

PMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**

**RECIPIENT:** Applied Materials, Inc.**STATE:** CA**PROJECT TITLE** Epitaxial-Silicon Wafer Integrated Process Line

| | | | |
|--|--------------------------------------|----------------------------|-------------------|
| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
| DE-FOA-0001225 | DE-EE0007203 | GFO-0007203-001 | |

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. |

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Applied Materials, Inc. to develop lab-scale wet and dry processes and equipment for porous silicon film formation and silicon deposition, wafer exfoliation, wafer post-processing and substrate reclaim for solar photovoltaic (PV) cell and module applications.

The proposed project activities would include installation and operation of a chemical vapor deposition tool, electrochemical wafer etching and cleaning, and analysis of wafer characteristics which would occur at the Applied Materials process and equipment laboratory in Santa Clara, CA. Substrate cleaning, preparation and porous silicon formation-related work using a wet bench would be conducted at the Engineered Solutions facility in Sunnyvale, CA.

The project would involve the use and handling of various hazardous chemicals and gases. The Applied Materials facility is permitted for using the necessary gases and chemicals and producing the associated waste products and equipped with the appropriate cylinder storage, piping, secondary containment, alarms, and emergency response and mitigation plans. The Engineered Solutions site is equipped for the storage and use of wet bath chemicals and is permitted for waste products handling. Applied Materials would follow rigorous protocols for use and handling of hazardous chemicals, including extensive employee training, use of appropriate personal protective equipment (PPE) and engineering controls, monitoring, and internal assessments to protect both people and property. Applied Materials currently utilizes a contractor for collection, handling and disposal of hazardous and non-hazardous liquid and solid waste at these sites. Any emissions into the ambient air after going through tool-specific, point-of-use, and building wastewater treatment and abatement systems would be within permitted limits per the Bay Area Air Quality Monitoring District (BAAQMD).

The facilities in which lab work would occur are purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project. No change in the use, mission or operation of existing facilities would arise out of this effort. The facilities have all applicable permits in place, and would not need additional permits for the proposed activities.

Based on review of the project information and the above analysis, DOE has determined that the proposed project

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.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:
Solar Energy Technologies Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Logan Sholar on 4/26/2016

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Electronically Signed By: Kristin Kerwin

Date: 4/29/2016

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:

Field Office Manager

Date: