PMC-EF2a

(2.04.02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: NREL

STATE: CO

PROJECT TITLE : Hydrogen Generation and Fueling Station on the STM Campus; NREL 12-013

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	NREL-12-013	GO28308

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B1.15 Support buildings Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or recreation activities; routine maintenance activities; storage of supplies and equipment for administrative services and routine maintenance activities; security (such as security posts); fire protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.

DOE/EA 1440 (NREL STM) Final Site-Site Wide Environmental Assessment of the National Renewable Energy Laboratory's (NREL) South Table Mountain Complex (February 2003)

Rational for determination:

BACKGROUND

This proposed project would be for the purchase, installation, and operation a hydrogen generation and fueling system (HGFS) at the Vehicle Testing and Integration Facility (VTIF) located at the National Renewable Energy Laboratory's (NREL's) South Table Mountain (STM) campus in the Golden, Colorado. The proposed project would also include tying the hydrogen generation and fueling station into existing infrastructure and utilities at the VTIF, as well as adjusting the final site plan to accommodate a solar charging station addition. Developing this site with the dispenser near the planned electric vehicle charging station and solar canopy would create a complete electric vehicle fueling solution for battery electric vehicles, plug-in hybrids, and fuel cell electric vehicles.

PROPOSED ACTION

The proposed hydrogen generation and fueling station would be located at approximately 39.7425°N, 105.1763°W, which is adjacent to northwest corner of VTIF between the mesa top/slope conservation easement area and the main STM campus on fill material deposited at that location from the construction of the Field Test Laboratory Building (FTLB) in 1984. This site is within Site Development Zone 4 (Central Campus) of the NREL STM, and at completion the entire site would hold the VTIF, the solar charging station and the hydrogen generation and fueling system.

The proposed hydrogen generation and fueling system that NREL would purchase is currently located in Minot, North Dakota. The existing hydrogen production system was built by Hydrogenics and consists of the following main components: Hydrogen Production System, Gas Control Panel, Hydrogen Storage Assembly and Hydrogen Fueling Dispenser. The hydrogen generation station operates on alkaline electrolyzers and can produce 64 kg of hydrogen per day. The station includes 350-bar storage, capable of holding up to 80-kg of fuel, arranged in a three-stage cascade to allow for quick filling. This facility would provide a new capability at the STM and is very similar to the hydrogen facility at the NWTC.

Based on the preliminary layout (See PMC attached file: "EPC H2 Prelim Layout"), the larger pad would contain the storage tanks and an ISO storage building (40'6"L by 8'8"W by 8'H) containing the hydrogen generation equipment including the electolyzers, gas control panel, and any other associated equipment. Several layouts have been proposed based on setback constraints that must be maintained (see PMC attachment "120426 Site Layout options compressed.pdf"). The site layout constraints would include: 1) the main tank valve of the storage tanks cannot be within 30 feet of an HVAC intake; 2) the hydrogen tanks should not be within 30 feet of the storage tanks for safety reasons; and 3) a fire break must be maintained by providing a 40 foot setback or concrete walls about 4 foot high.

With the walls, the setback for fire can be adjacent to the tanks with only enough clearance for maintenance (3 to 4 feet). Based upon this, the various potential layouts would include: 1) placing the equipment on a square pad (1,000 SQFT) that is centered with the HVAC intake of the ISO building being 30 feet from the main storage tank valve; 2) using an "L"-shaped pad with the ISO building oriented 90 degrees to the tanks and maintaining the 30 foot HVAC setback making the footprint slightly larger at 1,072 SQFT; or 3) some combination of the two. This pad would either be a concrete pad or steel structure supported by concrete piers whichever provides the most stability for the equipment. The smaller pad (low ohm - antistatic) would contain the hydrogen fueling dispenser. This pad would not have the setback restrictions that the other larger pad would have, but would have to be accessible to vehicles.

A fence would be erected around the HGFS facility as requested by NREL security. This would be a green chain-link fence (8 FT max) similar to fencing around the mesa top solar array. As stated above, a fire break or buffer areas would be developed to reduce fire danger to the facility and from the facility. That buffer may be a graveled area 30 to 40 feet from each pad or a combination of maintained vegetation and gravel. In areas where slope does not allow for gravel, the buffer would be achieved by a concrete wall. This may be combined with the security fencing, such as placing fencing on top of wall or adjacent to the outside of the wall.

PRIOR NEPA DETERMINATIONS

The proposed area for this development is one of the areas of the STM campus identified in the NREL Master Plan as developable. The development of this area, within Site Development Zone 4 – Central Campus), the construction and operation of vehicle test research facilities, as well as alternative fueling stations, were included and assessed in the July 2003 Site-Wide Environmental Assessment of the National Renewable Energy Laboratory's South Table Mountain Complex (DOE/EA-1440) with a Finding of No Significant Impact (FONSI) determined in July 2003. The construction and operation of the VTIF, including the solar panel vehicle charging stations, was originally reviewed in NREL-09-024 signed 8/9/2011. Both DOE/EA-1440 and NREL-09-024 hereby are incorporated by reference.

IMPACTS OF PROPOSED ACTION

Grading and excavating would be required for this project and an estimated total of 2,000 SQFT would be disturbed during construction. The permanent footprint for this project would be approximately 1,293 SQFT including the large pad (1,022 to 1,072 SQFT) and the small pad (270 SQFT). A utility trench (80'x 3'=240 SQFT) would be used to convey piping to the smaller pad and would be constructed of concrete with an access panel on top running the length of the trench. A wildfire buffer would be required and may be maintained vegetation or a graveled area or both extending a certain distance from the two pads (see attached PMC file "HydrogenGenStationLayout_Fire.pdf"). This break could only be done in the flat areas of the site. Should the required buffer area extend beyond the flat portion of the site, a concrete wall may be installed to maintain slope stability but also provide fire protection. A balance could be struck between graveling the entire area, maintaining short vegetation and the concrete walls, which is preferred by the project management team. Any vegetation maintained within the fire buffer would need to be mowed periodically. Should the entire area be graveled out 40 FT from the main pad, the project impact would be much greater, from an estimated 1,293 SQFT for a permanent footprint to 13,166 SQFT (124' x 104' = 12,896 SQFT + 270 SQFT (small pad) = 13,166 SQFT or 0.3 acres). Remaining disturbed areas, including the trench, would be restored and reseeded in accordance with NREL Lab Level Procedure 6-2.15 Stormwater Pollution Prevention for Construction Activities: South Table Mountain Site.

Although the Middle Drainage is adjacent to the project location, no dredge or fill of Waters of the U.S. (WOUS) including wetlands or seeps is anticipated and stormwater BMPs would be used as prescribed through the SWPPP required of the contractor per NREL procedures. Additionally, the U.S. Army Corps of Engineers identified no jurisdictional wetlands and no WOUS at the STM site in a recent jurisdictional determination. However, to protect the drainage swale and associated woody vegetation, a 100 FT buffer would be maintained from the center line of the middle drainage. Also, to provide long-term conservation of the drainage swale and to minimize erosion from this site, the entire study area including the HGFS, VTIF and, solar charging station would be designed to withstand and detain a 100-year storm event. Additionally, the integrity of the side-slopes leading to the middle drainage would also be maintained.

The proposed project site (the Bone Yard) is an area north of the FTLB at the foot slope of South Table Mountain and is comprised of a relatively flat acre of land. The Bone Yard area was created from excavated soil removed during construction of the FTLB. Because the FTLB location was historically a backstop for a shooting range during the former Camp George West era, there was concern that the excavated soils could contain unsafe levels of lead as a result of the shooting range activities. Results of total lead analysis for the soil samples collected at the Bone Yard area in 2009 ranged from 15 to 29 mg/Kg (ppm). This concentration range is similar to typical soil background levels and is well below any regulatory limit or levels considered hazardous to health by the EPA (400 mg/Kg).

Fugitive particulate emissions from the construction would be controlled in accordance with the existing STM land disturbance air permit (APCD# 08JE0889L), including mitigation measures like dust suppression. The construction phases would require the utilization of mobile point emission sources, such as front-end loaders, scrapers, paving machines, and dump trucks, but these emissions would be negligible given the size and duration of the construction activity.

There are no historic properties directly affected by this proposed action. The development of this area, within Site Development Zone 4, was analyzed under the 2003 Site-wide Environmental Assessment (DOE/EA-1440) which included formal consultations with the State Historic Preservation Office (SHPO). This proposed action would not impact the amphitheater, foot-bridge, or ammunition igloo. An additional archaeological review of the proposed site disturbance for the VTP was also conducted in March 2010 by RMC Consultants, Inc. and reconfirmed that there would be no impact to historic properties or cultural resources.

In the 2010-2011 site-wide wildlife survey, no threatened, endangered, or candidate wildlife species were observed at STM, nor was habitat for such species identified. Similarly, the vegetation survey during the same time period found no rare plants or habitat that may support federally protected plant species in the area proposed for this project. A migratory bird nesting survey would be conducted prior to any ground or vegetation disturbing activities if these activities are conducted after March 15th and before September 15th. This would ensure that no migratory birds, nests or eggs are destroyed during construction.

There would be noise typical of construction equipment, such as front-end loaders, graders, paving machines, dump tricks and pickup trucks during construction. Work would be conducted only during daylight hours. Construction-related noise would consist of a short-term increase in ambient noise levels. Noise impacts would vary with the phase of construction and occur intermittently. Construction activities would comply with applicable noise ordinances.

Construction and operation of HGFS would comply with existing NREL safety protocols and procedures.

There is a public concern regarding aesthetics, visible development on the slope and top of South Table Mountain, and light pollution. In order to minimize visual impacts, lighting at the Hydrogen Generation and Fueling Station would consist of low intensity lamps, directed away from the Middle Drainage and shielded to prevent light from projecting skyward. The proposed facility at the VTIF would be toward the back northwest corner of the parcel, furthest away from the shoulder of the slope. Therefore, the hydrogen facility would not be visible from Denver West Blvd or any adjoining neighborhoods. With installed equipment, the tallest structure of the facility would be the ISO building (8' tall) with equipment installed on top (up to 5' in addition). This would result in a maximum height of 13 feet. The storage tanks are much shorter as would be the security fencing, and any fire-proof walls. The view of this proposed infrastructure would largely be blocked from viewsheds by the existing VTIF.

NEPA DETERMINATION
Based upon the information above, the proposed action is within the bounds of the DOE/EA-1440, and its FONSI would apply. Additional support infrastructure not implicitly bounded by DOE/EA-1440 would qualify for Categorical Exclusion (CX) B1.15.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

EF2a prepared by Rob Smith on 6/5/2012 and modified on 6/7/2012.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By Lori Gray / Lori Gray Date: 6/8/2012
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.