

**U.S. Department of the Interior
Fish and Wildlife Service
Region 7**

RECORD OF DECISION

**Sounding Rockets Program at Poker Flat Research Range
Environmental Impact Statement
November 26, 2013**

This Record of Decision (ROD) is regarding the NASA Sounding Rockets Program at Poker Flat Research Range (PFRR) Final Environmental Impact Statement (EIS). It documents my decision and includes a summary of the alternatives considered and the basis for making this decision. My decision applies to both the Arctic National Wildlife Refuge and Yukon Flats National Wildlife Refuge.

Background

The Arctic and Yukon Flats National Wildlife Refuges (Refuges) have received applications for special use permits to allow for the impact and retrieval of spent rocket motors, rocket debris, and payloads from the NASA Sounding Rockets Program at Poker Flat Research Range (PFRR). This ROD includes a summary of alternatives considered, identification of the environmentally preferred alternative, a summary of the key environmental issues evaluated, statement of the decision made (selection of an alternative), and the basis for the decision. NASA has conducted a sounding rockets program from Poker Flat since the late 1960s, under special use permits from the Refuges since 1983.

Purpose and Need

FWS Purpose and Need:

The U. S. Fish and Wildlife Service's (Service) need for participating in this EIS and subsequent development of a decision was to evaluate the impacts and implications of permitting operations at PFRR and their effects on the Refuges. The Service will use this EIS in developing special use permits (SUPs) and stipulations regarding operations at PFRR.

NASA Purpose and Need:

NASA's purpose for action is to ensure the continued safe and cost-effective sounding rocket-based scientific investigations at PFRR. Sounding rockets launched from PFRR support the advancement of scientific knowledge of the Sun-Earth connection, the upper atmosphere, and

global climate change.

NASA's need for the proposed action is to ensure that NASA and the global science community have a launch capability based in the United States (U.S.) to conduct experiments to aid in the understanding of the phenomena affecting the past, present, and future of the Earth and the Sun–Earth connection. Sounding rockets permit the only means to study the lower atmosphere (40–80 kilometers [25–50 miles]) and the middle ionosphere (80–150 kilometers [50–93 miles]) with direct measurements, and the only means to explore the upper ionosphere (150–1,500 kilometers [93–930 miles]) with vertical trajectories on relatively slowly moving platforms. These are essential regions of the Earth's environment and must be measured to understand how the Earth and space interact.

NASA feels that the northern location of PFRR is strategic for launching NASA sounding rockets for scientific research in auroral space physics and earth science. PFRR is the only high-latitude, auroral-zone rocket launching facility in the U.S. where a sounding rocket can readily study the aurora borealis and the Sun–Earth connection.

The Environmental Impact Statement

Introduction:

The NASA – developed *PFRR EIS* is tiered from NASA's 2000 *Final Supplemental EIS for Sounding Rocket Program* and provides a focused analysis of NASA's continued activities at PFRR. The U.S. Department of the Interior's Bureau of Land Management (BLM) and the Service were Cooperating Agencies in preparing the EIS, as both agencies possess specialized environmental expertise and regulatory jurisdiction over lands within the PFRR launch corridor. The University of Alaska Fairbanks (UAF), which owns and manages PFRR on NASA's behalf, also participated as a Cooperating Agency.

NASA published a Notice of Intent to prepare an EIS and conduct scoping for the Sounding Rocket Program at PFRR in the *Federal Register* (76 FR 20715) on April 13, 2011. Notices were also published in the *Anchorage Daily News*, *Fairbanks News-Miner*, and *Frontiersman*. NASA held five public scoping meetings between April 28 and May 3, 2011, in Fort Yukon, Fairbanks, and Anchorage, Alaska, to solicit written and oral input. A total of 146 comments were received from Federal, State, and local agencies, organizations, and individuals during the scoping period which closed on June 1, 2011. Although the scoping comments involved a wide range of topics, the majority of concerns were regarding the potential impacts on specially designated lands, including Wilderness and Wild Rivers. The concerns raised were addressed in the Draft EIS.

In September 2012, the Draft EIS was mailed to 125 potentially interested federal, state, and local agencies, organizations, and individuals. Additionally, the Draft EIS was published electronically on NASA's website and made available at public reading rooms in Anchorage, Fairbanks, and Juneau, Alaska, as well as Washington, DC. The U.S. Environmental Protection Agency (EPA) published its Notice of Availability (NOA) for the Draft EIS in the *Federal Register* on September 28, 2012 (77 FR 59611), initiating the public review and comment

period. NASA subsequently published a NOA for the Draft EIS in the *Federal Register* on October 10, 2012 (77 FR 61642).

The 60-day public review and comment period closed on November 28, 2012. NASA received five written comment submissions from agencies and organizations that collectively contained approximately 26 individual comments. The comments received ranged from concerns about impacts to wilderness-based recreation and subsistence, to the National Environmental Policy Act (NEPA) process in general. Upon its review of the Draft EIS, the U.S. EPA assigned a rating of “LO” to the document, indicating its lack of objections to the proposal.

In addition to soliciting comments for submittal by letter and email, NASA held meetings on October 24 and 25, 2013, in Anchorage and Fairbanks, Alaska, at which the public was invited to provide both oral and written comments on the Draft EIS. To notify members of the public of the availability of the Draft EIS and the schedule for the meetings, NASA placed paid advertisements in the *Anchorage Daily News*, the *Fairbanks News-Miner*, and the *Frontiersman*. In total, seven members of the public attended the meetings with one offering substantive oral comments on the Draft EIS. Meeting transcripts were recorded and are included in the Final EIS in Appendix K. NASA’s responses to all comments received on the Draft EIS are also included in the Final EIS as Appendix K.

NASA published its NOA for the Final EIS in the *Federal Register* on July 3, 2013 (78 FR 40196) and mailed copies of the document to approximately 150 federal, state, and local agencies, organizations, and individuals. In addition, NASA made the Final EIS available in electronic format on its website and at the same reading rooms to which copies of the Draft EIS were sent. The U.S. EPA published its NOA for the Final EIS in the *Federal Register* on July 12, 2013 (78 FR 41927), initiating the 30-day waiting period, which ended on August 12, 2013. NASA received one comment during this period, the contents of which are summarized in the “additional information” section of this ROD.

Alternatives Considered

The Final EIS evaluated in detail five alternatives, including a No Action Alternative and four action alternatives. To better inform the BLM and the Service’s decision making process, each alternative included two possible scenarios (both issuance and non-issuance of each agency’s respective authorization) that could result in response to UAF’s request for impacting within the lands under their jurisdiction.

Elements Common to All Alternatives

Under all five alternatives, NASA would continue to fund UAF’s PFRR and conduct scientific investigations using sounding rockets. The sounding rocket configuration employed for each mission would be dependent on specific scientific objectives, and could include any of the single- or multi-stage vehicles in the Sounding Rocket Program’s (SRP) “stable” of rockets. NASA forecasts that an average of four launches per year would be conducted at PFRR, but could range up to eight launches per year. This launch rate is typical of that for previous years.

Similarly, past scientific research has mandated that most launches be conducted during the winter months, defined in the Final EIS as October through April. While this is the expected mode of future operations, new scientific needs might raise the desirability of other launch periods, and the possibility of a launch during the non-winter months cannot be discounted. Accordingly, the Final EIS provides a high-level discussion of issues that would require consideration during the planning of a non-winter launch. In the event that a future summer launch were to be proposed, a more detailed, project-specific NEPA analysis would be required before approval.

Consistent with the requirement levied by the Service in its recent Special Use Permits issued to UAF, NASA would not conduct launches with a planned impact site within designated Wilderness, currently the Mollie Beattie Wilderness Area in Arctic National Wildlife Refuge.

No Action Alternative

NASA adopted the “status quo” interpretation of “no action” in defining the No Action Alternative in the Final EIS; meaning that PFRR would continue to operate as it has recently. As such, under this alternative, no significant efforts would be taken to recover spent flight hardware from downrange lands unless required for scientific reasons (e.g., instrument reuse or data collection). Thus, recovery efforts (and resultant impacts) would be focused primarily on the retrieval of parachuted payloads.

Alternative 1

In the Final EIS, NASA identified Alternative 1 as its preferred alternative. Under Alternative 1, NASA and UAF would employ enhanced efforts to locate new and existing spent stages and payloads within the PFRR flight corridor. Attempts would be made to recover all newly expended stages and payloads predicted to land on federal, state, or private lands. Spent stages and payloads that are located would be recovered if it is determined that the recovery operation could be performed safely while causing minimal environmental damage. As such, some items or parts thereof could be left in the field if the landowners agreed that attempted recovery could cause more damage to the environment than leaving it in place. A key component of this alternative is the adoption of a formal rocket hardware Recovery Plan, presented as Appendix E of the Final EIS.

For past SRP operations at PFRR, most spent rocket stages and payloads were not recovered. Consistent with the philosophy that would be employed for new rocket motors and payloads, hardware that is located from past operations would be recovered if it could be done safely and in an environmentally responsible manner.

Alternative 2

Alternative 2 is the same as Alternative 1, except maximum practicable effort would be exerted to fully recover newly expended and existing spent stages and payloads from PFRR if it is determined that they can be recovered safely, even if the efforts result in greater short- and longer-term recovery-related environmental impacts.

Alternative 3

Alternative 3 is the same as Alternative 1, except trajectories of future sounding rocket missions would be restricted such that planned impacts would not be permitted within designated Wild and Scenic River corridors. The restriction would be an extension of the existing prohibition on having planned impacts within Mollie Beattie Wilderness Area and would become a program requirement that must be met during mission planning.

Alternative 4

Alternative 4 would be the same as Alternative 2, except that like Alternative 3, NASA would restrict the flight trajectories of future PFRR missions such that planned impacts would not be located within designed Wild and Scenic River corridors.

Alternatives Considered But Dismissed from Detailed Study

NASA also considered additional alternatives but did not evaluate them in detail due to their inability to meet their purpose and need, largely an inability to achieve scientific goals, safety concerns, exorbitant cost, or a combination of the three. These alternatives included discontinuing operations at PFRR, relocating operations to other high-latitude launch sites, both foreign and domestic, use of other scientific platforms, installing recovery systems on all future missions, assigning numerical risk criteria to sensitive environmental features, launching easterly into Canada, tracking all future stages and payloads, and use of heavy mechanized equipment for recovery.

Cumulative Effects

NASA considered a number of past, present, and reasonably foreseeable future actions that could occur within or adjacent to downrange lands and contribute cumulatively to impacts on the same resource areas affected by PFRR launch and recovery operations. With the exception of waste, the cumulative effects analysis in this EIS indicated that the NASA SRP's operations at PFRR under any of the five alternatives would be much smaller in scope and environmental impact than other activities occurring within the region of influence; therefore, its contribution to adverse cumulative effects would be minor.

Regarding cumulative waste, more than 40 years of PFRR operations with limited focus on recovery of flight hardware from both NASA and non-NASA launches has resulted in a net deposition of approximately 125,000 kilograms (276,000 pounds) of material from NASA activities and a net deposition of approximately 55,000 kilograms (121,000 pounds) from non-NASA activities. The net deposition from both NASA and non-NASA activities is approximately 180,000 kilograms (397,000 pounds) of items within the flight corridor, with the majority of it being inert steel and aluminum. Approximately 45 percent of all items (approximately 65 percent by weight) are estimated to remain within the Alaska Department of

Natural Resources (ADNR) Poker Flat North and South Special Use Areas, which are specially designated for rocket and payload impacts.

Within other downrange lands, the No Action Alternative would result in a continued increase in the deposition of flight hardware, resulting in a major, long-term, adverse impact. Accordingly, NASA has incorporated mitigation of this long-term adverse impact in Alternatives 1–4 by establishing a formal Recovery Program such that over time, the quantity of flight hardware would be reduced in downrange lands. Alternatives 1 and 3 would have lesser cumulative effects than the No Action Alternative; while Alternatives 2 and 4 would likely result in the most waste removed from downrange lands over time, and would likely contribute the least to long-term adverse cumulative effects.

Key Environmental Issues and Assessment of the Analysis

The analyses in the Final EIS indicated that while the environmental consequences of each alternative would be generally negligible to minor, there are several key issues warranting further discussion. These key issues involve special use lands within the flight corridor and differing views of flight hardware, both of which are discussed in more detail below.

Special Use Lands:

Within the PFRR launch corridor are some of the most environmentally sensitive land uses provided under current U.S. law. These include designated Wilderness, four designated Wild Rivers, two National Wildlife Refuges, a National Conservation Area, and a National Recreation Area. As such, NASA recognizes that it must conduct its operations at PFRR with the focus on doing so in the least intrusive manner possible. To implement this commitment, NASA would continue to avoid conducting missions with planned impacts within designated Wilderness. Additionally, as described in detail in the PFRR Recovery Plan (Appendix E of the Final EIS), NASA would place its highest recovery priority on flight hardware located within designated Wilderness and Wild and Scenic Rivers. Missions of opportunity (*e.g.*, combining recovery efforts with other already planned uses) would be sought to minimize the number of recovery flights needed each year. Finally, to further reduce potential recovery-related disturbances, NASA would employ the least intrusive tools necessary to effectively conduct the recovery operation. Through the experience gained during its interim recovery program employed at PFRR over the past several years, NASA has found that utilizing hand tools and small aircraft can effectively remove the majority of items found within downrange lands while minimizing environmental effects, recovery costs, and logistical challenges.

Differing Views of Flight Hardware:

The primary reason for preparing the EIS was to respond to concerns raised by owners and users of downrange lands regarding the long-term deposition of PFRR-launched flight hardware. During the preparation of the EIS, users of downrange lands offered substantially different views as to the potential effects of discovering a piece of flight hardware. Some users were highly concerned about the presence of the items whereas others offered no concern at all. Downrange landowners expressed similar variability in response, however the responses were commensurate

with specific land uses. For example, federal land management agencies stressed the regular removal of items, whereas the managers of the ADNR lands just north of the PFRR launch site have consistently requested that recovery operations not be conducted unless absolutely necessary. A similar sentiment was offered during discussions with the Native Village of Venetie Tribal Government, which expressed concern regarding potential recovery-related effects on subsistence activities within its lands. Given this variation in landowner objectives, and the situation-specific case each recovery operation presents, NASA recognizes that it must work closely with downrange landowners such that its future efforts are consistent with each area's (often season-specific and/or evolving) guiding policies.

Choice of Alternatives

For NASA to continue its operations at PFRR within an increasingly sensitive environmental context, the adoption of a funded search and recovery program is essential for mitigating the effects of both historically launched and future-launched items within downrange lands. Due to the sensitivity of downrange lands, the possibility for substantially embedded items or unsafe conditions facing the recovery team, NASA will have the ability to leave certain items in place should conditions warrant. All such decisions would be made in conjunction with the Service. Additionally, to ensure that downrange land users are aware of the recovery program, NASA would require UAF to maintain an active public outreach campaign as described in Appendix E of the Final EIS.

As compared to the more aggressive search and recovery activities envisioned for Alternatives 2 and 4, it is my position that the level of effort projected for Alternative 1 is the appropriate balance of mitigating the long-term adverse effects of unrecovered rocket parts and the short- and long- term effects of more aggressive recovery operations.

As compared to the restriction on launches with planned impacts in designated Wild and Scenic River (WSR) corridors provided under Alternative 3, it is my position that the increase in the potential for impacts within a designated Wild and Scenic River corridor would be insignificant and therefore Alternative 1 is the appropriate balance of mitigating the effects on WSRs and limiting NASAs already constrained future flight trajectories

Regarding future non-winter launches, while none are envisioned at the current time, their possibility cannot be discounted and will therefore remain open for consideration. However, given their only cursory analysis in the Final EIS, the decision regarding if and how to conduct such an operation would be the subject of future action-specific NEPA documentation.

Identification of the Environmentally Preferable Alternative

Alternative 3 would be the environmentally preferable alternative, as it would include both programmatic avoidance of planned impacts within designated Wild and Scenic River corridors and environmentally sensitive recovery practices. However, as discussed above, the added environmental benefit between it and Alternative 1, the selected alternative, would be negligible.

Additional Information

Consultation and Coordination:

While preparing the EIS, NASA strived to accomplish as many related environmental review requirements as practicable to assist in the decision making process. Consultations pursuant to the Endangered Species Act and National Historic Preservation Act were accomplished concurrently with EIS preparation. Also, throughout the EIS process NASA provided multiple consultation opportunities for Alaska Native organizations. Summaries of all such consultations are included in the Final EIS; detailed consultation information is included in Appendix A.

Comments Received on the Final EIS:

NASA received one agency comment submittal on the Final EIS. Provided by the U.S. EPA, the letter indicated that the agency believed NASA's identified preferred alternative (Alternative 1) to have minimal environmental impact and that appropriate mitigation had been employed. EPA suggested continued coordination with downrange land users to ensure the maximum effectiveness of NASA's proposed flight hardware recovery program. NASA agrees that public outreach would be a key contributing factor to the recovery program's success and would continue to work with downrange landowners and users to locate and remove flight hardware.

Mitigation and Monitoring

NASA included mitigation measures as integral components of its selected alternative. These measures, described in detail in Chapter 2, Section 2.3, and Appendix E of the Final EIS, provide consideration of all resource areas while focusing primarily on the location and removal of past and future flight hardware from downrange lands. Below is a summary of such measures that would be undertaken under the selected alternative's Recovery Program:

- Programmatically committing to continually improving recovery aides;
- Establishing a minimum \$250,000 annual recovery budget;
- Searching for all newly launched, land-impacting stages and payloads;
- Recovering previously or newly launched rocket parts that can be done in a safe and environmentally responsible manner;
- Employing the least intrusive tools necessary for the recovery;
- Engaging outside parties in recovery efforts through an improved, ongoing outreach campaign;
- Establishing a Rewards Program for persons reporting items in downrange lands;
- Prioritizing recovery efforts and funding such that items within the most sensitive areas (*e.g.*, Wilderness, Wild and Scenic Rivers) are recovered first; and
- Establishing and maintaining a database to track impact location information for future and past (as available) launches.

Adoption of All Practical Means to Minimize Environmental Harm

It is my belief that all practical measures to mitigate environmental harm have been adopted for the SRP at PFRR. Throughout the EIS preparation process, the cooperating resource agencies and conservation organizations proposed potential changes to PFRR launches that could have further reduced environmental impacts; however some of these measures would not be practical within the context of the program. In determining if a mitigation measure is practical, a number of factors must be considered, including the ability of the agency to still meet its objectives and technical feasibility. As discussed in the Final EIS, severely restricting the available launch vehicles for use at PFRR would preclude NASA from achieving the longer duration, larger missions that are most frequently specified by its researchers. Additionally, launching in different directions than are currently approved would be either unsafe, unable to achieve scientific objectives, or both. As such, the most reasonable option moving forward would be to focus NASA's efforts on means to effectively and unobtrusively locate and remove items of flight hardware. I find that the implementation of the Recovery Plan developed in conjunction with the Final EIS will do just that.

Decision

After a thorough review of the potential environmental consequences of all alternatives evaluated in the Final EIS, it is my decision to select Alternative 1.



Geoffrey L. Haskett

Regional Director

US Fish and Wildlife Service Region 7

12/4/13
Date