

**Federal Aviation Administration
Associate Administrator for
Commercial Space Transportation (AST)**



Photo Source: Carleton Bailie © The Boeing Company

**Environmental Requirements
and Planning**

February 2004

Background and History

In 1984, the Department of Transportation (DOT) was designated as the lead agency for U.S. commercial launch activities by Executive Order of the President. Later that year, Congress enacted the Commercial Space Launch Act of 1984 (CSLA), which authorized DOT to regulate U.S. commercial launch activities. The DOT designated the Office of Commercial Space Transportation (OCST) as the lead to carry out these responsibilities. Under the Executive Order and the CSLA, DOT had dual responsibilities



1. To license and regulate all U.S. commercial launch activities to ensure that they are conducted safely and responsibly, and
2. To promote, encourage, and facilitate the growth of the U.S. commercial space transportation industry.

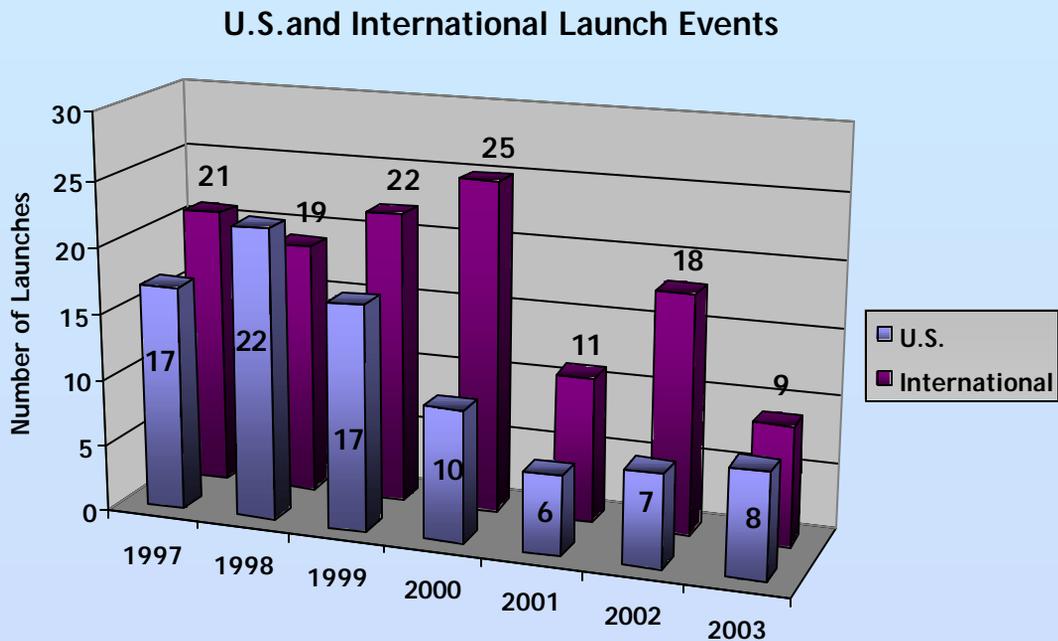
In November 1995, as part of DOT reorganization, OCST was transferred to the Federal Aviation Administration (FAA). Within the FAA, OCST was re-designated as the Associate Administrator for Commercial Space Transportation with the office designation AST.

In October 1998, Congress enlarged AST's role in the oversight of commercial space launch activities to include licensing of reentries and reentry sites.

AST's mission is to ensure protection of the public, property, and national security and foreign policy interests of the United States during a commercial launch or reentry activity and to encourage, facilitate, and promote U.S. commercial space transportation. AST's mission is accomplished through both the regulation of commercial space launch and reentry activities and the promotion of industry growth. Low-cost, reliable access to space is the foundation on which many other commercial and strategic applications of space technology are based. The benefits and spin-offs from these technologies touch almost every aspect of the ability of the United States to remain at the forefront of world technology advancement and economic prosperity.

AST's Experience

During 2003, the FAA licensed eight commercial launches. Four Atlas launches originated from Cape Canaveral Air Force Station in Florida, three Sea Launch missions were carried out from an equatorial platform in the Pacific Ocean and one Pegasus XL was launched from Vandenberg Air Force Base in California. The graph below compares U.S. commercial launches (FAA licensed orbital and suborbital) with international commercial launches (internationally competed launch services).



Environmental Requirements

The National Environmental Policy Act (NEPA) of 1969 requires that Federal agencies consider the environmental consequences of proposed Federal actions. Licensing commercial launches, reentries, launch sites, or reentry sites is considered a Federal action. Consequently, AST is responsible for analyzing the environmental impacts associated with proposed licensed launch activities and all reasonable alternatives, including the "No Action" alternative.

Before AST can issue a license the environmental review component of the licensing process must be satisfied through the preparation of an environmental determination. AST is also responsible for preparing appropriate environmental documents such as Environmental Assessments (EAs) and Environmental Impact Statements (EISs) required pursuant to NEPA.

In addition to NEPA there are other Federal, state, and local environmental requirements that may apply. AST integrates its compliance and monitoring requirements with all applicable laws to the maximum extent possible.

NEPA Analysis

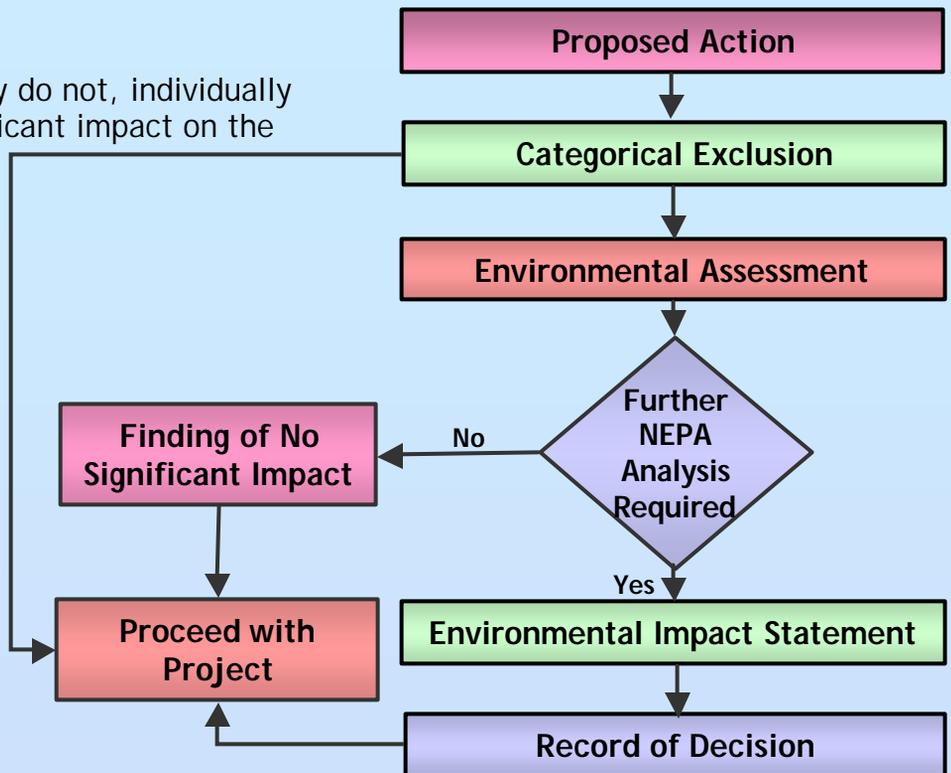
The FAA determines the type of environmental analysis that is appropriate for each project. The analysis may be contained in a Categorical Exclusion (CATEX), EA, EIS, or Written Reevaluation (WR).

CATEX: Actions that normally do not, individually or cumulatively, have a significant impact on the quality of the human environment.

EA: Analysis of a proposed action and reasonable alternatives (including no action) that could result in preparation of an EIS or a Finding of No Significant Impact (FONSI).

EIS: Detailed analysis of environmental consequences of a proposed action and reasonable alternatives (including no action), cumulative impacts, and mitigation actions.

WR: FAA-specific analysis which may be appropriate when the proposed action conforms to prior EISs or FONSI for the same project, data and analyses in previous EISs or FONSI are substantially valid, and all conditions and requirements of prior approval have been or will be met in the current action.



Questions about

Programmatic Environmental Analyses

What is a Programmatic Environmental Analysis? A programmatic environmental analysis is used when similar proposed actions share common timing or geography. A broad plan or action that includes a number of phases, activities, or individual actions is analyzed. Programmatic analysis can save resources by providing NEPA coverage for entire programs, allowing subsequent NEPA analyses to tier from the programmatic analysis and therefore be more narrowly focused on specific activities at specific locations.

What is tiering? Tiering refers to addressing general matters in broad EISs, and then preparing narrower analyses that concentrate solely on the issues specific to a particular proposed action. Council on Environmental Quality (CEQ) has stated that tiering can reduce paperwork and unnecessary duplication. For FAA this means reducing the burden on applicants and facilitating the environmental review portion of the licensing process.

What is the time required for a Programmatic EIS (PEIS)? CEQ encourages streamlined review, adoption of deadlines, elimination of duplicative work, eliciting suggested alternatives and other comments early through scoping, cooperation among agencies, and consultation with applicants during project planning. The average time for the PEIS process is approximately 12 to 18 months. A PEIS may entail difficult long-term planning or acquisition of data, and could require more time.

Accomplishments

Alaska Aerospace Development Corporation: AST prepared a WR for the Alaska Aerospace Development Corporation's Launch Site Operator License renewal for the Kodiak Launch Complex in Kodiak, Alaska. AST also prepared a WR to support a license modification to include a maintenance and storage facility. In addition, AST prepared a Biological Assessment for the Steller sea lion and Gray and Humpback whales that can occur in the waters around the Kodiak Launch Complex.



Steller Sea Lion Bull

Photo Source: NMFS



Mojave Airport, Mojave California

Photo Source: www.mojaveairport.com

East Kern Airport District (EKAD): AST completed an EA for a Launch Site Operator License for the EKAD to operate a launch site at the Mojave Airport. Because of the proximity of the airport to Edwards Air Force Base, the U.S. Air Force participated as a cooperating agency in preparation of the EA. AST conducted public hearings to inform the public of the proposed action and collect comments from members of the public.

Reusable Launch Vehicle (RLV) Workshop: AST held a workshop for RLV Developers to explain FAA's launch license application process. The goal was to enhance the working level understanding of the launch licensing process and to facilitate the preparation of a launch license application. The workshop addressed launch application submittal obligations including policy, safety, payload, and environmental reviews, and maximum probable loss determination.

Cooperative Efforts

Ground-Based Midcourse Defense Extended Test Range EIS: AST participated as a cooperating agency on an EIS with the Missile Defense Agency (MDA). The MDA proposed to conduct single and dual launches at the Kodiak Launch Complex to support testing of the Ballistic Missile Defense System. The Final EIS was published in July 2003.

C17 Aircrew Program Changes EA: AST is participating as a cooperating agency on an EA with the U.S. Air Force, Altus Air Force Base, because of common proposed uses of the Clinton-Sherman Industrial Airpark in Burns Flat, Oklahoma.

Falcon Launch Vehicles Program EA for Vandenberg Air Force Base, California: The U.S. Air Force was the lead agency in developing an EA to address the environmental impacts of launching a new launch vehicle developed by Space X corporation. AST participated as a cooperating agency in the development of the EA. The Final EA was released in July 2003.

On-Going Activities



X-Prize Applicant over the Mojave Desert

Photo source: xprize.org

RLV NEPA Study: AST is studying existing NEPA analyses conducted by the FAA and other Federal agencies that may identify ways to help license applicants avoid excessive costs and delays for unnecessary or redundant environmental reviews. AST is doing this to facilitate the testing of RLV concepts while ensuring compliance with NEPA.

PEIS for Licensing Launches of Horizontally Launched Vehicles and Reentry of Reentry Vehicles: AST is preparing a PEIS to address the environmental impacts associated with licensing the launch of horizontally launched vehicles and the reentry of reentry vehicles. The PEIS will update and replace the 1992 PEIS for Commercial Reentry Vehicles and address the launch and landing of horizontally launched vehicles and the reentry of all reentry vehicles. AST published a Notice of Intent to Prepare a PEIS in the Federal Register on August 20, 2003. AST established a web site for sharing information about the PEIS with Federal, state, and local agencies; Native American groups; industry; and members of the public. The FAA requested comments on the scope of the PEIS be submitted by October 31, 2003, and AST is in the process of considering comments and developing a Draft PEIS.

Oklahoma Launch Facility EIS: AST is preparing an EIS for a proposed launch site in Western Oklahoma. The preferred location is the Clinton-Sherman Industrial Airpark which is currently used by civilian and military aircraft as a training facility. Because of the U.S. Air Force's use of the facility, the Air Force will participate as a cooperating agency in the NEPA process. The Draft EIS is expected to be released to the public in 2004. Public Hearings will be held in Burns Flat and Oklahoma City, Oklahoma.

Commercial Space Launch Facilities Proposed for New Mexico and Texas: AST is providing guidance and direction to organizations in these states planning commercial space launch facilities. AST has reviewed preliminary environmental documentation and provided feedback to a number of states, in addition to New Mexico and Texas.

PEIS for Licensing Launches of Horizontally Launched Vehicles and Reentry of Reentry Vehicles

The proposed action for the PEIS is to license the launch of horizontally launched vehicles and the reentry of reentry vehicles. The scope of the PEIS would include launches on both orbital and suborbital trajectories.

Reentry, as defined in 14 CFR § 401.5, means “to return or attempt to return, purposefully, a reentry vehicle and its payload, if any, from Earth orbit or from outer space to Earth.”

Reentry vehicle, as defined in 14 CFR § 401.5, means “a vehicle designed to return from Earth orbit or outer space to Earth substantially intact. A reusable launch vehicle that is designed to return from Earth orbit or outer space to Earth substantially intact is a reentry vehicle.”

Launch, as defined in 14 CFR § 401.5, means “to place or try to place a launch vehicle or reentry vehicle and any payload from Earth in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space, and includes activities involved in the preparation of a launch vehicle for flight, when those activities take place at a launch site in the United States.”

The PEIS is addressing the impacts of launches and reentries that have not been previously analyzed including

- Horizontal launches
- Powered vertical reentries
- Powered horizontal reentries
- Unpowered vertical reentries
- Unpowered horizontal reentries



Fact Sheets Provided on AST Web Site

Alternatives to the proposed action may include activities such as not licensing horizontal launches, not licensing vertical reentries, not licensing horizontal reentries, not licensing powered reentries, and not licensing unpowered reentries.

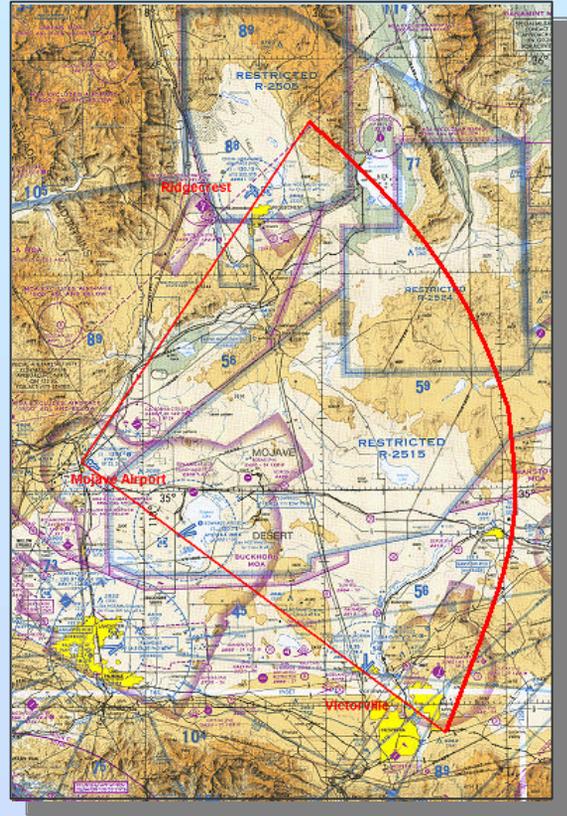
The PEIS will update and replace the 1992 PEIS for Commercial Reentry Vehicles and will, in conjunction with the 2001 PEIS for Licensing Launches, serve as a tiering document for future site-specific NEPA analyses.

EKAD Launch Site Operator License EA

The EA addresses the environmental impacts of a proposed action at the Mojave Airport. Under the proposed action, the FAA would issue a launch site operator license to the EKAD to operate a launch facility at the Mojave Airport. For this proposed action, the EKAD identified two types of launch vehicles, referred to as Concept A and Concept B, which would be typical of vehicles that would operate at the Mojave Airport.

The proposed action/preferred alternative would include launches of both Concept A and Concept B launch vehicles.

The EA assesses environmental impacts associated with the proposed action and alternatives to the proposed action, including the no action alternative. Alternatives to the proposed action include issuing a launch site operator license to the EKAD for the operation of a launch site at the Mojave Airport for only Concept A launch vehicles or only Concept B launch vehicles.



Region of Influence

Source: www.maps.com

Concept A vehicle characteristics:

- Air-drop design
- Airplane and launch vehicle mated together, airplane carries launch vehicle to altitude
- Launch vehicle is dropped and rocket engines ignite

Concept B vehicle characteristics:

- Horizontally launched vehicle
- Uses rocket power to take off from standard runway
- Lands horizontally on runway

The analysis of impacts in the EA include consideration of: air quality, airspace, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, land use, noise, safety and health, socioeconomics and environmental justice, transportation, visual resources, and water resources.

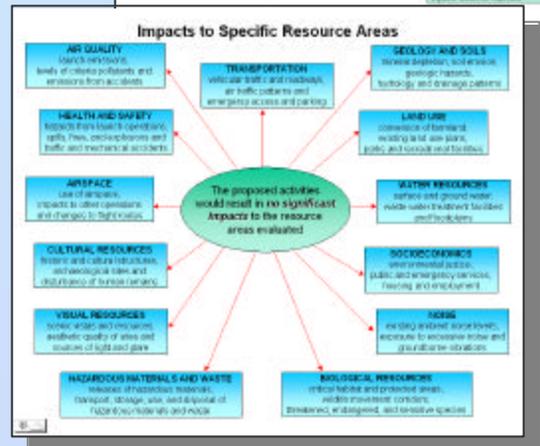
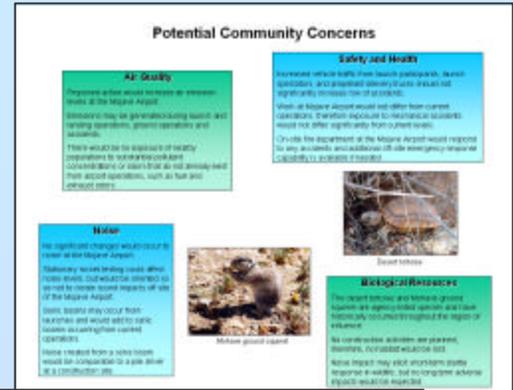
There were no significant impacts identified for any resource area, and there were no significant cumulative impacts identified in the analysis.

EKAD

Launch Site Operator License EA

Public Hearing

The Draft EA was released for public comment on October 31, 2003. A Notice of Availability appeared in the Federal Register on November 6, 2003, which initiated the comment period under NEPA. AST hosted a public hearing on December 10, 2003 in Mojave, CA. The public hearing was held to request and record comments on the Draft EA. The public hearing consisted of a presentation by the AST, a public comment session, and an informal poster session with two poster stations and representatives available to answer questions. The AST presentation outlined the NEPA process, the proposed activities, and potential impacts to resource areas that may have been of particular concern to members of the community.



Informational Posters Presented at Public Hearing



AST Presentation at Public Hearing in Mojave, California

After the presentation, members of the public were requested to provide comments on the Draft EA. Six attendees provided oral comments; two commenters spoke on behalf of the EKAD; one spoke on behalf of the Mojave Town Council; the remaining three were from the public. Four written comments also were provided by the public. In addition to the public hearing, the public was provided the opportunity to comment through toll-free fax and phone numbers, mail, and e-mail.



For Additional
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Visit AST's website at <http://ast.faa.gov>