

PMC-EF2a

(20102)

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



RECIPIENT: GR Silicate - Tacoma

STATE: WA

PROJECT TITLE : GR Silicate: Expansion of Existing Prototype Silicate Nano-Fiber and Super Precipitated Calcium Carbonate Plant

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-000052	EE0000139	GFO-0000139-035	EE139

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:

B1.31 Installation or relocation of machinery and equipment

Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

B3.9 Projects to reduce emissions and waste generation

Projects to reduce emissions and waste generation at existing fossil or alternative fuel combustion or utilization facilities, provided that these projects would not have the potential to cause a significant increase in the quantity or rate of air emissions. For this category of actions, "fuel" includes, but is not limited to, coal, oil, natural gas, hydrogen, syngas, and biomass; but "fuel" does not include nuclear fuel. Covered actions include, but are not limited to: (a) Test treatment of the throughput product (solid, liquid, or gas) generated at an existing and fully operational fuel combustion or utilization facility; (b) Addition or replacement of equipment for reduction or control of sulfur dioxide, oxides of nitrogen, or other regulated substances that requires only minor modification to the existing structures at an existing fuel combustion or utilization facility, for which the existing use remains essentially unchanged; (c) Addition or replacement of equipment for reduction or control of sulfur dioxide, oxides of nitrogen, or other regulated substances that involves no permanent change in the quantity or quality of fuel burned or used and involves no permanent change in the capacity factor of the fuel combustion or utilization facility; and (d) Addition or modification of equipment for capture and control of carbon dioxide or other regulated substances, provided that adequate infrastructure is in place to manage such substances.

Rational for determination:

DOE is proposing to provide \$1,400,000 in SEP funding to the Washington Department of Commerce, sub-recipient GR Silicate, to relocate and expand the nano-fibers and carbonates operations to commercial scale. DOE funding would be used for feasibility studies, design, construction, capital purchase, equipment installation and modification, transportation and relocation, oversight and management of construction and permitting of the facility.

The GR Silicate facility is currently located at Grays Harbor Paper in Hoquiam, Washington. The expansion of this facility to a full commercial-scale facility was categorically excluded under award number EE0000139 on 5.26.2010 (CX B5.1). GR Silicate is now proposing to relocate the facility. This NEPA determination applies to the relocation of GR Silicate to an existing Port of Tacoma facility on Commencement Bay, Pierce County, Washington (401 E Alexander Ave, Building 532, Tacoma, Washington 98421).

The GR Silicate facility was originally built using funds from DOE grant number DE-FC36-013ID14439. Current operations consist of a diatomaceous earth slurry tank; a lime slaking/slurry tank; a 5,000 gallon, 200 psig reactor; a product screening system; and product storage. The reactor is capable of producing batches of Scaleno-hedral Precipitated Calcium Carbonate (S-PCC) and certain silicate nano-fiber products. A number of the silicate nano-fiber products require higher temperature and pressure than the current reactor rating and currently cannot be produced outside of the laboratory. The current single reactor system also cannot produce sufficient quantities for continuous production runs and cannot take advantage of potential energy (heat) recovery opportunities.

DOE funding would be used to add two more reactors that are capable of producing silicate nano-fibers at 600 psig and 500°F in quantities suitable for continuous paper production at the Port of Tacoma facility. The existing reactor would be dedicated to production of S-PCC only. The CO₂ source for the S-PCC production would be changed from using liquid CO₂ to using CO₂ from the No. 8 Hog Fuel Boiler flue gas. According to the sub-recipient, this would remove approximately 7,329 tons per year of CO₂ from the boiler emissions, captured as calcium carbonate, and used in the manufacturing process.

The proposed project would be located in the Earley Business Center owned by the Port of Tacoma. The proposed location is highly developed and is zoned industrial (F-1). The surrounding neighbors include manufacturing facilities, boat/yacht building facility and a propylene distribution system. The proposed site currently contains a steel warehouse with concrete roads, pavements, storm drains, water, power, and sewer systems. The proposed site has access to rail lines, large container ships and small barges. GR Silicate would utilize two bays that are each 7,325 square feet (145 feet (l) X 47.5 feet (w) X 40 feet (h)).

Construction: The proposed project would require an area of less than one acre to be excavated in order to install a concrete slab to support reactors, storage tanks and other equipment as well as supports for piping and conduits. An estimated 200 cubic yards of excavated material would be removed for fill off-site. Currently, the site consists of only cement/concrete, which would also be the case after construction. A temporary sediment and erosion control plan would be developed for construction activities. The construction contractor would use best management practices for the control of erosion and the prevention of sediment flow into the storm drains.

Air Emissions: During construction, there would be diesel emissions, industrial dust and welding emissions. During normal operations, emissions would be limited to steam, silica dust and quicklime dust. There would be an on-site dust collection systems. Two would be dedicated to the unloading of the raw materials (one for quartz and one for quicklime) and two more for the bagging of products (one for silicates and one for carbonates). The CO₂ released from the natural gas boiler would be captured and reused in the manufacturing process.

Stormwater: Stormwater from containment areas around the silos and storage tanks would be collected in blind sumps. The collected water would be tested for contamination. If no contamination is found (per the Department of Ecology specifications) the stormwater would be pumped to the Port of Tacoma stormwater collection system. If contamination is found, the stormwater would be pumped to the liquid effluent pre-treatment system to be discharged to the City of Tacoma sanitary sewer.

Noise: Noise from the pumps, pressure system discharges, baghouses, vacuums and boilers would be intermittent and occur only during normal operating hours. The louder equipment, including compressors, would be in contained areas for noise reduction.

Traffic: The proposed project would utilize the adjacent rail line for the delivery of raw materials. An average of one rail car would arrive every other day. The proposed project is also expected to generate between four and five vehicular trips per day. These trips would occur during normal business hours.

Threatened and Endangered Species: The Washington Department of Fish and Wildlife (WDFW) provided a Priority Habitat and Species list for the proposed site. Priority Species known to be near this site include: Burrowing Owl, Cavity Nesting Duck, Common Loon, Ferruginous Hawk, Great Blue Heron, Peregrine Falcon, Pileated Woodpecker, Purple Martin, Sandhill Crane, Vauxs Swift, Eagles, Dungeness Crab and others. Because construction of the concrete slab would be temporary and the rest of the proposed project would take place within the facility, DOE has determined the proposed project would have no effect on threatened and endangered species in the project vicinity.

Wetland/Floodplain: The proposed site is not located in a wetland or floodplain. It is located 200 feet south of two man-made water channels used by ships and barges: Blair Waterway and Hylebos Waterway.

GR Silicate is applying for revisions to their existing permits and has since received the following permits/consultations for the proposed Port of Tacoma site:

- Washington SEPA: Port of Tacoma - SEPA Determination of Non-Significance, 8/30/2011.
- Washington SHPO: "No Historic Properties Affected" finding, Log No:091911-13-DOE, 9/19/2011
- Washington Department of Ecology: Project is "consistent" with Washington's Coastal Zone Management Program 9/19/2011.

GR Silicates is in the process of obtaining the following permits:

- Puget Sound Clean Air Agency (PSCAA) - Notice of Construction - Air Permit
- Industrial Stormwater Permit
- Industrial Water Pre-treatment Permit
- City of Tacoma Building Permit
- Pierce County Health Permit

Based on this information, DOE has determined the work outlined is consistent with activities identified in categorical exclusion B1.31 (installation and relocation of machinery and equipment) and B3.9 (projects to reduce emissions).

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

Cristina Tyler 11.15.2011

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: 
NEPA Compliance Officer

Date: 11/16/2011

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.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____
Field Office Manager

Date: _____