31st Annual
FY2019 DOI Aviation Safety
Summary and Annual Report

HTTPS://WWW.DOI.GOV/AVIATION

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Partnering for better, faster, cheaper, safer aviation missions
The Department’s aviation programs are built on Federal Aviation Administration (FAA) regulatory requirements, Federal Management Regulations (FMR), Departmental regulations (DMs), and industry best practices.

Despite the many layers of regulations designed to promulgate safety and efficiency, none of them are as impactful as culture. Sanctioned by leadership action (or inaction), it is the foundation of beliefs, values and attitudes that become shared by the majority of people within the company or workplace or otherwise characterized as 'the way we do things around here'.

Leaders should ask themselves “do I accept the way we do things around here?”

The Department of the Interior’s Aviation Safety and Aircraft Accident Prevention program is founded on the four pillars of an integrated Safety Management System (SMS):

**Office of Aviation Services * Bureaus * Industry**

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The U.S. Department of the Interior (DOI) ended the year recording one incident with potential (IWP) and two accidents. The annual aircraft accident rate is 3.68 per 100,000 flight hours, a decrease of 1.42 from last year. The DOI mishap rate is 5.51, which is a decrease of 6.37 from the previous year. Zero aircraft accidents is an attainable goal. We must meet and exceed expectations set for ourselves through training, safety guidelines, and safety tools.

As of October 1, 2019, flight data captured 54,415 total flight hours (approximately 4,496 hours less than the 58,911 hours flown in FY2018). Flights on contracted aircraft accounted for 41,066 hours (75% of all hours flown). The remaining 13,349 hours, or 25%, utilized bureau-owned fleet aircraft.

Since 1975, DOI’s aviation safety program has resulted in estimated savings of $727M to the Department and its supporting vendors in reduced losses. Flight missions performed for DOI were supported in part by bureau requested and OAS supported aviation contracts that required 1,706 vendor pilot evaluations, 1,125 vendor aircraft inspections, 141 Interior fleet pilot evaluations, and 95 Interior fleet aircraft inspections. Aviation Training supported 674 instructor led course offerings, accounting for 5,285 available student hours of training and the Interagency Aviation Training website recorded 40,428 course completions (30,429 Online, 7,400 Residential Classroom, 1,648 ACE| Workshop, 939 Webinars, and 12 Video Teleconferencing course completions).
### FY19 Mishap Overview

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Severity</th>
<th>Operator</th>
<th>Aircraft</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bering Land Bridge National Preserve, AK</td>
<td>4-15-19</td>
<td>Accident</td>
<td>Fleet NPS Alaska</td>
<td>Cessna 185F</td>
<td>While en-route to pick up another employee, the aircraft impacted the terrain. Pilot was rescued and airlifted to Anchorage for medical treatment.</td>
</tr>
<tr>
<td>Ennis, MT</td>
<td>7-17-19</td>
<td>Accident</td>
<td>Contractor USGS Midcontinent</td>
<td>Aviat Husky A-1A</td>
<td>Aircraft impacted the terrain while conducting a wildlife survey.</td>
</tr>
<tr>
<td>Dahl Creek, AK</td>
<td>8-10-19</td>
<td>IWP</td>
<td>Contractor BLM Alaska</td>
<td>Cessna 208 Caravan / Bell 205 A++</td>
<td>Near mid-air collision between two contracted aircraft during demobilization operations.</td>
</tr>
</tbody>
</table>

#### Incidental Cost associated with Mishaps

<table>
<thead>
<tr>
<th>Cost Input</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOI Losses (includes aircraft repair/recovery/replacement, loss of availability)</td>
<td>$ 277,500</td>
</tr>
<tr>
<td>Vendor Losses (includes aircraft repair/recovery/replacement, loss of availability)</td>
<td>$ 150,000</td>
</tr>
<tr>
<td>DOI sUAS Losses (includes airframe repair/replacement)</td>
<td>$ 10,094</td>
</tr>
<tr>
<td>Fatalities (0) VSL**</td>
<td>$ 0</td>
</tr>
<tr>
<td>Minor Injuries (1) Serious Injuries (1)</td>
<td>$ 1,036,800</td>
</tr>
<tr>
<td><strong>Total Costs (3 Manned Mishaps, 6 sUAS Mishaps)</strong></td>
<td><strong>$ 1,474,394</strong></td>
</tr>
</tbody>
</table>

** Value of Statistical Life (VSL) $9.6 Million - [U.S. Department of Transportation](https://www.transportation.gov)**

Minor and Serious injuries are calculated as a fraction of VSL: 0.003 and 0.105, respectively

#### DOI Flight Usage Cost

Cost associated with flight hours only

<table>
<thead>
<tr>
<th>Procurement Type</th>
<th>Annual Flight Usage Cost</th>
<th>Annual Flight Hours</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>$63,330,326</td>
<td>41,066</td>
<td>$1,542</td>
</tr>
<tr>
<td>• Rotor wing</td>
<td>$27,235,876</td>
<td>21,402</td>
<td>$1,273</td>
</tr>
<tr>
<td>• Fixed wing</td>
<td>$36,094,450</td>
<td>19,664</td>
<td>$1,836</td>
</tr>
<tr>
<td>Fleet*</td>
<td>$5,674,318</td>
<td>13,349</td>
<td>$ 425</td>
</tr>
<tr>
<td>• Rotor wing</td>
<td>$1,876,027</td>
<td>1,274</td>
<td>$1,473</td>
</tr>
<tr>
<td>• Fixed wing</td>
<td>$3,798,291</td>
<td>12,075</td>
<td>$ 315</td>
</tr>
<tr>
<td><strong>Total Usage</strong></td>
<td>$ 69,004,644</td>
<td>54,415</td>
<td>$1,268</td>
</tr>
</tbody>
</table>

These rates are associated to pay item codes that correspond with flight hours only. They do not include monthly rates, availability, standby, etc...

*Not included: An additional 612 Fleet aircraft flight hours flown by external use customers in FY19 (associated usage cost: $883,479 or $1,443 per flight hour)
In FY19, the DOI accident rate decreased to 3.68 accidents for every 100,000 hours flown, a 28% decrease from the previous year.
Department of the Interior Fleet Aircraft, Pilots, and Inspectors

Note: Fleet aircraft and pilots occasionally move their home base location. For the latest information on current locations, please contact the L48 Fleet Maintenance Manager at 208-433-5082 or the Alaska Fleet Maintenance Manager at 907-271-6104. Aircraft locations can also be found at the following link: https://sites.google.com/a/ibc.doi.gov/aviation-resources/doi-fleet
DOI Fleet Aircraft: 87
(average age: 23 years old - six years less than the average federal operation aircraft age of 29)

<table>
<thead>
<tr>
<th># of Aircraft</th>
<th>Type of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aerospatiale AS350</td>
</tr>
<tr>
<td>1</td>
<td>Aviat A-1B Husky</td>
</tr>
<tr>
<td>2</td>
<td>Beechcraft BE200 King Air</td>
</tr>
<tr>
<td>2</td>
<td>Bell 206 B-3</td>
</tr>
<tr>
<td>2</td>
<td>Bell 206 L-3</td>
</tr>
<tr>
<td>2</td>
<td>Bell 412</td>
</tr>
<tr>
<td>3</td>
<td>Cessna 182</td>
</tr>
<tr>
<td>13</td>
<td>Cessna 185</td>
</tr>
<tr>
<td>21</td>
<td>Cessna 206</td>
</tr>
<tr>
<td>20</td>
<td>Cub Crafters CC-18 Top Cub</td>
</tr>
<tr>
<td>2</td>
<td>DHC2 MK1 Beaver</td>
</tr>
<tr>
<td>1</td>
<td>DHC-6-300 Twin Otter</td>
</tr>
<tr>
<td>6</td>
<td>Found FBA 2C</td>
</tr>
<tr>
<td>1</td>
<td>Partenavia P-68 Observer</td>
</tr>
<tr>
<td>1</td>
<td>Pilatus PC-12</td>
</tr>
<tr>
<td>1</td>
<td>Piper PA-18 Super Cub</td>
</tr>
<tr>
<td>8</td>
<td>Quest Kodiak 100</td>
</tr>
</tbody>
</table>

DOI Fleet Pilots: 89

- Manned Aircraft Pilots: 74
  - Pilot: 19
  - Dual Function Pilot: 54
  - Trainee: 2
- Inspector Pilots: 15

(1.02 pilots per manned aircraft)

Note: A pilot to aircraft ratio of at least 1.0 or greater is desirable.

High Diversity Rate
A low fleet diversity is desirable, due to savings in training and maintenance.
Fleet Unmanned Aircraft Systems (sUAS)

DOI sUAS
Fleet Pilots: 468

DOI sUAS
Fleet Aircraft: 810

<table>
<thead>
<tr>
<th>#</th>
<th>Aircraft Make/Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>486</td>
<td>3DR Solo</td>
</tr>
<tr>
<td>144</td>
<td>Parrot Anafi</td>
</tr>
<tr>
<td>74</td>
<td>DJI Mavic Pro</td>
</tr>
<tr>
<td>45</td>
<td>DJI Matrice 600 (M600)</td>
</tr>
<tr>
<td>24</td>
<td>Parrot Anafi Thermal</td>
</tr>
<tr>
<td>24</td>
<td>FireFLY6 PRO</td>
</tr>
<tr>
<td>5</td>
<td>Autel Evo</td>
</tr>
<tr>
<td>8</td>
<td>OTE Aircraft (Testing)</td>
</tr>
</tbody>
</table>

FY10-19 sUAS Flights

FY19 Fleet sUAS Activity

BY AIRCRAFT:
- 3DR Solo, 72%
- DJI M600, 10%
- Parrot Anafi, 8%
- H520G, 0%
- Autel EVO, 1%
- FireFly, 2%
- DJI Mavic Pro, 7%

BY BUREAU:
- BLM, 32%
- USGS, 27%
- USBR, 7%
- USFS, 7%
- NPS, 6%
- OSMRE, 5%
- OAS, 2%
- FWS, 12%
- Other, 1%
- BIA, 1%
- AVSO, 0%
## FY19 Aviation Overview

### FY19 BIA Fleet Statistics

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>Total Flights</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>1,411</td>
<td>$ 2,290,851</td>
<td>$ 1,624</td>
<td></td>
</tr>
<tr>
<td>Fleet</td>
<td>1,190</td>
<td>$ 1,031,945</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FY19 BIA sUAS Flights

- **Total Flights:** 112
- **Principal Mission Types:**
  - Pilot Proficiency/ Pilot Training
  - Air Crew Training
  - Mapping – Non-Fire
  - Test and Evaluation
  - Reconnaissance
- **Aircraft Systems Used:**
  - 3DR Solo
  - Parrot Anafi

### FY19 BLM Fleet Statistics

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>Total Flights</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>23,153</td>
<td>$ 43,578,937</td>
<td>$ 1,882</td>
<td></td>
</tr>
<tr>
<td>Fleet</td>
<td>1,190</td>
<td>$ 1,031,945</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FY19 BLM sUAS Flights

- **Total Flights:** 3,618
- **Principal Mission Types:**
  - Pilot Proficiency/ Training
  - Mapping – Non-Fire
  - Reconnaissance
  - Mapping Interagency Fire
  - Habitat/Environmental Evaluations
  - PSD aerial ignition
- **Aircraft Systems Used:**
  - 3DR Solo
  - Firefly
  - DJI MavicPro
  - DJI M600
  - Parrot Anafi

### Dual Function Pilots:
Pilots who also have another job.
(Ex. Scientist)

### SAFECOM

- BIA has a perfect SAFECOM completion rate of 100% with no SAFECOMs remaining open from 2015 to 2019. BIA’s manned aircraft SAFECOM reporting rate increased 46% from FY18 and the sUAS SAFECOM reporting rate increased 100% from FY18.
- BIA manned aircraft flight hours decreased 39% from FY18. Total BIA sUAS flights decreased 2% from FY18.

- BLM ended FY19 with a completion rate of 100% with no SAFECOMs remaining open from 2015 to 2019. BLM’s manned aircraft SAFECOM reporting rate decreased 10% from FY18, while the sUAS SAFECOM reporting rate decreased 6% from FY18.
- Aviation Mishaps = 1 Incident with Potential (IWP)
  - BLM manned aircraft flight hours decreased 5% from FY18.
  - Total BLM sUAS flights decreased 7% from FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.
FY19 Aviation Overview

**SAFECOM**
No SAFECOMs were submitted by BOEM in FY19 and no SAFECOMs remain open for the period between 2015 and 2018. BOEM manned aircraft flight hours increased 11% over FY18. BOEM did not have any sUAS flights in FY19.

**SAFECOM**
BSEE has a perfect SAFECOM completion rate of 100% with no SAFECOMs remaining open from 2015 to 2019. BSEE’s manned aircraft SAFECOM reporting rate decreased 34% from FY18. BSEE manned aircraft flight hours increased 5% from FY18. BSEE did not have any sUAS flights in FY19.

**SAFECOM**
FWS finished the year with a 100% SAFECOM completion rate and no SAFECOMs remain open for fiscal years 2015 to 2019. FWS’s manned aircraft SAFECOM reporting rate decreased 41% from FY18, while the sUAS SAFECOM reporting rate increased 476% from FY18. FWS manned aircraft flight hours decreased 7% from FY18. Total FWS sUAS flights increased 39% over FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.
FY19 Aviation Overview

**FY19 NPS Fleet Statistics**

<table>
<thead>
<tr>
<th>Manned Aircraft</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>6,149</td>
<td>$ 6,607,762</td>
<td>$ 1,075</td>
</tr>
<tr>
<td>Fleet</td>
<td>4,270</td>
<td>$ 2,113,846</td>
<td>$ 495</td>
</tr>
</tbody>
</table>

**FY19 NPS sUAS Flights**

<table>
<thead>
<tr>
<th>Principal Mission Types</th>
<th>Aircraft Systems Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot Proficiency/ Pilot Training</td>
<td>3DR Solo</td>
</tr>
<tr>
<td>Air Crew Training</td>
<td>Parrot Anafi</td>
</tr>
<tr>
<td>Reconnaissance</td>
<td>DJI Mavic Pro</td>
</tr>
<tr>
<td>Mapping – Non-Fire</td>
<td>DJI M600</td>
</tr>
<tr>
<td>Reconnaissance</td>
<td>FireFly</td>
</tr>
</tbody>
</table>

| Total Flights | 588 |

**FY19 OSMRE Fleet Statistics**

<table>
<thead>
<tr>
<th>Manned Aircraft</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>16</td>
<td>$ 8,313</td>
<td>$ 510</td>
</tr>
</tbody>
</table>

**FY19 OSMRE sUAS Flights**

| Total Flights | 516 |

**FY19 AVSO Fleet Statistics**

<table>
<thead>
<tr>
<th>Manned Aircraft</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>5</td>
<td>$ 3,797</td>
<td>$ 730</td>
</tr>
</tbody>
</table>

**FY19 AVSO sUAS Flights**

| Total Flights | 3 |

**SAFECOM**

OSMRE submitted 0 SAFECOMs in FY19. Their manned aircraft SAFECOM reporting rate remained unchanged from the previous year, while their sUAS SAFECOM reporting rate decreased 100%.

OSMRE manned aircraft hours decreased 23% from FY18. Total sUAS flights increased 404% over FY18.

NPS has a SAFECOM completion rate of 72% with 17 SAFECOMs remaining open from 2015 to 2019. NPS manned aircraft SAFECOM reporting rate decreased 41% from the previous year, while the sUAS SAFECOM reporting rate decreased 66%.

Aviation Mishaps = 1 Accident

NPS manned aircraft flight hours decreased 17% from FY18. Total NPS sUAS flights increased 46% over FY18.

Aviation Mishaps = 1 Accident

NPS manned aircraft flight hours decreased 17% from FY18. Total NPS sUAS flights increased 46% over FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.
FY19 Aviation Overview

**FY19 USBR Fleet Statistics**

<table>
<thead>
<tr>
<th>Manned Aircraft</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>69</td>
<td>$80,376</td>
<td>$1,163</td>
</tr>
<tr>
<td>Fleet</td>
<td>13</td>
<td>$5,934</td>
<td>$446</td>
</tr>
</tbody>
</table>

**FY19 USGS Fleet Statistics**

<table>
<thead>
<tr>
<th>Manned Aircraft</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>1,689</td>
<td>$1,160,795</td>
<td>$687</td>
</tr>
<tr>
<td>Fleet</td>
<td>96</td>
<td>$25,086</td>
<td>$261</td>
</tr>
</tbody>
</table>

**FY19 USBR sUAS Flights**

- **Total Flights**: 732
- **Principal Mission Types**:
  - Mapping – Non-Fire
  - Pilot Proficiency / Pilot Training
  - Reconnaissance
  - Air Crew Training
  - Test & Evaluation
  - Auto Surveyor
  - Maintenance Flights
- **Aircraft Systems Used**:
  - 3DR Solo
  - Parrot Anafi

**FY19 USGS sUAS Flights**

- **Total Flights**: 3,170
- **Principal Mission Types**:
  - Mapping – Non-Fire
  - Habitat / Environmental Evaluations
  - Pilot Proficiency / Pilot Training
  - Test & Evaluation
  - Wildlife Surveys
  - Animal Counting
  - Reconnaissance
- **Aircraft Systems Used**:
  - 3DR Solo
  - DJI Mavic Pro
  - Parrot Anafi
  - DJI M600
  - Firefly

**SAFECOM**

USB has a SAFECOM completion rate of 67% with 1 SAFECOM remaining open for the period between 2015 and 2019. USBR’s manned aircraft SAFECOM reporting rate remained unchanged from FY18, while the SUAS SAFECOM reporting rate decreased 43% from FY18.

USBR manned aircraft flight hours increased 47% over FY18. Total USBR SUAS flights increased 4% over FY18.

USGS finished FY19 with a 100% SAFECOM completion rate and 0 SAFECOMs remaining open for 2015 to 2019. USGS manned aircraft SAFECOM reporting rate decreased 15% from FY18, while the suAS SAFECOM reporting rate decreased 23% from FY18.

Aviation Mishaps = 1 Accident

USGS manned aircraft flight hours increased 18% from FY18. Total USGS SUAS flights increased 7% over FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.
FY2019 DOI Annual Aviation Safety Summary

FY19 Aviation Overview

Office of Aviation Services

<table>
<thead>
<tr>
<th>Manned Aircraft</th>
<th>Annual Flight Hours</th>
<th>Annual Flight Usage Cost</th>
<th>Cost per Flight Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>33</td>
<td>$46,280</td>
<td>$1,420</td>
</tr>
<tr>
<td>Fleet</td>
<td>538</td>
<td>$257,681</td>
<td>$479</td>
</tr>
</tbody>
</table>

FY19 OAS Fleet Statistics

- **Manned Aircraft**: 2
- **Unmanned Aircraft**: 39

Manned Aircraft Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 Years</td>
<td>0</td>
</tr>
<tr>
<td>11-20 Years</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 20 Years</td>
<td>2</td>
</tr>
</tbody>
</table>

Inspector Pilots: 15

sUAS Pilots: 10

Manned Pilot-Aircraft Ratio: 7.5

Unmanned Pilot-Aircraft Ratio: 1.17

FY19 OAS sUAS Flights

- Total Flights: 336

Principal Mission Types

- Reconnaissance
- Test & Evaluation
- PSD aerial ignition
- Air Crew Training
- Pilot Proficiency/ Pilot Training

Aircraft Systems Used

- DJI M600
- 3DR Solo
- Parrot Anafi
- DJI Mavic Pro
- 3DR H520G

Performance & Safety Updates

Office of Aviation Services

PERFORMANCE

<table>
<thead>
<tr>
<th>Performance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interagency Safety Communications Issued</td>
<td>14</td>
</tr>
<tr>
<td>Program Evaluations completed</td>
<td>15</td>
</tr>
<tr>
<td>Elevated SAFECOMs completed</td>
<td>11</td>
</tr>
<tr>
<td>Student Hours of Training completed</td>
<td>70,408</td>
</tr>
<tr>
<td>Fleet Pilot Evaluations completed</td>
<td>141</td>
</tr>
<tr>
<td>Fleet Aircraft Inspections completed</td>
<td>95</td>
</tr>
<tr>
<td>UAS Aircraft Inspections completed: Fleet &amp; Vendor</td>
<td>230</td>
</tr>
<tr>
<td>UAS Pilots Inspections: A-450 &amp; Advanced Workshop</td>
<td>157</td>
</tr>
<tr>
<td>Commercial Pilot Evaluations</td>
<td>1,706</td>
</tr>
<tr>
<td>Commercial Aircraft Inspections</td>
<td>1,125</td>
</tr>
<tr>
<td>Point to Point Inspections</td>
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<td>Fuel Service Vehicle Inspections</td>
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<tr>
<td>Cooperator Approvals</td>
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<td>Technical Specifications for procurement reviewed and/or created</td>
<td>38</td>
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Aircraft Mishap Review Board (AMRB) Update

DOI Bureaus and the Office of Aviation Services continued their efforts towards closing open Aircraft Mishap Review Board (AMRB) recommendations. As of January 2020, 23 AMRB recommendations remained open. A multi-bureau team has been established to close them.

AMRB recommendations result from accidents that have claimed lives, caused injuries, and/or resulted in significant damages and are a bureau-led process with the goal of preventing similar mishaps from occurring again in the future.

In FY19, three AMRBs resulted in 15 additional recommended action items, of which 4 have already been closed.

OAS ended FY19 with a 100% SAFECOM completion rate and 0 SAFECOMs remaining open from 2015 to 2019. OAS manned aircraft SAFECOM reporting rate increased less than 1% from FY18 and there were 0 sUAS SAFECOMs reports in FY19, a decrease of 100% over the previous year.

OAS manned aircraft flight hours increased 33% from FY18. Total number of OAS sUAS flights decreased 70% from FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.
FY19 Safety & Training Updates

OAS Training Division Update

In FY19, the OAS Training Branch successfully hosted 2 Aviation Centered Training events. The events were held in Vancouver, WA and Minneapolis, MN and averaged 113 students per event. In total, the OAS Training Branch supported 674 instructor led course offerings accounting for 5,285 available student hours of training and the Interagency Aviation Training website recorded 40,428 course completions:

- 30,429 Online
- 7,400 Residential Classroom
- 1,648 ACE| Workshop
- 939 Webinars
- 12 Video Teleconferencing

OAS Training has begun revising and updating the complete library of online courses. Newly updated versions of A-100 Basic Aviation Safety, A-110 Aviation Transportation of Hazardous Materials, and M-3 DOI Aviation Management Training for Supervisors are in the final stages of approval. Other updating efforts have been initiated on A-103 FAA NOTAM Systems, A-115 Automated Flight Following, A-203 Basic Airspace, A-204 Aircraft Capabilities and Limitations and A-207 Aircraft Flight Following.

Other OAS Training initiatives include the continuous improvements to the IAT website. In 2019, we added several bureau specific training plans that supplement Departmental requirements. Additionally, we also made significant progress on the instructor qualification functionality that will enable users to locate qualified instructors as well as allow instructors to view their own qualifications.

ACE: Aviation Centered Education events continue to be a big success thanks to all of those who participate as students and as instructors! ACE allows DOI bureau and interagency partner personnel to acquire in one week required training that would otherwise take many months to complete. DOI employees and partner agencies will have two opportunities to attend ACE in FY20. The first event will be held in Anchorage, AK March 9-13 and the second opportunity will be in Phoenix, AZ April 13-17.

Be on the lookout for the FY21 ACE events to be announced in the near future.

Aviation Program Evaluation Update

Aviation program evaluations are an essential means of providing feedback related to the operations, process, and outcomes of aviation programs with a focus on program enhancement. This quality assurance system assesses aviation safety, ensures efficiency, and provides a means for sharing best practices.

Departmental Aviation Program Evaluations are conducted via a systematic process for analyzing and reporting information regarding aviation programs within the bureaus and their respective units. These assessments are tailored to meet departmental and bureau needs in terms of regulatory compliance and continual improvement. The evaluations also provide feedback regarding OAS’s effectiveness in communicating and implementation of DOI aviation policies, while identifying potential improvements to support the needs of the field.

FY19 Results & Top 5 Findings

In FY19, OAS conducted 15 aviation program evaluations amongst 8 bureaus resulting in a total of 82 findings and no material weaknesses. Findings, corrective actions, and aviation program enhancements were collaborated with bureau aviation managers. 36 Best Practices were observed and identified within evaluation final reports.

Top 5 Findings, 2015-2019
1. Aviation training requirements not met (per OPM-04 or more restrictive bureau requirements) » 82%
2. Inadequate project planning, including Project Aviation Safety Plan completion in accordance with OPM-06 » 71%
3. Incomplete, inaccurate and/or out of date Aviation Management Plans » 53%
4. Aviation Life Support Equipment (ALSE) inspection and tracking below Interagency ALSE Standard requirements » 49%
5. Flight Hazard Maps lacking or inadequate » 30%

Inadequate Aviation Management Plans and Project Aviation Safety Plans (PASPs) continue to account for a significant number of aviation program evaluation findings across the department. These deficiencies were also found in 34% of departmental aviation accidents and Incidents With Potential (IWPs) during this same period (2015-2019).

Operational Procedure Memorandum-06 (OPM-06) identifies National Aviation Management Plan standards, standardizes PASPs, and identifies management approval requirements for both types of plans. OPM-06 in conjunction with bureau specific National, Regional/State, and Local requirements should be utilized to address planning deficiencies and facilitate aviation safety improvements across the department.
As an integral part of aviation mission planning, Project Aviation Safety Plans (PASPs) must be developed for all special use missions (as defined in OPM-29 Special Use Activities for Manned Aircraft). Appendix 2 of OPM-06 identifies the minimum elements required within a PASP. Aviation Program Evaluations and mishap reports have consistently identified the following PASP elements to be inaccurate or lacking required content:

- **Participants** - List of individuals involved, their qualifications (e.g. Helicopter Manager, Fixed-Wing Flight Manager, Aircrew Member, etc.), individual project responsibilities, and dates of last aviation training associated with the position they will occupy.

- **Communication Plan, Flight Following and Emergency Search and Rescue** - Identify the procedures to be used that coincide with departmental and bureau requirements.

- **Aerial Hazard Analysis** - An aerial hazard analysis with attached map must be provided to the pilot before the flight.

- **Protective Clothing and Equipment** - Identify the required Aviation Life Support Equipment (ALSE) applicable for the operation. This includes both PPE and secondary restraint equipment.

- **Risk Assessment/SMS** - Risk assessment utilizing tools such as those listed in Appendix G of NWCG Standards for Helicopter Operations or a bureau approved Safety Management System (SMS).

- **Signatures** - Line Manager or appropriate level of approval based on the risk assessment or bureau specific requirements.

For those bureaus that perform similar special use aviation missions on a recurring or routine basis, the required PASP can be rolled into a station/unit aviation plan that is reviewed at least annually. In this instance, the bureau must possess a documented process to capture any unique circumstances (e.g. passenger manifest, training requirements, risk assessment and/or approval process) to meet the minimum PASP requirements.

Project supervisors and management-level project approvers are responsible for ensuring PASPs are completed in satisfactory manner. The Project supervisor should work closely with aviation managers in preparing these plans. PASPs are approved at a management level that is commensurate with the level of risk as determined by the risk assessment. Bureaus may determine their own routing and approval process for PASPs along with any specific document format they may prefer.
Using the SAFECOM system for punitive actions is prohibited (352 DM 3.10B).

Submitting a SAFECOM is not a substitute for "on-the-spot" corrections to a safety concern. It is a tool used to identify, document, track, and correct safety related issues.

A SAFECOM does not replace the requirement for initiating an accident or incident report.

Well-represented Hazards include:
- Pilot Action
- Policy Deviation
- Mission Equipment
- Pre-flight Action
- Communications
- Ramp

SAFECOMs by Category

<table>
<thead>
<tr>
<th>Hazard</th>
<th>UAS</th>
<th>Management</th>
<th>Airspace</th>
<th>Mishap Prevention</th>
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<tr>
<td>Incident</td>
<td></td>
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</tr>
</tbody>
</table>

Top Maintenance Issues:
- Engine
- Electrical
- Fuel
- Airframe
- Avionics
- Instrument

Percentage of SAFECOMs submitted by Bureau
- BLM 42%
- BSEE 30%
- NPS 7%
- FWS 7%
- USGS 6%
- BIA 5%
- OAS 2%
- USBR 1%
- OSMRE 0%
- BOEM 0%
Chart 1 – Mishap prevention efforts are more effective when reporting rates are high, as you only know what’s being reported. Although USGS and NPS both suffered an accident in FY19, the USGS mishap rate was much higher as a result of their lower flight hours. In FY19, BSEE had the highest SAFECOM reporting rate, submitting one SAFECOM for every 73 hours flown.

Chart 2 – Six Bureaus (BIA, BLM, BSEE, FWS, USGS, and OAS) finished the year with a 100% SAFECOM completion rate by Bureau Management! The overall DOI SAFECOM completion rate increased 1% over the previous year, with 97% of all SAFECOMs reviewed and completed by Bureau Management. However, the DOI SAFECOM reporting rate decreased 21% this year.

Chart 3 – We continue to see an inverse correlation between SAFECOM reporting and DOI’s accident rate. SAFECOM reporting for the period between 2000 and 2019 has increased 11% while the accident rate has decreased by 33%.
FY17-19 SAFECOM Trends

**Manned aircraft SAFECOM reporting:** As shown in chart 3 on the previous page, as SAFECOM reporting goes up, accidents go down. The opposite is also true. The graph above demonstrates this relationship. Between FY17 and FY19, the Department of the Interior’s manned aircraft SAFECOM Reporting Rate has decreased by 22% while the accident rate has increased by 6%.

**sUAS SAFECOM reporting:** Between FY17 and FY19, the 111% increase in the number of sUAS flights substantially outpaced the 21% increase in the number of sUAS SAFECOMs. As a result, the overall DOI sUAS SAFECOM reporting and mishap rates decreased by 43% and 59%, respectively.

**Importance of SAFECOM reporting:** The SAFECOM system is an essential tool in the Department’s efforts to reduce aviation mishaps. Early identification, correction, and reporting of hazards can save time, money, and most importantly, lives. The trend in lower SAFECOM reporting rates we’ve seen in recent years may indicate that managers may not know what hazards aren’t being reported. In order to maintain an effective safety culture, the Department of the Interior continues to depend on input from aviation users.

If you see something, say something.
FY19 Awards and Achievements

**In-Flight Action Award**

- Bureau of Land Management
  - David Fennem
- Fish and Wildlife Service
  - Terry Liddick

**Award for Outstanding Contribution to Aviation Safety**

This award is established to recognize an individual, group, or organization for outstanding contribution to aviation safety or aircraft accident prevention.

- Bureau of Land Management
  - Don Bell

**Airward**

- Bureau of Safety and Environmental Enforcement
  - Esteban Ortiz-Ventura
  - Tyler Roy
  - Ted Viator
  - Derrick Wulf
- Ahmed Abdelmoghith
- Beau Beveridge
- Preston White (2 awards)
- William White
Safety Publications

As part of the DOI mishap prevention program, OAS, in partnership with the U.S. Forest Service, publishes a variety of safety publications.

https://www.doi.gov/aviation/safety/library

Accident Prevention Bulletins
IA 19-01 Filter Monitor Media Migration
IA 19-02 AS 350 Throttle Quadrant
IA 19-03 NOTAM Location Identifiers and Pointer NOTAM Use
IA 19-04 UAS Intrusions in Fire Suppression Operations
IA 19-05 Spatial Disorientation, Vertigo, and Head Movement/Position Changes

Safety Alerts
DOI 19-01 BirdsEyeView (BEV) FireFLY 6 Pro Dynamite Battery Charger
IA 19-01 Aero Commander 690 Vertical Fin Attachment Bulkhead Cracks
IA 19-02 Retardant Safe Drop Height
IA 19-03 External Load Rigging Failure
IA 19-04 Parrot Anafi sUAS Propeller Blades

Lessons Learned
DOI 19-01 3DR Solo Master Air Screw Propellers
DOI 19-02 Aircraft Mishap Reporting
IA 19-01 The Importance of Preflight and Postflight Inspections
IA 19-02 Management and Aeronautical Decision Making

Continuous Accident Free Milestones

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<td>BIA</td>
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*contributed to BSEE’s 45 year accident free milestone

Honorable Mention

US Park Police has had 46 years of accident free flying!

“"You’ve got to expect things are going to go wrong. And we always need to prepare ourselves for handling the unexpected.””

-Neil Armstrong

Bureau Aviation Managers

BIA - Joel Kerley (208) 387-5371
BLM - Brad Gibbs (208) 387-5182
BSEE - Andrew Wareham (907) 334-5278
BOEM - Richard Knowles (907) 334-5268
FWS - Anthony Lascano (571) 213-3021
NPS - John Buehler (208) 387-5227
OSMRE - Dave Rosser (208) 433-5050
USBR - Dave Rosser (208) 433-5050
USGS - Bill Christiansen (303) 236-5513
POLICY: In FY19, three AMRBs resulted in 15 additional recommended action items, of which 4 have already been closed. As of January 2020, 23 AMRB recommendations remained open. A multi-bureau team has been established to close them.

ASSURANCE: In FY19, the OAS Training Branch hosted 2 Aviation Centered Training Events averaging 113 students per event. In total, the Training Branch supported 674 instructor led course offerings accounting for 5,285 available student hours of training and the IAT website recorded 40,428 course completions.

ASSURANCE: In FY19, 15 Program Evaluations were completed among 8 bureaus with no material weaknesses found. These evaluations resulted in a total of 82 findings with 36 best practices observed and identified within evaluation final reports.

POLICY: Inadequate Aviation Management Plans and Project Aviation Safety Plans (PASPs) continue to account for a significant number of aviation program evaluation findings across the department. Between 2015 and 2019, these deficiencies were found in 34% of all departmental aviation accidents and incidents with potential (IWPs). OPM-06 in conjunction with bureau specific National, Regional/State, and Local requirements should be utilized to address planning deficiencies and facilitate aviation safety improvements across the department.

RISK MANAGEMENT: Over the last three years, the DOI manned aircraft SAFECOM reporting rate has declined by 22% while the accident rate has increased 6%. sUAS flights increased 111% between FY17 and FY19 but also resulted in a reduction the sUAS SAFECOM reporting rate during the same period. The SAFECOM system is about accident prevention and it’s effectiveness is dependent upon aviation user input. If you see something, say something.

PROMOTION: FY19 award nominations came from 3 different bureaus. FY19 awards included 6 In-Flight Action Awards and 5 Airwards (One individual even received 2!). The FY19 Departmental Award for Outstanding Contribution to Aviation Safety goes to Don Bell (BLM).

PROMOTION: Bureaus maintaining excellence in aviation safety through their continuous accident-free years record include: BSEE-45 years (manned aircraft and sUAS reporting rate-1362), OSM-33 years (manned aircraft & sUAS safecom reporting rate-0), USBR-22 years (manned aircraft and sUAS reports reporting rate-0), BIA-2 years (manned aircraft and sUAS reporting rate-58), and BIA-2 years (manned aircraft and sUAS reporting rate-780, sUAS reporting rate-508). Kudos as well to the US Park Police for their 46 continuous accident-free years (manned aircraft and sUAS reporting rate).