National Aeronautics and Space Administration

**Goddard Space Flight Center**
Greenbelt, MD 20771

January 13, 2014

Reply to Attn of 420

MEMORANDUM FOR THE RECORD

The National Environmental Policy Act Compliance for Deep Space Climate Observatory (DSCOVR)

## 1.0 Introduction

The National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321, *et seq.*), requires Federal agencies to consider the environmental impacts of a project in their decision making process. To comply with NEPA and associated regulations (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 has prepared an Environmental Assessment (EA) for routine payloads launched on expendable launch vehicles (Ref: *Environmental Assessment for Launch of NASA Routine Payloads*, November 2011). The 2011 NASA Routine Payload Environmental Assessment (NRPEA) assesses the environmental impacts of missions launched with spacecraft that are considered routine payloads from existing launch facilities at Cape Canaveral Air Force Station (CCAFS), Florida, Vandenberg Air Force Base (VAFB), California, the United States Army Kwajalein Atoll/Reagan Test Site (USAKA/RTS), Republic of the Marshall Islands, Wallops Flight Facility (WFF), Virginia, and the Kodiak Launch Complex (KLC), Alaska.

Spacecraft defined as routine payloads utilize materials, quantities of materials, launch vehicles, launch sites, and operational characteristics that are consistent with normal and routine spacecraft preparation and flight activities at CCAFS, VAFB, USAKA/RTS, WFF, KLC, and the Kennedy Space Center. The environmental impacts of launching routine payloads from these sites fall within the range of routine, ongoing, and previously documented impacts that have been determined not to be significant. Spacecraft within the scope of this EA meet specific criteria ensuring that the spacecraft, its operation and decommissioning, do not present any new or substantial environmental or safety concerns.

To determine the applicability of a routine payload classification for a mission, the mission is evaluated against the criteria defined in the EA using the Routine Payload Checklist (RPC).

## 2.0 Mission Description

Space weather forecasting is a critical service for the Nation. Without timely and accurate alerts and warnings, space weather events have demonstrated the potential to disrupt virtually every major public infrastructure system, including transportation systems, power grids, telecommunications, and Global Positioning System (GPS). Our national security and economic wellbeing, now dependent on advanced technologies, are at significant risk without accurate advanced warnings of impending geomagnetic storms. Aircraft that fly polar routes now include space weather as an integral part of the pilot's weather pre-brief, which provides the current status of the flight environment including potential impacts to critical communication and navigation systems, and the potential for hazardous solar radiation exposure to passengers and crew. The frequency and intensity of geomagnetic storms will increase significantly with solar maximum in 2013 and for several years beyond. Strong storms with the potential to impact critical elements of our Nation's infrastructure can occur over 100 times during a solar cycle. The Nation's advanced technology service providers will be looking to NOAA for alerts, watches and warnings needed to protect lives and livelihood and ensure continuity of critical operations.

The only currently operational source of data for geomagnetic storm warnings are solar wind observations obtained near the Sun-Earth line provided by NASA's Advanced Composition Explorer (ACE – launched August 25, 1997), located ~240 Re upstream of the Earth, providing a 15-60 minute advance warning. Without immediate action, the Nation is at risk of losing its most critical observational data source when the 15 year old NASA ACE spacecraft fails. The high risk of space weather data unavailability is perhaps one of the most serious gaps in NOAA's space weather services. The DSCOVR mission will meet this need.

DSCOVR is a mission designed to monitor and warn of harmful solar activity that could impact Earth. The primary science objective of the DSCOVR mission is to provide solar wind thermal plasma and magnetic field measurements to enable space weather forecasting by NOAA. Specifically, DSCOVR will continue the solar weather measurements of the magnetic field and plasma sensors aboard NASA's ACE satellite. NOAA will provide critical space weather forecasting using DSCOVR data by supplying geomagnetic storm warnings to support key industries such as commercial airline, electric power, and the GPS industries.

DSCOVR will orbit at the first Lagrange Point (L1) between the Earth and the Sun (approximately one million miles away from Earth towards the sun). At this location, the satellite will measure solar storms before they reach the planet. NOAA will then be able to give advanced warning of approaching solar storms with the potential to cripple electrical grids, communications, GPS navigation, air travel, satellite operations and human spaceflight. Experts estimate damages from severe solar storms could potentially range between $1- $2 trillion.

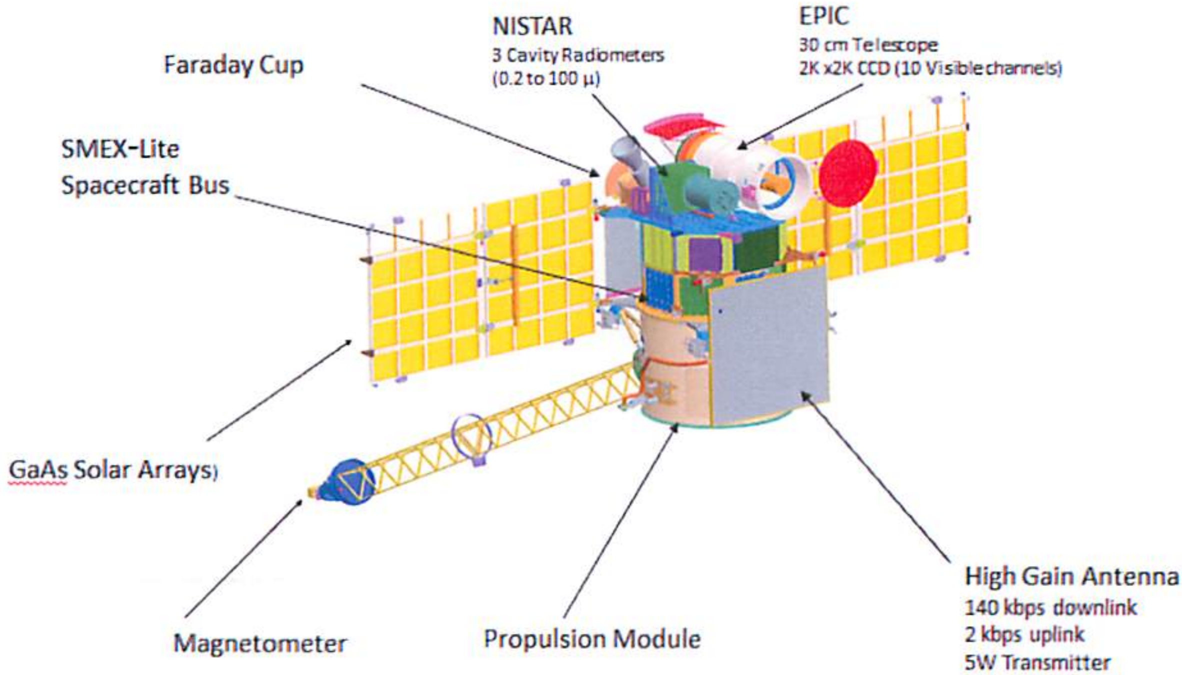
The DSCOVR mission is a partnership between NOAA, NASA and the U.S. Air Force. NOAA has overall responsibility for the mission along with ground processing, data processing and archiving systems. NASA is the implementing agent for NOAA and will refurbish the NASA DSCOVR spacecraft (formerly known as Triana) which has been in storage for several years. NASA will also provide the solar wind sensors and the mission operations system and will deliver the satellite for integration with the launch vehicle. The U.S. Air Force will provide the SpaceX Falcon 9 launch vehicle for the DSCOVR mission. DSCOVR will be launched on a Falcon 9 v1.1 from CCAFS and placed at its destination, orbiting the first Lagrange Point.

The DSCOVR spacecraft has a total of six (6) instruments in its complement. There are two (2) instruments included in the PlasMag Instrument Suite that will provide mission critical space weather warning measurements.

- **Faraday cup** will measure the reduced distribution function of the proton and alpha components of the thermal solar wind.
- **Triaxial fluxgate magnetometer (Magnetometer)** will measure the 3-dimensional interplanetary magnetic field vector.

The remaining four (4) instruments are legacy instruments developed for the Triana mission and are of secondary priority for the mission.

- **Earth Polychromatic Imaging Camera (EPIC)** will measure the earth's atmosphere and surface (ozone, aerosols, cloud cover, cloud height, vegetation index and leaf area index) using several spectrally filtered medium resolution imagery.
- **NIST Advanced Radiometer (NISTAR)** will measure the Earth's area-averaged radiative balance using three active cavity radiometers and a photodiode, plus several band-defining optical filters that can be used with any of the detectors.
- **Tophat electrostatic analyzer (Electron Spectrometer)** will measure the 3-dimensional electron velocity distribution providing a secondary method of determining the solar wind velocity and density.
- **Pulse Height Analyzer (PHA)** will provide science data relevant to deep space missions, and can also provide mission operations data to allow anomaly resolution through the discrimination between signal saturation and PlasMag instrument malfunction during solar storm events.




**3.0 NASA Routine Payload Determination**

The components utilized in the DSCOVR spacecraft are made of materials normally encountered in the space industry. Materials and operations to provide power, propulsion, and communications for the spacecraft and instruments will not pose substantial risks to human health and safety. DSCOVR will not utilize radioactive sources or lasers, will not carry pathogenic organisms and will not return samples to Earth. No reentry is planned for the DSCOVR.

The Falcon 9 v1.1 was not a launch vehicle originally included in the Routine Payload EA because NEPA documentation for the launch vehicle had not been completed for CCAFS. However, the NRPEA allows for new vehicles to be NEPA complaint under the NRPEA if NASA formally adopts NEPA documentation for the specific launch vehicle at the specific launch site and issues a FONSI. NASA has done just that. The Air Force (AF) recently completed an Environmental Assessment for the launch of the Falcon 9 v1.1 from CCAFS (July 2013). NASA has subsequently adopted the EA and issued a FONSI (December 2013)

The DSCOVR mission has been evaluated against the NASA Routine Payload EA, using the RPC (see enclosed Evaluation Recommendation Package). The evaluation indicates that the mission meets the criteria for a routine payload and falls within the scope of the reference EA. The mission does not present any unique or unusual circumstances that could result in new or substantial environmental impacts. Based on the analyses set forth in the 2011 NRPEA and the AF Falcon 9 v1.1 EA, NASA has determined that the environmental impacts associated with the DSCOVR mission will not individually or cumulatively have a significant impact on the quality of the human environment and that a routine payload classification for the DSCOVR mission is applicable. No additional NEPA action or documentation is required.

Mark Banfield 12/20/13

George W. Morrow
Director of Flight Projects

Date

CJ Scolese 13 January 2014

Christopher J. Scolese
Director, Goddard Space Flight Center

Date

Enclosure

# EVALUATION RECOMMENDATION PACKAGE

## Record of Environmental Consideration
## Routine Payload Checklist
## Flight Project Environmental Checklist

Enclosure

# RECORD OF ENVIRONMENTAL CONSIDERATION

1. Project Name: Deep Space Climate Observatory (DSCOVR)

2. Description/location of proposed action: The primary purpose of the DSCOVR mission is to provide solar wind thermal plasma and magnetic field measurements to enable space weather forecasting by NOAA. This will provide advanced warning of approaching solar storms with the potential to cripple electrical grids, communications, GPS navigation, air travel, satellite operations and human spaceflight.

Date and/or Duration of project: Launch – January 2015

3. It has been determined that the above action:

☒ a. Is adequately covered in an existing EA or EIS.
Title: *Environmental Assessment for Launch of NASA Routine Payloads*
Date: November 2011
Title: AF Supplemental *Environmental Assessment for Operation and Launch of Falcon 9 v1.1 from CCAFS*
Date: July 2013

☐ b. Qualifies for Categorical Exclusion and has no extraordinary circumstances which would suggest a need for an Environmental Assessment.
Categorical Exclusion:

☐ c. Is exempt from NEPA requirements under the provisions of:

☐ d. Is covered under EO 12114, not NEPA.

☐ e. Has no significant environmental impacts as indicated by the results of an environmental checklist and/or detailed environmental analysis. (Attach checklist or analysis as applicable)

☐ f. Will require the preparation of an Environmental Assessment.

☐ g. Will require the preparation of an Environmental Impact Statement.

☐ h. Is not federalized sufficiently to qualify as a major federal action.

Beth Montgomery
Beth Montgomery NEPA Program Manager, Code 250 — 12/19/13 Date

Albert Vernacchio
Albert Vernacchio Project Manager, Code 420 — 12/19/13 Date

## APPENDIX C.
## NASA ROUTINE PAYLOAD EVALUATION AND DETERMINATION PROCESS AND CHECKLIST

After a proposed spacecraft mission is sufficiently well formulated (usually the Phase B design study), the Sponsoring Entity, in coordination with the local Environmental Management Office (EMO), will prepare an environmental evaluation. An environmental evaluation is a preliminary review that determines what aspects of the proposal are of potential environmental concern. The environmental evaluation also assists in determining the appropriate level of National Environmental Policy Act (NEPA) documentation (i.e., environmental assessment [EA], or environmental impact statement [EIS]) for the proposal. The local EMO uses a comprehensive checklist to provide a level of rigor to this early evaluation of the proposal, helping to ensure that pertinent considerations are not overlooked. Local EMO review of the Routine Payload Checklist (RPC, below) forms the basis for evaluating the applicability of a NASA Routine Payload (NRP) spacecraft classification for a proposed mission.

The local EMO uses the completed RPC (and required attachments) to evaluate the proposed mission against the NRP EA criteria. If the EMO evaluation of the RPC indicates that a NRP categorization may be appropriate, the Sponsoring Entity documents this in an Evaluation Recommendation Package (ERP). The ERP is then processed for review and approval in accordance with established National Aeronautics and Space Administration (NASA) procedures and guidelines. If approved, the ERP would be attached to a Record of Environmental Consideration (REC).

The Sponsoring Entity can then proceed with the proposal while monitoring the project activities, for changes or circumstances during implementation that could affect classification of the proposed mission as a NRP spacecraft. If a NRP spacecraft categorization is determined to be inappropriate, the local EMO will initiate plans for preparation of additional NEPA documentation.

# NASA Routine Payload Checklist (1 of 2)

PROJECT NAME: DEEP SPACE CLIMATE OBSERVATORY (DSCOVR) DATE OF LAUNCH: 2014
PROJECT CONTACT: ROBERT C. SMITH PHONE NUMBER: 6-9065 MAILSTOP: 420
PROJECT START DATE: 10/28/2011 PROJECT LOCATION: 16W
PROJECT DESCRIPTION: SPACE WEATHER AND EARTH CLIMATE MONITORING FROM L1

| | YES | NO |
|---|---|---|
| **A. SAMPLE RETURN:** | YES | NO |
| 1. Would the candidate mission return a sample from an extraterrestrial body? | | X |
| **B. RADIOACTIVE MATERIALS:** | YES | NO |
| 1. Would the candidate spacecraft carry radioactive materials in quantities that produce an A2 mission multiple value of 10 or more? | | X |
| Provide a copy of the Radioactive Materials On Board Report as per NPR 8715.3 with the ERP submittal | | |
| **C. LAUNCH AND LAUNCH VEHICLES:** | YES | NO |
| 1. Would the candidate spacecraft be launched on a vehicle and launch site combination other than those listed in Table C–1 below? | | X |
| 2. Would launch of the proposed mission exceed the approved or permitted annual launch rate for the particular launch vehicle or launch site? | | X |
| Comments: | | |
| **D. FACILITIES:** | YES | NO |
| 1. Would the candidate mission require the construction of any new facilities or substantial modification of existing facilities? | | X |
| Provide a brief description of the construction or modification required, including whether ground disturbance and/or excavation would occur: | | |
| **E. HEALTH AND SAFETY:** | YES | NO |
| 1. Would the candidate spacecraft utilize batteries, ordnance, hazardous propellant, radiofrequency transmitter power, or other subsystem components in quantities or levels exceeding the EPCs in Table C–2 below? | | X |
| 2. Would the expected risk of human casualty from spacecraft planned orbital reentry exceed the criteria specified by NASA Standard 8719.14? | | X |
| 3. Would the candidate spacecraft utilize any potentially hazardous material as part of a flight system whose type or amount precludes acquisition of the necessary permits prior to its use or is not included within the definition of the Envelope Payload Characteristics? | | X |
| 4. Would the candidate mission, under nominal conditions, release material other than propulsion system exhaust or inert gases into the Earth's atmosphere or space? | | X |
| 5. Are there changes in the preparation, launch or operation of the candidate spacecraft from the standard practices described in Chapter 3 of this EA? | | X |
| 6. Would the candidate spacecraft utilize an Earth-pointing laser system that does not meet the requirements for safe operation (ANSI Z136.1-2007 and ANSI Z136.6-2005)? | | X |
| 7. Would the candidate spacecraft contain, by design (e.g., a scientific payload) pathogenic microorganisms (including bacteria, protozoa, and viruses) which can produce disease or toxins hazardous to human health or the environment beyond Biosafety Level 1 (BSL 1)[1]? | | X |
| Comments: | | |

*Continued on next page*

[1] The use of biological agents on payloads is limited to materials with a safety rating of "Biosafety Level 1." This classification includes defined and characterized strains of viable microorganisms not known to consistently cause disease in healthy human adults. Personnel working with Biosafety Level 1 agents follow standard microbiological practices including the use of mechanical pipetting devices, no eating drinking, or smoking in the laboratory, and required hand-washing after working with agents or leaving a lab where agents are stored. Personal protective equipment such as gloves and eye protection is also recommended when working with biological agents.

## NASA Routine Payload Checklist (2 of 2)

PROJECT NAME: DEEP SPACE CLIMATE OBSERVATORY (DSCOVR) DATE OF LAUNCH: 2014
PROJECT CONTACT: ROBERT C. SMITH
PROJECT CONTACT: ROBERT C. SMITH PHONE NUMBER: 6-9065
PROJECT START DATE: 10/28/2011 PROJECT LOCATION: 16W
PROJECT DESCRIPTION: SPACE WEATHER AND EARTH CLIMATE MONITORING FROM L1

| F. OTHER ENVIRONMENTAL ISSUES: | YES | NO |
|---|---|---|
| 1. Would the candidate spacecraft have the potential for substantial effects on the environment outside the United States? | | X |
| 2. Would launch and operation of the candidate spacecraft have the potential to create substantial public controversy related to environmental issues? | | X |
| 3. Would any aspect of the candidate spacecraft that is not addressed by the EPCs have the potential for substantial effects on the environment (i.e., previously unused materials, configurations or material not included in the checklist)? | | X |
| Comments: | | |

### Table C–1. Launch Vehicles and Launch Sites

| Launch Vehicle and Launch Vehicle Family | Space Launch Complexes and Pads | | | | |
|---|---|---|---|---|---|
| | Eastern Range (CCAFS) | Western Range (VAFB) | USAKA/RTS | WFF | KLC |
| Athena I, IIc, III[a] | LC-46 | CA Spaceport (SLC-8) | N/A | Pad 0 | LP-1[a] |
| Atlas V Family | LC-41 | SLC-3 | N/A | N/A | N/A |
| Delta II Family | LC-17 | SLC-2 | N/A | N/A | N/A |
| Delta IV Family | LC-37 | SLC-6 | N/A | N/A | N/A |
| Falcon 1/1e | LC-36 | SLC-4W | Omelek Island | Pad 0 | LP-3[b] |
| Falcon 9 | LC-40 | SLC-4E | Omelek | Pad 0 | LP-3[b] |
| Minotaur I | LC-20 and/or LC-46 | SLC-8 | N/A | Pad 0 | LP-1 |
| Minotaur II-III | LC-20 and/or LC-46 | SLC-8 | N/A | Pad 0 | LP-1 |
| Minotaur IV | LC-20 and/or LC-46 | SLC-8 | N/A | Pad 0 | LP-1 |
| Minotaur V | LC-20 and/or LC-46 | SLC-8 | N/A | Pad 0 | LP-1 |
| Pegasus XL | CCAFS skidstrip KSC SLF | VAFB Airfield | Kwajalein Island | WFF Airfield | N/A |
| Taurus | LC-46 and/or LC-20 | SLC-576E | N/A | Pad 0 | LP-1 |
| Taurus II | NA | NA | N/A | Pad 0 | LP-3[b] |
| Any other launch vehicle/launch site combination for which NASA has completed or cooperated on the NEPA compliance | | | | | |

a. Athena III and LP-3 are currently under design.

b While not explicitly listed in this table, the Minotaur IV includes all configurations of this launch vehicle, including the Minotaur IV+, which is a Minotaur IV with a Star 48V 4th stage.

Key: CA=California; CCAFS=Cape Canaveral Air Force Station; KSC=Kennedy Space Center; LC=Launch Complex; LP=Launch Pad; MARS=Mid-Atlantic Regional Spaceport; SLC=Space Launch Complex; SLF=Shuttle Landing Facility; USAKA/RTS=United States Army Kwajalein Atoll/Reagan Test Site; VAFB=Vandenberg Air Force Base; WFF=Wallops Flight Facility.

**Table C–2. Summary of Envelope Payload Characteristics by Spacecraft Subsystems**

| | |
|---|---|
| **Structure** | • Unlimited: aluminum, beryllium, carbon resin composites, magnesium, titanium, and other materials unless specified as limited. |
| **Propulsion**[a] | • Liquid propellant(s); 3,200 kg (7,055 lb) combined hydrazine, monomethyhydrazine and/or nitrogen tetroxide.<br>• Solid Rocket Motor (SRM) propellant; 3,000 kg (6,614 lb) Ammonium Perchlorate (AP)-based solid propellant (examples of SRM propellant that might be on a spacecraft are a Star-48 kick stage, descent engines, an extra-terrestrial ascent vehicle, etc.) |
| **Communications** | • Various 10-100 Watt (RF) transmitters |
| **Power** | • Unlimited Solar cells; 5 kilowatt-Hour (kW-hr) Nickel-Hydrogen ($NiH_2$) or Lithium ion (Li-ion) battery, 300 Ampere-hour (A-hr) Lithium-Thionyl Chloride (LiSOCl), or 150 A-hr Hydrogen, Nickel-Cadmium (NiCd), or Nickel-hydrogen ($Ni\text{-}H_2$) battery. |
| **Science Instruments** | • 10 kilowatt radar<br>• American National Standards Institute safe lasers (see Section 4.1.2.1) |
| **Other** | • U. S. Department of Transportation (DoT) Class 1.4 Electro-Explosive Devices (EEDs) for mechanical systems deployment<br>• Radioactive materials in quantities that produce an A2 mission multiple value of less than 10<br>• Propulsion system exhaust and inert gas venting<br>• Sample returns are considered outside of the scope of this environmental assessment |

a. Propellant limits are subject to range safety requirements.

Key: kg=kilograms; lb=pounds.

## Goddard Space Flight Center
# FLIGHT PROJECT ENVIRONMENTAL CHECKLIST

| 1. PROJECT/PROGRAM<br>Deep Space Climate Observatory | Date:<br>12/13/13 |
|---|---|
| **2. SCHEDULE** | |
| PDR/CDR:<br>June 7-9, 1999 | Launch Date:<br>1/13/15 |

**3. CURRENT STATUS**

Project is in environmental testing

**4. PROJECT DESCRIPTION**

a. Purpose:
Provide a space weather outpost at the L1 position for NOAA

b. Spacecraft:
Smex-Lite

c. Instruments:
Magnetometer, Faraday Cup, electron Spectrometer, Camera, Radiometer

d. Launch Vehicle:
Falcon 9 - Airforce provided

e. Launch Site:
KSC

f. NASAs Involvement/Responsibility:
Spacecraft refurbishment, operations to L+90 days

g. Participants/Locations:
NASA-GSFC, NOAA-NESDIS, USAF-Space Test Program.

h. End-of-Mission Plan: Planned Re-entry (controlled/uncontrolled?)
N/A

5. Is there anything controversial or unique about the mission, spacecraft or instruments? If yes, Explain. Yes ☐ No ☑

6. Is the mission compliant with NASA requirements for limiting orbital debris (NPR 8715.6, and NASA Standard 8719.14? Explain non-compliances. Yes ☑ No ☐

| 7. During any phase, does the mission/project include or involve: Check yes for all that apply. If uncertain, check the corresponding box. For all that apply, provide an explanation. Use the additional space below if needed. | Yes | No | Uncertain |
|---|---|---|---|
| A. Fuels | ☑ | ☐ | ☐ |
| B. Ionizing Radiation Devices/Sources | ☐ | ☑ | ☐ |
| C. Explosives | ☐ | ☑ | ☐ |
| D. Hazardous Materials/Substances/Chemicals | ☐ | ☑ | ☐ |
| E. Lasers (Class, Earth Pointing) | ☐ | ☑ | ☐ |
| F. Disease Producing Pathogenic Microorganisms/Biological Agents | ☐ | ☑ | ☐ |
| G. Discharges/Venting of any Substances into Air, Water, or Soil | ☐ | ☑ | ☐ |
| H. Hazardous Waste Generation | ☐ | ☑ | ☐ |
| I. High Noise Levels | ☑ | ☐ | ☐ |
| J. Sample Return to Earth | ☐ | ☑ | ☐ |
| K. Radio Frequency Communications | ☑ | ☐ | ☐ |
| L. Construction/Modification/Demolition of a Facility/Lab (onsite - offsite) | ☐ | ☑ | ☐ |
| M. Land Disturbance, Tree Clearing, Removal of Vegetation | ☐ | ☑ | ☐ |
| N. Impact on Threatened or Endangered Species | ☐ | ☑ | ☐ |
| O. Impact/Destruction of Sensitive Wildlife Habitat | ☐ | ☑ | ☐ |
| P. Impact on/near Areas of Cultural Significance | ☐ | ☑ | ☐ |
| Q. Impact on Local Social or Economic Conditions (Increase in Traffic, Employment, etc.) | ☐ | ☑ | ☐ |
| R. Impact on Minority or Low Income Populations | ☐ | ☑ | ☐ |
| S. New or Foreign Launch Vehicle | ☐ | ☑ | ☐ |
| T. Other Issues of Potential Environmental Impact | ☐ | ☑ | ☐ |
| U. Environmental Permits | ☐ | ☑ | ☐ |

Additional Information
A. Hydrazine
i. Launch, Acoustics testing
k. S-Band Transmitter
~~S. Launch vehicle has not been determined~~

8. What Safety hazards are associated with the mission?

Deployable Solar Arrays, Aperture Door, Boom
Hydrazine
Lifts

| 9. Summary of Subsystem Components | |
|---|---|
| Propulsion (Include fuel type, amount, tank size, materials, dimensions | 145kg hydrazine; The tank dimension is a 28" sphere. It is all 6 AL-4V titanium. The diaphragm material is AF-E-332 ethylene propylene. |
| Communications | 5-watt S-Band transmitter |
| Structural Materials | Aluminum |
| Power | 4 GaAs solar array panels, 500 W EOL; 12 Amp-hour LI-Ion Battery |
| Science Instruments | Magnetometer, Faraday Cup, Electron Spectrometer, Camera, Radiometer |
| Hazardous Components (radioactive materials, lasers, chemicals, etc.) | Hydrazine fuel, deployables |
| Other (include dimensions and weight of s/c) | 750 kg, 120x190x45 cm deployed |

Goddard Space Flight Center

# FLIGHT PROJECT ENVIRONMENTAL CHECKLIST

| Project Manager Printed Name: | Project Manager Signature: | | |
|---|---|---|---|
| Albert Vernacchio | Albert Vernacchio 12/19/13 | | |
| Project Name: | Date: | Phone Number: | Org. Code: |
| Deep Space Climate Observatory | 1/27/2012 | 301-286-8031 | 420 |

Comments: