PMC-EF2a
(2.04.02)

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

RECIPIENT: MEMC Electronic Materials, Inc. **STATE:** MO

PROJECT TITLE : High Quality, Low Cost Bulk Gallium Nitride (GaN) Substrates Grown by the Electrochemical Solution Growth Method

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000560	DE-EE0005755	GFO-0005755-001	GO5755

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:

A9 Information gathering, analysis, and dissemination	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
B3.6 Small-scale research and development, laboratory operations, and pilot projects	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to MEMC Electronic Materials, Inc. MEMC would conduct research and development activities for a two phase project to develop a new process method for growing large bulk gallium nitrate (GaN) crystals at low cost with improved functional properties. DOE funding would be used for the refinement of laboratory scale processes, analysis, computation flow models and the demonstration of a pilot scale electrochemical reactor capable of growing GaN crystals.

In Phase I, laboratory work would be conducted at the MEMC Facility in Building K70, 501 Pearl Drive, St. Peters, Missouri 63376. An existing room would be retrofitted for laboratory work, including a hood and glove box. MEMC has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. The laboratory would comply with standard safety procedures and all processes and procedures are monitored by MEMC corporate Environmental Health and Safety (EHS) auditors. All handling and disposal of gases and chemicals would be executed by EHS personnel who comply with appropriate regulations of OSHA. Current permits for air, water, waste, and large quantity generator hazardous waste are in place and no additional permits would be required:

- Missouri Intermediate Air Permit OP2006-077
- City of O'Fallon Industrial Wastewater Pretreatment Permit 1001-9
- NPDES Permit MO0000299
- EPA Generator ID MOD001700673

In Phase II, laboratory work would be conducted at Bunger-Henry Building at the Georgia Institute of Technology, 778 Atlantic Dr. NW, Atlanta GO 30332. Georgia Tech has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. The laboratory complies with standard safety procedures and all processes and procedures are monitored by the Georgia Tech EHS office and are subject to OSHA standards. All handling and disposal of gases and chemicals are executed by EHS personnel who comply with appropriate regulations of OSHA. Current permits for air, water, waste, and large quantity generator hazardous waste are in place and no additional permits would be required.

Based on review of the project information and the above analysis, DOE has determined the research would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and

dissemination" and B3.6 "small-scale research and development, laboratory operations and pilot projects," and is categorically excluded from further NEPA review under CX A9 and B3.6.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

Kelly Daigle 8.16.2012

DOE Share: $3,680,000
Cost Share: $920,000
Total: $4,600,000

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Lori Gray / Lori Gray Date: 8/20/2012
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.

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

Field Office Manager's Signature: _____ Date: _____
Field Office Manager