

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)  
NOTICE:**

**National Environmental Policy Act (NEPA);** Construction of a Combined Heat and Power (CHP) Cogeneration Facility

**AGENCY:** NASA Johnson Space Center (JSC)

**ACTION:** Finding of No Significant Impact (FONSI)

**SUMMARY:** Pursuant to the NEPA of 1969, as amended (42 U.S.C. 4321, *et seq.*); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508); and NASA policy and procedures (14 CFR Part 1216, Subpart 1216.3); NASA is issuing this FONSI with respect to the construction and operation of a CHP facility at the JSC. The Proposed Action would include the addition of a CHP facility within an expansion of Building 24, the primary central steam generation plant on the JSC campus. The installation of the CHP facility will require a 9,240 square feet addition on the north end of the building, as well as ancillary equipment including a dedicated high pressure natural gas pipeline, a 12,000-gallon ammonia tank, and connectivity to existing infrastructure.

**DATE:** December 12, 2013

**ADDRESS:** The Final Environmental Assessment (EA) that serves as the basis for this FONSI may be viewed at the following locations:

- JSC Industry Assistance Office, Building 111, 2101 NASA Parkway, Houston, TX 77058 from 7:30 a.m. to 4:00 p.m.
- Clear Lake City – Harris County Freeman Branch Public Library, 16616 Diana Lane, Houston, TX 77062

A limited number of copies of the Final EA are available by contacting Mr. David Hickens, Chief, NASA-JSC Environmental Office at JSC, MC-JE, 2101 NASA Parkway, Houston, TX 77058 or by E-mail: [david.hickens-1@nasa.gov](mailto:david.hickens-1@nasa.gov)

**FOR FURTHER INFORMATION CONTACT:**

Charles F. Webster at 281-483-2112 or by E-mail: [charles.f.webster@nasa.gov](mailto:charles.f.webster@nasa.gov)

**SUPPLEMENTAL INFORMATION:** NASA has finalized the EA for the construction and operation of the CHP facility. The Final EA concludes that an accurate and appropriate analysis of the scope and level of associated environmental impacts has been completed. A summary of the findings is provided below.

## Public Involvement

NASA solicited public and agency review and comment on the environmental impacts of the Proposed Action through:

1. Publishing notices of availability of Draft EA in local newspapers;
2. Making the Draft EA available for review at local public libraries;
3. Publishing the Draft EA on the JSC Environmental Office Web site; and
4. Consulting with Federal, state, and local agencies.

Appendix A includes a distribution list of contacts that received an announcement of the intent to prepare this EA, as well as all responses and comments. A response from the USDA National Resources Conservation Service (USDA-NRCS) was received on September 23, 2013 indicating no significant adverse impact on the environment. No other agency input was received prior to the publication of this EA.

## Purpose and Need for the Project

NASA – JSC is proposing to construct a CHP facility as an Energy Savings Performance Contract (ESPC) project to reduce energy use, increase energy efficiency, provide energy surety, and decrease green-house gas emissions. This action meets the requirements of the Energy Independence and Security Act, 2007, and Executive Orders 13423 and 13624.

## Alternatives Considered

The EA addresses the construction and operation of a CHP facility, ancillary facilities, and a dedicated natural gas pipeline, and describes the potential impacts from the No Action Alternative, one Alternative Action (siting the CHP facility in a different portion of the JSC campus), and the Proposed Action.

Under the No-Action Alternative, the CHP facility and ancillary equipment would not be constructed at JSC. As a result, NASA would not achieve the necessary improvements in energy efficiency outlined in Executive Orders 13423 and 13624. JSC would continue to utilize the existing steam generation system and rely on additional energy inputs from the local electrical grid. Annual purchased energy usage and cost would continue at current levels. Therefore, the no action alternative would result in the following impacts when compared to the proposed action:

- 28.7 percent greater combined site and source energy usage (616 million BTU per year)
- Additional annual energy costs of approximately \$4.2 million
- Lack of reduction in energy intensity reduction metrics from 226,934 BTU/GSF to 102,317 BTU/GSF.
- Additional combined site and source CO<sub>2</sub> emissions of 29,122 metric tons

An alternative to constructing the proposed CHP system at Building 24 is the construction of the CHP facility at another location within the JSC campus. The most logical alternative site was identified adjacent to the Building 221 electric substation at JSC. If the CHP facility were located at this site, the construction would require a completely new building and considerable

additional infrastructure that would not be required under the Proposed Action. The new building for the Alternative Action would also require a construction footprint in previously undeveloped areas. This would result in the fill and disturbance of a much larger area than the Proposed Action, and would have a greater potential to impact biological resources in the area. Additionally, this alternative would be substantially more expensive than the Proposed Action, as the alternative does not make use of the existing infrastructure and steam plant. The modifications to the existing infrastructure at Building 24 would be less cost and resource intensive than constructing a completely new structure and steam plant.

**SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS:** A full comparative discussion of environmental effects of all Alternatives is contained in the Final EA. Potential environmental impacts resulting from NASA's Proposed Action/Preferred Alternative are summarized below:

**Geology and Soil Resources:** Disturbed soils could be removed during construction by wind or precipitation during storm events. Any losses would be expected to be minor as NASA would implement strict erosion and sediment controls. Inadvertent spills or leaks from construction equipment could adversely affect soils. NASA would require its contractors to implement Best Management Practices (BMPs) for equipment fueling, storage and maintenance. Implementation of spill prevention and control measures would also be required prior to starting work. Due to the small construction area and minimal ground disturbance, the effects on soil resources would be expected to be highly localized and have negligible impacts on the environment. There are no anticipated impacts to geological resources.

**Water:** There is potential for minor impacts from storm water runoff entering drainage ways during land-disturbing construction activities. To mitigate potential effects, construction would comply with JSCs established Storm Water Pollution Prevention Plan (SWPPP). In addition, a site-specific Sedimentation and Control Plan for the lay-down yard and any ground disturbance activities would be implemented. During operation of the facility, NASA would ensure that the facility complies with BMPs established in the JSC SWPPP to ensure that post-construction runoff quality and quantities meet state and Federal standards. The proposed facility would not be located within a wetland or floodplain and would not be expected to impact these sensitive resources.

**Biological Resources:** The developed, landscaped area that would be converted to the proposed project provides marginal plant and wildlife habitat. The intensive landscape maintenance, proximity to a high traffic area, and very small size of the area described make this habitat undesirable for most species, including migratory birds protected by the Migratory Bird Treaty Act. It is anticipated that most wildlife species would be able to avoid the construction disturbance associated with the proposed project by relocation to adjacent minimally disturbed areas. In addition, JSC carefully protects all nesting areas on the campus, including in construction areas. Should a nest be discovered in the immediate CHP construction area, BMPs could require up to temporary cessation of construction until fledging occurs. Impacts to wildlife and migratory species from construction activities are anticipated to be negligible to minor.

In 2005, JSC licensed 1.7 acres of land to the Houston Zoo for the siting of their Attwater's prairie chicken (APC) captive breeding program. The captive breeding facility is located

approximately 3,900 feet (0.73 mile) from the proposed project location. APCs are held captive within the facility and their eggs are moved to the zoo before hatching. The chicks are released to the wild and the species does not occur within the project area. The small scale of the project and distance from the APC breeding facility would result in no effect to the Attwater's prairie chicken. The proposed action would likewise have no impacts on designated preferred habitat or preferred threatened and endangered species.

**Air Quality:** The proposed action does not result in a net increase of emissions above the major modification thresholds as outlined in 30 TAC §116.150 for Nonattainment New Source Review for areas designated as in severe non-attainment for ozone. Therefore, the proposed action complies with the general conformity requirements by complying with the State Implementation Plan approved program. Implementation of the proposed project would have both short-term and long-term negligible impacts to air quality. Short-term adverse effects would result from dust and air emissions during construction. Minimization of dust emissions during construction; however, would be achieved through the use of best management practices. Replacing the existing utility plant at JSC with a more efficient CHP facility that reduces criteria pollutant emissions and results in a net decrease in combined site and source GHG emissions would result in a long term beneficial effect on air quality.

**Noise:** Construction activities could temporarily increase noise levels. NASA would comply with local noise ordinances and state and federal standards and guidelines for potential impacts on humans caused by construction activities, rendering impacts from construction noise both minor and temporary. Operational noise levels outside of the proposed facility would be below the existing limits established in JSC's municipal noise permits. Therefore, noise generated from the proposed action would be expected to have negligible impacts.

**Land Use:** Construction of the CHP facility would be consistent with existing land use and the JSC Master Plan; therefore no adverse impacts would occur.

**Cultural and Historic Resources:** Some JSC historic resources are located within the visual Area of Potential Effects (APE) of the proposed project. The proposed project location; however, is not visible from either of JSC's National Historic Landmarks, the Mission Control Center (Building 30) or the Space Environment Simulation Lab (Building 32). Therefore, no visual impacts to the National Historic Landmarks or NRHP-eligible properties would be anticipated. No recorded archaeological sites are located within the Center. Because the project footprint would require minimal ground disturbance and the majority of the JSC was graded and leveled during construction in 1961, no sub-surface archeological resources would be anticipated to be impacted. Therefore, overall impacts to historic resources would be expected to be minimal.

**Socioeconomics and Environmental Justice:** Review of local community demographics indicate that disproportionately high or adverse impacts to low-income or minority populations are not anticipated. The proposed action is not expected to trigger changes in the socioeconomics of the community surrounding JSC.

**Transportation:** Temporary minor increases in traffic due to construction would be anticipated as a result of the proposed action. The impacts of increases in traffic would be mitigated through coordination and the use of traffic management BMPs. Impacts to traffic would be temporary and are unlikely to significantly impact on traffic outside of JSC.

**Hazardous Materials and Waste Management:** No hazardous materials would be anticipated to be generated by the construction of the CHP facility. Small amounts of construction debris would be generated and either be recycled or properly disposed. Overall impact of construction waste would be negligible.

**Cumulative Impacts:** Based on ongoing and future projects as included in the JSC Master Plan, construction of the CHP facility could contribute to cumulative adverse effects on traffic and noise levels within JSC during construction, but the scale and short-term nature of these impacts would have no more than a negligible cumulative effect. No cumulative impacts would be expected during facility operation; therefore, long-term cumulative impacts to environmental resources would not be expected to be significant.

**Conclusion:** NASA has identified no other potential environmental impacts resulting from the Proposed Action. Therefore, based on the Final EA for the construction and operation of the CHP facility and ancillary equipment, NASA has determined that the environmental impacts associated with the Proposed Action would not individually or cumulatively have a significant impact on the quality of the environment. Therefore, an environmental impact statement is not required.

*for* Melanie Saunders 3-26-14  
Ellen Ochoa, Director Date  
Johnson Space Center