

ALTERNATIVES ANALYSIS GREENS LAKE 3D SWG-2012-00906

Background

Samson Exploration, LLC (Samson), a subsidiary of Samson Energy Company, LLC, is a privately-held oil and gas exploration and production with its headquarters in Tulsa, Oklahoma, a division office in Houston, Texas and principal field office in Liberty, Texas. Samson Energy Company, LLC was formed in December 2011 to continue the development and growth of the oil and gas assets retained by the Schusterman family following the sale of Samson Investment Company to KKR & Co. after 40 years of profitable growth. These assets are located in the Gulf Coast areas of Texas & Louisiana and the Deepwater Gulf of Mexico.

Samson Energy is well capitalized with highly experienced exploration and development teams. This enables the company to invest in its significant asset plays and further expand its portfolio of energy investments. Samson remains focused on providing a rewarding workplace for our employees, profitably growing its business, operating in a safe, environmentally responsible manner, working well with our lessees and surface owners, and giving back to the local communities.

Samson is planning the acquisition of 3D seismic data over areas in Brazoria and Galveston Counties, Texas, and it intends to retain the proprietary survey data to explore the project area and produce any commercial quantities of hydrocarbons discovered in an environmentally responsible and prudent fashion.

Alternatives Analysis

Samson considered several alternatives for accomplishing project objectives during the development of the proposed amendment to the Permit. They are as follows:

1. Conducting the survey using different equipment and methodology: Samson considered utilizing airguns rather than explosives as a source of energy in West Bay to increase spatial coverage over oyster reefs, as the GLO and TPWD has required lesser offset distances from oyster reefs in the past for airgun operations than for explosive charges. Airgun operations would have consisted of a single airgun barge traveling along source lines, emitting energy in the form of compressed air at each source point location. The compressed air released into the water column generates energy that reflects downward to the subsurface formations. This energy reflects off of the subsurface formations and is recorded at the surface with hydrophones. Samson determined that such proposed methodology would not provide Samson with the level of data quality necessary to image the subsurface formations that Samson is targeting. Therefore, this was not a feasible alternative for Samson.

2. Including all areas of interest to Samson in the project outline, regardless of habitat type: Samson's area of interest includes sensitive lands to the east and north of the proposed project outline, including North Deer Island Bird Sanctuary, Galveston Island State Park, Texas City Prairie Preserve, Pierce Marsh Preserve and Restoration Project, John M. O'Quinn Estuarial Corridor, Virginia Point Prairie, and Scholes International Airport at Galveston. Ideally, Samson would like to image these areas; however, doing so would increase the likelihood of direct, indirect, and cumulative impacts to the aforementioned environmentally sensitive areas. Samson determined that this alternative, although preferred from a technical standpoint, is not the most desirable alternative from a resource management standpoint; therefore, Samson modified the project outline to exclude these areas in an effort to minimize impacts to sensitive resources.

3. Proposed Alternative-Amending Samson's Original Greens Lake 3D project outline to exclude environmentally sensitive areas to the east and north and include additional areas of interest for Samson to the west: In the interest of resource protection and impact minimization, Samson's original project outline was amended to exclude sensitive lands in the northern and eastern portions of the area of interest, as indicated in Alternative 2, and to include additional areas of interest to the northwest of the original outline, which consist mostly of rural lands with no known designation as sensitive habitat. Samson's proposed project will allow them to image a large portion of the area of interest, while minimizing impacts to sensitive resources on Galveston Island and mainland areas in Brazoria and Galveston Counties. This alternative represents the least impact feasible alternative for Samson.