of the traffic-related impacts that will occur during other construction phases of the project. This is demonstrated by the fact that the maximum percent of construction hours attributable to LWA activities (based on man-hours as summarized in [Table 4.8-1](#)) will be less than approximately 15 percent for all LWA activities and less than 7 percent for any individual LWA activity. Since the amount of traffic at the facility can be expected to be directly proportional to the number of man-hours expended during construction, traffic related impacts during LWA construction will be less than 7 to 15 percent of the "SMALL to MODERATE" impacts during facility construction. Based on this comparison, the environmental impacts due to increases in traffic during LWA activities will therefore be SMALL. In general, all environmental impacts that will occur during LWA construction activities are expected to be SMALL.

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**Table 4.8-1
Percentage of Construction Activities that are Limited Work Authorization (LWA) Activities**

LWA Activity ^(a)	COLA Reference/Description	Percent of Construction ^(b)	Basis of Estimates
Install Perimeter Diaphragm Wall	Part 2, Chapter 2, Subsection 2.5.4.5.1;	<4	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (3.6%, restated to be 4%).
Install Permeation Grouting in the Avon Park Foundation	Part 2, Subsections 2.5.4.5.1, 2.5.4.6.2; ITAAC in Part 10, Appendix B.	<7	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (6.5%, restated to be 7%).
Prepare Nuclear Island Foundation Surface with Dental Concrete	Part 2, Chapter 2, Subsection 2.5.4.5.3	<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.8%, restated to be 1%).
Place Roller Compacted Concrete Under the Nuclear Islands	Part 2, Chapter 2, Subsection 2.5.4.5.4; ITAAC in Part 10, Appendix B, Table 3.8-3	<2	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (1.5%, restated to be 2%).
Install Mud Mat Under the Nuclear Islands	AP1000 DCD Subsections 2.5.4 and 3.4.1.1.1.1	<<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.02%, restated to be 1%).
Install Waterproofing Beneath the Mud Mat Under the Nuclear Islands	AP1000 DCD Subsection 3.4.1.1.1.1; ITAAC in Part 10, Appendix B, Table 3.8-2	<<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.2%, restated to be 1%).
Install Rebar in the Nuclear Island Concrete Foundations	AP1000 DCD Tier 1, Section 3.3 Design Requirements	<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.7%, restated to be 1%).
Erect Safety Related Concrete Placement Forms	Not safety related, but construction will enable DCD Tier 1 ITAAC in Tier 1 Table 3.3-6 to be satisfied.	<<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.1%, restated to be 1%).
Install Turbine Building Foundation Drilled Shafts	Part 2, Chapter 2, Subsections 2.5.4.2, 2.5.4.5, 2.5.4.7, 2.5.4.8, and 2.5.4.10; ITAAC	1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (1.0%).

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**Table 4.8-1
Percentage of Construction Activities that are Limited Work Authorization (LWA) Activities**

LWA Activity ^(a)	COLA Reference/Description	Percent of Construction ^(b)	Basis of Estimates
Install Annex Building Foundation Drilled Shafts	in Part 10, Appendix B, Table 3.8-4. Part 2, Chapter 2, Subsections 2.5.4.2, 2.5.4.5, 2.5.4.7, 2.5.4.8, and 2.5.4.10. ITAAC in Part 10, Appendix B, Table 3.8-4.	<<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.1%, restated to be 1%).
Install Radwaste Building Drilled Shafts	Part 2, Chapter 2, Subsections 2.5.4.2, 2.5.4.5, 2.5.4.7, 2.5.4.8, and 2.5.4.10. ITAAC in Part 10, Appendix B, Table 3.8-4.	<1	Estimates are based on the percent of SSC-related construction labor hours that will be dedicated to the identified LWA activity (0.5%, restated to be 1%).

Notes:

a) LWA activities are defined in 10 CFR 50.10(a)(1)

b) Estimates for "Percent of Construction" for LWA activities are based on the ratio of labor hours for "LWA construction" (as defined in 10 CFR 50.10(a)(2)) to labor hours for SSC-related construction (as defined in 10 CFR 50.2 and excluding all "preconstruction" activities).