

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS OF THE PROPOSED ACTION AND ALTERNATIVES

With one exception, we have determined that construction and operation of the proposed SESH Project would result in limited adverse environmental impacts based on information provided by SESH; data developed from information requests, field investigations, literature research, alternatives analysis, comments from federal, state and local agencies, and input from public groups and individual citizens; and the mitigation measures recommended below. We have also determined that SESH's proposal would have an adverse impact on forested wetlands, since the Project would result in a conversion of about 5 acres of forested wetland. However we conclude that the impact on forested wetlands would be substantial, but not significant, and is environmentally acceptable.

As part of our review, we developed specific mitigation measures to reduce the environmental impacts resulting from construction and operation of the proposed Project. We believe that if the proposed Project is constructed and operated in accordance with applicable laws and regulations, SESH's proposed mitigation, and our additional, recommended mitigation measures, it would be an environmentally acceptable action. We are therefore recommending that our mitigation measures be attached as conditions to any authorization issued by the Commission. A summary of the anticipated Project impacts and our conclusions is provided below by resource area.

5.1.1 Geology

Construction and operation of the proposed Project would have minimal impact on geological resources. The primary effect of Project construction would be disturbances to the existing topography along the proposed pipeline construction right-of-way, but all areas disturbed during pipeline construction would be finish-graded and restored as closely as possible to preconstruction contours during cleanup and restoration. We are recommending that SESH work with NRCS to develop specific construction plans for the areas of erosion-prone soil that characterize the Loess Hills region in western Mississippi (see discussion in Soils below). No bedrock blasting is anticipated for the proposed Project. The proposed Project would be located in a region with a low risk of seismic activity, soil liquefaction, landslide susceptibility, and subsidence. Oil and natural gas extraction is common in the Project area, but construction and operation of the proposed Project would not negatively affect exploitable oil or natural gas resources. The proposed Project would cross one inactive quarry, which is currently crossed by another pipeline. SESH would obtain an easement that would avoid loss of access to this area.

5.1.2 Soils

The proposed Project would traverse a variety of soil types and conditions, including prime farmland and loess soils. Construction activities associated with the proposed Project, such as clearing, grading, trenching, and backfilling, could adversely affect soil resources. These effects could include erosion, compaction, and the loss of soil productivity and fertility caused by mixing topsoil and subsoil horizons and/or changing drainage patterns. Such effects would be of particular concern in agricultural areas. SESH would implement the mitigation measures contained in its Plan to control erosion, ensure successful revegetation, and minimize any potential adverse impacts to soil resources. Specifically, potential soil impacts to agricultural areas would be mitigated through measures such as topsoil stripping, compaction testing and treatment, and monitoring of crop yields to ensure that construction area yields were similar to yields in adjacent, undisturbed areas. Loess soils have a high susceptibility to erosion. To avoid or minimize impacts to unstable loess soils, we are recommending that SESH conduct additional consultations with NRCS to finalize the Loess Soil Management Plan submitted to NRCS on June 11,

2007. Additionally, SESH would further limit potential impacts to soil resources by implementing its SPCC Plan and Contamination Contingency Plan and would develop location-specific restoration strategies based on additional consultations with NRCS. Based on SESH's proposal, including implementation of its Plan and our recommended mitigation, we believe impacts to soils would not be significant.

5.1.3 Water Resources

Construction and operation of the proposed Project would be conducted in accordance with SESH's Plan and Procedures. SESH would avoid impacts to groundwater resources including sole-source aquifers, wellhead protection areas, drinking water wells, and springs by implementing the measures described in its Procedures and SPCC Plan. SESH has also committed to repair or replace wells damaged by construction.

The proposed Project would cross 192 perennial streams, 462 intermittent streams, and 17 ponds/lakes. As proposed, most minor and intermediate waterbody crossings would be accomplished using open-cut methods. Potential effects to major and/or sensitive waterbodies (including waterbodies with contaminated sediments) would be largely avoided through implementation of HDD installation techniques. Thirty-one waterbodies would be crossed using HDDs.

Proposed HDDs would cross 9 major and/or navigable streams (Macon Bayou, Tensas River, Tallahala River, Mississippi River, Bayou Pierre, Pearl River, Chickasawhay River, Big Black River, and Escatawpa River), 7 NRI-listed streams (Big Black River, Bayou Pierre, Pearl River, Bowie Creek, Okatoma Creek, Leaf River and Chickasawhay River), several rivers likely to contain habitat for federally listed fish species (the Mississippi River, Bayou Pierre, Pearl River, Turkey Creek, and the Escatawpa River), and 10 impaired waterbodies that occur along the proposed Project route. We are recommending that SESH construct dry crossings and evaluate the feasibility of using HDD methods for the Choctaw, Crump, Dry, Gaines, Long, Shelton, and Thompson creeks, prior to constructing at each waterbody. These creeks are potential habitat for federally listed fish species and are known tributaries that feed into other waterbodies known to support federally listed, threatened and endangered species.

All waterbody crossings would be accomplished in accordance with SESH's Procedures and the terms of any applicable federal or state permits that may be granted for the Project. We are recommending that SESH prepare and file site-specific HDD contingency plans that describe the procedures that would be implemented to monitor for, contain, and clean up any inadvertent releases of drilling fluids during HDD operations. To further minimize the impacts of HDD failures, we are recommending that SESH prepare a site-specific construction plan prior to open-cutting any surface waters previously designated as HDD crossings.

SESH has proposed to use surface waters for hydrostatic testing of the proposed pipeline, though municipal water supplies may be used as test water sources for some prefabricated pipe at aboveground facility sites. SESH would avoid or adequately minimize potential effects to waterbodies resulting from hydrostatic testing by implementing SESH's procedures and avoiding the use of potentially toxic test water additives. Additionally, hydrostatic test waters would be sampled and treated prior to discharge, as required by conditions of SESH's state hydrostatic test water discharge permits. We are recommending SESH file a detailed report that would identify all sources, intake and discharge locations, for hydrostatic test waters.

Based on SESH's proposal, including implementation of its Plan and Procedures and our recommended mitigation, we believe impacts to water resources would be minimized and would not be significant.

5.1.4 Wetlands

Construction of the proposed Project would affect 267 wetland areas resulting in a total of approximately 238.8 acres of wetland disturbance, including approximately 159.8 acres of forested wetlands and approximately 78.9 acres of scrub-shrub or emergent wetlands. Sensitive wetland areas crossed include forested wetlands and potential pitcher plant bogs.

Following construction, affected wetlands located outside the maintained portion of the permanent pipeline right-of-way would be allowed to revert to preconstruction conditions. Impacts to emergent and scrub-shrub wetlands would be minor because regeneration to preconstruction conditions would occur rapidly in these areas and maintenance of the permanent pipeline right-of-way would not result in a permanent conversion of emergent wetlands. Impacts to forested wetlands would be either permanent or long-term due to the slow regeneration time of forested areas. SESH identified one pine savanna wetland exhibiting characteristics of a pitcher plant bog. MDWFP and the ADCNR NHP both expressed concerns regarding potential impacts to pitcher plant bogs. Based on agency concerns regarding these unique wetland communities and the likely presence of additional pitcher plant bogs along the proposed pipeline route, we are recommending that SESH coordinate with the ADCNR NHP and MDWFP to develop a plan to minimize and mitigate impacts to any pitcher plant bog communities.

The proposed project alignment would cross lands in the WRP. These lands are considered to be jurisdictional wetlands by the NRCS. SESH is continuing to work with NRCS to avoid WRP lands to the greatest extent possible. We are recommending that SESH file as part of its Implementation Plan the status of the subordination agreements with the NRCS. SESH is also coordinating its proposed project activities with the TNC and the FWS as discussed in Section 5.1.8.

Based on SESH's proposal, including implementation of its Plan and Procedures and our recommended mitigation, we believe impacts on emergent and palustrine wetlands would not be significant.

SESH proposes permanent fill in wetlands associated with the pig receiver/Gulfstream meter site, PAR-RRL1, and the Rock Road meter site at the end of the Rock Road lateral. Per our recommendation in the DEIS, SESH filed a site-specific plan to reduce the wetland impacts by collocating these aboveground facilities with other existing natural gas facilities which reduced the impacts of PFO wetlands converted to uplands from 6.6 acres to 5.49 acres. The siting of this facility is considered an alternate measure from Section VI.A.6 of our Procedures, however since: (1) the facility is collocated with another gas facility at the interconnection and is the termination of the lateral; and (2) SESH would minimize unavoidable wetland impacts by completing all wetland crossings in accordance with their Procedures and by complying with the terms and conditions of any Section 404 authorizations issued by the COE, including the provisions of any required wetland compensatory mitigation, we consider the impact to be substantial but not adverse and is environmentally acceptable.

5.1.5 Vegetation

Construction and operation of the proposed Project would affect four upland vegetative communities: upland forest, pine plantation, agricultural land, and open lands. Approximately 59 percent of the upland vegetation resources affected during construction would consist of pine plantation and upland forest, with agricultural and open lands making up the remainder. Several extensive forested tracts and areas containing exotic and/or invasive plant species would also be crossed by the proposed pipeline route. Vegetative communities of special concern would be crossed by the pipeline including long-leaf pine ecosystems in Mississippi and Alabama. We are recommending additional coordination

with the MDWFP, ADCNR NHP, and the FWS to develop plans to minimize and mitigate impacts and to control exotic and invasive species.

Based on federal and state agency comments, we are recommending that SESH prepare a plan to reduce the amount of riparian/tree clearing required at the East and West Prongs of Silver Creek. The plan would include measures such as reducing the amount of workspace, avoiding cutting of select large diameter trees, and the feasibility of using the HDD method to cross the waterbodies. The plans would be filed for the review and written and approval of the Director of OEP prior to constructing those waterbodies.

SESH would restore all disturbed vegetated areas in accordance with its Plan and Procedures and the specific recommendations of local agencies and soil conservation services. Affected agricultural and open lands would typically be revegetated within one or two growing seasons, but impacts to pine plantations and upland forest would be long-term, taking up to 30 years or more to recover. Impacts to forested areas contained within the permanent pipeline right-of-way would also represent a more substantial change in vegetative strata. However, impacts to forested areas, including large forested tracts, would be minimized by routing the proposed Project along existing right-of-ways and through other previously disturbed areas to the extent practical. Additionally, many of the large forested tracts crossed by the proposed Project are already subject to some disturbance associated with timber management programs.

Based on SESH's proposal, including implementation of its Plan and Procedures and our recommended mitigation, we believe impacts to vegetation would be adequately minimized, and would not be significant.

5.1.6 Wildlife and Aquatic Resources

The wetlands and upland vegetation communities crossed by the proposed Project route support habitats that provide cover and forage for a variety of wildlife species including birds, mammals, reptiles, and amphibians. Physical disturbance, displacement, and clearing of upland and wetland herbaceous habitats would affect wildlife at or near the time of construction, but such effects would be largely temporary and many habitats would recover quickly. Upland and wetland forested habitats would be significantly affected due to the long-term conversion of wooded areas to successional stages in the temporary right-of-way and the permanent conversion to scrub-shrub or herbaceous conditions within the permanent right-of-way. A colonial nesting bird rookery is located near MP 18.19 on the proposed route. SESH proposes to construct outside of the sensitive time window (February 16 – September 1) and would avoid impacting the rookery. However in the event construction is not completed near MP 18.19 before February 16, 2008, we are recommending that SESH conduct a pre-construction survey to determine whether the rookery is in use, prior to constructing in that area. If colonial nesting birds are spotted at the site, SESH would contact the MDWFP to determine what measures may be prudent at that time.

The waterbodies that would be traversed by the proposed Project provide habitat for a variety of aquatic species including warm water fish and freshwater mussels. Potential impacts to fisheries and aquatic habitats would include sedimentation and turbidity, loss of cover, introduction of pollutants into the aquatic environment, potential blockage of fish migrations and interruptions of spawning, and entrainment or loss of stream flow during hydrostatic testing. As described above, all waterbody crossings would be accomplished in accordance with SESH's Procedures and the terms of any applicable federal or state permits that may be granted. Direct impacts would be avoided by the use of HDD installation at many waterbody crossings. Aquatic habitat impacts at other crossing locations would be largely temporary as most crossings would be completed in less than 48 hours. Additionally, intake

screening to limit fish entrainment and maintenance of adequate stream flow rates to protect aquatic life during hydrostatic test water withdrawals would further ensure that any Project-related impacts to aquatic species would be minor.

Based on SESH's proposal, including implementation of its Plan and Procedures and our recommended mitigation, we believe impacts to wildlife and aquatic resources would be adequately minimized.

5.1.7 Threatened, Endangered, and Special Status Species

Based on consultations with the FWS, 14 federally listed T&E species and 2 candidate species occur or potentially occur near the proposed Project.

We determined that construction and operation of the proposed Project may affect, is not likely to adversely affect 13 federally listed endangered or threatened species identified for this proposal. We also determined that project-related construction and operational impacts may affect the federally listed gopher tortoise. We also determined that the proposed Project would not significantly affect the two candidate species.

The DEIS served as our biological assessment for the proposed Project. Based on this assessment, we requested formal consultation for the proposed Project with the FWS related to impacts on the gopher tortoise, and requested concurrence with our determinations of effect for the other species. The FWS acknowledged the receipt of the DEIS and accepted our request for formal consultation. A biological opinion was prepared and issued by the FWS on July 19, 2007. It concurred with our findings and offered conservation measures to be adopted by the applicant, which we have included as a recommendation. FWS further concluded that the project would not adversely modify designated critical habitat for the species.

Based on consultation with the FWS to further reduce potential impacts on, and increase protection for, the eastern indigo snake, bald eagle, and interior least tern, we are recommending additional impact minimization and mitigation measures. Because 12 new route variations were not assessed in our DEIS, and to ensure that section 7 consultation is complete, we are recommending that SESH not begin construction of any of the 12 route variations, project modifications or construct on tracts of properties not previously surveyed due to landowner denied access until the staff completes section 7 consultations with the FWS, and SESH has received notification in writing that construction may begin by the Director of OEP.

In addition to federally listed species, other special-status species, including migratory bird species, colonial nesting water birds, and an additional 14 species listed as endangered, threatened, imperiled, or rare by the states of Louisiana, Mississippi, and Alabama, were identified through consultations with the MDWFP, ADCNR, and the LDWF. To ensure that these species are adequately protected, we are recommending that SESH continue to coordinate with these state agencies and develop identify a plan to minimize or avoid potential impacts to state-listed or special-status species.

With the implementation of SESH's proposed mitigation, along with our recommended measures, we believe impacts on special-status species would be minimized.

5.1.8 Land Use, Recreation and Special Interest Areas, and Visual Resources

Construction of the proposed Project would affect approximately 4,021 acres of land, including 3,355 acres for the pipeline construction right-of-way, 104 acres for the aboveground facilities and access

roads, and 563 acres for extra work areas (extra workspaces and pipe storage and contractor yards). Approximately 45 percent (1,831.62 acres) of the land that would be affected by construction is forest, 23 percent is agricultural, 20 percent is open land, and 8 percent is pine plantation. The remaining land-use categories (residential, industrial, and open water) make up less than 4 percent of the project area. Following construction, all affected areas outside the permanent pipeline right-of-way and aboveground facility sites would be restored and allowed to revert to preconstruction conditions and uses. During operation of the proposed Project, the permanent pipeline right-of-way, aboveground facilities, and permanent access roads would encumber approximately 1,697 acres.

SESH proposes to use 125-foot-wide construction right-of-way for the entire length of its 42-inch-diameter pipeline. Other similar projects in Mississippi and Alabama propose to use a 100-ft-wide right-of-way for 42-inch-diameter pipeline. To minimize land disturbance we are recommending that SESH limit its construction right-of-way width to 100 feet for the 42-inch diameter pipeline. In the alternative, SESH should file additional information justifying the need for additional workspace in specific areas where topsoil would be segregated and for two-tone construction areas for review and written approval of the Director of OEP. SESH also proposes a 10-foot-wide buffer between its permanent right-of-way and that of the other utility corridors that the project would parallel. To address concerns expressed by landowners and to further reduce the extent of construction-related disturbance, we are recommending that SESH eliminate its proposed buffer zone and overlap the construction corridor with existing utility easements for the purpose of temporary spoil storage during construction.

Six residential structures exist within 50 feet of the proposed Project's construction workspace. One mobile home would be acquired through a purchase option contract. SESH has entered into an agreement with the landowner to purchase one residential property (MP 0.26) that would be permanently converted from residential land to industrial/commercial land for construction and operation of the Delhi Compressor Station. Another mobile home would be avoided during the crossing of the Mississippi River by HDD. Three structures are located within the construction work space due the constraints of a former landfill on the west side of the right-of-way. We are recommending that site-specific construction plans be developed and filed prior to construction for these three structures at MP 261.9.

Several electric power lines would be constructed to serve the three new compressor stations and the two new booster stations proposed by SESH. Although we consider these facilities to be outside the Commission's jurisdiction, they are directly related to the Project. Therefore, to fully comply with NEPA requirements, we are recommending SESH not begin service to its project until staff receives documentation from the FWS and SHPO regarding agency clearances and/or copies of reports prepared for the proposed electric service lines and it receives written notification from the Director of OEP that service may begin.

Although the Project would not directly cross the Tensas River NWR, SESH proposes to cross fee title land and conservation easements managed by the FWS and the Tensas River NWR. In addition, SESH would cross land adjacent to the Pascagoula WMA. We are recommending that SESH file as part of its Implementation Plan the status of the special use permits for each of these properties. Also, we are recommending that SESH file its plan for crossing the TLC properties prior to construction. The Project would also cross the Natchez Trace Parkway, which is managed by the NPS. A separate environmental analysis has been prepared to assess the potential impacts to the Parkway (Appendix G). The NPS concludes that, based on the selected route and crossing location of the Parkway; the resources present; potential impacts, including cumulative impacts; and mitigation measures, construction and operation of the proposed Project would not have a significant effect on the Natchez Trace Parkway. Highway 90 (The Old Spanish Trail) in Mobile County, Alabama, would be crossed using a bore technique; no adverse impact would result from this crossing.

SESH proposes to cross CRP and CREP lands and would continue to consult with the applicable agencies and landowners regarding potential Project-related effects to these lands. We are recommending that SESH consult with the FSA prior to construction to develop a plan that would avoid, minimize, and/or mitigate impacts on these lands.

Coastal zone consistency statements would be required where the Project crosses designated coastal zone management areas in Alabama and Mississippi. SESH has submitted information to the agencies for evaluation, but has not yet received determination regarding the Project's consistency with the state coastal management programs. We are recommending that SESH file a copy of the CZMA consistency determinations for Alabama and Mississippi prior to construction in those states.

Visual resources along the proposed Project route would be affected by the installation of some aboveground facilities and alteration of existing vegetative patterns associated with clearing and maintenance of the construction and permanent pipeline rights-of-way. However, the impact is not expected to be significant. Existing and proposed vegetation would provide a visual screen of these facilities.

Based on SESH's proposal, along with our recommended measures to reduce impacts on special-interest lands, land use, and land requirements, we believe impacts to land use, special-interest areas, and visual resources would be minimized, and would not be significant.

5.1.9 Socioeconomics

Construction of the proposed project would not have a significant adverse impact on local populations, housing, employment, community services, or local commerce. Any adverse impacts would be highly localized and temporary due to the relatively short construction period and the rapid rate at which construction crews would pass through any one area. Construction of the proposed Project would temporarily increase demand for public services such as medical, police, and fire protection, but these effects would be offset by increased tax revenues to local governments. The proposed Project would have positive impacts on local spending, employment, and tax income during construction and operation, but such contributions would likely be minimal.

5.1.10 Cultural Resources

SESH conducted cultural resource surveys at the proposed pipeline, ATWS areas, associated aboveground facilities, access roads, and pipe yards and ware yards of the proposed Project route through Louisiana, Mississippi, and Alabama. In Louisiana, two previously identified archeological sites that meet the criteria to be listed on the NRHP would be avoided through modified construction techniques. Three newly identified archaeological sites potentially eligible for the NRHP are being tested further to verify their eligibility. In Mississippi, SESH identified three potentially eligible archaeological sites. These sites are also being tested further to verify their eligibility. Continued consultation with the SHPOs is necessary to verify the status of the potentially eligible sites. If significant historic properties cannot be avoided, treatment plans would be developed and implemented to ensure recovery of any information that might be lost to construction impacts. We are recommending that SESH defer construction until surveys and evaluations of areas not previously accessed or evaluated are completed, all survey reports and any necessary treatment plans have been reviewed by appropriate parties, and the Director of OEP provides written notification to proceed.

5.1.11 Air Quality and Noise

Air quality impacts associated with construction of the proposed Project would include emissions from fossil-fueled construction equipment and fugitive dust. However, such air quality impacts would generally be temporary and localized and are not expected to cause or contribute to a violation of applicable air quality standards. The proposed compressor stations would emit air pollutants as a result of combustion of natural gas to drive the compressor units and the periodic operation of auxiliary generators. The air emissions associated with the operation of the Delhi, Gwinville, and Lucedale compressor stations would meet federal or state ambient air quality standards. The most recent screening modeling of the Collins and Petal booster stations also indicates that air emissions at facilities would not exceed federal ambient air quality standards.

Impacts to noise quality associated with construction of the proposed Project would generally be temporary, minor, and limited to daylight hours except at HDD sites where drilling and related construction equipment would likely operate on a continuous basis. In its application, SESH stated it would perform noise analyses to determine potential impacts to NSAs from HDD activities. In response to the recommendation in the DEIS, SESH filed its HDD noise analysis for all finalized HDD entry and exit locations with NSAs within 0.5 mile. SESH has committed to employing mitigation measures at these locations to ensure noise levels are reduced to meet noise benchmarks.

The proposed compressor stations would also generate noise on a continuous basis during operations. However, the predicted noise levels attributable to operations of the new compressor stations is modeled to be below 55dBA would not result in significant effects on the NSAs nearest to those facilities. In addition, to verify that noise is limited as predicted we are including recommendations for completion of post-construction noise surveys and implementation of additional mitigation measures, if required, to ensure that actual noise levels resulting from Project operations would not exceed significant or existing levels.

With the implementation of SESH's proposed mitigation and our recommendations, we believe impacts on air quality and noise would be minimized.

5.1.12 Reliability and Safety

The proposed Project would be designed, constructed, operated, and maintained to meet or exceed all DOT safety standards for natural gas pipelines. Several commenters expressed concerns related to pipeline safety expressing fear of a catastrophic failure similar to the natural gas pipeline rupture and fire near Carlsbad, New Mexico in 2000, and concerns about SESH's application for a waiver to PHMSA requirement 49 CFR 192.111 to allow operation of the proposed pipeline with a specified minimum yield strength of 80 percent instead of the typical design factor of 72 percent in Class 1 locations. We believe that an event like the Carlsbad incident is unlikely to occur with today's corrosion monitoring and pipeline inspection requirements. No substandard pipe material (i.e., reduced wall thickness pipe) would be accepted as part of the proposed project's design. SESH is proposing its waiver to operate its system at pressures 8 percent higher than the specified minimum yield strength of their Class 1 pipe. Following construction, SESH would also initiate a pipeline integrity management plan to ensure public safety during operation. PHMSA is currently evaluating SESH's waiver request. If the pipeline is constructed and FERC grants service at some time in the future, SESH would only be allowed to operate at the pressure currently allowed by regulation, unless PHMSA grants the waiver request.

5.1.13 Cumulative Impacts

We identified seven past, present and reasonably foreseeable future projects, all of which are natural gas transmission pipeline projects planned or proposed in Louisiana and Mississippi that would potentially result in a cumulative impact when considered with the proposed project. One of these is already approved by the Commission and has been constructed (Carthage to Perryville Project, CP06-85). A second, Gulf South's ETM Expansion Project (CP06-446), is approved for construction. Two others, the Gulf South's Southeast Expansion Project (CP07-32) and the Gulf Crossing Project (CP07-398) are currently filed at the Commission. The other three projects are being planned and are being reviewed by the Commission: Ozark East End Expansion Project (PF06-34), Fayetteville/Greenville Expansion Project (PF07-2), and Midcontinent Express Project (PF07-4). Construction of these projects is projected to occur between the years 2007 and 2009.

Each of these projects would result in impact similar to those described for SESH, but each project would be designed to avoid or minimize impacts on the wetlands, waterbodies, protected and special-status species, and other sensitive resources. Additionally, significant unavoidable impacts to sensitive resources resulting from these projects would be mitigated. Such mitigation generally leads to the avoidance or minimization of cumulative impacts. The impacts of the already constructed Carthage to Perryville Project and the currently under construction ETM Expansion Project have been minimized. Any of the other proposed or planned projects that would come before the Commission would also be the subject of our NEPA review to avoid or minimize impacts.

We believe that impacts associated with the proposed Project would be relatively minor overall, and we have included recommendations in this EIS to further reduce the environmental impacts associated with the Project. Consequently, a small but insignificant cumulative effect is anticipated when the impacts of the proposed Project are added to past, present, or reasonably foreseeable future projects in the area. However, we consider those impacts have been and will be minimized to the extent possible.

5.1.14 Alternatives

As an alternative to the proposed action, we evaluated the no action or postponed action alternatives, system alternatives, route alternatives, route variations, and aboveground facility site alternatives. While the no action alternative would eliminate the short- and long-term environmental impacts identified in this EIS, the objectives of the proposed Project would not be met, and SESH would not be able to provide a new source of natural gas to markets that can be accessed through the proposed pipeline interconnects.

Our analysis of system alternatives included an evaluation of whether existing and proposed natural gas pipeline systems would meet the proposed Project objectives while offering an environmental advantage over the proposed Project. While two existing pipeline systems are located in the general vicinity of the proposed Project, none of these have sufficient available capacity to carry the gas volumes of the proposed Project without substantial system upgrades, such as new or increased compression, new pipeline looping, or greenfield pipeline.

We evaluated two modified system alternatives that would involve new pipeline connection to the existing 30-inch-diameter Transco Line, which runs north to south for the length of Alabama (Transco Alternative 1 and Transco Alternative 2). The Transco alternatives offered some environmental advantages to reduce the amount of greenfield pipeline construction. These alternatives would require additional compression (a permanent environmental impact) and posed other engineering constraints. We evaluated additional information provided by SESH in response to our data request and additional information provided by Transco to further investigate whether a SESH-Transco combined system would

be viable from an operational standpoint. FERC engineering staff confirmed that the Transco's system alternatives were not viable because all of Transco's firm capacity on its Mobile Bay Lateral from Station 85 to Coden, Alabama is fully subscribed, and changing the flow direction on the Mobile Bay Lateral from south-to-north to north-to-south is not possible. Consequently, these alternatives were eliminated from further consideration.

SESH attempted to avoid or significantly reduce impacts on sensitive resources in its initial planning and siting of its proposal. Additionally, route variations were analyzed to resolve or reduce construction impacts to localized, specific resources and to accommodate landowner requests through out our review process. More than 70 variations have been incorporated in the proposed route as a result of comments received during the NEPA process. After review of the 12 route variations that were received in response to the draft EIS, we acknowledge that SESH has agreed to incorporate six of the route variations into its final alignment, and concur with their use; and we do not recommend use of two of the variations and prefer the proposed route. The remaining four route variations have not been fully analyzed partly because they were received late during the development of this final EIS, and have not had public involvement and additional environmental surveys may be required. Therefore, we are not recommending use of these remaining variations at this time, however SESH can request use of these variations or others pursuant to environmental recommendation number 5 of this EIS. Due to the changes already made in the routing and the lack of significant resource impacts, no other major additional route variations or alternatives were identified. We anticipate that minor alignment shifts would be made prior to and during construction to accommodate other such site-specific circumstances and landowner concerns.

We also evaluated the proposed locations of the Project aboveground facilities to determine whether environmental impacts would be reduced or mitigated by use of alternative facility sites. Because the location of the aboveground facilities would be linked to the location of the pipeline, the search for alternatives was constrained to sites located adjacent to the proposed Project route. Two alternative locations for aboveground facilities were ultimately selected by SESH to reduce impacts to the environment. We did not identify any alternative sites for the proposed M&R or mainline valve facilities that would offer a significant environmental advantage to the proposed sites. In conclusion, we have determined that the proposed SESH Project, as modified by our recommended mitigation measures is the preferred alternative.

5.2 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission issues a Certificate for the proposed Project, we recommend that the Commission's Order include the following specific conditions. We believe that these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed Project.

1. SESH shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff information requests), and as identified in the EIS, unless modified by the Order. SESH must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

- d. receive approval in writing from the Director of OEP **before using that modification.**
2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the Project. This authority shall allow:
 - a. the modification of conditions of the Commission's Order; and
 - b. the design and implementation of any additional measures deemed necessary (including stop work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from Project construction and operation.
3. **Prior to any construction**, SESH shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.
4. The authorized facility location shall be as shown in the EIS, as supplemented by filed alignment sheets, and shall include all of the staff's recommended facility locations. **As soon as they are available, and prior to the start of construction**, SESH shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

SESH's exercise of eminent domain authority granted under NGA Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. SESH's right of eminent domain granted under NGA Section 7(h) does not authorize it to increase in the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. SESH shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **prior to construction** in or near that area.

This requirement does not apply to route variations required herein or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from the following:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or would affect sensitive environmental areas.
6. **Within 60 days of the acceptance of this certificate and prior to construction**, SESH shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how SESH will implement the mitigation measures required by the Order. SESH must file revisions to the plan as schedules change. The plan shall identify:
- a. how SESH will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - b. the number of EIs assigned per spread and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - c. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - d. what training and instructions SESH will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change) with the opportunity for OEP staff to participate in the training session;
 - e. the company personnel (if known) and specific portion of SESH's organization having responsibility for compliance;
 - f. the procedures (including use of contract penalties) SESH will follow if noncompliance occurs; and
 - g. for each discrete facility a Gantt or Program Evaluation and Review Technique (PERT) chart (or similar project scheduling diagram) and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the mitigation training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. SESH shall employ one or more EIs per construction spread. The EIs shall be:
- a. responsible for monitoring and ensuring compliance with all mitigative measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;

- c. empowered to order correction of acts that violate the environmental conditions of the Order and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of the Order as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
8. SESH shall file updated status reports with the Secretary on a **weekly** basis **until all construction-related activities, including restoration, are complete for each phase of the Project**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. the current construction status of each spread, work planned for the following reporting period, and any scheduling changes for stream crossings or work in other environmentally sensitive areas;
 - b. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - c. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;
 - d. the effectiveness of all corrective actions implemented;
 - e. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order and the measures taken to satisfy their concerns; and
 - f. copies of any correspondence received by SESH from other federal, state, or local permitting agencies concerning instances of noncompliance and SESH's response.
9. SESH must receive written authorization from the Director of OEP **before commencing service** from the Project. Such authorization will only be granted following a determination that rehabilitation and restoration of areas affected by the Project are proceeding satisfactorily.
10. **Within 30 days of placing the certificated facilities in service**, SESH shall file an affirmative statement with the Secretary, certified by a senior company official:
- a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the certificate conditions SESH has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

11. SESH shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. **Prior to construction**, SESH shall mail the complaint procedures to each landowner whose property would be crossed by the Project.
 - a. In its letter to affected landowners, SESH shall:
 - (1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
 - (2) instruct the landowners that if they are not satisfied with the response, they should call SESH's Hotline; the letter should indicate how soon to expect a response; and
 - (3) instruct the landowners that if they are still not satisfied with the response from SESH's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030, or at hotline@ferc.gov.
 - b. In addition, SESH shall include in its weekly status report a copy of a table that contains the following information for each problem/concern:
 - (1) the date of the call;
 - (2) the identification number from the certificated alignment sheets of the affected property and approximate location by MP;
 - (3) the description of the problem/concern; and
 - (4) an explanation of how and when the problem was resolved will be resolved, or why it has not been resolved.
12. **SESH shall not begin service until:** the staff receives documentation, including clearances and/or surveys required from the FWS and SHPO regarding the proposed electric service lines to compressor stations, and SESH has received written notification from the Director of OEP that service may begin. (*Section 1.0*)
13. **Prior to construction**, SESH shall reduce the width of the construction right-of-way to 100 feet in width for its 42-inch diameter pipeline (MP 0.0 to MP 104). SESH shall identify on the revised alignment sheets, and provide a table listing by MP, all additional temporary workspaces beyond the 100-foot nominal construction right-of-way for any area where SESH believes additional right-of-way is required due to site-specific circumstances. The work space table shall include justification for the extra work space (such as association with road, foreign utilities, waterbody, and wetland crossings, two-tone construction areas, or extensive top soil segregation) and must be approved in writing by the Director of OEP. (*Section 2.2.1*)
14. SESH shall modify its project right-of-way requirements and file with the Secretary revised figures and alignment sheets with the Implementation Plan to reflect removal of the proposed 10-foot buffer between the edge of the permanent right-of-way and foreign pipeline rights-of-way. SESH shall file site-specific justification by MP areas where SESH believes use of existing permanent right-of-way to be infeasible for spoil storage and receive written approval from the Director of OEP before use. (*Section 2.2.1*)

15. SESH shall hire and fund a third-party contractor, to work under the direction of the Commission staff, for the sole purpose of monitoring compliance with the environmental conditions attached to the Order for the project, including all measures proposed by SESH. A draft monitoring program shall be developed by SESH and filed with the Commission for review and approval of the Director of OEP, along with a proposal from potential contractors that will be available to provide the monitoring and reporting services. The monitoring program shall include the following elements:
 - a. the employment by the contractor of one to two full-time, on-site monitors per construction spread;
 - b. the employment by the contractor of a full-time compliance manager to direct and coordinate with the monitors, manage the reporting systems, and provide technical support to the Commission staff;
 - c. a systematic strategy for the review and approval by the contract compliance manager and monitors of variances to certain construction activities as may be required based on site-specific field conditions;
 - d. the development of an Internet web site for the posting of daily or weekly inspection reports submitted by both the third-party monitors and environmental inspectors; and
 - e. a discussion of how the monitoring program could incorporate and/or be coordinated with the monitoring or reporting that may be required by other Federal and state agencies.
(*Section 2.5*)
16. **Prior to construction** between MP 39.5 to MP 60, SESH shall file with the Secretary a final Loess Soil Management Plan developed in consultation with the NRCS. This plan shall indicate any NRCS recommendations to minimize or mitigate impacts to loess soils and whether SESH would implement these recommendations and if not, explain why. (*Section 3.2.2.8*)
17. SESH shall use a dry crossing method to cross the Choctaw, Crump, Dry, Gaines, Long, Shelton, and Thompson Creeks, or as an alternate, SESH shall investigate the feasibility of crossing these creeks using the HDD method. SESH shall file site-specific crossing plans for its proposed dry crossing method, for review and written approval by the Director of OEP prior to construction at each waterbody. (*Section 3.3.2.1*)
18. **Prior to construction**, SESH shall file with the Secretary, for review and written approval by the Director of OEP, a detailed HDD Contingency Plan for the Project (e.g. alternative construction measures, agency and emergency contact information, required equipment and materials) the contingency plan shall address how SESH:
 - a. will handle any inadvertent release of drilling mud into the waterbody or areas adjacent to the waterbody, including procedures to contain inadvertent releases;
 - b. will seal the abandoned drill hole; and
 - c. clean up any inadvertent releases. (*Section 3.3.2.4*)
19. SESH shall not begin an open-cut crossing of any of the waterbodies proposed to be crossed using HDD until the HDD attempt has failed and it files an amended crossing plan for review and written approval by the Director of OEP. The amended crossing plan shall include site-specific drawings identifying all areas that would be disturbed using the proposed alternate crossing method. SESH shall file the amended crossing plan concurrent with the appropriate state and federal applications required for implementation of the plan. (*Section 3.3.2.4*)
20. **Prior to any hydrostatic testing** SESH shall file for review and written approval by the Director of OEP, a detailed report of all water sources proposed for hydrostatic testing including the project

component or facility to be tested, the corresponding water source, withdrawal and discharge locations by MP, and estimated volumes of withdrawal required. (*Section 3.3.2.5*)

21. **Prior to construction**, SESH shall develop a Pitcher Plant Bog Mitigation Plan for review and written approval by the Director of OEP, developed in consultation with the MDWFP and ADCNR NHP that describes how SESH would avoid pitcher plant bog communities during construction, and the measures, in addition to those in SESH's Procedures, SESH would implement to minimize impacts to these areas. (*Section 3.4.3.1*)
22. **Prior to construction**, in the area between MPs 108.8 and 117.7, SESH shall file with the Secretary for review and written approval by the Director of OEP, a plan for crossing of the East and West Prongs of Silver Creek that minimizes or avoids the cutting of adjacent hardwood forest. The plan shall evaluate the feasibility of performing an HDD. (*Section 3.5.2*)
23. **Prior to construction**, SESH shall file for review and written approval by the Director of OEP, a Longleaf Pine Vegetative Community Plan, developed in consultation with the FWS that describes how SESH would identify longleaf pine vegetative communities during construction, and the measures, in addition to those in SESH's Plan and Procedures, SESH would implement to minimize impacts to these areas. (*Section 3.5.2*)
24. **Prior to construction**, SESH shall file, for review and written approval by the Director of OEP, an Exotic and Invasive Species Control Plan developed in consultation with the FWS, LDWF, MDWFP, and ADCNR. This plan shall identify the specific measures that SESH would implement during construction and operation to control exotic and invasive plant species. (*Section 3.5.3*)
25. If construction is anticipated during the colonial nesting bird rookery time restrictions (February 16 to September 1), SESH shall perform a pre-construction survey to determine if the rookery at MP 18.19 is occupied during the construction period. If colonial nesting birds are observed at the rookery, SESH shall contact the MDWFP to determine what measures would be prudent for use at the time of construction. (*Section 3.6.1.5*)
26. SESH shall adhere to all non-discretionary terms and conditions as well as conservation recommendations 1, 2, and 3 as identified in the FWS Biological Opinion issued July 19, 2007 for the proposed Southeast Supply Header Project (*Section 3.7.1.8*)
27. SESH shall adhere to the following eastern indigo snake protection measures:
 - a. If an eastern indigo snake is sighted during construction, the contractor will be required to cease all operation(s) which might cause harm to the snake.
 - b. If the snake does not move away from the construction area, a state or federal snake expert will be contacted to capture and relocate the snake to suitable habitat either adjacent to the Project area or off-site to an acceptable donor site.
 - c. If an eastern indigo snake is killed or found dead within the construction area, the snake shall be frozen and the FWS Jackson Field Office notified immediately for transport and evaluation. (*Section 3.7.1.11*)
28. SESH shall immediately notify the FERC staff and the FWS if bald eagles or their nests are observed within 660 feet of work activities prior to or during construction and shall cease such construction activities until notified by FERC to proceed. (*Section 3.7.1.13*)

29. SESH shall immediately notify the FERC staff and the FWS if interior least terns are observed within 650 feet of proposed waterbody crossings prior to or during construction and shall cease crossing activity until notified by FERC to proceed. (*Section 3.7.1.14*)
30. SESH shall **not begin construction** of the newly identified variations and any tracts of land that have not been surveyed due to landowner denial of access activities until:
 - a. the staff completes Section 7 consultations with the FWS; and
 - b. SESH has received written notification from the Director of OEP that construction or use of mitigation may begin. (*Section 3.7.1*)
31. **Prior to construction**, SESH shall consult further with the LDWF, MDWFP and the ADCNR regarding the need for additional surveys or mitigation to further minimize or avoid potential impacts to state listed species. SESH shall file the results of its consultation, and indicate whether it would adopt any mitigation measures recommended by the agencies, and, as applicable, explain why measures were not adopted. (*Section 3.7.2.4*)
32. **Prior to construction**, SESH shall file a site-specific plan for the residences at MP 261.9. The plan shall include:
 - a. a description of construction techniques to be used (such as reduced pipeline separation, centerline adjustment, use of stove-pipe or drag-section techniques, working over existing pipelines, pipeline crossover, bore, etc.), and include a dimensioned site plan that shows:
 - i. the location of the residence in relation to the new pipeline and, where appropriate, the existing pipelines;
 - ii. the edge of the construction work area;
 - iii. the edge of the new permanent right-of-way; and
 - iv. other nearby residences, structures, roads, or waterbodies
 - b. a description of how SESH will ensure the trench is not excavated until the pipe is ready for installation and the trench is backfilled immediately after pipe installation; and
 - c. evidence of landowner concurrence if the construction work area and fencing will be located within 10 feet of a residence. (*Section 3.8.3.2*)
33. **SESH shall file the following with its Project Implementation Plan:**
 - a. the plans developed in consultation with the FSA for crossing CRP and CREP lands. These plans shall indicate any avoidance, minimization, and mitigation measures identified by the FSA (*Section 3.8.5*);
 - b. the status of the subordination agreements with the NRCS for WRP tracts crossed. (*Section 3.8.5*);
 - c. the status of the special-use permit for the fee title and conservation easement lands crossed. (*Section 3.8.5*); *and*
 - d. the plan, developed in consultation with The Nature Conservancy, to cross the property between MP 209.1 and MP 210.5. (*Section 3.8.5*).

34. SESH shall file documentation of concurrence from the Mississippi Department of Marine Resources and the ADEM that the proposed Project is consistent with the Mississippi and Alabama Coastal Zone Management Plans prior to construction in each state (*Section 3.8.5*).
35. SESH shall defer implementation of any treatment plans/measures (including archaeological data recovery); construction of facilities; and use of all staging, storage, or temporary work areas and new or to-be-improved access roads in areas not previously evaluated of where access was denied **until**:
 - a. SESH files with the Secretary cultural resources survey and evaluation reports; any necessary treatment plans; and the Louisiana, Mississippi and Alabama SHPO comments on the reports and plans; and
 - b. the Director of OEP reviews and approves all cultural resources survey reports and plans, and notifies SESH in writing that treatment plans/procedures may be implemented and/or construction may proceed.

All material filed with the Secretary containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE.” (*Section 3.10.4*)

36. SESH shall make all reasonable efforts to assure its predicted noise levels from the Delhi Compressor Station, Petal Booster Station, and Lucedale Compressor Station are not exceeded at nearby (NSAs or noise-sensitive areas) and file noise surveys showing this with the Secretary **no later than 60 days** after placing the Delhi Compressor Station, Petal Booster Station, and Lucedale Compressor Station in service. Also, SESH shall file noise surveys with the Secretary **no later than 60 days** after placing the Gwinville Compressor Station and Collins Booster Station in service. If the noise attributable to the operation of the Delhi Compressor Station, Petal Booster Station, Lucedale Compressor Station, Gwinville Compressor Station or Collins Booster Station at full load exceeds an L_{dn} of 55 dBA at any nearby NSAs, SESH shall file a report on what changes are needed and shall install additional noise controls to meet the level **within 1 year** of the in-service date. SESH shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*Section 3.11.2.3*)
37. SESH shall finalize its route alignment across the Myers (MP 90.0 to 91.6), Herrin (MP 141.7 to 143.6); Whitehead-Leonard/Seward/Middleton (MP 236.0 to 241.8); and Woolwine properties (MP 145.0 to 146.5) in consultation with the landowners. Final alignments shall be filed with SESH's Implementation Plan for the Project and shall include the status of landowner concurrences. (*Sections 4.4.1, 4.4.4, 4.4.6, and 4.4.12*).