



**Federal Aviation  
Administration**

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**Survey of FAA-Licensed Commercial Space Launch Site Operators  
2007  
Analysis of Results**

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**FAA Office of Commercial Space Transportation  
April 25, 2007**

## EXECUTIVE SUMMARY

AST distributed survey forms to eight FAA-licensed commercial launch site operators, including the New Mexico Spaceport Authority, Space Florida, Alaska Aerospace Development Corporation, Spaceport Systems International (SSI), Mojave Air and Space Port, California, Oklahoma Space Industry Development Authority, Gulf Coast Regional Spaceport Development Corporation, Texas, and Virginia Commercial Space Flight Authority. AST received four responses from New Mexico, Space Florida, SSI, and Mojave.

Overall, these responses indicate a very high level of satisfaction in the AST licensing process and AST products and services. The AST annual Conference received excellent ratings from all four responders; the AST website received three excellent ratings and one satisfactory rating. With the current responses, the Conference, individual meetings, and COMSTAC meetings represented the most contact with AST. The Commercial Space Forecasts received three excellent ratings and one satisfactory rating. **All four companies assessed the overall quality and services provided by AST as excellent.**

AST received very useful comments from the representatives of the Mojave Air and Space Port (California) regarding the licensing process. This report includes recommendations regarding those comments.

## **Introduction**

On February 1, 2007, the FAA Office of Commercial Space Transportation (AST) sent customer service survey forms to 8 FAA-licensed commercial launch site operators. The surveys were sent to:

- The New Mexico Spaceport Authority (Spaceport America)
- Space Florida (Florida Space Authority Spaceport)
- Alaska Aerospace Development Corporation (Kodiak Launch Complex)
- Spaceport Systems International (SSI) (California Spaceport)
- Mojave Air and Space Port, California
- Oklahoma Space Industry Development Authority (Oklahoma Spaceport)
- Gulf Coast Regional Spaceport Development Corporation, Texas (Gulf Coast Regional Spaceport)
- Virginia Commercial Space Flight Authority (Mid-Atlantic Regional Spaceport)

AST has received completed survey forms (four) from the New Mexico Spaceport Authority, Space Florida, SSI, and Mojave. It is important to note that currently, the Gulf Coast Regional Spaceport is dissolved. David Stedman, Chief Executive Officer of the Spaceport Board, resigned in February.

## **Summary of Results**

### **Types of Interactions with AST**

- Licensing application process for the operation of a new launch site **(2 companies)**
- Licensing application process for renewal of launch site operator license **(3 companies)**
- Providing input/data regarding FAA Part 420 (Licensing and Safety Requirements for Operation of a Launch Site) and/or other Federal policy/legislation related to non-Federal launch sites **(2 companies)**
- Providing input/data regarding the Commercial Space Transportation Market Forecast **(1 company)**
- Attending an FAA Public Meeting regarding regulation development **(1 company)**
- Meeting with AST for information sharing, updating company activities **(4 companies)**
- Attending/Participation in the FAA Commercial Space Transportation Conference **(4 companies)**
- Attending a COMSTAC Meeting **(3 companies)**
- Requesting technical and other information from AST **(3 companies)**

**AST Products:**

<b>AST Product</b>	<b>Excellent</b>	<b>Satisfactory</b>	<b>Needs Improvement</b>	<b>No Rating</b>
AST Website	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>
AST Annual Conference	<b>4</b>		<b>0</b>	<b>0</b>
Commercial Space Transportation Forecasts	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>
Commercial Launch Report	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>
Economic Impact Report	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>
Environmental Documents	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>
Other Licensing/Safety Studies	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>
Developments and Concepts: Vehicles Technologies, and Spaceports	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>

**Licensing Process:**

<b>Type of Process</b>	<b>Excellent</b>	<b>Satisfactory</b>	<b>Needs Improvement</b>	<b>No Rating</b>
Providing information on relevant Federal Statutes, FAA regulations, AST guidelines	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>
Providing information on NEPA requirements for the licensing process	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>
Providing clear feedback and instructions throughout the licensing application process	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>
Providing feedback and guidance throughout the compliance monitoring period and/or on-site inspections	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>
Ensuring the confidentiality of proprietary	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>
Assessment of the overall quality and services provided by AST	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Analysis by Organization

### Spaceport Systems International (SSI)

#### I. AST/Industry Relations

1. **Types of Interactions:** SSI indicated four types of interactions with AST:
  - o The licensing application process for renewal of a launch site operator license;
  - o Meetings with AST for information sharing and updating company activities;
  - o Attending/Participation in the FAA Commercial Space Transportation Conference; and
  - o Requesting technical and other information from AST.
  
2. **AST Products/Services:** SSI indicated the following ratings:
  - o AST Website: **Excellent**
  - o AST Annual Conference: **Excellent**
  - o Commercial Space Transportation Forecasts: **Satisfactory**
  - o Commercial Launch Report: **Satisfactory**
  - o Economic Impact Report: **Satisfactory**
  - o Environmental Documents: **Satisfactory**
  - o Other Licensing/Safety Studies: **No Rating**
  - o Developments and Concepts publication: **No Rating**

#### II. The FAA/AST Licensing Process for Launch Site Operators

1. Providing information on relevant Federal Statutes, FAA regulations, AST guidelines: **Excellent**
2. Providing information on NEPA requirements for the licensing process: **Satisfactory**
3. Providing clear feedback and instructions throughout the licensing application process: **Excellent**
4. Providing feedback and guidance throughout the compliance monitoring period and/or on-site inspections: **Excellent**
5. Ensuring the confidentiality of proprietary data: **Excellent**
6. No Comments Submitted
7. Assessment of the overall quality and services provided by AST: **Excellent**

## New Mexico Spaceport Authority

### I. AST/Industry Relations

**1. Types of Interactions:** New Mexico indicated five types of interactions with AST:

- o Licensing application process for the operation of a new launch site;
- o Providing input/data regarding FAA Part 420 (Licensing and Safety Requirements for Operation of a Launch Site) and/or other Federal policy/legislation related to non-Federal launch sites;
- o Meeting with AST for information sharing and updating company activities;
- o Attending/Participation in the FAA Commercial Space Transportation Conference; and
- o Attending a COMSTAC Meeting.

**2. AST Products/Services:**

- o AST Website: **Excellent**
- o AST Annual Conference: **Excellent**
- o Commercial Space Transportation Forecasts: **Satisfactory**
- o Commercial Launch Report: **Excellent**
- o Economic Impact Report: **Excellent**
- o Environmental Documents: **Excellent**
- o Other Licensing/Safety Studies: **Excellent**
- o Developments and Concepts publication: **Excellent**

### II. The FAA/AST Licensing Process for Launch Site Operators

1. Providing information on relevant Federal Statutes, FAA regulations, AST guidelines: **Excellent**
2. Providing information on NEPA requirements for the licensing process: **Excellent**
3. Providing clear feedback and instructions throughout the licensing application process: **Excellent**
4. Providing feedback and guidance throughout the compliance monitoring period and/or on-site inspections: **No Rating**
5. Ensuring the confidentiality of proprietary data: **Excellent**
6. No Comments Submitted
7. Assessment of the overall quality and services provided by AST: **Excellent**

## Space Florida

### I. AST/Industry Relations

**1. Types of Interactions:** New Mexico indicated five types of interactions with AST:

- o Licensing application process for renewal of a launch site operator license;
- o Meeting with AST for information sharing and updating company activities;
- o Attending/Participation in the FAA Commercial Space Transportation Conference;
- o Attending a COMSTAC Meeting; and
- o Requesting technical and other information from AST

**2. AST Products/Services:**

- o AST Website: **Excellent**
- o AST Annual Conference: **Excellent**
- o Commercial Space Transportation Forecasts: **Satisfactory**
- o Commercial Launch Report: **Satisfactory**
- o Economic Impact Report: **Satisfactory**
- o Environmental Documents: **Satisfactory**
- o Other Licensing/Safety Studies: **Satisfactory**
- o Developments and Concepts publication: **Satisfactory**

### II. The FAA/AST Licensing Process for Launch Site Operators

1. Providing information on relevant Federal Statutes, FAA regulations, AST guidelines: **Excellent**
2. Providing information on NEPA requirements for the licensing process: **Excellent**
3. Providing clear feedback and instructions throughout the licensing application process: **Excellent**
4. Providing feedback and guidance throughout the compliance monitoring period and/or on-site inspections: **Excellent**
5. Ensuring the confidentiality of proprietary data: **Excellent**
6. No Comments Submitted
7. Assessment of the overall quality and services provided by AST: **Excellent**

## Mojave Air and Space Port

### I. AST/Industry Relations

**1. Types of Interactions:** New Mexico indicated nine (all that are listed) types of interactions with AST:

- o Licensing application process for the operation of a new launch site;
- o Licensing application process for renewal of a launch site operator license;
- o Providing input/data regarding FAA Part 420 (Licensing and Safety Requirements for Operation of a Launch Site) and/or other Federal policy/legislation related to non-Federal launch sites;
- o Providing input/data regarding the Commercial Space Transportation Market Forecast;
- o Attending an FAA Public Meeting regarding regulation development;
- o Meeting with AST for information sharing and updating company activities;
- o Attending/Participation in the FAA Commercial Space Transportation Conference;
- o Attending a COMSTAC Meeting; and
- o Requesting technical and other information from AST

**2. AST Products/Services:**

- o AST Website: **Satisfactory**
- o AST Annual Conference: **Excellent**
- o Commercial Space Transportation Forecasts: **Excellent**
- o Commercial Launch Report: **Excellent**
- o Economic Impact Report: **Excellent**
- o Environmental Documents: **Excellent**
- o Other Licensing/Safety Studies: **Excellent**
- o Developments and Concepts publication: **Excellent**

### II. The FAA/AST Licensing Process for Launch Site Operators

1. Providing information on relevant Federal Statutes, FAA regulations, AST guidelines: **Needs Improvement (SEE Comments Below)**

**Comments:** Mojave Air and Space Port in conjunction with XCOR Aerospace took exception to 14 CFR Part 420 when it came to compliance with Department of Defense standards for Energetic Liquid Plan for storage and use. We were pleased that AST after extensive study and research decided to apply nationally recognized standards such as the National Fire Protection Association (NFPA) standards.

2. Providing information on NEPA requirements for the licensing process: **Excellent (SEE Comment Below)**

**Comment:** AST led the effort on this and it was very much appreciated due to the associated cost.



3. Providing clear feedback and instructions throughout the licensing application process: **Satisfactory (SEE Comment Below)**

**Comment:** Duplication was an issue during some aspects of the process. Overall the process worked.

4. Providing feedback and guidance throughout the compliance monitoring period and/or on-site inspections: **Needs Improvement (SEE Comments Below)**

**Comments:** AST conducted an on-site safety review in 2006. We were overall disappointed with the visit, especially the depth and breadth of the "Inspection." All documents were presented for review and not even looked at by the AST staff. There was no specific agenda for the review. Some discussion on the Explosive Site Plan with the XCOR representatives took place. To quote Stuart Witt, "You get what you Inspect not what you Expect." It is professionally expected that on-site inspections will and should occur from time to time. Inspections should be professionally scripted, documented and actually conducted in order to assure licenses are in compliance with AST license constraints.

5. Ensuring the confidentiality of proprietary data: **Excellent (SEE Comment Below)**

**Comment:** No problems or issues in this area.

6. Comments and observations regarding the AST licensing process for launch site operators, e.g., things that you would change, or additional information you would like to have. **(SEE Comments Below)**

**Comments:** Primarily because the Fish and Wildlife survey was not complete at the time of the SS1 flights, there was way too much emphasis placed on checking for desert tortoises. To the point that before we could clear SS1 for landing we had to conduct a survey to insure [sic] there were no desert tortoises on the runway. This detracted from the many more important issues at hand. A form also had to be completed and faxed to Washington, DC within 24 hours.

7. Assessment of the overall quality and services provided by AST: **Excellent SEE Comments Below)**

**Comments:** The staff at the Mojave Air and Space Port brings a unique and diverse level of experience to the AST licensing process and enjoys working with AST staff as this emerging business evolves.

### Recommendations

1. Conduct internal meeting on comments received from Mojave.
2. Obtain additional feedback from launch site operators that did not respond to the survey through email, via telephone interview, or meeting.
3. Compare feedback from these companies with the results of this survey.
4. Obtain feedback from additional companies proposing the development of a non-Federal launch site.
5. Compare feedback from these companies with the results of this survey.
6. Meet with representatives from Mojave (and other companies if feedback is similar) to discuss concerns.
7. Develop proposals for improving processes of concern.