

APPENDIX B

NASA BPO ENVIRONMENTAL CHECKLIST

NASA SCIENTIFIC BALLOON PROGRAM OFFICE ENVIRONMENTAL CHECKLIST

PURPOSE OF THE BPO ENVIRONMENTAL CHECKLIST

The NASA Balloon Program Office (BPO) completed a Programmatic Environmental Assessment (PEA) to evaluate the environmental impacts of its ongoing and proposed scientific balloon operations conducted from the Columbia Scientific Balloon Facilities (CSBF) located in Fort Sumner, New Mexico and Palestine, Texas.

The scope of the Scientific Balloon Program PEA includes scientific balloon system operations (preparation, launch, flight, and recovery) launched from either CSBF Fort Sumner or CSBF Palestine and flight and recovery operations occurring within the CSBF operations area spanning portions of six states—primarily Texas, New Mexico, Arizona, but also Oklahoma, Kansas, and Colorado.

The scope of the Scientific Balloon Program PEA does not include infrastructure construction activities or BPO use of unproven technology or experimental projects with potential for substantial impacts on the environment.

This Environmental Checklist will be used by the NASA BPO prior to each balloon launch campaign to help determine whether the proposed balloon missions fall within the operations covered by the Scientific Balloon Program PEA, or whether separate NEPA analysis may be required.

**NASA BALLOON PROGRAM OFFICE
ENVIRONMENTAL CHECKLIST**

PROPOSED ACTION/MISSION: _____

DATE OF PROPOSED ACTION/MISSION: _____

SECTION 1 – DOES THE PROPOSED BPO ACTIVITY MEET THE PARAMETERS SPECIFIED IN THE NASA SCIENTIFIC BALLOON PROGRAM PEA?

1. Balloon Operations Flight Parameters -- answer the following questions. If the answers are “**yes**,” the proposed flight parameters are consistent with those specified in the NASA Scientific Balloon Program PEA. If the answers are “**no**,” additional NEPA analysis may be necessary – proceed to Sections 2, 3, and 4.

- ___ a. Will anticipated flight and recovery operations occur within the six-state CSBF Operations Area (AZ, CO, KS, NM, OK, TX)?
- ___ b. Including this balloon launch, would scientific balloon launches remain with the annual proposed number of 25 launches for CSBF Fort Sumner and 6 launches for CSBF Palestine?

2. Balloon Operations Payload Parameters – if the answer to the question below is “**yes**,” the proposed flight parameters are consistent with those specified in the NASA Scientific Balloon Program PEA.

- ___ c. Does payload meet the requirements in the following table?

| Component | Envelope | Additional Documentation Requirement for REC |
|------------------------------|--|---|
| Radio Frequency | Electromagnetic fields must be within ANSI-recognized acceptable levels as stated in IEEE C95.1-1991. | Radio frequency data confirming compliance |
| Lasers | Meets ANSI Safety standards (ANSI Z136.1-2000 and Z136.6-2000). | Laser data Confirming compliance |
| Radioactive Materials | Quantity and Type of radioactive material are within the approval authority level of the NASA Nuclear Flight Safety Assurance Manager. | Copy of Radioactive Materials Report as per NPR 8715.3C Section 6 |
| Biological Agents | Biological agents must meet conditions of Biosafety Level 1 of the NIH and CDC Biosafety in Microbiological and Biomedical Laboratories. | Laboratory data confirming compliance. |
| Chemical Release | Must not pose a substantial hazard and cannot have a significant adverse affect on the atmosphere. | Sufficient analysis to support compliance |

SECTION 2 – ARE ANTICIPATED IMPACTS CONSISTENT WITH THOSE DESCRIBED IN THE NASA SCIENTIFIC BALLOON PROGRAM PEA?

1. Issues – identify the environmental resources that are of importance to this Proposed Action.
 - What are the key problems/issues that may be associated with the proposal?
 - Are there any problem activities?
 - Which resources need analysis?
2. Checklist - Complete the NASA BPO Scientific Balloon Program Worksheet to render an initial determination of whether the Proposed Action is within the scope of the Scientific Balloon Program PEA.

NASA BPO SCIENTIFIC BALLOON PROGRAM WORKSHEET

| ISSUE | Covered in the Scientific Balloon Program PEA? | Would Proposed Action be Consistent with the Scientific Balloon Program PEA Analysis? | Potential Impacts | | | Can Impact be Mitigated by Changes to Proposed Action? | Comments |
|---|--|---|-------------------|-------|---------|--|----------|
| | | | Major | Minor | Unknown | | |
| 1. Would the Proposed Action affect military or civilian air traffic? | The Uelgptle Balloon Program PEA discusses the LOA between FAA Albuquerque and Fort Worth ARTCCs and CSBF Fort Sumner regarding authorization and coordination process for CSBF balloon operations. As indicated in the PEA, CSBF staff will continue to coordinate with the FAA ARTCCs and Cannon Air Force Base prior to launch and landing of unmanned aerial balloons (FAR 101, Subpart) to avoid impacts to airspace used for both military and civilian operations. | | | | | | |
| 2. Would the Proposed Action affect the health or safety of CSBF personnel or the public? | The health and safety of CSBF personnel at the launch site and persons on the ground (CSBF personnel and general public) are considered in the PEA. NASA BPO procedures for balloon activities are presented. Balloon termination procedures for avoiding population centers for protection of the general public are also presented in the PEA. | | | | | | |
| 3. Would the Proposed Action result in a physical change to the project site? | The Uelgptle Balloon Program PEA did not analyze construction and/or modification projects that would result in a physical changes at the CSBF Fort Sumner or Palestine launch sites. | | | | | | |
| 4. Would the Proposed Action affect air quality? | The Uelgptle Balloon Program PEA considers emissions from increased launch activities from CSBF Fort Sumner and the <i>status quo</i> at CSBF Palestine. The PEA indicate there would be no perceptible change in emissions from an annual increase of 10 missions at Fort Sumner; <i>status quo</i> at Palestine. Ballast material (large particle size is not regulated by EPA) and helium (no harmful effects on earth's environment) were also evaluated; neither of these materials pose a threat to air quality. | | | | | | |

NASA BPO SCIENTIFIC BALLOON PROGRAM WORKSHEET (cont.)

| ISSUE | Covered in the Scientific Balloon Program PEA? | Would Proposed Action be Consistent with the Scientific Balloon Program PEA Analysis? | Potential Impacts | | | Can Impact be Mitigated by Changes to Proposed Action? | Comments |
|---|--|---|-------------------|-------|---------|--|----------|
| | | | Major | Minor | Unknown | | |
| 5. Would the Proposed Action impact socioeconomic resources? | The Uelgptle Balloon Program PEA considers the impact to socioeconomic resources from an influx of up to 15 CSBF staff and up to 40 research scientists during uelgptle balloon launch campaigns at Fort Sumner Village. The PEA indicated that the Village could accommodate the twice year influx. The BPO PEA does not include an analysis of an influx of persons to the City of Palestine for uelgptle balloon launch missions as no additional operations are proposed. | | | | | | |
| 6. Would the Proposed Action have an effect on Special Use Land Management Areas? | The Uelgptle Balloon Program PEA identifies the types of lands under the CSBF Operations Area including the launch sites. CSBF would continue, to the extent practicable, to avoid landing uelgptle balloon systems in SULMAs or on private lands; however, if the event should occur, CSBF staff would notify the appropriate individuals or agencies and seek permission prior to accessing the recovery site. | | | | | | |
| 7. Would the Proposed Action affect any threatened or endangered species or their habitats? | The Uelgptle Balloon Program PEA identifies designated critical habitat for federally listed threatened and endangered species within the CSBF Operations Area. The PEA indicates that the CSBF staff manage the scientific balloon operations to avoid designated critical habitat by using the most up-to-date geospatial critical habitat data obtained from USFWS. Should a balloon/payload land within a SULMA, or on private land, the land manager/landowner would be contacted prior to the CSBF recovery team accessing the site. | | | | | | |

NASA BPO SCIENTIFIC BALLOON PROGRAM WORKSHEET (cont.)

| ISSUE | Covered in the Scientific Balloon Program PEA? | Would Proposed Action be Consistent with the Scientific Balloon Program PEA Analysis? | Potential Impacts | | | Can Impact be Mitigated by Changes to Proposed Action? | Comments |
|--|--|---|-------------------|-------|---------|--|----------|
| | | | Major | Minor | Unknown | | |
| 8. Would the Proposed Action affect any water resources, wetlands, or aquatic habitats? | The Uelgville Balloon Program PEA discusses the various surface and ground water resources and wetlands found within the CSBF Operations Area. The PEA indicates that the CSBF staff avoid water bodies; disturbance in wetlands would be minimized to the extent practicable to include possibly using a helicopter for recovery of the balloon system. | | | | | | |
| 9. Would the Proposed Action affect other protected species or their habitats? | The Uelgville Balloon Program PEA includes a discussion of migratory birds; the PEA indicates no adverse impact to migratory bird populations. The Scientific Balloon Program PEA does not include a discussion of marine mammals as balloon operations do not occur in the marine environment. | | | | | | |
| 10. Would the Proposed Action impact any site or structure of historic or archaeological importance? | The Uelgville Balloon Program PEA identifies Indian Reservations and NHRP-listed properties within the CSBF Operations Area. The PEA indicates that CSBF staff manage scientific balloon operations to avoid Indian Reservations and culturally significant areas by using up-to-date Bureau of Indian Affairs and NRHP data obtained from national and state historic properties databases. CSBF would continue to avoid all known culturally significant areas, with landing and recovery efforts being cognizant that these resources could always be discovered. CSBF standard procedure is to contact the tribal police and to notify a tribal representative for direction on recovery activities if landing a payload within an Indian Reservation boundary is unavoidable; adherence to this procedure would continue. | | | | | | |

NASA BPO SCIENTIFIC BALLOON PROGRAM WORKSHEET (cont.)

| ISSUE | Covered in the Scientific Balloon Program PEA? | Would Proposed Action be Consistent with the Scientific Balloon Program PEA Analysis? | Potential Impacts | | | Can Impact be Mitigated by Changes to Proposed Action? | Comments |
|--|--|---|-------------------|-------|---------|--|----------|
| | | | Major | Minor | Unknown | | |
| 11. Would the Proposed Action include use of hazardous materials or systems? | The Scientific Balloon Program PEA describes in general terms the types of hazardous materials or systems that could be used during balloon flight preparation or flight operations. The PEA indicates that BPO Safety assesses materials proposed for each flight on a case-by-case basis to determine risk to the public and environment. Approval by BPO Safety is required prior to each scientific balloon launch. Appropriate material handling and spill response equipment is available to balloon recovery teams. | | | | | | |
| 12. Would the Proposed Action have an effect on existing transportation systems? | The Scientific Balloon Program PEA discusses the influx of privately owned vehicles at Fort Sumner Village during scientific balloon mission campaigns and the use of recovery vehicles. The PEA indicates that the impact on transportation systems within the vast CSBF Operations Area is negligible. | | | | | | |
| 13. Would the Proposed Action result in long-term changes in noise levels? | The Scientific Balloon Program PEA does not include a detailed noise analysis. The PEA does however indicate that noise from launch and recovery activities would be minor and localized, would not permanently alter the noise levels at any one location, and would be short-term in nature. | | | | | | |
| 14. Would the Proposed Action have the potential to affect geological features or soil conditions? | The Scientific Balloon Program PEA does not include a detailed analysis for geology and soils. The PEA does however indicate that no construction activities will occur at the launch sites or within the CSBF Operations Area. Soil compaction and the potential for spill of hazardous materials could occur during scientific balloon system landing and/or recovery. | | | | | | |

NASA BPO SCIENTIFIC BALLOON PROGRAM WORKSHEET (cont.)

| ISSUE | Covered in the Scientific Balloon Program PEA? | Would Proposed Action be Consistent with the Scientific Balloon Program PEA Analysis? | Potential Impacts | | | Can Impact be Mitigated by Changes to Proposed Action? | Comments |
|---|--|---|-------------------|-------|---------|--|----------|
| | | | Major | Minor | Unknown | | |
| 15. Would the Proposed Action affect visual resources? | Visual resources are not analyzed in detail in the Scientific Balloon Program PEA. The PEA does indicate that removal of all balloon system during recovery creates no visual impact. In addition, the PEA states that visual sighting of the balloons in flight are short-term and rates of occurrence render an inconsequential impact. | | | | | | |
| 16. Would the Proposed Action have the potential to disproportionately impact minorities or children? | Impacts to low-income populations, minorities, or children are not analyzed in detail in the Scientific Balloon Program PEA. The PEA does indicate that no aspect of the NASA scientific balloon program adversely or disproportionately impacts the health or safety of either of these communities or persons. Should a change in operations occur at the CSBF launch sites, NASA BPO would reevaluate the balloon program at those sites in consideration of Executive Order 12898. | | | | | | |
| 17. Would the Proposed Action impact Global Climate Change? | While not analyzed in detail, the Scientific Balloon Program PEA does indicate that CSBF balloon mission activities contribute an extremely small amount to the inventory of greenhouse gases. | | | | | | |
| 18. Are there potential indirect, secondary or cumulative effects from the Proposed Action? | The Scientific Balloon Program PEA includes a discussion of cumulative impacts from scientific balloon program activities on the various resources carried forward for detailed analysis. The PEA indicates that the cumulative impact from scientific balloon program activities ranges from no impacts to minor impacts. | | | | | | |
| Summary: | | | | | | | |

**NASA BALLOON PROGRAM OFFICE
ENVIRONMENTAL CHECKLIST**

SECTION 3 – IF ANTICIPATED IMPACTS ARE DIFFERENT FROM THOSE DESCRIBED IN THE SCIENTIFIC BALLOON PROGRAM PEA, ADDITIONAL NEPA ANALYSIS MAY BE REQUIRED

1. Categorical Exclusion (CatEx)

NASA NEPA Regulations at 14 CFR § 1216.305 designate a wide variety of classes of categorically exclusive actions that neither individually or cumulatively would have a significant effect on the environment.

_____ Does the Proposed Action fit one of these CatExs?

If **yes**, which CatEx? _____

If **no**, proceed to 2. *Environmental Assessment*

2. Environmental Assessment (EA)

An EA is a concise public document that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact (FONSI), and to aid agency compliance with NEPA, and to facilitate preparation of an EIS. NASA BPO actions or activities that would likely require an EA are located at 14 CFR § 1216.305.

_____ Does the Proposed Action likely require an EA?

If **no**, proceed to 3. *Environmental Impact Statement*

3. Environmental Impact Statement (EIS)

An EIS is a detailed written statement as required by NEPA (40 CFR § 1502.3). NASA BPO actions that would be anticipated to have a significant effect on the human environment, thereby requiring an EIS are defined at 14 CFR § 1216.305.

SECTION 4 – WHAT IS THE CONCLUSION FOR THIS PROPOSED ACTION?

- _____ This action is within the scope of the NASA Scientific Balloon Program PEA and no further analysis is required
- _____ This action is outside the scope of the NASA Scientific Balloon Program PEA and qualifies for Categorical Exclusion
- _____ This action is outside the scope of the NASA Scientific Balloon Program PEA and requires an Environmental Assessment
- _____ This action is outside the scope of the NASA Scientific Balloon Program PEA and requires an Environmental Impact Statement

WFF NEPA PROGRAM MANAGER

DATE

PROJECT MANAGER

DATE