Description of document:	Air Force Safety Center (AFSEC) Space Safety Council (SES) agendas and meeting minutes, 2012-2016
Requested date:	27-August-2017
Released date:	23-October-2017
Posted date:	27-November-2017
Source of document:	AFSEC Freedom of Information Act Office AFSEC/JAR 9700 G. Ave Kirtland AFB, NM 87117 Fax: (505) 853-0565 Email: HQAFSCJA@us.af.mil

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

OCT 2 3 2017

HQ AFSEC/CD
9700 G Avenue, S.E.
Kirtland AFB NM 87117-5670

We received your Freedom of Information Act (FOIA) Request dated August 27, 2017, on August 28, 2017. The FOIA Request is relevant to the following:

FOIA Request: This is a request for records under the provisions of the Freedom of Information Act. I request a copy of 1) the meeting agendas and 2) the meeting minutes from the semi-annual meetings of the SES (Space Safety Council) during the last five years. I prefer to receive these records in electronic/digital format.

Enclosed you'll find the Space Safety Council agendas and meeting minutes requested from 2012 - 2016. The 2017 records have not yet been published, but can be seen via the internet in the near future; the Space Safety Council agendas and meeting minutes can be found at the following website/link: https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?channelPageId=s6925EC1335190FB5E044080020E329A9&command=org.

FOIA provides that specific types of documents or portions of them are exempt from disclosure. Accordingly, certain portions have been redacted. They are not releasable for the following reasons:

Individuals and their families have a privacy interest in personal information in government records. When that privacy interest outweighs the public interest in that particular information, it is not subject to disclosure, in accordance with the United States Code, Title 5, Section 552(b)(6), and Department of Defense Regulation 5400.7-R Air Force Manual 33-302, Paragraphs C3.2.1.8 and C3.2.1.9.3. When individual privacy is involved, a FOIA analysis requires an agency to balance the public interest against the individual's privacy interests. NARA v. Flavish, 541 U.S. 157 (2004). In this case, the individual privacy interests are not outweighed by the public interest, and therefore names (except for certain senior officials), personal identifiers and personal information are not subject to release under FOIA in accordance with exemption (b)(6).

Should you decide to appeal the elements that have been redacted, you must write to the Secretary of the Air Force within 90 calendar days from the date of this letter and reference FOIA 2017-04480-F. Include in the appeal your reasons for reconsideration and attach a copy of this letter. Address your letter as follows:

Secretary of the Air Force
THRU: AFSEC/JAR
9700 G Avenue, S.E.
Kirtland AFB NM 87117-5670

You may also contact the Air Force FOIA Public Liaison Officer, Ms. Anh Trinh, concerning this final response at AF FOIA Public Liaison Office (SAF/CIO A6XA), 1800 Air Force Pentagon, Washington, DC 20330-1800, usaf.pentagon.saf-cio-a6.mbx.af-foia@mail.mil or (703) 614-8500. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

Sincerely,

JAMES T. RUBEOR, SES, DAF
Executive Director

Air Force Safety Center
Space & Cyber Safety Council
6 - 8 Mar 12 @ Kirtland AFB
Telecom Comm (505)-853-8304 or DSN 263-8304

Monday, 05 Mar 12 (Travel Day)

Tuesday, 06 Mar 12 (Space Session)

0730 - 0800:	Registration	All
0800 - 0805:	AFSC/SES Opening Remarks	Lt Col (b)(6), AFSC/SES
0805 - 0810:	AFSPC/SE Opening Remarks	Mr. (b)(6), AFSPC/SE
0810 - 0815	Administration and Announcements	Maj (b)(6), AFSC/SES
0815 - 0830:	AFSC Commander Opening Remarks	Maj Gen Feest, AFSC/CC
0830 - 0915:	Class E/GPS SVN63 investigation info & AFSAS discussion	Mr. (b)(6), 50 SW/SE
0915 - 0930:	Break	
0930 - 1030:	Military Aviation Safety Action Program	Ms. (b)(6), AFSPC/SEK
1030 - 1100:	Controlled Reentry from Geosynch Transfer Orbit AND COLA Gap Guidance/Need (Nodal Analysis Manned Object)	Mr. (b)(6), ManTech
1100 - 1230:	Lunch	
1230 - 1330:	Future Use of EOLP long/short term solutions Future of Hosted Payloads & Safety Implications Recommended changes to EOLP/SDAR approval process	Mr. (b)(6), 14AF/SE
1330 - 1400:	Hosted Payload Debris Guidance	Ms. (b)(6), Aerospc
1400 - 1415:	Break	
1415 - 1500:	Hosted Payload & Space System Safety	Mr. (b)(6), SMC/XRE
1500 - 1600:	Interagency Nuclear Safety Review Panel & Active Debris Removal	Dr. (b)(6), AFSC
1600 - 1630	Open Discussion/Action Item Capture	Lt Col (b)(6)

Wednesday, 07 Mar 12 (Software Session)

0730 - 0800:	Registration	All
0800 - 0805:	Opening Comments	Lt Col (b)(6)
0805 - 0900:	Keys to Design/Software Safety Process Evaluation	Mr. (b)(6), FAA
0900 - 0915:	Break	
0915 - 0945:	Most Serious Issues Facing USAF Space Acquisition	Mr. (b)(6), NG
0945 - 1015:	AFSCN Space Safety Program updates	Ms. (b)(6), 50 SW/SE
1015 - 1045:	SMC Policy on Space Debris	Ms. (b)(6), SMC/ENC
1045 - 1115:	SMC Approach to characterize Active Debris Removal With Space Based Asset	Ms. (b)(6)
1115 - 1245:	Lunch	

1245 - 1315:	Safety with Regard to Testing AND	Mr. (b)(6) &
	SDAR Explosion Risk Assessments	Mr. (b)(6), Mantech
1315 - 1345:	Acquisition Process & New Templates	Mr. (b)(6), SMC/SES
1345 - 1415:	Human Factors – 2 Person Check Effectiveness	Dr. (b)(6)
1415 - 1430:	Break	
1430 - 1500:	An Effective Methodology for Tracking	
	Space Flight Worthiness Criteria	Ms. (b)(6), SMC/GP
1500 - 1530:	Space Weather	Mr. (b)(6)
1530 - 1600:	Policy Changes, Effect & Status of Implementation	Mr. (b)(6), SMC/SES
1600 - 1630:	OPEN DISCUSSION/Action Item Capture	Lt Col (b)
1800 - ????:	Dinner Social @ Kelly's Brewery	All

Thursday, 08 Mar 12 (Cyber Session) – In AFSC Auditorium

0730 - 0800:	Registration	All
0800 - 0805:	Opening Comments	Lt Col (b)
0805 - 0900:	Cyber Testbed	Mr. (b)(6), ARA
0900 - 0915:	Break	
0915 - 1015:	Wrap-up/Action Item Capture	Lt Col (b)
1015 - 1115:	AFI 91-217 High Level Change/Update Discussion	Lt Col (b)
1115 - 1245:	Lunch	
1245 - 1630:	AFI 91-217 Line By Line Comment Work	Lt Col (b)

Friday, 09 Mar 12 (Travel Day)

Space Safety Council (SSC)
Minutes & Action Items
6-8 Mar 12

06 Mar 12

0800: Opening Remarks: Lt Col (b)(6) HQ AFSEC/SES Div Chief & Mr. (b)(6) HQ AFSPC/SE: Lt Col (b)(6) welcomed everybody and thanked them for participating. He and Mr (b)(6) from HQ AFSPC/SE spoke of discussing space and systems safety the first two days and using the third day to work on the latest AFI 91-217 revision. Cyber safety discussions would be postponed until the next council while decisions about that mission are decided at AFSPC.

0815: HQ AFSEC Commander Opening Remarks

Maj Gen Feest: Maj Gen Feest welcomed everybody and recognized the variety of organizations present to discuss and work space safety.

Issues Discussed:

- While there are fewer mishaps in space compared to other divisions, the ones we do have are very expensive. In today's world of limited funding, it is imperative that we learn and reduce the number and severity of space mishaps.
- Conferences such as the Space Safety Council are a valuable opportunity for a variety of organizations to come together face-to-face working towards the common goal of space safety.

0830: GPS SVN63 Cesium Clock Failure SART Analysis

Mr. (b)(6), 50 SW/SES: Briefing highlighted investigation of Cesium clock failure and pointed to coronal discharge in ion pump power supply as root cause for degraded performance.

Issues Discussed:

- Air bubbles trapped in the power supplies could be due to different and/or deficient manufacturing processes. Once bubble reaches critical pressure, a coronal discharge is possible. Outgassing must be accomplished prior to turn on. Manufacturing process to be reviewed.

0930: ~~Aviation~~ Safety Action Program (ASAP)

Ms. (b)(6), HQ AFSPC/SEK: Mr. (b)(6) from the flight safety division joined Ms. (b)(6) to discuss the ASAP program currently used within flight and how it could be applied to space safety. ASAP is an identity-protected, self-reporting safety tool and cannot/should not be used for punitive purposes. It is still in the "grassroots" stages and this was a preliminary informational briefing.

Issues Discussed:

- Ms. (b)(6) will be looking for representatives from all council organizations to assist her with future development of the concept and selling the culture to the wings

1030: COLA Gap Guidance & Geosynchronous Transfer Orbit Upper Stage Reentry COLA

Mr. (b)(6) ManTech & SMC/LRE: Mr. (b)(6) briefed the current dilemma of the COLA gap; the time between pre-launch COLA coverage and when an object can complete an evasive maneuver due to errors in location predictions. LR is currently working with ULA to shorten this gap. It also must be determined which agency is responsible for the launch vehicle and payload during this timeframe. Mr. (b)(6) also briefed the topic of upper stage reentry COLA and again asked where responsibility falls.

Issues Discussed:

- LR to provide wording for AFI 91-217 to discuss COLA gap and responsibility
- Reentry COLA responsibility discussed in AFI 91-217 update

1230: Future Use of End-Of-Life Plan (EOLP) Long/Short Term Solutions & Future of Hosted Payloads & Safety Implications & Changes to EOLP/Space Debris Assessment Report (SDAR) Approval Process

Mr. (b)(6), 14AF/SE: Mr. (b)(6) discussed the top 3 issues in 14AF/SE for space safety.

Issues Discussed:

- In the short term, 14AF/SE will forward EOLPs to wing safety for distribution and later, SMC will forward EOLPs directly to space operators when satellite control authority (SCA) is transferred
- Reduce repeat info currently addressed in SDARs (launch vehicle and space vehicle) and EOLP. Combine all information into two documents for 14AF review (launch vehicle SDAR and EOLP/DAR). 14 AF/SE working suggested comments to include in AFI 91-217
- If Air Force is going to participate in "hosted payload" missions, it needs to have the option for relief from current DoD National Space Policy requirements. AFSPC/SE working suggested comments to include in AFI 91-217

1330: Hosted Payload Debris Guidance

Ms. (b)(6), Aerospace: Ms. (b)(6) briefed details of the United States Orbital Debris Mitigation Standard Practices (USGODMSP), its applicability and objectives and how hosted payload missions would be affected.

Issues Discussed:

- Hosted payload missions could be comprised of a variety of hosts, launch vehicles and launch sites.
- A variety of organizations & countries are operating under a variety of regulations and deciding which ones will apply will affect future hosted payload missions

1415: Hosted Payload and Space System Safety

Mr. (b)(6), SMC/XRE: Mr. (b)(6) briefed concept of hosted payload missions and their opportunities for cost savings, efficiencies and risk reduction. He then described some potential hosted payloads as well as some current and past examples including some cost comparisons.

Issues Discussed:

- With the potential upside of hosted payload missions, the government is giving up some level of launch control
- The commercial space world and the DoD operate under different debris mitigation requirements and this needs to be addresses

1500: Interagency Nuclear Safety Review Panel (INSRP) and Active Debris Removal

Dr. (b)(6), AFSEC/SES: Dr. (b)(6) briefed the concept and history of INSRP. He provided details on NASA's Mars Science Laboratory (MSL), the lessons learned from that mission and how INSRP will be executed in the future. He concluded with an explanation of the foam-based method for active space debris removal.

07 Mar 12

0805: Key Concepts in Design Process Evaluation

Mr. (b)(6), FAA: Mr. (b)(6) discussed the concepts of design and software safety and the principles that are included in their analysis and successful execution.

0915: Most Serious Safety Issues Facing USAF Space Acquisition

Mr. (b)(6), Northrop Grumman: Mr. (b)(6) briefed that cost and schedules are the major drivers for new acquisition programs and that industry is cannot afford to bear the risk burden alone anymore. Also, system safety is performed late in the life cycle and only if additional funds are available.

Issues Discussed:

- Non-value added tasks are often required by the government, taking away time and resources from important processes
- Effective communication between government and industry safety is poor and both cost and schedules are suffering
- Both sides are at fault and it needs to be fixed

0945: Air Force Space Control Network (AFSCN) Space Safety Program

Ms. (b)(6), 50 SW/SES: Ms. (b)(6) provided a briefing that questioned wording in AFI 91-217, paragraph 6.3 and specifically who was responsible for safety at the AFSCN sites. Representatives from AFSPC safety, 50 SW and others at the Space Safety Council discussed the issue and the decision was made to keep the 50 SW responsible for AFSCN safety. AFSPC will provide any necessary guidance to ensure the mission is successfully executed.

1015: SMC Policy and Compliance Issues Relating to Orbital Debris

Ms. (b)(6), SMC/ENC: Ms. (b)(6) briefed SMC status on complying with AFI 91-217 requirements for post-mission disposal debris, end-of-life execution probability and accidental explosion prevention.

Issues Discussed:

- Discussion generated questions about the uncertainties of Ec calculations (human casualty) referenced in the United States Government's Orbital Debris Mitigation Standard Practices document. These will be addressed in revisions to the afore mentioned documents.

1245: Safety in Testing at SMC

Mr. (b)(6), ManTech: Mr. (b)(6) discussed testing safety in Air Force SMC programs, organizational roles and responsibilities and potential for improvements. Safety needs to be addressed with people, flight hardware, facilities and equipment and procedures should be approved prior to the test. Requirements are outlined in several AFIs and supplements.

Issues Discussed:

- There is some disagreement between government and contractors on how to handle damage/failure to a post launched satellite system due to testing. The government considers it a safety risk and the contractors consider it a mission risk.

1315: New SMC Acquisition Strategy Guide &
SDAR Explosion Risk Assessments for Pressure Vessels

Mr. (b)(6), SMC/SES: Mr. Moran explained that OSD recently defined the content required in Acquisition Strategy Documents. These include safety provisions for all contracts greater than $50 million and define the approach that will be taken to control risk. He also discussed the difficulty of estimating the risk of a debris generating explosion and the analysis and approval required.

1345: Impact of Independent Verification on Safety & Security: Effectiveness of Checkers

Dr. (b)(6), Sandia Nat'l Labs: Dr. (b)(6) discussed the human factors assumption of 2 (or more) person verification (for safety, security, reliability, etc) helping to prevent errors or detecting errors before a negative outcome can occur. Depending on the type of checking and different influences, there are both advantages and disadvantages to a two person checking system. Sandia is continuing with their study.

1430: Space Flight Worthiness Certification (SFWC) Tracker Introduction

Ms. (b)(6) & Mr. (b)(6), SMC/GPE: Mr. (b)(6) and Ms. (b)(6) explained how the SFWC process changed demonstrated the tracker and how it helped with the acquisition process and fulfilling requirements. Mr. (b)(6) passed out CDs with

the Excel based software to council participants for use in individual work centers. Please contact him for additional copies.

1500: Space Weather Fundamentals

Mr. (b)(6), 50 SW/SES: Mr. (b)(6) gave an informational briefing that defined space weather, provided the basic physics behind it, how it affects space systems and some historical events. While there is very little that space operators can do to mitigate the effects of space weather, it is important that they are aware it can produce negative telemetry indications or worse.

1530: Policy Changes, Effect & Status of Implementation

Mr. (b)(6), SMC/SE: Mr. (b)(6) summarized known policy changes (recent and forthcoming) that may influence SMC safety processes. By understanding current policy, the awareness of space and system safety is improving across SMC; to include mishap investigations/reporting, evaluations and participation in program and center activities.

08 Mar 12

0805: Cyber Test Bed

Mr. (b)(6), Applied Research Associates: Mr. (b)(6) briefed the Cyber Test Bed to the council. It is a demonstration project to identify, deploy and evaluate best practices for cyber security in small and mid-size companies. It will lead to a better understanding of threats, the development of models to predict potential impacts and the deployment of tactical deterrents. By identifying and testing best practices using existing technologies in cyber security for the private sector, the Test Bed will contribute to the Department of Homeland Security's mission to improve cyber security while mitigating intellectual property loss critical to economic and national security.

0900: Lt Col (b)(6), HQ AFSC/SES: This was actually accomplished before the Human Factors Brief. Around 1030 the group as a whole discussed/opened/closed different action items—see individual briefs and below for results.

NOTE: SSC briefings are posted on the Community of Practice (CoP) at https://afkm.wpafb.af.mil/community/views/home.aspx?Filter=OO-SE-AF-01

Please request/receive access to CoP and then follow the links 'Conferences->Space Safety Council->Mar 12'. All briefings are listed under folders for each of the 3 days of the conference.

Please let me know if you have any additional questions.

Mar 2012 Space Safety Council Action Items

Action	OPR/OCR	Suspense	Notes
1. Update GPS SVN63 Class E in AFSAS to initiate task to look at existing power supplies (leading to Cesium clock HAP) with known failure possibilities to determine scope of impact; i.e. which future spacecraft could be affected? Did the manufacturing process lead to this?	OPR: 50 SW/SE		
2. Provide suggested comments for AFI 91-217 to fill "COLA Gap".	OPR: Capt (b)(6), SMC/LR		
3. Provide suggested comments for AFI 91-217 to separate SDAR and EOLP documents.	OPR: 14AF/SE		
4. Provide suggested comments for AFI 91-217 for hosted payloads.	OPR: AFSPC/SE OCR: 14AF/SE & SMC/XR		
5. Provide suggested comments for specific EOL safing probability calculations.	OPR: SMC/EN OCR: SMC/LR		
6. Provide suggested comments for SDAR & EOLP tab for AFI 91-217.	OPR: 14 AF/SE		

Space Safety Council

Teleconference 1 Oct 12

Dial-in number: (505)-853-8304 or DSN 263-8304

Monday, 1 Oct 12

1000 - 1010: AFSEC/SES Opening Remarks	Lt Col (b)(6), AFSEC/SES
1010 - 1020: AFSPC/SE Opening Remarks	Col Michael Nahorniak, AFSPC/SE
1020 - 1100: March SSC Action Item Update	Lt Col (b)(6), AFSEC/SES
AFI 91-217 COLA gap requirements, SDAR & EOL requirements	
Hosted Payload requirements	
1100 - 1110: Course Upgrades (BPC, CoS, MINA)	Lt Col (b)(6), AFSEC/SES
1110 - 1125: AFI 91-110 and AFI 91-217 Updates	Maj (b)(6), AFSEC/SES
1125 - 1135: AFMAN 91-222 Update	Maj (b)(6), AFSEC/SES
1135 - 1225: AFSPC/SE discussion topics	Col Michael Nahorniak, AFSPC/SE
1225 - 1235: SMC/LRE Recent issue	Capt (b)(6),SMC/LRE
1235 - 1300: Action Item Capture	Lt Col (b)(6), AFSEC/SES

Space Safety Council (SSC)
Minutes
1 Oct 12

1000: Opening Remarks: Lt Col (b)(6), HQ AFSEC/SES; Col Nahorniak, HQ AFSPC/SE: Lt Col (b)(6) welcomed everybody and thanked them for participating. He and Col Nahorniak requested inputs via e-mail from the community on how often the SSC should meet and what the venue should be (in-person, telecon, VTC, etc.). Lt Col (b)(6) also gave a synopsis of the Space Safety Mission authority status. This issue is currently at the AF/SE and AFSPC/CV-level to determine the organizational authority for space safety (i.e., should the mission reside at AFSEC or AFSPC). Decision is pending via a follow-on conversation between the AF/SE and AFSPC/CV.

1005: Action item review from last SSC

Maj (b)(6), HQ AFSEC/SES: Discussed the 6 action items from the March SSC, 5 of which were closed. See table at end of documents for action item list.

1010: Course Upgrades at AFSEC

Lt Col (b)(6), HQ AFSEC/SES: Talked about the three core courses at the Air Force Safety Center (AFSEC); (i.e., Board Presidents Course (BPC), Chief of Safety (CoS) Course, and Mishap Investigation Non-Aviation (MINA) Course) and the ongoing effort to make them more meaningful for space safety professionals. The Safety Center is redefining the objectives of these courses with regard to space safety. He solicited inputs from the community on ways to do this with Lt Col (b)(6) AFSEC/SES as the POC.

Issues Discussed:

- Lt Col (b)(6) will set up a meeting within the space safety community to discuss safety courses
- Concern that space safety investigation boards (SIB) are significantly different than other SIBs and not enough is being done to prepare the board for their duties
- (b)(6) suggested canned Space SIB course used when an SIB is stood-up verses using a periodic course
- SMC voiced a need for an Advanced System Safety Course

1020: AFI 91-110 and AFI 91-217 updates

Lt Col (b)(6), HQ AFSEC/SES and Maj (b)(6), HQ AFSEC/SES: Lt Col (b)(6) emphasized the uncertainty of whether Space Safety Mission Authority will reside at the AFSEC or AFSPC over the last year plus has delayed updates to AFIs and AFMANs.

Issues Discussed:

- AFI 91-217: Comments from the March SSC have been incorporated and the document will be sent out for technical coordination NLT 15 Oct 12
- AFI91-110: Will go out for official coordination within the next month pending resolution of Space Safety Mission Authority

1030: AFMAN91-222 updates:

Maj (b)(6), AFSEC/SES: Discussed the plan for the update to the document

Issues Discussed:

- Document completed three-letter coordination about 1 year ago but due to the uncertainty with the delegation of Space Safety Mission authority it is in a holding pattern
- Maj (b)(6) will send the most current copy of the AFMAN to Lt Col (b)(6) to verify that the changes from the 3 letter coordination were incorporated
- The document will be sent out for technical coordination NLT 21 Oct 12

Other topics that came up during this discussion:

- Mr. (b)(6), SMC/SE made 3 points on things to consider in AFIs/AFMANs
  - There should exist a pool of people with appropriate clearance levels to conduct investigations
  - People need proper training and education to conduct investigations
  - Make sure the mishap recommendations are actionable (e.g., currently Class Es take too long). Class Es could be used as a training tool for investigators
- Discussion on why Class Es are not properly reported and the need to emphasize the importance of reporting them (SMC and 50SW)
  - Information and data treated as "close-hold"
  - AFSAS is felt not to be space friendly for inputting Class E space events
  - Aerospace Government-Industry Data Exchange Program (GIDEP) process/database (parts performance database, etc) has safety related data. Is there a way to link it with AFSAS?
  - Space safety is fundamentally engineering safety
  - This will be a topic of discussion at the next SSC

1115: AFSPC/SE discussion topics:

Col (b)(6), ASFPC/SE: Highlights of topics covered (slides attached to e-mail).

Top 2 AFSPC/SE projects:

- Stand up Cyber Safety Capability
  - Facilitate cyber process/system-based risk assessment
  - Work with 24AF to define the scope of cyber safety
- Increase the emphasis on safety training

Top 2 Problems and Solutions:

- Improve system safety in acquisitions
  - System safety education and training
  - Leadership emphasis and support
  - Early involvement in requirements process
  - Embrace safety as a subset of mission assurance
  - "Test like you fly"
  - Rigor and enforcement in system safety standards
- Space Debris Mitigation
  - Solutions:
  - Improved design of separation hardware
  - Strict adherence to collision avoidance criteria
  - Required end-of-life plans (with sufficient fuel)
  - Sharing of space situational awareness data
  - Future debris cleanup technology and funding

Mr. (b)(6), AFSPC/SEW: Briefed explosive hazards issues

- Explosive Hazard Contribution Applied to Rocket Motors
  - To gain AFSEC/SEW advocacy to support AFSPC/SEW's position that Linear Shape Charges (LSC's) used in FTS will not contribute to Explosive Hazard Division (HD) 1.3 rocket motors
  - AFSPC requests a permanent change to DoD 6055.9 to allow FTS explosive to not be added to the HD 1.3 next explosive weight of RM's
- Alternative Explosive Software Solution Proposal
  - Conventional computerized software programs (ASHS,ESS) do not automate hypergolic and TNT equivalency calculations
  - Significant man-hour savings
  - AFSPC will streamline LF explosive site planning process (meets intent of title 51 U.S.C. – commercial launch range site planning is accessible and affordable)
  - AFSPC request funding assistance and a refined cost estimate from AFSEC/SEW to better plan for software development funding requirements

1220: SMC/LR Recent Issue

Capt (b)(6), SMC/LRE: Conflicting DoD guidance on space debris. Upperstage for an upcoming mission would like to raise its perigee for International Space Station safety during the "Collision Avoidance Gap" however this would greatly increase the number of years the upperstage is on-orbit. SMC/LRE will present on this topic during the next SSC.

1230: Lt Col (b)(6), AFSEC/SES: Opened the floor for comments and made closing remarks.

Issues Discussed:

- Question was asked what inspection checklists should be used by the field? AFIA is currently finalizing the new processes and tools for inspections. AFSEC/SES is meeting with an AFIA rep on 5 Oct 12 to discuss.
- Question of how test safety was going was posed and that Congress is pushing to combine developmental testing and operational testing. Test safety will be a topic and the next SSC.
- Lt Col (b)(6) assigned AFSEC/SES the task of building a charter for the SSC which Lt Col (b)(6) will be heading up. Things to be addressed: what's the purpose of the council, where and how often it will meet, who the members will be and who'll attend.
- Lt Col (b)(6) closed by thanking the participants.

Space Safety Council Minutes
1 Oct 12

(b)(6) [redacted]

(b)(6) [redacted] Lt Col, USAF
Chief, Space Safety Division
HQ Air Force Safety Center

MICHAEL F. NAPORNIAK, Colonel, USAF
Chief of Safety
Air Force Space Command

Oct 2012 Space Safety Council Action Items

Number	Action	OPR/OCR	ECD	Status
	PREVIOUS ACTIONS			
#0312-01	Update GPS SVN63 Class E in AFSAS to initiate task to look at existing power supplies (leading to Cesium clock HAP) with known failure possibilities to determine scope of impact; i.e. which future spacecraft could be affected? Did the manufacturing process lead to this?	OPR: 50 SW/SE	Next SSC	In work – Mr. (b)(6) is finalizing Class E entry in AFSAS and working with SMC to determine if there is widespread impact.
#0312-02	Provide suggested comments for AFI 91-217 to fill "COLA Gap".	OPR: Capt (b)(6), SMC/LR		Closed at 1 Oct 12 SSC
#0312-03	Provide suggested comments for AFI 91-217 to separate SDAR and EOLP documents.	OPR: 14AF/SE		Closed at 1 Oct 12 SSC
#0312-04	Provide suggested comments for AFI 91-217 for hosted payloads.	OPR: AFSPC/SE OCR: 14AF/SE & SMC/XR		Closed at 1 Oct 12 SSC
#0312-05	Provide suggested comments for specific EOL safing probability calculations.	OPR: SMC/EN OCR: SMC/LR		Closed at 1 Oct 12 SSC
#0312-06	Provide suggested comments for SDAR & EOLP tab for AFI 91-217.	OPR: 14 AF/SE		Closed at 1 Oct 12 SSC
	NEW ACTIONS from 1 Oct 12 SSC			
#1012-01	Set up meeting to discuss safety courses to brainstorm ways to focus on the space safety aspect.	OPR: Lt Col (b) AFSEC/SES	Next SSC	Telecons held 25 Oct/13 Nov. Results will be discussed at next SSC
#1012-02	Send AFI91-217 & AFI 91-110 out for technical coordination.	OPR: Maj (b)(6) AFSEC/SES	15 Oct 12	Sent out 25 Oct 12; comments due back to AFSEC 23 Nov 12
#1012-03	Coordinate with AFSEC/SEW on changes to explosives tables in DoD 6055.9 and possible software changes.	OPR: Lt Col (b)(6) AFSEC/SES	Next SSC	
#1012-04	Send AFMAN91-222 out for technical coordination.	OPR: Maj (b) AFSEC/SES	21 Oct 12	Sent out 25 Oct 12; comments due back to AFSEC 23 Nov 12
#1012-05	What is the status of the Directed Energy (DE) safety program?	OPR: Lt Col (b)(6) AFSEC/SES		Closed: AFSEC/SEW runs the DE safety program. POC: Maj (b)(6) (b)(6)

Air Force Safety Center
Space Safety Council
26 - 27 Feb 13 @ Kirtland AFB
Telecon Comm (505)-853-8304 or DSN 263-8304

Tuesday, 26 Feb 13

0730 - 0800: VTC/Telecom Setup	All
0800 - 0805: AFSEC/CD Opening Remarks	Mr. James Rubeor, AFSEC/CD
0805 - 0815: AFSPC/SE Opening Remarks	Col Mike Nahorniak, AFSPC/SE
0815 - 0830: AFSEC/SES Opening Remarks	Lt Col (b)(6), AFSEC/SES
0830 - 0920: AFI 91-217, AFMAN 91-222, AFPAM 91-222, AFSAS status	Maj (b)(6), AFSEC/SES
Space Safety Council Charter, Cyber Safety Update	Lt Col (b)(6), AFSEC/SES
0920 - 0930: Break	
0930 - 1020: Training & Education	Lt Col (b)(6), AFSEC/SES
Space Mission Authority	Lt Col (b)(6)
1020 - 1030: Break	
1030 - 1100: Staffing of exception requests to NSP	Maj (b)(6), AF/A3
1100 - 1330: Lunch	
1330 - 1420: AFI 91-217 Wording: Applicability	AFSEC/SES
1420 - 1430: Break	
1430 - 1520: AFI 91-217 Wording: Hosted Payload	SMC/XR
1520 - 1530: Break	
1530 - 1630: COLA Class E/Smart Ops	Mr. (b)(6), AFSPC/SEK AFSEC/SES to mediate discussion

Wednesday, 27 Feb 13

0900 - 0930:	VTC/Telecom Setup	All
0930 - 0945:	Opening Comments	Lt Col (b)(6)
0945 - 1030:	AFI/OSHA impacts on contractors supporting launch ops	30 SW
1030 - 1040:	Break	
1040 - 1110:	Error Prevention Activity Enhancements & Mishap Prevention Focus	Mr. (b)(6), ULA
1110 - 1240:	Lunch	
1240 - 1320:	Debris Studies (debrisSAT/MEO/dragnet)	Mr. (b)(6), SMC/EN
1320 - 1350:	Orbital Debris Policy	Mr. (b)(6), SMC/EN
1350 - 1400:	Break	
1400 - 1450:	AFSCN Space Safety & 50OG, Det 1 Orbital Safety	Mr. (b)(6), 50 SW/SES
1450 - 1500:	Break	
1500 - 1530:	Orbital Hazard Analysis	SMC/SE
1530 - 1600:	WGS-5 Requirements Tradeoff Status	Mr. (b)(6), SMC/LR
1600 - 1630:	Open Discussion/Action Item Capture	Maj (b)(6)

Space Safety Council (SSC)
via VTC, Telecon, DCO
26 – 27 Feb 13
Minutes & Action Items

26 Feb 2013, (Tues)

0800: Opening Remarks, Mr. James Rubeor, Executive Director of the Air Force Safety Center and Deputy Chief of Safety (AFSEC/CD): Mr. Rubeor welcomed everybody and thanked them for their participation and patience with the VTC/Telecon/DCO necessity due to fiscal constraints. Mr. Rubeor stated both he and Maj Gen Margaret Woodward (AF/SE) were very excited with the final determination for space safety authority to reside at the AFSEC. Additionally, they were both very interested and involved in the Space Safety Division's (SES) mission. Mr. Rubeor also passed along his interest in the SSC results from the two days of working on issues important to space safety.

0805: Opening Remarks, Col Michael Nahorniak, Air Force Space Command Chief of Safety (AFSPC/SE): Col Nahorniak welcomed everybody and thanked them for participating. He announced he received a letter signed by Gen Shelton, AFSPC/CC identifying the gaps in Headquarters Air Force (HAF) Mission Directive (MD) 1-46, Air Force Chief of Safety, as well as recommendations to close the gaps. The gaps, if unaddressed, could hamper AF/SE's ability to provide oversight of AF space safety programs. AF/SE and the Center are updating the appropriate publications in order to put to rest any questions concerning space safety authority.

0815: Opening Remarks, Lt Col (b)(6), Air Force Safety Center Chief of Space Safety (AFSEC/SES): Lt Col (b)(6) added his voice to Mr. Rubeor's in welcoming all participants and thanking them for their patience with the VTC/Telecon/DCO. He asked everyone to provide feedback on the experiences of the remote SSC directly to him; effectiveness, audio quality, suggestions, etc. Then, he gave an overview on what the Space Safety Division is currently doing with regard to cyber safety, publications processing, and training & education. Lt Col (b)(6) thanked AFSPC for their hard work to bring the issue of space safety authority to rest, and looked forward to advancing Space Safety and the positive relationship between the AFSEC/SES and AFSPC/SE.

0830: SSC Charter & Cyber Safety Update, Lt Col (b)(6), AFSEC/SES:

- Lt Col (b)(6) discussed the status of the SSC charter, stating AFSEC was still accepting feedback on the charter. In particular, he sought opinions on who should comprise the executive members and/or signatories.
- Lt Col (b)(6) solicited feedback on whether we should include cyber safety in the Charter and incorporate it into the Space Safety Council. Several members voiced opinions on the appropriate place for the cyber safety mission. The consensus of the Council was to include cyber as a topic of discussion, not to include 24 AF as an SSC member. Additionally, the council recommended that as cyber safety matures, that an update to the Charter would be in order.

- Lt Col (b)(6) briefed that he and Lt Col (b)(6) (HQ AFSPC/SEC) will continue to press forward to develop a cyber-mishap definition, as tasked by Maj Gen Woodward during a space safety update in January. Col Nahorniak confirmed that 24 AF would attend and take an active role in the Cyber Safety Working Group.

0855: AFI 91-217, AFMAN/AFPAM 91-222 & AFSAS Status, Maj (b)(6), AFSEC/SES:

- Maj (b)(6) briefed the status of AFI 91-217 update. AFSEC/SES received 385 comments from across the space enterprise (AFSPC, Aerospace Corporation, Air Force Operational Test and Evaluation Center (AFOTEC), National Reconnaissance Office (NRO), Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA)), with approximately 115 administrative comments. Maj (b)(6) explained that the instruction applicability and "hosted payload" wording were hot topics requiring SSC discussion. Also, he explained there may be room to cut non-space specific parts of the acquisition and System Safety chapters/sections that AFI 91-202 and AFI 63- XX series) already cover. He stated he would initiate formal coordination by 3 May 13.
- Maj (b)(6) briefed the status of AFMAN 91-222 update. AFSEC received 179 comments (AFSPC and Aerospace Corp), with approximately 65 administrative comments. In order to standardize AFSEC AFMAN/AFPAMs, SES will incorporate the existing draft AFPAM 91-222 into the AFMAN. Mr. (b)(6) (AFSPC/SEK) cautioned against making too many investigation techniques/lessons learned mandatory, by incorporating a "suggested" pamphlet into a mandatory AFMAN. Lt Col (b)(6) said SES would only incorporate the highest level guidance into AFMAN 91-222, leaving plenty of freedom for investigators to accomplish their job the best way they see fit.
- After a conversation with HQ AFSPC/SEK, Maj (b)(6) discussed the current space mishap subcategories (Tier 1) within the Air Force Safety Automated System (AFSAS) and recommended adding another layer (Tier 2) under the existing four Tier 1 subcategories. Currently, DoDI 6055.07 lists pre-launch, launch, orbit, and ground-based space systems; Air Force Satellite Control Network and other Command and Control (C2) mishaps would fall under the orbit subcategory, while space system mishaps not directly related to space launch or orbital operations would fall under ground-based space systems subcategory. While the council agreed this would eventually be a good idea and would make AFSAS entries clearer, Mr. (b)(6) (b)(6) (14AF/SE) cautioned against having tools (e.g., AFSAS) drive requirements (e.g., AFIs or DoDIs).

0930: Training & Education, Lt Col (b)(6), HQ AFSEC/SES:

- Lt Col (b)(6) briefed that the Space Safety Computer Based Training (CBT) 101 course is still in work. The "Lifecycle" module is nearly complete, but she still needed to author the "Launch" module. She solicited any feedback from the Space Safety community. Lt Col (b)(6) (HQ AFSPC/SEK) volunteered to provide feedback on the CBTs.

- Lt Col (b)(6) intends to contact Air Education and Training Command (AETC) about possibly including space safety training in Space Development courses (Space 100, 200, 300).
  She briefed the results of the telecons she held to get feedback regarding the effectiveness of current space safety training at AFSEC. The Council discussed many options for improved Space Safety investigator training, such as a space add-on to Aircraft Mishap Investigation Course (AMIC); more space topics in Mishap Investigation Non-Aviation (MINA) course; or a stand-alone space mishap investigation course. However, the community did not reach consensus on a preference/path forward due to many existing difficulties (e.g., funding, changing flight-centric courses). This topic was tabled for further discussion at the next SSC in order to assess the resource environment to either add fidelity to existing courses or create new courses. AFSEC will continue to train space safety personnel in the MINA and AMIC courses.
- Mr. (b)(6) (460 SW/SEG) expressed concern about safety course funding during the sequester. The community discussed virtual options or AFI waivers.

1000: Space safety mission authority, Lt Col (b)(6) HQ AFSEC/SES

- Lt Col (b)(6) provided the following background and current status of the space safety mission authority:
  - The manpower efficiency assessment accomplished by AFSPC/SE with supporting coord from AFSEC/SES compiled a list of pros and cons addressing mission transfer of space safety from AFSEC to AFSPC/SE
  - Due to issues such as AFSEC/JA authority vs AFSPC/JA authority, training & education, the recommendation to AFSPC/CC, in coordination with AF/SE, was to formally place space safety authority within AFSEC
  - Gen Shelton coordinated with Maj Gen Woodward via phone, and provided a formal memo outlining identified gaps to address with a rewrite of MD 1-46
  - AFSEC/SES incorporated these suggestions into a rewrite of MD 1-46 and it is currently in coordination at the HAF.

1030: Staffing of requests for exceptions to National Space Policy (NSP), Maj (b)(6) (b)(6), AF/A3:

- Maj (b)(6) briefed exceptions to Orbital Debris Mitigation Standard Practices (ODMSP) must be approved by the head of the sponsoring Department/Agency, as per the 2010 NSP. The DEPSECDEF approved AFSPC/CC CY 2011, 2012, and 2013 AFSPC exception to NSP requests.
- The Council discussed whether SECDEF approved exceptions to policy also should serve as risk acceptance or if the appropriate authority needed to accept risk separately (AFI 91-217 requires final SDARs accompany risk acceptance documentation). SSC recommended future exception requests include a reference - if the exception is approved, the approving authority also accepts the associated risks. This would reduce paperwork, ensure compliance by allowing the exception to policy process/staff work to double as the risk acceptance documentation. Lt Col (b)(6) wrapped up the conversation by stating that the current AFI 91-217 requirement states (AFI 91-217 para A2.1.3) "…Formal acceptance of the risk associated with any

noncompliance remaining in the SDAR shall accompany the delivery of the Final SDAR..." Therefore, to remain compliant with AFI 91-217, a risk acceptance letter must accompany SDARs that are noncompliant. Exception to policy does not eliminate risk and therefore the responsible authority must be aware of his/her acceptance of risk in addition to granting exception to policy. Future AFI 91-217 wording will note requests for SECDEF exceptions to policy may include within, a statement of risk acceptance by the appropriate authority.

- The council agreed this was a good way-ahead for exception to policy requests coordinated via AF/A3.

1330: AFI 91-217 Wording – Applicability, Maj (b)(6) HQ AFSEC/SES:

- Maj (b)(6) explained many of the applicability comments from the AFI 91-217 review were from non-AF organizations (e.g., NRO, FAA, NASA).
- While many of the concerns were warranted, Maj (b)(6) explained that when AFSEC/SES rewrites AFI 91-217, they will ensure consistency throughout the document to ensure it addresses only applicability to AF space operations. However, he added that if a non-AF unit used an AF range, the non-AF unit must follow the range safety portion of the instruction unless otherwise noted or covered under contractual agreement (e.g., FAA licensed missions, ULA launch providers).
- Due to the growing number of space mission partnerships with non-AF agencies (e.g., commercial, civil, international entities) the council asked how AFI 91-217 affects these non-AF agencies. Maj (b)(6) stressed that because many "what-ifs" could occur, it is imperative that AF and non-AF partners author memorandums of agreement or understanding that spell out the details of their specific situation IAW with AFI 91-217.
- Maj (b)(6) addressed a few specific paragraphs in AFI 91-217 with the council. In particular, the council agreed the last part of the sentence from paragraph 1.1.2. that says, "…, or if the Air Force is providing funding for the mission without regard to the method of procurement or agreement" should be removed to minimize confusion.
- The non-AF organizations in attendance agreed to the way ahead, as long as the instruction rewrite was consistent and organizational applicability was clear.

1430: AFI 91-217 Wording – Hosted Payload, Mr. (b)(6), SMC/XR:

- Mr. (b) discussed how AFI 91-217 should address updates to space policy in the 18 Oct 2012 version of DoDD 3100.10. The new version of the DoDD introduced policy stating that DoD will maintain the safe use of space while cooperating with interagency, international, and commercial partners in space operations, interoperable systems and information.
- Mr. (b) updated the community on several potential AF/non-AF space partnerships (Defense Threat Reduction Agency, NASA, Space X, etc.) and explained that these situations will become more common every day and the Air Force needs policy guidance to execute them safely, efficiently, and effectively.

- Finally, Mr. (b) stated that "Hosted Payload" is not the correct term to use in AFI 91-217 when discussing the issues above. The council suggested "Ride Share" might be a more appropriate term and Mr. (b) agreed. SES will add this to the inputs for consideration when posting AFI 91-217 for formal coord.
- Lt Col (b)(6) and Mr. (b) will author better hosted payload/ride share wording for AFI 91-217.

1530: COLA Class E/Smart Ops, Mr. (b)(6), HQ AFSPC/SEK:

- Mr. (b)(6) briefed the SSC on the differences between "Smart Ops" and a Class E collision avoidance maneuver. HQ AFSPC/SEK suggested if an operator correctly executes a maneuver in the right direction (not "downhill"), with sufficient notification and time to plan, remains in the station keeping "box", burns close to their routine schedule, and avoids a close approach with another satellite or piece of debris, this is "Smart Ops" and is not recorded as a Class E in AFSAS. Further, he proposed some candidate language for AFI 91-217 and AFMAN 91-222 rewrites that could make this policy clearer.
- AFSEC suggested there is value in tracking and trending all maneuvers due to close approaches with other satellites or pieces of debris regardless of the notification timeline or station keeping schedule. This trending could identify increased debris and risk to our satellites potentially initiating increased collision avoidance fuel budgets during acquisition and other mitigating reactions.
- Col Nahorniak and Mr. (b)(6) volunteered to get trending information from the Space Situational Awareness side of the Joint Space Operations Center (JSpOC) for the AFSEC and agreed with Mr. (b)(6) briefing.
- After back and forth discussion within the council about the Operational Review Board (ORB) and Class E process, Lt Col (b)(6) discussed additional safety and mishap prevention benefits gained by this trending data, but questioned the ability to maintain the data stream from a joint organization. At that point, the VTC cut out before the discussion was finished.

<u>27 Feb 2013, (Weds)</u>

0930: Opening Comments, Lt Col (b)(6), HQ AFSEC/SES:

- Lt Col (b)(6) welcomed everyone back and resumed the Smart Ops/Class E discussion from the day prior. Lt Col (b)(6) was willing to accept data from the JSpOC for maneuver tracking and trending and mishap prevention information, but wanted to have an MOA or MOU in place to ensure the relationship continues and that AFSEC/SES could secure data when needed for analyses.

0945: AFI/OSHA Impacts on Contractors Supporting Launch Ops, Col Matthew Carroll, 30 SW/SE

- Col Carroll provided a briefing regarding different governmental oversight roles for support contractors. He discussed an issue at 30 SW where Launch Group Mission Assurance Techs (MAT) observed minor technical violations by support

contractors during booster preparation operations. These violations included personnel wearing incorrect gloves or boots.

- Launch Group personnel oversee operations for "Mission Assurance" to minimize mission risk while Safety oversight focuses on resource protection and public safety.
- The Launch Group considered stopping contractor operations during future similar violations. Discussion ensued on whether a minor violation should be subject to stop work procedures and if it could affect contracting protocols.
- A 2009 memorandum from a Vandenberg contractor was sent to the Launch Group to ask oversight personnel to "stop" work when they notice "any condition" that could injure personnel or damage hardware or systems.
- Because the term "any condition" lends itself to interpretation in many ways, the space wing agreed to "stop" work when there is "imminent danger." HQ USAF/A3SS will consider appropriate changes in future updates to AFI 10-1211 and additional AFSPC manuals in order to make this clearer.
- Due to the increasing number of commercial partnerships with the 30 SW, it is important the AF understands this dynamic to ensure contractors work safely.

1040: Error Prevention Activity Enhancements & Mishap Prevention Focus, Mr. (b)(6) (b)(6), ULA:

- ULA briefed their Error Prevention Process and the Error Prevention Event Collection (EPEC) documents used to decrease mishap occurrences.
- ULA used EPEC documents as proactive and reactive tools in Error Prevention. They use EPEC information to track, trend, and perform systemic analyses.
- ULA currently uses the EPEC process for ground processing operations, but not for launch and on-orbit operations. AFSPC and AFSEC could analyze this model in the future to implement proactive safety within the AF.
- Mr. (b)(6) asked about the cost/benefit analysis of implementing this program. ULA responded that while they have not run specific numbers, the cost of individual mishaps dropped.

1240: Debris Studies, Mr. (b)(6), SMC/EN, Aerospace:

- Mr. (b)(6) presented briefings on the DebriSat hypervelocity collision test; a mid-Earth orbit (MEO) study on the removal of the semi-synchronous orbit (SSO) protected region and the dragNet De-orbit System drag enhancement device.
- DebriSat just completed final detailed design in February 2013. The team will conduct the hypervelocity impact test at Arnold Engineering and Development Center in the January - February 2014 timeframe and plans to have the post-test fragment measurements completed by December 2014.
- The MEO study researched the effect of potentially removing a 1000 km wide protected region, as currently written in the ODMSP document, around the SSO and the GPS constellation. This would put the ODMSP more in-line with the Interagency Space Debris Coordination Committee (IADC) and would make US upper stages currently in, or passing through, this region compliant.

- Removal of the protected zone would increase collision probability to each GPS satellite by less than 0.001 over 200 years and would increase necessary collision avoidance actions by less than one per year over the entire constellation.
- SMC/EN is currently staffing the study through SMC/GP, SMC/LR and SMC/SE. SMC will develop their recommendation and submit to HQ AFSPC/SE, then to AFSEC and SAF/SP for consideration in the next ODMSP rewrite.
- SMC will fly dragNet on the Space Test Prorgram-3 (STPSat-3) satellite and upper stage. The system will release a thin membrane to increase drag and passively de-orbit the satellite and upper stage. Earlier de-orbiting would help the STPSat-3 and Minotaur I missions meet AFI 91-217 compliance, but SMC still needs to study the attitude stability of the device on Evolved Expendable Launch Vehicles (EELVs).

1320: Orbital Debris Policy, Mr. (b)(6), SMC/EN, Aerospace:

- Mr. (b)(6) briefed status on a draft SMC instruction, derived from a now expired policy guidance memorandum, for space debris that will bring SMC programs in compliance with the NSP and AFI 91-217.
- The intent is for all SMC programs to strive for full compliance, thus minimizing future need for exceptions to policy.
- SMC/CC's intent is to synchronize with OSD guidance -- in a 12 Feb 2013 memorandum for the Under Secretary of the Air Force, the Deputy Secretary of Defense, Mr. Ashton Carter approved the CY13 request for exceptions to the ODMSP for 13 launches, but states, "the Air Force should develop satellite programs that ensure sufficient fuel reserves to dispose of upper stages appropriately."

1400: Air Force Satellite Control Network Space Safety & 50 OG, Det 1 Orbital Safety, Mr. (b)(6) 50 SW/SES:

- Mr. (b)(6) described how the 50 SW established unit level space safety programs for 22 Space Operations Squadron (SOPS) and 50 OG Det 1 IAW AFI 91-217 (February 2010) and direction from 50 SW/SE (August 2012). 22 SOPS at Schriever AFB, along with 21 SOPS at Vandenberg AFB and 23 SOPS at New Boston AFS, oversees the Air Force Satellite Control Network (AFSCN) around the world. 50 OG Det 1 in Suitland, MD now has satellite command authority (SCA) for the Defense Meteorological Satellite Program (DMSP).
- 50 SW/SE provides orbital safety officer training and participates in ORBs remotely with 50 OG Det 1 sites.
- 22 SOPS unit space safety officer will notify the 50 SW of any mishaps, events or hazards to the AFSCN.
- National Oceanic and Atmospheric Administration (NOAA) and the Department of Commerce transferred SCA to 50 SW on 1 October 2010. DMSP, by design, does not have maneuvering capability.

1500: Orbital Hazard Analysis, Mr. (b)(6), SMC/SE, Mantech:

- Mr. (b)(6) briefed checklists that SMC program office system safety managers (SSM) can use to facilitate planning, monitoring and verification of a contractor's on-orbit operations hazard analysis (OOHA) activities.

- Lt Col (b)(6) suggested the information in the background charts is good information for SMC/SE to further expound on and distribute to the rest of SMC for use, but also outside SMC (e.g., NASA, NRO, industry) to benchmark and share information on how to do these types of hazard analyses.

1530: WGS-5 Requirements Tradeoff Status, Mr. (b)(6) SMC/LR, Mantech:

- Mr. (discussed how existing orbital debris guidance (e.g., NSP, ODMSP, DoDD 3100.10) and collision avoidance (COLA) gap guidance could affect trade-off decision-making about missions such as the upcoming Wideband Global SATCOM (WGS) 5 launch.
- If operators used the upper stage end-of-mission blow-down to lower the orbit altitude, they would reduce the orbital lifetime, but increase a subsequent collision risk in low Earth orbit (LEO), especially the International Space Station (ISS).
- If operators used the upper stage blow-down to increase the orbit altitude, they would increase the orbital lifetime, but reduce a subsequent collision risk in LEO, especially the ISS.
- Completely de-orbiting the upper stage is not an option for this WGS-5 mission because an insufficient amount of fuel will remain.
- In these instances where there are non-compliance trade-offs, SMC/LR will make a recommendation and SMC/CC will approve or deny and push up the chain.

1600: Open Discussion & Action Item Capture, HQ AFSEC/SES:

- Maj (b)(6) did a final "around the network" for any last minute re-attacks.
- Lt Col (b)(6) noted that AFI 91-217 requires SDARs be approved at Joint Functional Component Command for Space (JFCC-Space), but AF cannot task a joint unit. Currently, 14 AF/CC approves SDARs, including non-AFSPC reports. Lt Col (b)(6) and Mr. (b)(6) will author some specific candidate wording for AFI 91-217 rewrite.

1615: Closing, Mr. Rubeor, HQ AFSEC/CD:

- Maj (b)(6) reviewed all action items (details listed on last page of these minutes).
- Mr. Rubeor thanked everyone for their participation.

***All briefings will be available on our Community of Practice website at this link; please request access as necessary:
https://afkm.wpafb.af.mil/community/views/home.aspx?Filter=OO-SE-AF-01

Participation

Organization	Representative
Air Force Safety Center, Space Safety Division (AFSEC/SES)	Lt Col (b)(6)
Air Force Space Command, Directorate of Safety (AFSPC/SE)	Col Mike Nahorniak
Air Force Operational Test & Evaluation Center (AFOTEC)	Mr. (b)(6)
Air Force Research Laboratory (AFRL)	Ms. (b)(6)
14th Air Force, Directorate of Safety (14 AF/SE)	Mr. (b)(6)
30th Space Wing, Safety (30 SW/SE)	Col Matthew Carroll
50th Space Wing, Safety (50 SW/SE)	Mr. (b)(6)
460th Space Wing, Safety (460 SW/SE)	Maj (b)(6)
Space & Missile System Center, Directorate of Safety (SMC/SE)	Mr. (b)(6)
SMC, Directorate of Engineering (SMC/EN)	Mr. (b)(6)
SMC, Directorate of Global Positioning System (SMC/GP)	Ms. (b)(6)
SMC, Directorate of Infrared Space System (SMC/IS)	Mr. (b)(6)
SMC, Directorate of Launch and Range Systems (SMC/LR)	Mr. (b)(6)
SMC, Spacelift Range & Network Systems Division (SMC/RN)	Mr. (b)(6)
SMC, Directorate of Space Development and Test (SMC/SD)	Mr. (b)(6)
SMC, Directorate of Development Planning (SMC/XR)	Mr. (b)(6)
National Reconnaissance Office of Space Launch	CMSgt (b)(6)
Federal Aviation Administration (FAA)	Mr. (b)(6)
Army Safety Center	Dr. (b)(6)
National Aeronautics and Space Administration (NASA)	Ms. (b)(6)
Missile Defense Agency (MDA)	Mr. (b)(6)

Space Safety Council Minutes
27 Feb 13

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(b)(6) Lt Col, USAF
Chief, Space Safety Division
HQ Air Force Safety Center

MICHAEL F. NAHORNIAK, Colonel, USAF
Chief of Safety
Air Force Space Command

Feb 2013 Space Safety Council Action Items

ACTIONS from 28 Feb 13 SSC	OPR/OCR	Suspense	Notes
Collect VTC, telecon, DCO experiences due to financial restraints.	OPR: Lt Col (b)(6) OCR: Everyone	22 Mar 13	
Complete SSC charter based on feedback. Vet with community and get signed.	OPR: Lt Col (b)(6)	31 May 13	
Complete DRAFT of AFI 91-217 and put out for first round of official coord.	OPR: Maj (b)	3 May 13	
Palace Acquire program status inquiry from Mr. Mejasich (SMC/SE).	OPR: Lt Col (b)(6)	15 Mar 13	
Will sequester drive BPC, CoS, MINA, etc. to VTC or roadshow courses or is there a waiver to AFI 91-217 if courses are cancelled?	OPR: Lt Col (b)(6)	15 Mar 13	
Determine process for AFSPC to request more AMIC slots for space personnel.	OPR: Lt Col (b)(6)	15 Mar 13	
Coordinate with AF/A3 to finalize staffing on NSP exceptions.	OPR: Lt Col (b)(6)	1 Apr 13	
Develop improved verbiage for "Hosted Payload" or "Ride Share" paragraph in AFI 91-217.	OPR: Lt Col (b) OCR: Mr. (b)	19 Apr 13	
Write an MOA or MOU with JSpOC to request SSA/COLA data for tracking/trending at AFSEC and change AFI 91-217 and AFMAN 91-222 verbiage IAW Ed Browne's "Smart Ops" briefing.	OPR: Lt Col (b)(6) OCR: Col Nahorniak & Mr. (b)(6)	19 Apr 13	
Contact AFOTEC to determine process to allow AFSEC/SES access on high side computers/accounts.	OPR: Maj (b)	22 Mar 13	
Author candidate wording for AFI 91-217 rewrite relating to correct SDAR approval process; also as it relates to non-AFSPC SDARs.	OPR: Lt Col (b) OCR: Mr. (b)(6)	19 Apr 13	

Air Force Safety Center
Space Safety Council
27 - 28 Aug 13 @ Kirtland AFB
Telecon Comm (505)-853-8304 or DSN 263-8304

Tuesday, 27 Aug 13

0830 - 0900: VTC/Telecon Setup	All
0900 - 0910: HQ AF/SE Opening Remarks	Maj Gen Kurt Neubauer, AF/SE
0910 - 0915: HQ AFSEC/SE Opening Remarks	Lt Col (b)(6), AFSEC/SES
0915 - 0920: HQ AFSPC/SE Opening Remarks	Col Mike Nahorniak, AFSPC/SE
0920 - 0930: AFI 91-217, AFI 91-110	Lt Col (b)(6), AFSEC/SES Maj (b)(6), AFSEC/SES
0930 - 1000: HQ AFSPC/SE Update HQ AFMC/SE Update HQ AFOTEC/SE Update HAF AFSEC/SES Update	
1000 - 1015: Action Item Review	Maj (b)(6), AFSEC/SES
1015 - 1025: Break	
1025 - 1120: Launch Collision Avoidance (COLA) Operations	Ms. (b)(6), NASA Mr. (b)(6), AI Solutions
1120 - 1130: Break	
1130 - 1230: Space Safety vs. Mission Assurance Discussion	Lt Col (b)(6), AFSEC/SES
1230 - 1330: Lunch	
1330 - 1400: Air Force Inspection System/AFI 90-201	Mr. (b)(6), AFSEC/SEG
1400 - 1430: Software Safety Certification to Space Vehicles	Mr. (b)(6), SMC
1430 - 1500: NASA Proposed Revision to ODMSP	Mr. (b)(6), SMC/ENC
1500 - 1510: Day 1 Wrap-up, closing comments	Lt Col (b)(6), AFSEC/SES

Wednesday, 28 Aug 13

0830 - 0900: VTC/Telecom Setup	All
0900 - 0915: Opening Comments	Lt Col (b)(6), AFSEC/SES
0915 - 0945: Human Factors	AFSEC/SEH
0945 - 1015: User Contributions to SSG Meetings	Mr. (b)(6), SMC/SES
1015 - 1030: Action Item Capture	Maj (b)(6), AFSEC/SES
1030 - 1045: Closing	Lt Col (b)(6), AFSEC/SES

1045 - 1115: SSC Executive Member Discussion

Space Safety Council (SSC)
Via VTC, Telecon, DCO
27 - 28 Aug 13
Minutes & Action Items

Tuesday, 27 Aug 13

Welcome Comments **(Maj Gen Neubauer, HQ AF/SE)**
Maj Gen Kurt Neubauer introduced himself as the new Air Force Chief of Safety, having assumed command in July. He welcomed everyone to the Space Safety Council (SSC) and passed his appreciation for patience with budget/resource constraints. He asked everyone to report issues with conducting the SSC virtually to Lt Col (b)(6) and/or Lt Col (b)(6). He recognized the unique challenges within space safety, addressing the complexity of on-orbit mishaps and single system losses versus constellation losses. Maj Gen Neubauer expressed the SSC is the right forum for high-level policy development that directly feeds into his Senior Safety Advisory Council, specifically addressing proposed changes to the Orbital Debris Mitigation Standard Practices (ODMSP). The general commended the group's effort to rewrite Air Force Instruction (AFI) 91-217, *Space Safety and Mishap Prevention Program*. He lauded Lt Col (b)(6) efforts to update the document, and stated he had full trust and confidence in her ability to provide a good product for the community. Maj Gen Neubauer recognized and thanked key partners, and SCC Executive Members, Col Nahorniak, Col Conant, Mr. (b)(6), and Mr. (b) Finally, he reminded the council that safety job focus should be helping or enabling commanders to complete their missions, whether we're in peacetime or down range.

Opening Remarks **(Col Nahorniak, HQ AFSPC/SE)**
Col Nahorniak welcomed everybody and thanked them for participating by teleconference and video conference. He stressed the importance for the next conference to happen in person. Col Nahorniak also commended the effort on the AFI 91-217 update.

Opening Remarks **(Lt Col (b)(6), HAF AFSEC/SES)**
Lt Col (b)(6) welcomed all participants and thanked them for their patience with the virtual SSC. He asked everyone to provide feedback to him or Lt Col (b)(6), Chief of Space Safety (HAF AFSEC/SES).

AFI 91-217 Update **(Lt Col (b)(6), HAF AFSEC/SES)**
Lt Col (b)(6) discussed the status of update efforts on the AFI 91-217. Weekly teleconferences started on 6 Aug 2013 and are planned to continue until all sections have been reviewed. The teleconferences are scheduled from 1000-1200 Mountain Time, every Thursday. The dial-in number is DSN 263-8304, Commercial 505-853-8304, and no PIN is required to join.

AFI 91-110 Update **(Maj (b)(6), HAF AFSEC/SES)**
Maj (b)(6) discussed the status of the AFI 91-110 rewrite. He identified challenges tracking down relatively current higher level guidance and removal of Attachment 2 (table listing the threshold nuclear material values). Action officer coordination was completed in April 2013; final technical coordination is planned for September 2013.

SSC Executive Member Updates

Each of the executive members presented their updates, including events over the last six months and future concerns.

AFSPC Update **(Lt Col (b)(6) HQ AFSPC/SEK)**

- Presented the AFSPC 2013 mishap summary along with trends in events and costs for the last ten years and provided updates on recent efforts.
- Requested status on merging the draft Air Force Pamphlet (AFPAM) 91-222 *USAF Guide to Space Safety Investigations* and Air Force Manual (AFMAN) 91-222 *Space Safety Investigations and Reports*. Lt Col (b)(6) said process is on hold, pending completion of the AFI 91-217 update.
- Requested status on Mishap Investigation Non-Aviation (MINA) updates. Lt Col (b)(6) has completed a space-specific module within MINA; should be a part of the December MINA course.
- Noted Aircraft Mishap Investigation Course (AMIC) provides good training for their personnel, but expressed concerns over limited slots (AFSPC requested six slots during last data call, but only received one). Lt Col (b)(6) recommended working with HAF AFSEC/SET, but courtesy copy HAF AFSEC/SES on future requests.
    - During the training discussion, Mr. (b)(6) (Space and Missile Systems Center Chief of Safety (SMC/SE)) said the Space Systems Safety Training Course taught at the beginning of August went well. He expressed a desire for a road show, but wanted recommendations on locations. **Lt Col (b)(6) and Lt Col (b)(6) took the task to provide proposed sites for the course.**
    - Asked status on Management Internal Control Toolset (MICT) checklists. **Maj (b)(6) took the task to review/update the space safety checklists in MICT.**

AFOTEC Update **(Mr. (b)(6), HQ AFOTEC/SEW)**

- Presented efforts over the past six months, and for the next six months. Also discussed concerns with Programmatic Environment, Safety and Occupational Health Evaluation (PESHE) process and documentation.
    - During update, Lt Col (b)(6) noted AFOTEC was the only direct reporting unit (DRU) not a member of the SSAC. **Lt Col (b)(6) took the action to determine feasibility and value of adding AFOTEC as an SSAC member.**

AFSEC Update **(Lt Col (b)(6), HAF AFSEC/SES)**

- Presented recent events, on-going efforts to update guidance & policy, and lessons learned in coordination processes.
    - Lt Col (b)(6) highlighted Maj Gen Woodward's (the former AF/SE) keynote speech at the International Association for the Advancement of Space Safety (IAASS), and reiterated the need for wide-spread cooperation and dialogue.

- During discussion of training updates, Mr. (b)(6) (SME/SE) expressed concerns with turn-over in Board President Course (BPC) graduates and asked if AFSPC had enough available to support investigations. Col Nahorniak (AFSPC/SE) and Lt Col (b)(6) (AFSPC/SEK) stated there were enough.
- In support of the topic of 'communication promoting advocacy,' Mr. (b)(6) (SMC/SE) suggested safety personnel should share safety documents with program managers, operations, et al – not just 'safety people.'
- On the topic of tight budgets, Mr. (b)(6) (14th Air Force Chief of Safety (14 AF/SE)) commented on doing more with less. He requested AFSEC guidance on what tasks were less important, to enable appropriate resource management. Specifically, Mr. (b)(6) asked if Class Ds/Es are value-added. **Lt Col (b)(6) took the action to set up a follow-on discussion with all interested parties on this topic.**

Launch Collision Avoidance (COLA) Operations
(Ms. (b)(6), NASA; Mr. (b)(6), AI Solutions)

The presentation "Recommended Techniques and Thresholds for Launch COLA Operations," covered the key preliminary findings from a HQ NASA commissioned study to examine the issue of conflicting direction and standards for closing launch windows.

- During the discussion about three-dimensional trade-space, it was asked that given recent plans reported in the media, should the Chinese space station be removed from the man-able object list when considering the probability of collision to each on-orbit manned spacecraft?
- The presenters were asked if they used Delta IV or Falcon 9 data. The study was done with the data they had available, which did not include these launch vehicles. NASA did not think the additional information would significantly change their findings. Some discussion was held on getting NASA the data.
- Full study (Hejduk et al., "Launch COLA Operations: Recommended Procedures and Thresholds") is in final stage of coordination within NASA. Should be available for general release by 1 Oct 13.
- Based on this study's findings, NASA will look at providing the AF an updated memo, stating they are comfortable with the AF moving from 200km spherical miss distance for manned objects to 1e-6 Pc.

Action Item Review **(Lt Col (b)(6), HAF AFSEC/SES)**

Lt Col (b)(6) provided the status of action items from the Feb 2013 SSC. The updated action item list is included below.

Space Safety vs. Mission Assurance Discussion **(Lt Col (b)(6), HAF AFSEC/SES)**

The presentation, "Space Safety, System Safety, Mission Assurance or…?" provided an opportunity for community discussion.

- Lt Col (b)(6) fielded the question: When discussing space safety, where is the line between mission assurance and system safety? While they are not mutually exclusive, system safety has specific reporting requirements that mission assurance does not.
- Mr. (b)(6) noted that this discussion has been going on for a long time and will forward conference proceedings from 1968 to whoever is interested.
- 'Mission Assurance is a product of system safety' or is 'system safety a part of mission assurance?' Or, are they both a part of systems engineering? Getting something safely into space is only one part of mission success. Lt Col (b)(6) briefed that the relationship between space safety and mission assurance is closer on the "space side of the house."
- This discussion is not unique to space, or the military. "Make sure you are in the right program as you go forward."
- Risks may be accepted at a lower level on the mission assurance side than on the system safety side. System safety is another option for risk to be brought to higher levels.
- System safety is intended to be tailored. Army Safety Center disagreed and referenced MIL-STD-882. Also, 10-series instruction talking about mission assurance.
- While space safety balances mission assurance and system safety, it is important that organizations do not duplicate work. This could be remedied in the contract by requiring system safety deliberations throughout the acquisition process.

AFI 90-201, *Air Force Inspection System* Update (Mr. (b)(6), HAF AFSEC/SEG)

Mr. (b)(6) explained the ongoing effort and status of the AF Inspection System. The new system should be fully capable by 2014. Over the next year, there will be phased implementation. The new program will be more commander-focused with the footprint of inspection teams being greatly reduced and much of the documentation that highlights the commanders program will be posted online in tools such as MICT. The following questions and comments were discussed following the presentation:

- Adding work to safety offices? Yes, but hopefully taking some away, too.
- New guidance is wing/squadron-focused. Still looking into how it will be addressed in acquisition organizations.
- AFMC is updating the system safety MICT checklist, per (b)(6), will include AFSPC in discussion to develop a standard product for all commands.

Software Safety Certification to Space Vehicles

(Mr. (b)(6) SMC; (b)(6), Northrop Grumman Aerospace Systems)

The briefing "Applicability of Software Safety Airworthiness Certification Criteria to Man-rated and Unmanned Space Vehicles", was originally presented at a recent American Institute of Aeronautics and Astronautics (AIAA) conference. It reviewed a collection of software safety instructions that can support qualification of safety-critical software for man-rated and unmanned space vehicles. SMS has concerns that rigor in software safety may not be the same as system safety and presented some possible ways to improve. The details map to the different phases of

system acquisition, with a referenced suggestion for each step on the system engineering diagrams. The presentation provided the references linked to the suggested certification process.

NASA Proposed Revision to ODMSP **(Mr. (b)(6), SMC/ENC)**
The SMC Engineering Directorate (SMC/ENC) presented "Assessment of NASA's Proposed Revision to the USG ODMSP Disposal Requirements." SMC, with Aerospace support, reviewed NASA's proposed revision to ODMSP. AFSPC provided a "non-concur" to the on the proposed language referencing the removal of the protected SSO region. SMC performed a more complete study and briefed the results, but did not address specific proposed AF wording to the new ODMSP.

- The council discussed that removing the SSO protected region may add risk or may allow other options for clearing out the MEO region. The bigger desire is to prioritize disposal options to encourage decaying or reentering orbits.
- **Lt Col (b)(6) took the action to develop language with Mr. (b)(6) (SMC/ENC) and coordinate the response to the Office of the Under Secretary of Defense (Policy) (OUSD(P)) through HQ AF/A3 and HAF AFSEC/SES.**

Wednesday, 28 Aug 13

Opening Comments **(Lt Col (b)(6), HAF AFSEC/SES)**
Lt Col (b)(6) welcomed the participants back.

Human Factors Update **(Dr. (b)(6), HAF AFSEC/SEH)**
Dr. (b)(6) talked about changes to the nano-coding system used to describe human factors. The Air Force is leading the effort and working with the other services to get them on board (visiting the Navy, not sure about the Army). Once an agreement is reached by all services, the topic will go in front of the Joint Services Safety Council (JSSC) for approval.

- The new nano-coding system must meet four objectives: increase the rate of reliability; be easier to use than the current system; be backwards compatible with previous nano-codes; and not disrupt current safety investigation processes (no additional manpower/resources/time required)
- The new system should be complete by October and the AFSEC Human Factors division will train MAJCOM safety offices and they can then train their people.

AFMC Executive Member Update **(Mr. (b)(6), HQ AFRL/SE)**
Mr. (b)(6) presented insights, lessons learned, and status of three AFRL space programs.

User Contributions to SSG Meetings **(Mr. (b)(6), SMC/SES; Mr. (b)(6), SMC)**
The presentation "What Safety Related Risks & Issues Should User/Operator Report at SSG Meetings?" is a "frequently asked question" from SMC's System Safety Managers awareness effort.

- Primary question was "Who is the right person/organization to participate as User?" Currently, Mr. (b)(6) (14 AF/SE), acts in this role. Discussion identified this as an opportunity for increased operator involvement (i.e., A3 community).
    - AFSPC/SEK took an internal task to coordinate different offices on current relationships, participations and possible solutions.

Action Item Capture **(Maj (b)(6), HAF AFSEC/SES)**
Maj (b)(6) briefed the list of action items captured during this SSC (listed below).

Closing comments **(Lt Col (b)(6), HAF AFSEC/SES)**
Lt Col (b)(6) thanked everyone for their participation and patience with the VTC/Telecon/DCO necessity due to fiscal constraints. **Lt Col (b)(6) took the action to submit the February 2014 SSC to higher headquarters to be an approved conference.**

***All briefings are posted on the HAF AFSEC Space Safety Division SharePoint website at the following link: https://cs3.eis.af.mil/sites/OO-SE-AF-01/default.aspx

Participating Organizations	Representative (confirmed)
Air Force Safety Center, Space Safety Division (HAF AFSEC/SES)	Lt Col (b)(6)
Air Force Space Command, Directorate of Safety (HQ AFSPC/SE)	Col Mike Nahorniak
Air Force Operational Test & Evaluation Center (AFOTEC)	Mr. (b)(6)
Air Force Research Laboratory (AFRL)	Mr. (b)(6)
Air Force Warfare Center (ACC USAFWC/SE)	Lt Col (b)(6)
14th Air Force, Directorate of Safety (14 AF/SE)	Mr. (b)(6)
21st Space Wing, Safety (21SW/SE)	Lt Col (b)(6)
50th Space Wing, Safety (50 SW/SE)	Lt Col (b)(6)
50th Space Wing, 3rd Space Operations Squadron (3 SOPS/OA)	Mr. (b)(6)
460th Space Wing, Safety (460 SW/SE)	Maj (b)(6)
Space & Missile System Center, Directorate of Safety (SMC/SE)	Mr. (b)(6)
SMC, Directorate of Engineering (SMC/EN)	Mr. (b)(6)
SMC, Directorate of Global Positioning System (SMC/GP)	Ms. (b)(6) Mr. (b)(6)
SMC, Directorate of Launch and Range Systems (SMC/LR)	Maj (b)(6)
SMC, MILSATCOM Systems Directorate (SMC/MC)	Mr. (b)(6)
SMC, Spacelift Range & Network Systems Division (SMC/RN)	Mr. (b)(6)
SMC, Directorate of Space Development and Test (SMC/SD)	Mr. (b)(6)
SMC, Directorate of Development Planning (SMC/XR)	Mr. (b)(6)
AF/Federal Aviation Administration (FAA) Liaison	Maj (b)(6)
Army Safety Center	Dr. (b)(6)
National Aeronautics and Space Administration (NASA)	Mr. (b)(6)
Missile Defense Agency (MDA)	Mr. (b)(6)

Space Safety Council Action Items

Item #	ACTIONS Items	OPR/OCR	Suspense	Notes
0213-04	Palace Acquire program status inquiry from Mr. (b)(6) (SMC/SE).	OPR: Lt Col (b)(6)	15 Mar 13	Engaged with AFSEC/SET; research ongoing **OPEN**
0213-07	Coordinate with AF/A3 to finalize staffing on NSP exceptions.	OPR: Lt Col (b)(6)	1 Apr 13	Awaiting SAF/SP publication of AF guidance **OPEN**
0213-09	Write an MOA or MOU with JSpOC to request SSA/COLA data for tracking/trending at AFSEC and change AFI 91-217 and AFMAN 91-222 verbiage IAW Ed Browne's "Smart Ops" briefing.	OPR: Lt Col (b)(6) OCR: Col Nahorniak & Mr. (b)(6)	19 Apr 13	Ongoing progress towards MOU; "Smart Ops" will be addressed in AFI 91-217 IPT **OPEN**
0213-10	Contact AFOTEC to determine process to allow AFSEC/SES access on high side computers/accounts.	OPR: Maj (b)	22 Mar 13	AFSEC/SES & AFOTEC discussion ongoing; **OPEN**
0213-11	Author candidate wording for AFI 91-217 rewrite relating to correct SDAR approval process; also as it relates to non-AFSPC SDARs.	OPR: Lt Col (b) OCR: Mr. (b)(6)	19 Apr 13	**Closed**
0813-01	Provide status on MICT space/system safety C/Ls; Update as necessary	OPR: Maj (b)(6) OCR: Mr. (b)(6)	1 Nov 13	
0813-02	Identify/Provide agreements between AFSPC and outside agencies (FAA, NASA, etc.).	OPR: Ms. (b)(6) OCR: Other reps (FAA, etc)	1 Nov 13	Uploaded to AFSPC SharePoint, 28 Aug 13 **Closed**
0813-04	Propose locations for next Space Systems Safety Training Course.	OPR: Lt Col (b) Lt Col (b)(6) OCR: Mr. (b)(6)	15 Oct 13	
0813-05	Establish follow-on discussion to identify 'stop doing' items, with specific attention to Class Ds/Es (See AFSEC proactive safety folks)	OPR: Maj (b)(6) OCR: Mr. (b)(6)	17 Jan 14	
0813-06	Determine feasibility/value of adding AFOTEC to the SSAC	OPR: Lt Col (b)(6) OCR: Mr. (b)	1 Nov 13	
0813-07	Develop recommended changes to NASA's proposed ODMSP update (ref MEO requirements)	OPR: Lt Col (b) OCR: Mr. (b)(6), Maj (b)(6)	1 Nov 13	
0813-08	Submit request to SAF to approve Feb 2014 SSC as a sanctioned conference	OPR: Lt Col (b)(6) OCR: Lt Col (b)	6 Dec 13	

Space Safety Council Minutes
28 August 2013

(b)(6)

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Lt Col, USAF
Deputy Chief of Space Safety
HAF Air Force Safety Center

MICHAEL F. NAHORNIAK, Colonel, USAF
Director of Safety
HQ Air Force Space Command

Air Force Safety Center
Space Safety Council
26-27 February 2014 @ Kirtland AFB
Telecon Comm (505) 853-8304 or DSN 263-8304

Wednesday, 26 Feb 2014

0800 – 0830: DCO/Telecon Setup	All
Note: Maj Gen Kurt Neubauer (AF/SE) will make opening remarks between 0830 and 0900	
0830 – 0835: Administration Announcements	Maj (b)(6), HAF AFSEC/SES
0835 – 0845: HAF AFSEC/SES Opening Remarks	Lt Col (b)(6), HAF AFSEC/SES
0845 – 0855: HQ AFSPC/SE Opening Remarks	Col Mike Nahorniak, HQ AFSPC/SE
0855 – 1020: HQ AFSPC/SE Update HQ AFMC/SE Update HQ AFOTEC/SE Update HAF AFSEC/SES Update	SSC Executive Members
1020 – 1030: Break	
1030 – 1045: Action Item Review	Maj (b)(6), HAF AFSEC/SES
1045 – 1115: Status of 91-217 and Roadmap for AFI/AFMAN Updates	Lt Col (b)(6), HAF AFSEC/SES
1115 – 1215: 'Big Issues' for the Next Iteration of 91-217	Lt Col (b)(6), HQ AFSPC/SEK
1215 – 1345: Lunch	
1345 – 1415: On-Orbit Maneuvering with Debris Collision Mitigation	(b)(6), 50 SW/SE
1415 – 1445: Update to NASA LCOLA Approach	(b)(6), NASA
1445 – 1500: Break	
1500 – 1515: Space Safety Training Update (CBT, MINA Module, SMIC)	Lt Col (b)(6), HAF AFSEC/SES
1515 – 1545: HAF Checklist/MICT Feedback	(b)(6), HQ AFSPC/SEK Maj (b)(6), HAF AFSEC/SES
1545 – 1600: Day 1 Wrap-up, closing comments	Lt Col (b)(6), HAF AFSEC/SES

Thursday, 27 Feb 14

0800 – 0830: DCO/Telecon Setup	All
0830 – 0840: Opening Comments	Lt Col (b)(6), HAF AFSEC/SES
0840 – 0930: AF Aviation Safety Action Program (ASAP) Lessons	(b)(6), HQ AFSPC/SEK (b)(6), HAF AFSEC/SEF
0930 – 1000: Value of Class E HAP (Space) Reporting	(b)(6), 14 AF/SE
1000 – 1015: Break	
1015 – 1100: Calculation of Casualty Expectation and Risk	(b)(6), SMC/ENC
1100 – 1145: Review of Probability of Failure Studies	Dr. (b)(6), FAA/AST-4
1145 – 1300: Lunch	
1300 – 1320: DoDI 5000.02 and Space Safety	Lt Col (b)(6), HAF AFSEC/SES
1320 – 1400: Risk Thresholds in Space Safety	Lt Col (b)(6), HAF AFSEC/SES Lt Col (b)(6), HQ AFSPC/SEK
1400 – 1500: Discussion on Explosion Risk	Lt Col (b)(6), HQ AFSPC/SEK
1500 – 1515: Break	
1515 – 1530: Action Item Review	Maj (b)(6), HAF AFSEC/SES
1530 – 1545: Closing Remarks	Lt Col (b)(6), HAF AFSEC/SES
1545 – 1630: Executive Member Discussion	SSC Executive Members

Space Safety Council (SSC)

Kirtland AFB

26 – 27 February 2014

Minutes and Attendee Listing

The AF Safety Center (HAF AFSEC) hosted the SSC at Kirtland AFB. HAF AFSEC provided a telecon bridge and Defense Connect Online (DCO) for participants unable to travel.

Wednesday, 26 Feb 14

Welcome Comments **(Maj Gen Neubauer, HQ AF/SE)**

Maj Gen Neubauer welcomed the group and thanked them for the "righteous work" being done. He spoke of challenging times ahead due to manpower and fiscal restraints and asked everyone to tap into personal energy to continue to accomplish the mission. He stressed safety is integral to operations, "the connective tissue" between the individual and mission success. The general also spoke about making safety "muscle memory," and that it separated the good from the great. He also said integrity means doing what is right even when no one is watching, and that it applied to safety as well. He emphasized safety is not an add-on task but part of the mission, and asked participants bring the message back to their respective units.

Opening Remarks **(Lt Col (b)(6), HAF AFSEC/SES)**

Lt Col (b)(6) welcomed attendees and participants on teleconference/DCO. He was pleased the council was SAF approved and that so many organizations were able to participate in person. He stressed the importance of the council - a feeding mechanism to the Senior Safety Advisory Council (SSAC). He also wished farewell to the retiring Lt Col (b)(6) and welcomed Mr. (b)(6), the new Chief of Air Force Space Safety.

Opening Remarks **(Col Nahorniak, HQ AFSPC/SE)**

Col Nahorniak echoed Lt Col (b)(6) welcome and re-emphasized the benefits of meeting in person, noting much more is accomplished in face-to-face meetings.

SSC Executive Member Updates

Air Force Space Command (HQ AFSPC) Update **(Lt Col (b)(6) HQ AFSPC/SEK)**

- Last year (2013) was a good year, with minimal mishaps. Col Carroll (30 SW/SE) identified the increasing number of issues in pre- and post-launch incidents that do not meet Class E criteria during almost every launch, and how this was a concerning trend.
- Currently reviewing supplements for AFI 91-202, *The US Air Force Mishap Prevention Program*, and AFI 91-204, *Safety Investigations and Reports*.
- Raised concerns with new Air Force Inspection System (AFIS), specifically the Management Internal Control Toolset (MICT). Lt Col (b)(6) (HQ AFSPC/SEK) noted HAF checklists (c/ls) in MICT (SES-

01 and SES-05) required updates, with SES-05 (the wing level c/ls) as the top priority. HQ AFSPC also requested HAF-level System Safety c/ls in MICT.

- MICT implementation is a major issue at wings; program is too time-consuming and crashes often. Mr. (b)(6) (14AF/SE) stated MICT was negatively affecting the wings by taking time away from their missions. **Action: Relay space safety concerns with MICT to AFIA (Mr. (b)(6), HAF AFSEC/SES).**

- Developing Memorandum of Agreement (MOA) with NRO for launch mishap investigations and coordinating with HAF/A3 on MOA with the FAA for Safety for Space Transportation and Range Activities.

Air Force Material Command (AFMC) Update **(Mr. (b)(6), HQ AFRL/SE)**

- Resources (budget/manpower) remain the top concern and the biggest challenge, especially in keeping the team up to date in training.
- Involving safety as part of the operations team was a good experience with the Automated Navigation and Guidance Experiment for Local Space (ANGELS) program.
- SMC/SE is contracting to bring the Space System Safety Course to KAFB. Preliminary dates are 23-27 June 2014. **Action: Secure classroom space for the Space System Safety Course (Lt Col (b)(6), HAF AFSEC/SES).**

Air Force Operational Test & Evaluation Center (AFOTEC) Update
(Mr. (b)(6) HQ AFOTEC/SEW)

- Over the next six months, several Environmental Safety and Occupational Health (ESOH) test certificates for space systems are scheduled. AFOTEC is no longer supporting early assessments.
- Programmatic Environment, Safety and Occupational Health Evaluations (PESHEs) have gotten better over the last 6 months. AFOTEC reiterated their reliance on complete PESHE documentation.
- Col Carroll (30 SW/SE) asked if AFOTEC had increasing Information Assurance (IA) concerns as they performed testing. AFOTEC and 17 TS answered yes - programs typically have a Key Performance Parameter (KPP) related to IA, and almost every system tested has had IA-related deficiencies.

Air Force Safety Center (HAF AFSEC) Update **(Lt Col (b)(6), HAF AFSEC/SES)**

- Highlighted need for clarity – requests for assistance should be clear, understandable, and actionable. Additionally, the community needed to maintain open lines of communication.
- Emphasized operator involvement, early and often, when developing/updating safety guidance. Lt Col (b) (HQ AFSPC/SEK) concurred, and recommended adding acquisitions. Mr. (b)(6) (14 AF/SE) added operators might reduce the safety workload and reduce duplication of effort.
- Discussed Space Safety Division reorganization. **Action: Provide an updated organization chart (Maj (b)(6) HAF AFSEC/SES).**
- Discussed AFI 91-206(I), *Participation in a Military or Civil Aircraft Accident Safety Investigation,* and new draft additions that include coordination requirements for space mishap investigations.
  - Mr. (b) (SME/XR) lauded the effort and encouraged similar interactions, citing value of integrating aviation experts into space mishap investigations.

Additional Updates

- Mr. (b) (SMC/XR) asked about DoD policies encouraging use of commercial busses. He recommended HAF AFSEC be sensitive to such directives, and consider how safety requirements change if the AF uses commercial satellite busses. The group also discussed briefly how safety requirements apply CubeSats. **Action: Provide information from an upcoming CubeSat policy meeting (Mr. (b)(6) , 14 AF/SE).**

Action Item Review **(Maj (b)(6) , HAF AFSEC/SES)**

Reviewed open action item status from previous SSCs (updates are attached). Two items from August 2013 SSC were discussed further.

- National Space Policy (NSP) Exceptions: HQ AFSPC raised concern over 90 days for staffing through HAF. **Action: Coordinate with SAF/HAF for appropriate staffing timelines (Maj (b)(6) , HAF AFSEC/SES).**
    - Mr. (b)(6) (14AF/SE) identified interpretation differences - launch wings would launch without a signed NSP exception, where SMC might not.
- Changes to the Orbital Debris Mitigation Standard Practices (ODMSP): HQ AFSPC sent changes forward, but heard nothing further. HQ AFSPC asked what AF organization was staffing recommendations, and if they were coordinating with NASA. **Action: Coordinate on ODMSP status with SAF/SP and HAF/A3 (Lt Col (b)(6) , HAF AFSEC/SES).**

Status of 91-217 / Roadmap for AFI/AFMAN Updates **(Lt Col (b)(6) , HAF AFSEC/SES)**

- Thanked the 91-217 IPT participants for their hard work. External coordination was complete, with zero non-concurs, and adjudication of comments was underway. Expected publish date was March 2014.
- AFI 91-110, *Nuclear Safety Review and Launch Approval for Space or Missile Use of Radioactive Material and Nuclear Systems*, formal coordination planned after AFI 91-217 efforts are complete; AFMAN 91-222, *Space Safety Investigations and Reports*, rewrite would follow.

'Big Issues' for the Next Iteration of 91-217 **(Lt Col (b)(6) , HQ AFSPC/SEK)**

- Open discussion of major items tabled for the next iteration of AFI 91-217. Specific issues identified included:
    - Clarify waiver acceptance verses risk acceptance;
    - Clarify acquisition and operations roles;
    - Define relationship between AFI 91-217 and MIL-STD-882
    - Provide examples of tailored risk tables from MIL-STD-882;
    - Re-evaluate numerical debris mitigation thresholds unique to the AFI;
    - Determine if AFI 91-217 is required, or if an updated AFI 91-202 is sufficient;
    - Scrub organizational roles and responsibilities;
    - Re-evaluate all paragraphs impacting launch availability (NRO);
    - Readdress dual-fault tolerance.

- Mr. (b)(6) (SMC/SE) expressed concern that changes to AFI 91-217 remove sole requirement for dual tolerance in missile warning systems. However, STRATCOM maintains any requirements for dual-fault tolerance, WRT missile warning. New 91-217 language retained "catastrophic" designation, but removed solution-specific requirements, such as dual-fault tolerance.
- Mr. (b) (SMC/XR) suggested PMs could waive AFI requirements, per 63-series instructions. However, general feeling was the PM would require strong justification to waive AFI requirements, and that commanders were still responsible for any accepted risks.

On-Orbit Maneuvering with Debris Collision Mitigation **(Mr. (b)(6), 50 SW/SE)**

- Presented sample process of determining when to perform a collision avoidance maneuver - identify the conjunction, plan the maneuver, execute. Additional points for audience:
  - The object, maneuver vector, and final position require screening; ensures satellite and/or maneuver does not endanger other on-orbit objects.
  - No official AF-level guidance exists on thresholds for maneuver decisions. While appropriate for mission level determinations, this complicates provision of 'standard' values.
  - The probability of collision is constantly changing as screenings change.
- Lt Col (b)(6) (HAF AFSEC/SES) asked if units report conjunction avoidance / mitigation maneuvers as Class E's, and if they should be. AFI 91-217 requires programs have an approved Collision Avoidance (COLA) process. AFMAN 91-222 requires a Class E report if COLA hazard is experienced. Mr. (b)(6) (HAF AFSEC/SES) likened the situation to potential for bird strikes – while maneuvers might not be Class E's, data might be useful to prevent future mishaps. 50 SW raised concerns reporting all maneuvers would be too time consuming. **Updated Action (Feb 2013): Coordinate with Joint Space Operations Center (JSpOC) to collect maneuver data (Mr. (b)(6), HAF AFSEC/SES).**

Air Force Inspection System (AFIS) Q&A **(Mr. (b)(6), HAF AFSEC/SEG)**

- Provided 30-minute AFIS Q&A session. Issues raised included:
  - Detailed MICT guidance to improve implementation.
  - Safety manpower inadequate to consistently support Wing Inspection Teams (WIT).
    - Functional Area Managers encouraged lower echelon staffs to provide personnel to Wing IG staffs, but not always possible.
  - SAF/IGI memo states functional area inspections at/below the wing level should continue; i.e., wing safety staffs (not the IG) should conduct workplace inspections and squadron safety assessments;
    - Mr. (b)(6) recommended safety staff coordinate with IG and WIT and continually update functional inspection status.
  - Clearer guidance defining roles between Wing Safety and WIT;
  - Efficient mechanism to upload large amounts of data into MICT;
  - Coordinate safety inspections/assessments with and IG-led inspections.
    - Mr. (b)(6) recommended reviewing HQ USAF Program Action Directive (PAD) 13-01, *Implementation of the Secretary of the United States Air Force Direction to Implement a New Air Force Inspection System*, for further guidance.

- **Action: Provide consolidated list of AFIS issues to HAF AFSEC/SES and SEG (Col Nahorniak, HQ AFSPC/SE).**
- Col Carroll raised concerns over AF-wide consolidation of ground safety program into Installation Support Center (ISC). Mr. (b)(6) stated ground safety removed from ISC construct.

Update to NASA LCOLA Approach **(Mr. (b)(6), NASA/GSFC)**

- Update to NASA Launch COLA (LCOLA) study results presented at the Aug 2013 SSC.
- Asked if Chinese space station will be treated as manned, Mr. (b)(6) stated it was a policy question, but the JSpOC would consider it manned w/o documentation stating otherwise. A NASA representative suggested replacing the 200 km miss distance requirement with a probability-based approach to resolve the question (*note – this is not current NASA policy – just a suggestion that NASA appears to be moving towards*).
- Key study finding was covariance data is accurate, but some organizations refused to fund and provide the data.
- Eye-opening conclusion - LCOLA does NOT mitigate risk unless 70% of launch windows are closed. Should the safety community continue this practice?
    - NASA established a working group to determine viability/value of LCOLA. Unofficial view is LCOLA is only value-added with manned/manable objects.
    - FAA considered publishing a document on this topic, and offered to provide an advance copy to SSC participants.
    - JSpOC performed a launch window closure study a few years ago; determined only 1% of available windows were actually closed.
    - Mr. (b)(6) (Aerospace) has additional papers on topic.
- **Action: Provide updated LCOLA report to HAF AFSEC/SES for distribution (Lt Col (b)(6), HAF AFSEC/SES).**

HAF Checklist/MICT Feedback **(Maj (b)(6), HAF AFSEC/SES)**
((b)(6), HQ AFSPC/SEK)

- HAF AFSEC update to Space Safety MICT c/ls planned after AFI 91-217 is published.
    - For SES-05 (wing level c/l), two options were proposed:
        - Break into separate c/l for each discipline (i.e., orbital, launch, etc.);
        - Leave as one c/l and divide into sections (the preferred method).
    - SES-01 is MAJCOM HQ specific and will be the second c/l updated.
- Supporting documents – required to upload enough data to demonstrate task accomplishment; however, MICT is not a repository for everything.
- SSC requested a single answer from HAF AFSEC on MICT c/ls. **Action: Coordinate Safety Center guidance on MICT c/ls (Mr. (b)(6), HAF AFSEC/SES).**

Day 1 Wrap-up, Closing Comments **(Mr. (b)(6), HAF AFSEC/SES)**

- Stated space safety is in mission directives at SAF and Center levels; next step is incorporating space safety into OSD/DoD-level guidance, as applicable.
- Great SSC discussions but need actionable items with specific tasks/goals.

- Mr. (b)(6) discussed concerns over 'unresponsiveness' from HAF AFSEC, and requested community involvement/engagement to help resolve issues, the earlier the better. AFI 91-217 IPT was a prime example (both good and bad).

Thursday, 27 Feb 14

Day 2 Welcome Comments **(Mr Rubeor, HQ AFSEC/CD)**

Mr Rubeor welcomed everyone, pleased that the team could meet face-to-face. He urged the team to use the face-to-face time effectively to bring up and resolve issues.

Mr. Rubeor encouraged the group to be proactive, and to identify precursors that need attention. Lessons learned from flight side are important to space's proactive safety.

He acknowledged MICT issues and feedback from both the 30th and from 14th AF, who reiterated their issues with the software and the lack of standardization among the safety disciplines.

Space Safety Training Update **(Maj (b)(6), HAF AFSEC/SES)**

- Will solicit wing experts to review Space Safety 101 computer-based training.
- SSC raised concerns over value of current space mishap investigation training.
    - Consensus was Aircraft Mishap Investigation Course (AMIC) was better than Mishap Investigation Non-Aviation (MINA) course, but limited slots available for non-pilots.
    - Some suggestions for way ahead included:
        - Dedicated space mishap investigation cadre instead of training all space personnel;
        - Use MINA w/space segment as basic course, but provide advanced/cross-disciplinary course;
        - Consider exchanging slots in AMIC for support to UAV/RPA investigations;
        - Develop dedicated course for space mishap investigations;
        - Develop combined course with the UAV/RPA personnel.
    - **Action: Investigate partnership opportunities with RPA community (Lt Col (b)(6), HAF AFSEC/SES).**
- Next SMC-sponsored Space System Safety Course scheduled for June 2014 at Kirtland AFB, NM. **Action: In coordination w/SMC and HQ AFSPC/SEK, re-evaluate Space System Safety Course (Lt Col (b)(6), HAF AFSEC/SES).**

DoDI 5000.02 and Space Safety **(Lt Col (b)(6), HAF AFSEC/SES)**

- Latest version of DoDI 5000.02, *Operation of the Defense Acquisition System*, no longer treats space acquisition differently.
- In discussion with SAF/AQ to determine if Space Debris Assessment Reports (SDARS) (outlined in AFI 91-217), will serve the function of an Orbital Debris Mitigation Report, (required by DoDI 5000.02).
- SDAR approval chain was in operations, vice acquisitions. DoDI 5000.02 requires Milestone Decision Authority (MDA) approval, but does not state if it can be delegated.
    - Lt Col (b)(6) (HQ AFSPC/SEK) pointed out timeline issues with Launch Vehicle SDARs vs. Space Vehicle SDARs.

- **Action: Establish follow-on discussion with HQ AFSPC on SDAR approval (Lt Col (b)(6), HAF AFSEC/SES).**

- Potential Acquisition Models in DoDI 5000.02 cover space systems, but issues remain with allowable trade space for streamlining programs. Additionally, non-space programs supporting space systems will still require System Safety Groups.

AF Aviation Safety Action Program (ASAP) Lessons **((b)(6), HQ AFSPC/SEK)**
((b)(6), HAF AFSEC/SEF)

- The ASAP was implemented by HAF AFSEC following commercial flight industries' self-reporting safety programs. The program depends on voluntary identification of errors and hazards, without a mishap.
- HQ AFSPC/SEK and HAF AFSEC have developed a preliminary version for space community, based on Five M Model (Man-Machine-Medium-Mission-Management).
- Concerns raised included contractor support and security issues for classified reporting.
- Key point – ASAP is just another tool, not intended to replace other contractor tools or reporting requirements.
- Requested community review on-line Space ASAP and provide feedback to HQ AFSPC/SEK.
- **Action: Brief HQ AFSPC/A3 on Space ASAP (Lt Col (b)(6) HQ AFSPC/SEK).**

Value of Class E HAP (Space) Reporting **(Mr (b)(6), 14 AF/SE)**

- Identified lack of perceived value in Class E's, poor sharing of lessons learned, and limited ability to track and trend classified events via Air Force Safety Automated System (AFSAS).
  - Side issue – perception is AFSAS User's Guide takes precedence over AFIs.
  - **Action: Coordinate with HAF AFSEC/SEA to clarify order of precedence between AFSAS User's Guide and 91- series AFIs (Maj (b)(6), HAF AFSEC/SES).**
- Follow-on discussion addressed mishaps vs. anomaly resolution. Analogy is anomaly resolution is to space what emergency procedures are to flight. While timelines are extended, community should press to accomplish safety processes in parallel, where possible.
  - Mr. (b) (SMC/XR) requested more clarity in AFMAN 91-222 (anomaly definition, guidance on transitioning to mishap investigations, and how 91-222 applies to experimental systems).
  - Mr. (b)(6) (AFOTEC/SEW) reported owners of experimental aircraft investigate, and AFOTEC supports.
- Further discussion was tabled for future working group (no action item assigned).

Review of Probability of Failure (POF) Studies **(Dr. (b)(6), FAA/AST-4)**

- The presentation gave an overview of POF analysis guidelines and current approaches. POF analysis for new launch vehicles considers factors related to systems "developed and launched under similar circumstances" with manufacturer experience as a dominant factor.
- Question asked if FAA certifies re-entry. Answer was yes and no - FAA does not certify vehicles "for space," but ensures the protection of the public.

Calculation of Casualty Expectation and Risk **(Ms. (b)(6), Aerospace Corporation)**

- Presented methodology regarding use of Casualty expectation for informed risk acceptance.
- Question asked if anyone corroborated debris footprint. Answer was no, it is too difficult. There is limited empirical data and no standards on atmospheric effects on reentering objects.
- Critical to understand difference between individual and collective risk (used example of sniper and a stadium). Collective risk may be acceptable to organization, but assumes risk on behalf of individual by default.
- Focus is public safety; hence focus on "Probability of Debris Falling in Populated Areas."

Risk Thresholds in Space Safety **(Lt Col (b)(6) HAF AFSEC/SES)**
(Lt Col (b)(6), HQ AFSPC/SEK)

- Led discussion of AFI 91-217 issue - risk thresholds and the relationship to MIL-STD-882.
- Concern between pushing 882E, when programs contractually follow 882C – the contract is 'law;' organizations like AFOTEC can only test what is on the contract.
- Identified lack of definitive AF-level policy to tailor MIL-STD-882 for space programs.
    - Precedents are listed in the charts illustrating various known tailoring approaches, but lack detailed guidance (e.g., when to tailor, who approves, what level to tailor, etc.)
- One recommendation was to include a tailored Risk Assessment Matrix in the next iteration of AFI 91-217, to balance performance requirements with potential space system unique hazards.
- Raised issues of risk to an individual program, vice risk to the space environment. Issues might require higher authority (e.g., AFI 91-202).

Action Item Review **(Maj (b)(6), HAF AFSEC/SES)**

Maj (b)(6) reviewed new action items captured during this SSC meeting. Open and New Action Items are tracked in a separate document.

Closing Remarks **(Lt Col (b)(6), HAF AFSEC/SES)**

Lt Col (b)(6) thanked all participants and encouraged continued improvement in communication and collaboration throughout the year – not just at the SSC. HQ AFSPC/SEK offered to host the next in-person SSC at Air Force Space Command in Colorado Springs.

***All briefings are posted on the HAF AFSEC Space Safety Division SharePoint website at the following link:
https://afsc.eis.af.mil/ses/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fses%2fShared%20Documents%2f2014%20Spring%20Space%20Safety%20Council&FolderCTID=&View=%7bD151A2B7%2dDB06%2d40E0%2dA823%2dCDABC6F53803%7d.

SSC Attendance 26, 27 February 2014	
Participating Organizations	**Representatives (confirmed)**
Air Force Safety Center, Space Safety Division (HAF AFSEC/SES)	Lt Col (b)(6)
HAF AFSEC/SES	Lt Col (b)(6)
HAF AFSEC/SES	Lt Col (b)(6)
HAF AFSEC/SES	Lt Col (b)(6)
HAF AFSEC/SES	Maj (b)(6)
HAF AFSEC/SES	Maj (b)(6)
Air Force Space Command, Directorate of Safety (HQ AFSPC/SE)	Col Nahorniak
HQ APSPC/SEK	Lt Col (b)
HQ APSPC/SEK	Ms. (b)(6)
HQ APSPC/SEK	Mr. (b)(6) (T)
HQ APSPC/SEK	Mr. (b) (T)
Air Force Operational Test & Evaluation Center, Directorate of Safety (AFOTEC/SEW)	Mr. (b)(6)
Air Force Research Laboratory, Directorate of Safety (AFRL/SE)	Mr. (b)(6)
AFRL, Directorate of Directed Energy (AFRL/RD)	Mr. (b)(6)
Air Force Warfare Center, Directorate of Safety (ACC USAFWC/SE)	Lt Col (b)(6) (T)
17th Test Squadron, Commander (17 TS/CC)	Lt Col (b)(6)
14th Air Force, Directorate of Safety (14 AF/SE)	Mr. (b)(6)
21st Space Wing Safety (21 SW/SE)	SSgt (b)(6) (T)
30th Space Wing Safety (30 SW/SE)	Col Carroll
45th Space Wing Safety (45 SW/SE)	Mr. (b)(6) (T)
50th Space Wing Safety (50 SW/SE)	Lt Col (b) (T)
50 SW/SES	Mr. (b)(6) (T)
50 SW/SEO	1Lt (b) (T)
460th Space Wing Safety (460 SW/SEG)	Mr. (b)(6)
460 SW/SE	Lt Kyle (b)(6) (T)
Space & Missile System Center, Directorate of Safety (SMC/SE)	Mr. (b)(6) (T)
SMC/SES	Mr. (b)(6)
SMC/SES	Mr. (b)(6) (T)
SMC/SES	Ms. (b) (T)
SMC, Directorate of Engineering (SMC/EN)	Mr. (b)(6) (T)
SMC/EN	Mr. (b)(6) (T)
SMC, Directorate of Development Planning (SMC/XR)	Mr. (b)
SMC, Directorate of Launch and Range Systems (SMC/LR)	Maj (b)(6)
SMC, Directorate of Space Development and Test (SMC/SD)	Capt (b)(6)
SMC/SD	Ms. (b)(6)
SMC/SD	Maj (b)(6)
SMC/SD	1Lt (b)
SMC/SD	Mr. (b)(6)
SMC/SD	Ms. (b)
SMC, Directorate of Global Positioning System (SMC/GP)	Ms. (b)(6)
Federal Aviation Administration, Commercial Space Transportation (FAA/AST) Liaison	Maj (b)(6) (T)
FAA/AST	Dr. (b)(6) (T)
Army Safety Center	(b)(6) (T)
National Aeronautics and Space Administration, Goddard Space Flight Center (NASA GSFC)	Ms. (b)(6)

NASA GSFC	Mr. (b)(6)
NASA Kennedy Space Center (KSC)	Mr. (b)(6)
NASA KSC	Mr. (b)(6)
NASA KSC	Mr. (b)(6)
Headquarters Air Force, Plans and Requirements (HAF/A5)	Maj (b)(6) (T)
Headquarters Air Force, Operations (HAF/A3)	Mr. (b) (T)
Deputy Under Secretary of the Air Force for Space Policy (SAF/SP)	Mr. (b)(6) (T)
National Reconnaissance Office Safety Office (NRO/SE)	Mr. (b)(6)
Aerospace	Ms. (b)(6)
Aerospace	Mr. (b)(6)
Aerospace	Mr. (b)(6) (T)
Aerospace	Mr. (b)(6) (T)
Northrop Grumman Electronic Systems	Mr. (b)(6)
Other	Mr. (b)(6)
(T) Attendance via telecon	

Space Safety Council Action Items

ACTIONS from 28 Feb 13 SSC	OPR/OCR	Suspense	Notes
Palace Acquire program status inquiry from Mr. (b)(6) (SMC/SE).	OPR: Mr. (b)(6)	31 Jun 14	HAF AFSEC/SET; research ongoing OPEN
Write an MOA or MOU with JSpOC to request SSA/COLA data for tracking/trending at AFSEC and change AFI 91-217 and AFMAN 91-222 verbiage IAW (b)(6) "Smart Ops" briefing.	OPR: Mr. (b)(6) OCR: Col Nahorniak & Mr. (b)(6)	27 Jul 14	Ongoing progress towards MOU; "Smart Ops" addressed in AFI 91-217. OPEN
ACTIONS from 28 Aug 13 SSC	**OPR/OCR**	**Suspense**	**Notes**
Status & updating of MICT space & space system safety checklists.	OPR: Maj (b)(6) OCR: Mr. (b)(6)	1 Jun 14	Updates will be made post AFI91-217 publishing; OPEN
Determine location of next Space System Safety Course.	OPR: Mr. (b)(6) OCR: Lt Col (b)(6)	1 Jun 14	Class at Kirtland AFB 23-27 Jun14; Possible second course. OPEN
With shrinking budgets and resources, what are some 'stop doing' items? What are the value of Class Ds and Es? Set up follow-on discussion to ID opportunities with invite to proactive safety folks (Mr. (b)(6) etc.).	OPR: Maj (b)(6) OCR: Mr. (b)(6)	27 Feb 14	Will continue to report Class E's and will investigate methods to increase the utility of the reporting. Topic on agenda for Aug 14 SSC; CLOSED
Investigate AFOTEC incorporation into the SSAC.	OPR: Maj (b)(6)	7 Mar 14	AFOTEC was incorporated into the Mar 14 SSAC. CLOSED
ACTIONS from 27 Feb 14 SSC	**OPR/OCR**	**Suspense**	**Notes**
Post/provide an HAF AFSEC/SES organization chart to SSC attendees.	OPR: Maj (b)(6)	1 Apr 14	CLOSED
Provide details on CUBESAT meeting	OPR: Mr. (b)(6) OCR: Maj (b)(6)	6 Mar 14	Details were not provided to 14AF/SE by the individual with knowledge of the mtg. CLOSED
Coordinate with HAF A3SO to verify the 90-day staffing timeline for exceptions to NSP is long enough. Determine SAF A3SO perceived ramifications of not having a signature at time of launch.	OPR: Maj (b)(6)	30 May 14	
Coordinate with HAF A3SO to determine who has taken the lead on coordinating the ODMSP recommendations provided by HQ AFSPC with NASA, FAA, etc.	OPR: Lt Col (b)(6)	30 May 14	
SSC members provide "Big Rocks" inputs for the next rewrite of AFI 91-217	OPR: Lt Col (b) OCR: Lt Col (b)	30 May 14	

Provide unified message for implementation of the AF Inspection Program /MICT across safety disciplines.	OPR: Mr. (b)(6) OCR: AFIA	Aug 14 SSC	The specific issues provided by HQ AFSPC will be considered. OPEN
Advocate for additional annual AMIC slots for HQ AFSPC personnel.	OPR: Mr. (b)(6) OCR: Col Nahorniak	30 Apr 14	
In coordination w/SMC and HQ AFSPC/SE, evaluate the Space System Safety Course for adequacy.	OPR: Lt Col (b)(6) OCR: Ms. (b)(6) Mr. (b)(6) Lt Col (b)	15 Jul 14	
Verify order of precedence w/in AFSAS.	OPR: Maj (b)(6)	4 Apr 14	Per HAF AFSEC/SEA, the AFSAS users' manual does not take precedence over AFIs. However, there are occasions when AFSAS updates may come before AFI updates; in these cases contact the AFSAS help desk for direction. CLOSED
Provide MAJCOM and HAF AFSEC with specific issues wings are having with the AF Inspection Program and MICT.	OPR: Mr. (b)(6) OCR: Col Nahorniak	17 Mar 14	Specific issues provided, HAF AFSEC will review. CLOSED
Obtain the latest version of the NASA L-COLA report.	OPR: Lt Col (b)	4 May 14	
Request feedback on Space ASAP site for SSC participants.	OPR: Ms. (b)(6) OCR: Lt Col (b)(6)	1 Apr 14	E-mail request for feedback sent out on 12 Mar with suspense of 1 Apr. CLOSED
Coordinate with HAF AFSEC/SEF on partnering opportunities with RPA community for training/education and mishap investigation support.	OPR: Lt Col (b) OCR: Lt Col (b)(6)	2 May 14	
Clarify requirement for SSGs regarding non ACAT/Tech Demo programs.	OPR: Lt Col (b)(6)	2 May 14	
Define procedures when a LV SDAR becomes non-compliant due to matching with an increased risk SV.	OPR: Lt Col (b)(6)	Aug 14 SSC	
Coordinate with AT&L and SAF/AQ on guidance regarding SDAR & ODMR.	OPR: Lt Col (b)(6)	Aug 14 SSC	
Find/develop users guide slide for the ASAP website to distribute to space safety representatives.	OPR: Lt Col (b)(6) OCR: Lt Col (b)(6) Ms. (b)(6)	16 May14	
Brief HQ AFSPC/A3 on Space ASAP reporting concepts.	OPR: Lt Col (b)	9 May 14	Maj Gen Buck briefed on 15 Apr. CLOSED.

Space Safety Council Minutes
27 February 2014

(b)(6)

(b)(6), Lt Col, USAF
Deputy, Air Force Chief of Space Safety
HAF Air Force Safety Center

MICHAEL F. NAHORNIAK, Colonel, USAF
Director of Safety
HQ Air Force Space Command

Air Force Safety Center
Space Safety Council
28 August 2014 by Teleconference
Telecon Number: 505-853-8825 or DSN 263-8825
DCO: https://connect.dco.dod.mil/spacesafetycouncil/
All times are in Mountain Daylight Time

0800 – 0830:	DCO/Telecon Setup	All
	Note: Mr Rubeor (AF/SE) will make opening remarks between 0830 and 0900	
0830 – 0835:	Administrative Announcements	Lt Col (b)(6), HAF AFSEC/SES
0835 – 0845:	HAF AFSEC/SES Opening Remarks	Mr (b)(6), HAF AFSEC/SES
0845 – 0855:	HQ AFSPC/SE Opening Remarks	Lt Col (b)(6), HQ AFSPC/SEK
0855 – 1020:	HQ AFSPC/SE Update HQ AFMC/SE Update HQ AFOTEC/SE Update HAF AFSEC/SES Update	SSC Executive Members
1020 – 1030:	Break	
1030 – 1045:	Action Item Review	Lt Col (b)(6), HAF AFSEC/SES
1045 – 1130:	AFMAN 91-222 Rewrite and RDT&E Missions	Lt Col (b)(6), HAF AFSEC/SES
1130 – 1230:	Lunch	
1230 – 1300:	AFI 91-217 "Big Rocks" for next rewrite Should AFI 91-217 exist? Restructuring the Document	Lt Col (b)(6), HAF AFSEC/SES
1300 – 1345:	EELV Orbital Debris Compliance Road Map	Mr (b)(6), SMC/LRE
1345 – 1355:	Break	
1355 – 1430:	Results from the DebrisSat Experiment	Dr (b)(6), NASA Mr (b)(6), Aerospace
1430 – 1500:	Next Mishap TableTop Exercise(s)	Mr (b)(6), HQ AFSPC/SEK
1500 – 1515:	Action Item Review	Lt Col (b)(6), HAF AFSEC/SES
1515 – 1530:	HAF AFSEC/SES wrap-up, closing comments	Mr (b)(6), HAF AFSEC/SES

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

28 Nov 14

MEMORANDUM FOR (SEE DISTRIBUTION)

FROM: AFSEC/SES

SUBJECT: 28 August 2014 Space Safety Council (SSC) Minutes

Attendees / Representatives: (see attached attendance roster)

Final briefings available on AFSEC SharePoint

Opening Remarks – Mr. James Rubeor (Executive Director, Air Force Safety Center)
Mr. Rubeor welcomed the group on behalf of Maj Gen Neubauer and thanked them for their work on the Space Safety mission. He reiterated the importance of the Space Safety Council and its mission addressing Air Force-wide issues and raising identified gaps/issues to the attention of the Senior Safety Advisory Council and in-turn to the Joint Service Safety Council as necessary. Mr. Rubeor noted the growing partnerships with commercial industry and utilizing hosted payloads which provide unique challenges to Space Safety. He congratulated the community of its efforts publishing AFI91-217 and asked for their continued support publishing other AF-level documents such as AFMAN91-222. He ended his comments reiterating the critical role space plays in the overall accomplishment of Air Force missions and turned over the SSC to Mr. (b)(6).

Opening Remarks – Mr. (b)(6) (Director, Air Force Space Safety)
Mr. (b)(6) welcomed the group and gave his appreciation for the number of in-person attendees for a telecon. He reemphasized the importance of the SSC and noted the efforts increasing the SSC's effectiveness. He took the time reminding the SSC members Safety is a commander's program and the Air Force Chief of Safety is a member of the Chief of Staff of the Air Force's staff. Additionally, the Safety mission is mishap prevention to enable safe operations in support of the warfighter and it is not a compliance-based organization. Mr. (b)(6) also noted the SSAC is adjusting its Charter and that an in-turn adjustment in the SSC Charter may be forthcoming. He requested feedback on SSC discussion, briefing templates, and what a successful SSC entails according to the field. The SSC membership should plan for two SSCs per year (one telecon and on in-person; February and August timeframes). The SSCs will occur approximately one month before the SSAC to ensure proper Space Safety representation of the most current issues.

Opening Remarks - Lt Col (b)(6) (Space Safety, Air Force Space Command)
Lt Col (b)(6) introduced herself as the replacement for the outbound Lt Col (b)(6) at Air Force Space Command. She sat in for Col Beth West who is replacing the outbound Col Mike Nahorniak as the AFSPC/SE and stated Col West sends her regards. She was in "receive-mode" as the new person on the block and introduced Mr. (b)(6) who gave the AFSPC update.

SSC Executive Members Updates

Mr. [redacted] (AFSPC; AFSPC/SEK designated rep)
Mr. [redacted] briefed the SSC members on 2014 Space mishaps and 10 year mishap trends. He discussed what he considers Collision Avoidance (COLA) events. The criteria briefed (however, not all-inclusive): maneuvering at the last minute, getting notified too late, maneuvering in a way that causes a "waste of gas" (e.g., burning the wrong way), or other events that have a "high accident potential." Non-maneuvering missions should not report unless there is a collision. Mr. [redacted] further stated a letter exists designating the Joint Space Operation Center as the official source for COLA decision-making data. He brought up developing issues involving programs utilizing CubeSats and asked what the Air Force is currently doing to address CubeSat-related operations and possible mishaps. The AFMAN 91-222 discussion later outlines current status and potential courses of action.

Mr. [redacted] (AFRL; AFMC/SE designated rep)
Mr. [redacted] discussed various upcoming missions and emphasized the important role Memorandums of Agreement play when dealing across so many MAJCOMs and other Air Force organizations. He also echoed a desire for further discussion on CubeSats.

Mr. [redacted] (AFOTEC/SE designated rep)
Mr. [redacted] briefed some of AFOTEC's numerous challenges: AFOTEC is required to evaluate C4 systems, but lacks the resident expertise. AFOTEC sees an overall AF challenge regarding Cyber Safety and will brief AFOTEC's perspective to the SSAC.

Mr. [redacted] discussed the status on space –related acquisition ESOH test certifications (FAB-T and AEHF). He requested SMC/SE's help in getting test releases for AEHF; Mr. [redacted] stated they will assist.

Mr. [redacted] commented that AFSEC/SES has the Cyber Safety, as well as, the Space Safety missions, and while Space Safety is fully integrated in HAF Mission Directives and AF Policy, Cyber Safety needs basic proposed definitions to determine a future Cyber Safety/Surety mission space. Mr. [redacted] spoke with Col Peavy (AFLCMC/SE) and asked him to be a part of the working group. Col Peavy agreed and will liaise with the AFMC/SE (Col Ormsby) on the role of AFMC to the working group. Mr. [redacted] noted that Cyber Safety was an item on the Space Safety Council agenda but removed it per the Council's recommendation until such time as it becomes a defined mission space. Future discussions with AFSPC/SE and AFSPC/A6 are necessary to flesh out possible working group composition. Additionally, an invitation went out to AFOTEC to sit on the working group. Cyber Safety/Surety is on AFSEC/SES radar however, it is not a formal agenda topic area for the Space Safety Council at this time. Ms. [redacted] (AFSPC) requested an advanced copy of the proposed Cyber Safety SSAC slides; Mr. [redacted] will provide.

Mr. [redacted] (AFSEC/SES)
Mr. [redacted] thanked the efforts of Lt Col [redacted] (AFSEC/SES) and the AFI91-217 working groups for working and posting the AFI this year. It is a major accomplishment given the dynamic nature of the Space Safety enterprise. He additionally passed on to the Council that the

Space Safety chain is not well understood in the field. Due to reorganizations and the relatively new mission of Space Safety, MAJCOMs and DRUs should take some time to reemphasize Space Safety POCs for elevation of issues. Mr. (b)(6) passed on some information from the Navy Safety Center that they wish to collaborate with the Air Force on developing/implementing Space Safety policies/programs/best practices; more to follow in future SSCs. Some other areas of situational awareness he passed on were his efforts to codify Interagency Nuclear Safety Review Panel processes/authorities, AFI91-110 reporting criteria from launch wings, integration of Space Safety into AETC and AFSPC Space Professional Military Education courses, and the development of Space Safety Training and Education options.

Action Item Review - Lt Col (b)(6) (AFSEC/SES)

ACTIONS from 28 Feb 13 SSC	OPR/OCR	Suspense	Notes
Palace Acquire program status inquiry from Mr. (b)(6) (SMC/SE). Clarification: create on-ramp billets for interns to perform system safety.	OPR: Mr. (b)(6)		Coordinate with AFSEC/SET to brief next SSC the current process to get Palace Acquire billets; set the baseline and develop a possible way forward; IAW AFI, if the billets do not exist, then interns cannot be assigned. suggestion from Mr. (b)(6) create 861 billets to bring in research ongoing. OPEN
Write an MOA or MOU with JSpOC to request SSA/COLA data for tracking/trending at AFSEC and change AFI 91-217 and AFMAN 91-222 verbiage IAW (b)(6) "Smart Ops" briefing.	OPR: Mr. (b)(6) OCR: Col West & Mr. (b)(6)		Mr. (b)(6) will work w/AFSPC to obtain proposed Smart OPs verbiage. OPEN

ACTIONS from 28 Aug 13 SSC	OPR/OCR	Suspense	Notes
Status & updating of MICT space & space system safety checklists. Follow up question: What is the grace period for AFI and MICT checklist implementation	OPR: Lt Col (b)(6) OCR: Mr. (b)(6) & Lt Col (b)(6)	1 Dec 14	Updates will be made once MICT issues are resolved; Space system safety checklist is to be developed and coordinated. Lt Col (b)(6) will research grace periods. OPEN
Determine location of next Space System Safety Course.	OPR: Mr. (b)(6) OCR: Lt Col (b)(6)		Class at Kirtland AFB held 23-27 Jun 14 at AFSEC. CLOSED
With shrinking budgets and resources, what are some 'stop doing' items? What are the value of Class Ds and Es? Set up follow-on discussion to ID opportunities with invite to proactive safety folks.		Next SSC	Change to the AI: what value added Class D and Es should be reported; research, present, and discuss at Next SSC. OPEN
ACTIONS from 27 Feb 14 SSC	**OPR/OCR**	**Suspense**	**Notes**
Post/provide an HAF AFSEC/SES organization chart to SSC attendees.	OPR: Maj (b)(6)		Org chart was emailed to Feb 14 SSC attendees. CLOSED
Provide details on CubeSat meeting.	OPR: Mr. (b)(6) OCR: Lt Col (b)(6)		Details not provided to 14AF/SE by the individual with knowledge of the mtg. CLOSED
Coordinate with HAF A3SO to verify the 90-day staffing timeline for exceptions to NSP is long enough. Determine HAF A3SO perceived ramifications of not having a signature at time of launch.	OPR: Lt Col (b)(6)	Next SSC	OPR to work with Ms. (b)(6) (HAF/A3SO) and brief next SSC. OPEN

Coordinate with HAF A3SO to determine who has taken the lead on coordinating the ODMSP recommendations provided by HQ AFSPC with NASA, FAA, etc.	OPR: Lt Col (b)(6)		Policy changes – SAF/SP leads. Exception to policy – HAF/A3SO leads. CLOSED
SSC members provide "Big Rocks" inputs for the next rewrite of AFI 91-217	OPR: Lt Col (b)(6) OCR: Lt Col (b)(6)		Each SSC will have a discussion on one or two "Big Rocks". CLOSED
Provide unified message for implementation of the AF Inspection Program /MICT across safety disciplines.	OPR: AFSPC/SE OCR: AFSPC/SEK	Next SSC	HQ AFSPC/SE is working with AFSPC/IG on how AFIP will be implemented in AFSPC. Any unresolved issues will be elevated to AFSEC. OPEN
Advocate for additional annual AMIC slots for HQ AFSPC personnel.	OPR: Mr. (b)(6) OCR: Col West		Coordinate with AFSEC/SET to gain more slots. OPEN
In coordination w/SMC and HQ AFSPC/SE, evaluate the Space System Safety Course for adequacy.	OPR: Lt Col (b)(6) OCR: Ms. (b)(6) Mr. (b)(6), & Lt Col (b)(6)		Replaced by new AI: Training IPT to update Space System Safety Course. CLOSED

Verify order of precedence w/in AFSAS and Clarify AFSAS language in their user manual.	OPR: Lt Col (b)(6) OCR: Mr. (b)(6)	15 Nov 14	From previous notes: Per HAF AFSEC/SEA, the AFSAS users' manual does not take precedence over AFIs. However, there are occasions when AFSAS updates may come before AFI updates; in these cases contact the AFSAS help desk for direction. During SSC: Mr. (b)(6) reports the AFSAS user's manual states AFSAS has precedence over AFI. OPEN
Obtain the latest version of the NASA L-COLA report.	OPR: Lt Col (b)(6)		L-COLA report received and in AFSEC/SES. CLOSED
Request feedback on Space ASAP site for SSC participants.	OPR: Ms. (b)(6) OCR: Lt Col (b)(6)		Feedback received and applying to new AFSAS design. CLOSED
Coordinate with HAF AFSEC/SEF on partnering opportunities with RPA community for training/education and mishap investigation support.	OPR: Lt Col (b)(6) OCR: Lt Col (b)(6)		Yes, there are commonalities to be utilized. OPEN
Clarify requirement for SSGs regarding non ACAT/Tech Demo programs.	OPR: Lt Col (b)(6)		Still researching; OPEN
Define procedures when a LV SDAR becomes non-compliant due to matching with an increased risk SV.	OPR: Lt Col (b)(6)		Still researching; report at Feb 15 SSC OPEN

Coordinate with AT&L and SAF/AQ on guidance regarding SDAR & ODMR.	OPR: Lt Col (b)(6)		Pushed changes /guidance to OSD (AT&L) staff; Awaiting final DoDI 5000.2. OPEN
Find/develop users guide slide for the ASAP website to distribute to space safety representatives.	OPR: Lt Col (b)(6) OCR: Lt Col (b)(6) Ms. (b)(6)		Paused until new AFSAS web app is developed. OPEN

AFMAN 91-222 Rewrite and RDT&E Missions - Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) set the stage: AFMAN 91-222, Space Safety Investigations & Reports, is under revision. Lt Col (b)(6) is utilizing the same group discussion process used for AFI 91-217 to work on AFMAN 91-222. In particular, Lt Col (b)(6) wants to update the AFMAN 91-222 to better reflect CubeSats and RDT&E missions. Some of the exemption paragraphs in AFI 91-204 (Paragraph 1.4 and Paragraph 1.4.4) might be extended to RDT&E missions, but it isn't clear that this is the appropriate approach. Mr. (b)(6) noted that RDT&E failures have mishap prevention value, and that some of these exemptions should apply only if the failure was in the unit under test, not in a supporting subsystem that was not expected to fail. Mr. (b)(6) expressed concern that whatever the SSC decides, the AFMAN needs to sync with the allowed risk acceptance granted to Milestone Decision Authorities in the acquisition AFIs (63 series).

Ms. (b)(6) asked a clarification question regarding a January launch; if a passivation wavier is granted and passivation fails, do we report a mishap? Lt Col (b)(6) doesn't think so. Mr. (b)(6) stated that agencies other than the USAF are concerned about passivation, including the FCC. The resulting discussion indicated the FCC would not get involved with this specific issue, but they need to be considered for other passivation waivers.

Lt Col (b)(6) gave an upcoming example that could generate a Class C mishap and asked "Why report it? What benefit would I gain?" Lt Col (b)(6) led the subsequent discussion, asking "what are we looking for? Trending? Lessons Learned?" The SSC members agreed that lessons learned are useful, but Mr. (b)(6) noted the Space community tends to "stovepipe" its knowledge, and does not regularly collect and disseminate lessons learned. Lt Col (b)(6) agreed and suggested using AFSAS as the lessons learned.

Lt Col (b)(6) presented possible options. She recommended strengthening the overall language in the AFMAN, requiring RDT&E missions to document their success criteria and mishap reporting guidelines. Also, Lt Col (b)(6) recommended using a mission's normal anomaly resolution process and reports for any Class E report, rather than conducting a separate investigation and report. Lt Col (b)(6) agreed with this approach.

Mr. (b)(6) expressed concern that a PEO/SPO's risk acceptance on one mission could impact other missions, and the overall space environment. Lt Col (b)(6) agreed, noting that this is at the core of the SSC's mission, and Space Safety's mission as a whole. Mr. (b)(6) ended the

discussion by concurring that space is a shared asset, and what one person does affects everyone else. Mr. (b)(6) recommended the SSC members re-review Lt Col (b)(6) slides since they contain the topics from the field we need to address. We do not want to create more work for anyone, but we need to get beneficial mishap-related information out to the space community.

AFI 91-217 "Big Rocks" for next rewrite - Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) started the discussion noting that during the last AFI 91-217 re-write, a number of issues came from the field that were tabled until the next re-write. Lt Col (b)(6) will present two to three "Big Rocks" at each SSC to discuss and maybe reach consensus.

The two topics for this SSC are a) should we scrap AFI 91-217 in favor of AFI 91-202, Chapter 10 and b) if we keep AFI 91-217, should we restructure AFI 91-217. After reviewing all the chapters, Lt Col (b)(6) recommended keeping AFI 91-217, while making sure it remains in sync with AFI 91-202. Mr. (b)(6) asked when AFI 91-202 will be released. The current estimate is the end of the year; because of the long AFI 91-202 re-write, SSC members recommended stripping requirements from AFI 91-202, keeping it small, and focusing on AFI 91-217 since we can re-write it faster.

There were several discussions on restructuring AFI 91-217. Lt Col (b)(6) recommend combining Chapter 2 and 3 since Chapter 2 is mostly covered in AFI 91-202 and other documents. Lt Col (b)(6) was not in favor of removing System Safety, however Mr. (b)(6) recommended we concentrate the AFI 91-217 chapter on how to implement System Safety for Space since AFI 91-202 has an extensive System Safety section. In addition, Ms. (b)(6) suggested removing the space-specific System Safety items from the AFI and putting them into an AFSPC supplement. Lt Col (b)(6) recommended keeping, but scrubbing/streamlining Chapters 4 and 5. The SSC members did not disagree. Lt Col (b)(6) reviewed Chapter 6. After a discussion on keeping or removing chapter 6, Mr. (b)(6) recommended keeping this chapter and syncing it with DoDI 6055.3.

There was another discussion about CubeSats; Mr. (b)(6) reminded the SSC members that CubeSats are changing and adding propulsion to their design, which would add another level of complexity. The SSC members agreed CubeSats are a good capability; however the AF Space community needs to consider and monitor the entire CubeSat system to include the CubeSat deployers.

Lt Col (b)(6) welcomed the SSC members to provide feedback after the SSC. Mr. (b)(6) complemented the personnel who worked on AFI 91-217 and asked the SSC members to keep sending their feedback.

EELV Orbital Debris Compliance Road Map - (Mr. (b)(6) SMC/LRE)
Mr. (b)(6) briefed SMC/LR's plan to meet ODMSP standards by FY2018. Mr. (b)(6) briefing followed the slides. With the exception of a question on proposed nozzle design (which Mr. (b)(6) answered), there were no questions or discussions.

Results from the DebriSat Experiment - (Dr. [redacted], NASA)
Dr. [redacted] briefed the background and results of the DebrisSat impact test. Dr. [redacted] reported while current models, supported by 1992 SOCIT test data, are matching real world events, future satellite design is more complex than the programmed models. This complexity drove the development and implementation of the DebriSat experiment. DebriSat was designed to represent modern LEO satellites utilizing common subsystems, connectors and similar mass. Dr. [redacted] asked how much mass was recovered; Dr. [redacted] stated about 90% of the original mass was recovered. Dr. [redacted] continued, asking the cost estimate to complete all measurements of the fragments; Dr. [redacted] stated the price was ~$700K-$800K. Dr. [redacted] offered to work within FAA to fund at least part of the measurement costs. The questions after the presentation focused on test conditions and future analysis. Overall, the SSC members were impressed by the test execution and results.

Next Mishap Table Top Exercises – (Mr. [redacted] (AFSEC/SEK))
Mr. [redacted] proposed three Space Mishap response exercises: an exercise with FAA, NTSB, NASA and AFSPC at the 30 SW, an internal AFSPC-only launch mishap exercise (proposed by the 45 SW), and an Orbital mishap exercise. Mr. [redacted] proposed holding the Orbital exercise during or immediately after the next Space Safety Council. The SSC members did not turn down Mr. [redacted] suggestion. Lt Col [redacted] suggested these exercises would be a good core to a Space Mishap Investigation Course (SMIC). Mr. [redacted] reminded everyone the exercises focus on who does what, not investigations. The SSC members noted the distinction but agreed to the possible SMIC utilization. Mr. [redacted] asked who evaluates the exercises: self-eval or outside observers? Mr. [redacted] responded there are no independent evaluators, but someone is assigned to take notes and give feedback.

New Action Item Review - Lt Col [redacted] (AFSEC/SES)

ACTIONS from 28 Aug SSC	OPR/OCR	Suspense	Notes
What is changing in AFSAS & ASAP? What is the value of the change and who does it serve? Particularly to the unit and NAF levels.	OPR: Lt Col [redacted] OCR: Ms. [redacted], Mr. [redacted]	Next SSC	Brief at the next SSC.
Training IPT to update Space System Safety Course.	OPR: Lt Col [redacted] OCR: Ms. [redacted] Mr. [redacted] Lt Col [redacted]		Current course is acquisition focused; either add operational aspects or create a second operationally focused course.
Bring the Space System Safety course into AETC course catalog.	OPR: Mr. [redacted] OCR: Lt Col [redacted]		
Collect table top exercises for possible SMIC.	OPR: Lt Col [redacted] OCR: Mr. [redacted]		

Open discussion
Lt Col (b)(6) reminded everyone the next SSC is planned for Feb 2015 and requested the members to send her any information of possible conflicts.

Closing Comments - Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) discussed the desire from the field to address issues in a more timely matter (e.g., Space Safety Training Courses, engagement with internal/external Air Force organizations to flesh out CubeSat standards/policies/etc…). He stated SES is focusing on the big rocks and will get to the big issues in time. Training and Education is very important to us, but Operations is the biggest item right now. Mr. (b)(6) complimented the working groups on their work and asked everyone to continue to push honest feedback to us. Mr. (b)(6) noted senior Safety Leadership knows Space Safety is important but they do not have the experience and background, requiring us to continually educate them. Mr. (b)(6) thanked the SSC members for their participation and closed the SSC.

HQ AFSPC/SEK offered to host the next in-person SSC at Air Force Space Command in Colorado Springs.

(b)(6)

(b)(6)
Director, Air Force Space Safety

SSC Attendance 28 August 2014	
Participating Organizations	**Representatives (confirmed)**
Air Force Safety Center, Space Safety Division (HAF AFSEC/SES)	Mr. (b)(6)
HAF AFSEC/SES	Lt Col (b)(6)
HAF AFSEC/SES	Lt Col (b)
HAF AFSEC/SES	Lt Col (b)(6)
HAF AFSEC/SES	MSgt (b)(6)
Air Force Space Command, Directorate of Safety (HQ AFSPC/SE)	Lt Col (b)(6) (T)
HQ APSPC/SEK	Ms. (b)(6) (T)
HQ APSPC/SEK	Mr. (b)(6) (T)
HQ APSPC/SEK	Mr. (T)
Air Force Operational Test & Evaluation Center, Directorate of Safety (AFOTEC/SEW)	Mr. (b)
Air Force Research Laboratory, Directorate of Safety (AFRL/SE)	Mr.(b)(6)
14th Air Force, Directorate of Safety (14 AF/SE)	Mr. (T)
Headquarters Air Force, Operations (HAF/A3)	Ms. (T)
Air Force Warfare Center, Directorate of Safety (USAFWC/SE)	Lt Col (b)(6) (T)
Air Force Warfare Center, Det 1 (USAFWC/DET 1)	Mr. (b)(6) (T)
21st Space Wing Safety (21 SW/SE)	Mr. (b)(6) (T)
45th Space Wing Safety (45 SW/SE)	Mr. (T)
50th Space Wing Safety (50 SW/SE)	Col Ivan (T)
50 SW/SE	Capt (b) (T)
50 SW/SES	Mr. (b)(6) (T)
310th Space Wing Safety (310 SW/SE)	Maj (b) (T)
310 SW/SE	TSgt (b) (T)
310 SW/SE	SSgt (b)(6) (T)
SMC, Global Positioning System s Directorate (SMC/GP)	Ms. (b)(6) (T)
SMC/GPE	Mr. (b)(6) (T)
SMC, MILSATCOM Directorate (SMC/MCEE)	Mr. (b) (T)
SMC, Launch and Range Systems Directorate (SMC/LR)	Mr. (b)(6) (T)
SMC, Space Development and Test Directorate (SMC/SD)	Lt Col (b)(6)
SMC/SD	1Lt (b)
SMC/SD	Mr. (b)(6)
SMC/SD	Ms. (b)
SMC/SD	2Lt (b)(6)
SMC, Directorate of Safety (SMC/SE)	Mr. (b)(6) (T)
SMC/SES	Mr. (b)(6) (T)
SMC/SES	Mr. (b)(6) (T)
SMC/SES	Ms. (T)
SMC/SES	Mr. (b)(6) (T)
SMC/SES	Mr.(b)(6) (T)
SMC, Directorate of Engineering (SMC/EN)	Mr.(b)(6) (T)
SMC/EN	Mr. (b)(6) (T)
SMC/ENC	Mr. (b)(6) (T)
Aerospace	Mr. (b)(6) (T)
Aerospace	Ms. (b)(6) (T)
Aerospace	Mr.(b)(6) (T)
Army Safety Center	Ms. (T)
FAA/AST	Dr. (b) (T)
NASA Kennedy Space Center (KSC)	Dr. (b)
NASA Kennedy Space Center (KSC)	Mr. (b)(6) (T)
(T) Attendance via telecon	

Space Safety Council Agenda

All events will be held at Scitor Corporation (change in venue):
*****745 Space Center Dr, Colorado Springs, CO 80915 · (719) 380-4000*****

Sunday, 22 Feb 2015: **Travel** for Orbital Mishap Table Top Exercise (TTX) participants
Monday, 23 Feb 2015: **Orbital Mishap TTX - SECRET** (Telecon/VTC not available) **or** Travel Day for non-participants of the Orbital TTX

Orbital TTX 0730-1530: ***Orbital TTX ROEs***

- **SECRET! Send in clearance info through JPAS – see attachment**
- Opening comments provided by Maj Gen Buck, HQ AFSPC/CV
- Working lunch planned – to be discussed Monday morning
- The objective of the orbital TTX is to exercise lines of communication (wings, NAF, MAJCOM, safety center and outside agencies) and simulate the processes and procedures when a satellite anomaly occurs leading to a Class A determination/SIB outbrief.
  - Secondary objectives are to discuss and plan contingencies for a classified Class A mishap.

Tuesday, 24 Feb 2015, Day 1: Space Safety Council (SSC) (UNCLASSIFIED)

Time	Topic	POC	Synopsis
0730-0740	Administration	Mr. (b)(6), AFSPC/SEK	n/a
0740-0800	AF/SE Welcoming comments	Maj Gen Neubauer, AF/SE	
0800-0805	HQ AFSEC/SES Welcoming comments	Mr. (b)(6), AFSEC/SES	
0805-0815	HQ AFSPC/SE Update	Col West, AFSPC/SE	
0815-0825	HQ AFOTEC/SE Update	Mr. (b)(6), AFOTEC/SEW	
0825-0835	HQ AFMC/SE Update	Mr. (b)(6), AFMC/SE	
0835-0845	HQ AFSEC/SES Update	Mr. (b)(6)	
0845-0900	Break		
0900-0915	Action Item Review	Lt Col (b)(6), AFSEC/SES	See minutes from last SSC.
0915-0930	AFI 91-217 Big Rocks	Lt Col (b)(6), AFSEC/SES	Goal: SSC consensus and/or way forward on the presented topic/s.
0930-0945	AFMAN 91-222 update	Lt Col (b)(6), AFSEC/SES	Goal: SSC understanding of changes and what is remaining the same.
0945-1000	91-222: AFMAN and/no AFPAM?	Lt Col (b)(6), AFSEC/SES	Goal: SSC consensus on keeping AFPAM 91-222 or consolidate into AFMAN 91-222 – if needed determine POCs for both.

1000-1015	Break		
1015-1020	AFI 91-202/204 update (tentative)	Mr. (b)(6), AFSEC/SEGS	
1020-1030	Training & Education Update	Maj (b)(6) /Lt Col (b)(6), AFSEC/SES	Goal: SSC understanding of current efforts for space safety training and gather ideas/ inputs from SSC for future efforts.
1030-1045	Space Safety Suggestion Box	Lt Col (b)(6) /Maj (b)(6), AFSEC/SES	Goal: SSC understanding of HQ AFSEC/SES development and demo of options for both DoD & non-DoD to communicate suggestions and issues regarding space policy.
1045-1230	Lunch Break (or working lunch for side bar discussions)		
1230-1345	FAA Commercial Space Transportation Human Space Flight recommended practices & lessons learned from recent mishaps	Mr. (b)(6), FAA Mr. (b)(6), FAA	Human Space Flight recommended practices and a discussion on lessons learned from recent mishaps.
1345-1400	Break		
1400-1430	Antares mishap, process discussion	Dr. (b)(6), SMC/AD (HQ AFSPC observer on mishap investigation board)	Dr. (b)(6) will present her observations on the investigation process, lessons learned and mishap findings summary.
1430-1530	Open discussion		
1530-1535	Admin Wrap-up – Mr. (b)(6)		
1535-1545	Closing Comments	Mr. (b)(6)	
1545-1630	Sidebars		
1800	Dinner at Rocco's Italian Restaurant!!		Please RSVP if planning to attend dinner social.

Wednesday, 25 Feb 2015, Day 2: Space Safety Council (SSC) (UNCLASSIFIED)

Time	Topic	POC	Synopsis
0730-0800	Global Thunder (GT) Lessons Learned	Mr. (b)(6)	Lessons learned from GT Exercise of AFSPC Launch Mishap TTX.
0800-0830	Orbital Mishap response TTX outbrief	Mr. (b)(6)	Lessons learned and action items from Orbital TTX held 23FEB15.
0830-0845	Break		
0845-0930	SENSE Class E process	Mr. (b)(6), SMC/AD	Lessons Learned from the SENSE Class E mishap declaration; discussion on adequacy of Space Safety policy and Space R&D and testing efforts.
0930-1015	Electronic Magnetic Interference (EMI)	Capt (b)(6), 50 SW/SEO	Examine the general effect of EMI on 50 SW space mission systems - e.g., systems reconfiguration and/or maneuvering required for continued mission accomplishment, and subsequent risks.
1015-1030	Break		
1030-1115	Cube Sat Safety Discussion	Mr. (b)(6), 14 AF/SE	Identify AF Safety needs required to support the ever increasing use of Cube Sats; discussion will focus on identifying actions and POCs for working groups to address specific issues.
1115-1300	Lunch		
1300-1330	Aerospace's "Do no harm" rideshare mission assurance process	Aerospace	Aerospace's "Do no harm" rideshare mission assurance process - Aerospace's idea regarding ride-sharing of missions w/ different risk tolerances and method to delegate risk acceptance to the lowest level possible. Goal: SSC consensus on what Aerospace implemented.
1330-1400	Contractor Trends		
1400-1415	Break		
1415-1500	Open Discussion	Mr. (b)(6), SMC/SE	Recent increase in mishaps at contractor facilities for SMC, e.g. forklifts
1500-1530	Action Item Review	Managed by Lt Col (b)(6)	Around the room for issues not discussed. HQ AFMC/SE, HQ AFOTEC/SE, 14 AF/SE, Wings, SMC/SE, Sustainment issues – DoD and Interagency, ASAP update
1530-1545	Closing comments	Mr. (b)(6)	n/a
1545-1630	Sidebars		

Thursday, 26 Feb 2015: **Interagency Commercial Launch Mishap TTX** (**UNCLASSIFIED**) (Telecon/VTC not available) **or** Travel Day for non-participants of launch TTX

Launch TTX 0730-1530: ***Launch TTX ROEs***

- Opening comments provided by Col West, HQ AFSPC/SE
- Working lunch planned – to be discussed Thursday morning
- The objective of the launch TTX is to exercise lines of communication (HQ AFSPC, FAA, NTSB, HQ AFSEC and NASA) and simulate the processes and procedures when a launch mishap occurs.
  - Secondary objectives are to review/discuss applicable MOAs.

Friday, 27 Feb 2015: **Travel** home for Commercial Launch Mishap TTX participants.

26-27 Feb 2015: Sidebars

Visitor COS Information Packet (J

POC information: Ms. (b)(6)

Mr. (b)(6)

Lt Col (b)(6)

HQ AFSPC/SE Main Line – (b)(6)

SNOW LINE: 556-SNOW

Military: UOD

Civilian: Business Attire

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

24 Mar 15

MEMORANDUM FOR (SEE DISTRIBUTION)

FROM: HQ AFSEC/SES

SUBJECT: 24 – 25 Feb 15 Space Safety Council (SSC) Minutes

Attendees/Representatives: (see attached attendance roster)

Air Force Space Command Chief of Safety Office (AFSPC/SE) hosted the SSC at Scitor Corporation in Colorado Springs, CO. AFSEC/SES provided a telecom bridge and Defense Connect Online (DCO) for participants unable to travel.

Tuesday, 24 Feb 15

Opening Remarks – Maj Gen Kurt Neubauer (AF/SE)
Maj Gen Neubauer welcomed the SSC participants and congratulated them on 2014's accomplishments. He noted the various challenges the SSC community faces such as rideshare, SmallSats, hosted payloads, and leased facilities among others. Maj Gen Neubauer acknowledged Space is a no fail mission and the need to get it right the first time. He highlighted AFSEC/SES's partnerships with SAF/SP, HAF/A3SO, and FAA, as well as, our inter-service partners. Maj Gen Neubauer closed his comments, thanking the SSC community for their hard work.

Opening Remarks – Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) thanked Maj Gen Neubauer for dialing in and welcomed all of the participants to the SSC. He thanked Colonel Elizabeth West, AFSPC/SE, and her staff for hosting the SSC and the Orbital Table-Top Exercise (TTX) Monday.

Opening Remarks – Col Elizabeth West (AFSPC/SE)
Col West welcomed the SSC participants and thanked those members in the room that participated in the Orbital TTX. She reminded everyone of the Commercial Launch TTX planned for Thursday. Col West noted the changes occurring in the AFSPC Safety Office, with the retirement of (b)(6) and the upcoming retirements of Mr. (b)(6) and herself. After thanking Mr. (b)(6) for his 30+ years of safety service, Col West transitioned to her Executive member update.

SSC Executive Members Updates

Col Beth West (AFSPC/SE)
Col West discussed the requirements review underway in AFSPC due to new flight termination systems, in particular, the Automated Flight Safety System (AFSS). The Range Alternatives Tiger Team (RATT) is developing the CONOPS for AFSS operations and identifying possible updates to Air Force Space Command Manual (AFSPCMAN) 91-711, *Launch Safety Requirements for Air Force Space Command Organizations*. Additionally, Col West referenced the Orbital TTX and suggested that satellites conducting proximity operations should have Interim Safety Board (ISB) presidents / board members identified, much the way that launch wings pre-designate ISBs. Finally, Col West noted the strong need for more training opportunities with AMIC and MINA for Space Safety professionals.

Mr. (b)(6) (AFRL; AFMC/SE)
Mr. (b)(6) noted no high interest items, current interest items, or lessons learned. He mentioned he and his personnel look forward to the Air Force Manual (AFMAN) 91-222, *Space Safety Investigations and Reports* working group. Mr. (b)(6) briefly reviewed the Automated Navigation and Guidance Experiment for Local Space (ANGELS) mission and its associated safety program. He covered Demonstration and Science eXperiments (DSX) planning to launch with STP-2 in May 2016 and discussed the ESPA Augmented Geosynchronous Laboratory Experiment (EAGLE) tentatively scheduled for a late FY16/early FY17 launch. Finally, Mr. (b)(6) foreshadowed the upcoming Research and Development mishap discussions by stating policy review and mishap classifications require a more in-depth look regarding R&D missions.

Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) reviewed the executive member update slides format and explained the intent i.e., provide the SSC membership an overview of current efforts, issues, etc… from HAF and large space mission owner units within the Air Force; he asked again for the feedback from the group on the format of the charts (AI recorded). Due to the Space Safety mission's relatively new formalization (i.e., 2013), he emphasized the necessity of accomplishing a manpower study (currently on going with SAF/AARM) and establishing a sustained budget. He additionally mentioned as a DoD high-interest item, the challenges emerging with increased commercial launches on government ranges and increased congestion of space with DoD, civil, commercial, and academic assets/debris. The FAA relies on government safety standards and if the government turns safety over contractually to the commercial launch providers, the range safety office should be fully aware of the consequences. Safety "inside the fence" (OSHA, workplace safety, etc...) differs from "public safety" and the safety community must ensure whoever is responsible addresses all aspects. Mr. (b)(6) asked the SSC members to participate in the AFMAN 91-222 working group and introduced Maj (b)(6), Innovation and Development Branch Chief, leading the AFMAN 91-222 working group and building the framework for the Space Mishap Investigation Course (SMIC). He also welcomed SSC member participation in the courseware development. He noted lessons learned including AF Instruction publishing process changes discovered during AFI 91-110 publishing. Mr. (b)(6) encouraged an increase in SSC participation and as an aside, as long as the SSC remains as an internal council, SAF/AA permanently exempted travel to the SSC from requiring prior approval. Mr. (b)(6) ended

with a six-month look ahead for AFSEC/SES, including engagement with MAJCOMs with Space Missions, a review of the SSC charter and Executive Members, the aforementioned AFMAN 91-222 working group, SMIC development, and a suggestion box for the Space Safety community to communicate back to AFSEC/SES. Mr. (b)(6) expressed that rarely, due in part to a decrease in travel funding, does he hear from the Space Safety professional and their concerns and he is taking steps to improve that communication.
Action Item Taken: Review slide format for SSC executive members.

Action Item Review – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) reviewed the status of Action Items from prior SSCs with the SSC members. Table 1 (below) is the updated Action Item Review, including open items since the Feb 13 SSC.

ACTIONS from 28 Feb 13 SSC	OPR/OCR	Suspense	Notes
Palace Acquire: The idea is to grow the corps of safety professionals, and to bring in new blood. Palace Acquire provides a pathway for this.	OPR: Mr. (b)(6) OCR: Mr. (b)(6) & Ms. (b)(6) (AFSEC/SET)		Mr. (b)(6) wants to establish a safety pipeline: Palace Acquire is one way since Space Safety billets are critical. Mr. (b)(6) will connect Mr. (b)(6) and Ms. (b)(6). CLOSED
MOA/MOU with JSpOC for SSA/COLA data provided to SES.	OPR: Mr. (b)(6) OCR: Col West, Col Giles, & Mr. (b)(6)		After visiting 614 AOC, Mr. (b)(6) determined a MOA / MOU might not be needed. Maj (b)(6) and AFMAN 91-222 working group will determine data required and coordinate with 14th AF/SE and 614 AOC/CC. CLOSED
MICT: Status of MICT space and Space Safety checklists.	OPR: Mr. (b)(6) & Lt Col (b)(6)		The original action item related to publishing the MICT Checklist associated with AFI 91-217. SES-05 was published October 2014. Mr. (b)(6) would like to see a consolidated HQ

			AF Safety inspection. Mr. (b)(6) will address speaking with one voice from HQ AFSEC to be consistent across all disciplines. CLOSED
ACTIONS from 27 Feb 14 SSC	**OPR/OCR**	**Suspense**	**Notes**
Coordinate with HAF/A3SO to verify 90-day staffing timeline for exceptions to NSP.	OPR: Lt Col (b)(6) OCR: Maj (b)(6) HAF/A3SO		Mr. (b)(6) noted no requirement for "Safety" to get involved; the issue is operations related (10 series). Mr. (b)(6) directed to close the AI, but add the topic to AFI 91-217 discussions ("Big Rocks") and look at updating the language to 90 business days. CLOSED
Provide unified message for implementation of AF Inspection Program/MICT across safety disciplines	OPR: AFSPC/SE OCR: AFSPC/IG		AFSPC/SE created and published a MICT guide to provide consistence guidance. CLOSED
Advocate for additional annual AMIC slots for HQ AFSPC personnel.	OPR: Mr. (b)(6) OCR: Mr. (b)(6)	Aug 15 SSC	Leave open as a reminder for AFSEC/SES to continue pressing for slots. OPEN
Verify order of precedence within AFSAS	OPR: Lt Col (b)(6) OCR: Mr. (b)(6)		Line in question removed. CLOSED
Coordinate with AFSEC/SEF on partnering opportunities with remote piloted aircraft (RPA) community for training/education and mishap investigation support	OPR: Lt Col (b)(6) OCR: Maj (b)(6) & Lt Col (b)(6)	Aug 15 SSC	AFSEC/SEFQ is ready and welcomes SES participation. According to Lt Col (b)(6) there is a multitude of mishaps

			and many of the investigations are conducted via telecom. Recommend we keep this open until SES and other space units have taken AMIC. Once trained, Space mishap investigators will support RPA investigations for experience. OPEN
SDAR: Define procedures when a LV SDAR becomes non-compliant due to matching with an increased risk SV.	OPR: Lt Col (b)(6)		This issue currently falls on the integrator; Moved the topic to AFI 91-217 discussions ("Big Rocks"). CLOSED
Coordinate with AT&L and SAF/AQ on guidance regarding SDAR and ODMR.	OPR: Lt Col (b)(6)		OSD/AT&L removed ODMR language from DoDI 5000.02. CLOSED
SSGs: Discussion of the use of the word "program." Some "programs" such as the Space Test Program are not acquisition programs in the traditional sense; they are ongoing tasks.	OPR: Lt Col (b)(6)	Aug 15 SSC	Determine if AFSEC/SEGS updated the language in the new version of AFI 91-202, and then close. OPEN
AFSAS / ASAP: Find/Develop users guide slide for the ASAP website to distribute to Space Safety representatives.	OPR: Lt Col (b)(6) OCR: Lt Col (b)(6) & Ms. (b)(6)	Aug 15 SSC	On hold until HQ AFSEC finishes the overhaul of AFSAS mobile. OPEN
ACTIONS from 28 Aug 14 SSC	**OPR/OCR**	**Suspense**	**Notes**
What value added class D & E events should be reported?	OPR: Lt Col (b)(6) OCR: Mr. (b)(6)		There is not enough data to make a determination. Question added to AFMAN 91-222 discussions.

			CLOSED
What is changing in AFSAS and ASAP? What is the value of the change and whom does it serve?	OPR: Lt Col (b)(6) OCR: Ms. (b)(6)	Aug 15 SSC	Tied to the user guide action item, brief at August 2015 SSC on AFSAS/ASAP changes. OPEN
Form training IPT and develop schedule to update Air Force System Safety Course including Space, Launch, Operators, Test, A/C, Acquisition	OPR: Lt Col (b)(6) OCR: Ms. (b)(6) Mr. (b)(6), Mr. (b)(6), Mr. (b)	Aug 15 SSC	IPT will meet and develop timeline. Brief status at August 2015 SSC. OPEN
Bring the Space System Safety course into the AETC course catalog	OPR: Mr. (b)(6) OCR: Lt Col (b)(6)		Determined no benefit other than tracking personnel training. CLOSED
Collect table top exercises for SMIC	OPR: Lt Col (b)(6) OCR: Lt Col (b)(6) & Maj (b)(6)	Aug 15 SSC	Recorded TTX session would have been beneficial. Review notes and results from Orbital and Commercial Launch TTXs. OPEN
What is the grace period for AFI and MICT checklist implementation?	OPR: Lt Col (b)(6)		Unless written into the AFI, there is no grace period. AFSEC/SES start writing grace periods if appropriate. CLOSED

AFI 91-202/204 update - Mr. (b)(6) (AFSEC/SEGS)
Mr. (b)(6) briefed the SSC members on the status of AFI 91-202 and AFI 91-204. AFI 91-202 completed HAF 2 letter coordination, and the AFSEC staff are adjudicating staff comments. AFDPO received AFI 91-204 Guidance Memo 1 and will publish shortly. Ms. (b)(6) asked since AFSPC submitted a critical non-concur on AFI 91-202, what are Mr. (b)(6) next actions? Mr. (b)(6) replied AFSEC staff will work on the right wording. However, the last time the 91-202 was revised, General Officers were involved to resolve the non-concurs. Mr. (b)(6) is resolving the comments at the Action Officer level to prevent going back to the GO level.

AFI 91-217 Big Rocks - Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) continued her AFI 91-217, *Space Safety and Mishap Prevention Program* "Big Rock" series. During the last AFI 91-217 re-write, a number of issues caused much

consternation among SSC members. AFSEC/SES staff tabled the issues to publish the AFI with the agreement to address the issues. This session addressed Dual Fault Tolerance and Roles and Responsibilities. AFSEC/SES staff considers Dual fault tolerance a design decision and the staff will not direct the acquisition community to a specific design. Finally, there were no references to dual-fault tolerances in the previously published AFI 91-217.
Under Roles and Responsibilities, Mr. (b)(6) (SMC/SE), Mr. (b)(6) (14 AF/SE) and Mr. (b)(6) (30 SW/SE) discussed disconnects between MIL STD-882E and AFI 91-217 and associated risk level percentages. Mr. (b)(6) requested Mr. (b)(6), and his staff, the personnel responsible for MIL STD-882E, attend AFI 91-217 discussions and requested SSC members send AFSEC/SES staff additional details on the disconnects.
Action Items Taken: Invite Mr. (b)(6) to next AFI 91-217 discussion. SSC members send AFI 91-217/MIL-STD-882E disconnects.

AFMAN 91-222 update – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) briefed the re-write status of AFMAN 91-222 and invited the SSC members to participate in the re-write working group. She addressed the current issue of handling R&D missions within the Safety construct. SSC members brought up the following ideas: Is AFSAS a repository for space anomalies or engineering (test) failures? Should R&D missions have the option to fail (i.e., vs loss of mission capability) even if the program office does not document failure as a possible outcome? Lt Col (b)(6) closed the discussion asked the SSC members to consider collision avoidance, standardizing anomaly resolutions, and capturing lessons learned.
Action Item Taken: Solicit AFPAM 91-222 big rock topics. Include Air Force Pamphlet (AFPAM) as topic in AFMAN 91-222 working group. Develop working group members list. Add fly back concept/concerns to AFMAN 91-222.

Innovation and Development update – Maj (b)(6) (AFSEC/SES)
Mr. (b)(6) reiterated AFSEC/SES has the training function for Space Safety; the Training Division (AFSEC/SET) is not staffed with the expertise to handle Space Safety. AFSEC/SES develops training material, such as the Computer Based Training modules, with SES staff. Maj (b)(6) gave a very brief overview of a possible SMIC course and topics covered. CMSgt (b)(6) asked Maj (b)(6) to review the listing of possible SMIC students so all space professionals were included, not excluded. Both NASA personnel and NTSB personnel expressed interest in developing and participating in the course.
Action Item Taken: Send current SMIC table of contents to SSC participants to obtain further topics for SMIC; start a working group to develop course.

FAA Commercial Space Transportation Human Space Flight recommended practices & lessons learned from recent mishaps – Mr. (b)(6) (FAA) and Mr. (b)(6) (FAA)
In the first half of his brief, Mr. (b)(6) informed the SSC of the last 3 years of work the FAA has done in regards to Commercial Space Transportation policy. Mr. (b)(6) pointed out, until recent times; Space was a realm for well-trained government personnel. The Commercial Space Launch Act opened the door for private space flight and Mr. (b)(6) expressed there is a perception among the public that Space Flight should emulate the airline industry in regards to growth, safety and comfort. The reality, however, is characterized by temperature extremes,

microgravity, solar and galactic cosmic radiation, lack of atmospheric pressure, high-speed micrometeorites, and excessive vibrations from launch propulsion systems and atmospheric reentry. Ensuring the safety of the occupant therefore requires a system to address these environments and ensure that sufficient controls and mitigations are in place, such as redundant safety critical systems. In the end, space vehicles are very complex systems, and therefore can fail in complex ways.

The commercial space flight regulations contained in C.F.R. Part 400 address the safety of the general uninvolved public, the surrounding buildings, and the interests of the United States. The current law expires October 2015 and prohibits the FAA from introducing new regulations; however, FAA is anticipating Congress will ask them to address occupant safety. FAA began an initiative to establish a minimum set of practices that when implemented would provide an acceptable level of risk. This 3-year effort relied on 50 years of NASA's lessons learned, review of other space programs, and an assessment of accepted industry standards.

FAA's goal was to provide a set of recommended practices that spanned the lifecycle of the space system and operations while not limiting innovation. Mr. (b)(6) noted the possibility of dealing with reusable vehicles (i.e. SpaceX as well as others) and the difficulties to verify that the platform still meets standards after multiple flights. Mr.(b)(6) acknowledged Mr. (b)(6) concern and increased the scope: the FAA is concerned on how to handle an airline model with space equipment (separate manufacturer, maintainer, and operator). Mr. (b)(6) noted FAA's challenge, keeping the regulation broad enough for innovation but tight enough to enforce and observe compliance using a system safety process.

FAA's second briefer; Mr. (b)(6), discussed lessons learned from recent mishaps involving the FAA, NASA, Orbital Sciences, and other industry partners. Col West asked if FAA has a lessons learned database. Mr. (b)(6) stated the FAA did maintain a database, but noted the difficulties of trying to get industry to populate the database.

FAA MOU/A website for review:
http://www.faa.gov/about/office_org/headquarters_offices/ast/about/moa_mou/

Antares mishap, process discussion - Dr. (b)(6) (SMC/AD)
Dr. (b)(6) was the assigned AFSPC observer to the Antares launch mishap that occurred on 28 Oct 14. She shared her personal experience and lessons learned working on the Antares Accident Investigation Board (AIB). Her top lessons learned included taking careful daily notes and getting an acronym list from each organization. Dr.(b)(6) answered questions from the SSC members regarding specifics of the AIB process.

Open Discussion
91-222: AFMAN and/no AFPAM – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) gave the history behind the AFPAM development. AFSEC/SES developed but never published the original draft. Lt Col (b)(6) solicited feedback from SSC members: keep the AFPAM or include the information in the AFMAN. The AFPAM contains items and suggestions to help an investigation but do not belong in formal regulations. The AFPAM is

very helpful to keep lessons learned for Space Safety Investigations. Lt Col (b)(6) noted AFSEC/SEF rescinded their AFPAM and absorbed it into their AFMAN. In addition, keeping the AFPAM increases the number of documents AFSEC/SES staff needs to maintain. However, Lt Col (b)(6) stated incorporating the AFPAM information into AFMAN 91-222 would slow down the AFMAN's revision. She offered a third option: keep the AFPAM in its current state of flux as a draft and re-look at it after AFSEC/SES publishes the AFMAN. Mr. (b)(6) (SMC/LR) suggested the AFPAM was a good straw man and SMC/LR used it as a framework. Mr. (b)(6) (SMC/LR) suggested making it either guide or handout instead of a pamphlet therefore removing it from official documents. Lt Col (b)(6) thanked all comments and requested additional feedback from the SSC members.
Action Item Taken: Solicit SSC community on combining or separating AFMAN 91-222 and AFPAM 91-222.

Space Safety Suggestion Box - Maj (b)(6) (AFSEC/SES)
Maj (b)(6) presented the idea behind a Space Safety Suggestion Box and presented possible options developed by Lt Col (b)(6) while she performed duty with AFSEC/SES. Mr. (b)(6) reiterated his opening comment about only hearing issues during the SSC. He gave an example of a Space Safety issue: during a TDY, he discovered a multi-year problem that affected a ground-based space asset that neither AFSPC/SE nor the owning MAJCOM/SE knew. Had he not met with the most knowledgeable person during that TDY, Mr. (b)(6) would not have known about the issue and not pushed for resolution. AFSEC/SES has an interest in making sure that the whole Space Safety community (not just Air Force or even DoD, but space enterprise-wide) can participate. Mr. (b)(6) wants to establish an anonymous suggestion box to resolve issues and receive candid conversation and feedback from the Space Safety community. Col West advised that this suggestion box should not be used by personnel for solutions to issues that should be worked through the appropriate chain of command. Maj (b)(6) presented some issues with a basic implementation and SSC members gave suggestions, ideas to implement, and areas to address. The bottom line is AFSEC/SES will try this idea, and if it does not work, either fix it or cancel it. AFSEC/SES needs the feedback from the Space Safety community.

Additional Open Discussions
CMSgt (b)(6) suggested AFSEC/SES host additional virtual SSCs addressing specific items that come from the suggestion box. In addition, CMSgt (b)(6) asked about an updated document repository; Mr. (b)(6) noted the Chief's idea had merit. Col West offered a quick discussion on the difference between Safety Investigation Boards and Accident Investigation Boards in light of Dr. (b)(6) brief. Mr. (b)(6) (FAA) noted the Antares mishap was an accident investigation so the material was releasable. Mr. (b)(6) (FAA) and Mr. (b)(6) (NASA) stated their boards were mishap investigations with similar philosophy as AF Safety Investigation Board (SIB)s. Mr. (b)(6) ended the day's session, thanking everyone's participation.

<u>Wednesday, 25 Feb 15</u>
Global Thunder (GT) Lessons Learned - Mr. (b)(6) (AFSPC/SEK)
Mr. (b)(6) discussed the Engineering Analysis Group (EAG), usually a group of experts (Aerospace and Federally Funded Research & Development Center (FFRDC) contractors) that

figure out the technical aspects of what went wrong in a mishap. EAGs can report to both the SIB and the AIB. A discrepancy noted from GT was that in AFMAN 91-222, an 8-hour message is still required versus other AFIs/AFMANs the requirement is now a 24-hour message.

Orbital Mishap response TTX out brief - Lt Col (b)(6) (AFSPC/SEK)
Lt Col (b)(6) summarized the events, which occurred the day prior at the Orbital TTX. She identified best practices, which included NASA's mishap simulations and contingency plans. Follow-on actions included a need for AFSPC to review and exercise their ISB procedures and SIB hosting readiness. She also suggested that the AFSEC/SES review ways that portions of AFMAN 91-223 would be useful in AFMAN 91-222. Additionally, she suggested that the Operational Space Wings identify ISB personnel for high-risk orbital operations, much like launch ISBs.

SENSE Class E process - Mr. (b)(6) (SMC/AD)
The brief focused on the CubeSat/small sat safety policy issues as experienced through the SENSE mission. Mr. (b)(6) started the discussion by saying a mishap is not a mishap unless it affects the larger environment. A mishap occurs when something creates debris and/or hits something else. He mentioned a failure of a mission is a mission assurance failure. However, Mr. (b) notes this definition may not be true for "program of record" high-reliability systems where failure is not an option. Mr. (b)(6) agreed to the importance of deliberate risk acceptance decision made by the appropriate authority. Lt Col (b)(6) gave an example that in experimental missions, risk acceptance is different, like taking a small payload and putting it on another launch. Mr. (added if there is an experimental failure, there is a process to determine what happened for experimental record. He asked, "should AFSAS be the repository for engineering investigations of failed experiments?" Lt Col (b)(6) argued that the SENSE example, as long as it is following Orbital Debris Mitigation Standard Practices (ODMSP), it is not going to cause safety risk. Mr. (b) concluded when you develop a project charter, the charter states objectives. In space missions, one of the most important things is to make sure the objectives are clear.

Electronic Magnetic Interference (EMI) - Capt (b)(6) (50 SW/SEO)
The discussion centered on providing a fundamental understanding of EMI and its sources including hostile versus non-hostile EMI affecting ground and on orbit assets. Safety provides fresh eyes to EMI events and can positively influence satellite/launch vehicle design and operations. The discussion ended with a question as to whether EMI events are mishaps: only if the system was designed to withstand such an event and still failed due to the EMI event.

SmallSat Safety Discussion - Mr. (b)(6) (14 AF/SE)
Mr. (b)(6) started with, "CubeSats are exploding" but the better term is "proliferating"! He noted the possible discrepancies between failure to complete end-of-life (EOL) (class C mishap) and the creation of debris (class E). Both EOL and debris are topics for the AFMAN 91-222 working group to reconsider. NASA makes a possible mishap determination before a mission and considers CubeSats as a secondary payload, which would not generate anything above a Class D equivalent mishap. Dr. (b)(6), from California Poly noted people go in with many

CubeSats with expectation of failures within their constellations. 20-30 satellites with a 10% failure rate in these CubeSat constellation frameworks are the common mindset. Furthermore, Dr. (b)(6) stated, the International community is very responsive to guidelines. There is a correlation between the proliferation of aircraft and spacecraft – proliferation of aircraft drove lanes, airspace control, radar tracking, etc. Space is in a similar environment now.
Action Item Taken: discuss verbiage for AFMAN 91-222 and develop a SOP working group with a charter.

Aerospace's "Do no harm" rideshare mission assurance process – Ms. (b)(6) (Aerospace)
Ms. (b)(6) informed the SSC of how Aerospace looks at multi-satellite integration and the challenges it creates for the acquisition, operations, launch, and safety communities. CHIRP was one of the first DoD contractual agreements with commercial launch provider. The program was difficult for senior leaders to get their hands around and did not cover mission assurance. The do not harm framework allowed the issues to be boiled down to hosting criteria and resolved the problems holding up the mission.

Indemnification discussion
After Ms. (b)(6) briefing, Lt Col (b)(6) offered a short break to the SSC members while Mr. (b)(6) (SMC/SE), Mr. (b)(6), (SMC/LR), and Mr. (b)(6) (SMC/LRE) discussed an issue with the current USAF Indemnification guide via telephone with Maj (b)(6) (SAF/SP), Maj (b)(6) (SAF/AQS), Mr. (b)(6) (SAF/GC), and Mr. (b)(6) (SAF/AQC). The collective group determined the current USAF Indemnification guide is out-of-date and agreed to meet separately to update the guide.

Contractor Trends – Mr. (b)(6) (SMC/SE)
Mr. (b)(6) briefed the SSC members on an issue he sees developing at SMC. A couple safety-related incidents in the past year highlighted a demonstrated lack of safety mindset in the acquisition program offices. Mr. (b)(6) spoke of incidents where program office leadership directed their personnel not to contact SMC/SE when a safety issue developed. In addition, Mr. (b)(6) mentioned a staffing action that should involve safety reached SMC/CC without SMC/SE involvement. The SSC members discussed if the issue was conscious non-compliance or if the program office personnel are not appropriately trained and inculcated in safety principles. Mr. (b)(6) requested Lt Col (b)(6) to take an outside look at acquisition personnel training and determine if this issue is specific to SMC or is endemic across the force.
Action Items Taken: Review acquisition personnel training and take a gage of acquisition personnel's thoughts on safety. Determine if the issue is endemic across the acquisition community.

Open Discussion
Mr. (b)(6) emphasized the importance of Space Safety and acknowledged there are not enough space mishap examples in the Board Presidents Course. He requested SES do a space-centric BPC at Kirtland in the August timeframe.
Action Items Taken:
Determine the location for the next System Safety Course to be held in June.

Formalize the process in AFSAS to include appropriate unclassified information regarding classified incidents.
Review System Safety concepts taught to Acquisition government personnel via DAU or other training programs to determine delta training required for Space System community.
Add DCMA System Safety to SSC membership.
Document the impacts of AETC transferring education to AFSPC/A2/3/6.
Determine how the AF should handle/accept commercial Space Safety products.
Send the SSC charter to Mr. (b)(6) at NASA.

New Action Item Review - Lt Col Bill O'Connor (AFSEC/SES)

ACTIONS from 25 Feb 15 SSC	OPR/OCR	Suspense	Notes
SSC 15-01: Is the slide format for the SSC executive members appropriate?	OPR: Maj (b)(6) OCR: SSC Executive members	31 May 15	Allow AFSEC/SES to incorporate any changes before next SSC.
SSC 15-02: Invite Mr. Forbes to next AFI 91-217 discussion. SSC members send AFI 91-217/MIL-STD-882E disconnects.	OPR: Lt Col (b)(6) /Maj (b)(6)	Aug 15 SSC	
SSC 15-03: Solicit AFMAN 91-222 big rock topics/ Note AFPAM as topic in AFMAN 91-222 working group – develop working group members list. Add fly back concept/concerns to AFMAN 91-222 Big Rocks.	OPR: Lt Col (b)(6) /Maj (b)(6) OCR: AFMAN 91-222 WG	Aug 15 SSC	Start with SSC mailing list
SSC 15-04: Determine topics to be taught at SMIC. Send current SMIC table of contents to SSC participants to obtain further topics for SMIC; start a working group to develop course.	OPR: Maj (b)(6)	Aug 15 SSC	Clearly define objectives, number of instructors, look at what kind of capability/product you want to produce and then figure out course length (5 days vs. 10).
SSC 15-05: Solicit SSC community on combining or separating AFMAN 91-222 and AFPAM 91-222.	OPR: Lt Col (b)(6) /Maj (b)(6) s OCR: WG community	Aug 15 SSC	
SSC 15-06: Discuss adding verbiage on CubeSats for AFMAN 91-222.	OPR: Lt Col (b)(6) /Maj (b)(6) OCR: AFMAN 91-222 WG	Aug 15 SSC	

SSC 15-07: Develop a CubeSat Standard of Practice (SOP) working group (WG) with a charter, membership; develop composition for small satellites.	OPR: Mr. (b)(6) (temporary) OCR: SAF/SP	Aug 15 SSC	
SSC 15-08: Review acquisition personnel training and take a gage of acquisition personnel's thoughts on safety. Determine if the issue is endemic across the acquisition community.	OPR: Mr. (b)(6) OCR: Lt Col (b)(6)	Aug 15 SSC	
SSC 15-09: Determine where to teach SMC Sponsored June 2015 Space System Safety course?	OPR: Mr. (b)(6) OCR: Lt Col (b)(6)	1 Apr 15	
SSC 15-10: Formalize the process in AFSAS to include appropriate unclassified information regarding classified incidents.	OPR: Lt Col (b)(6) OCR: AFSEC/SEA	Aug 15 SSC	Brief the process at the next SSC.
SSC 15-11: Review System Safety concepts are taught to Acquisition Government personnel via DAU or other training programs to determine Delta training required for Space System community	OPR: Lt Col (b)(6) OCR: Maj (b)(6), Lt Col (b)(6), Lt Col (b)(6)	Aug 15 SSC	
SSC 15-12: Add DCMA System Safety to SSC membership.	OPR: Lt Col (b)(6)	Aug 15 SSC	
SSC 15-13: Document effects of AETC transferring education (Space 200) to AFSPC/A2/3/6.	OPR: Ms. (b)(6)	Aug 15 SSC	
SSC 15-14: How should the AF handle/accept commercial Space Safety products?	OPR: Maj (b)(6)	Aug 15 SSC	
SSC 15-15: Forward SSC charter to Mr. (b)(6).	OPR: Maj (b)(6)	Aug 15 SSC	

Closing Remarks – Col Elizabeth West (AFSPC/SE)
Col West thanked everyone for participating and hoped for safe travels.

Closing Remarks – Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) stated the SSC is the victim of our own success, meaning the Space Safety community is beginning to receive much interest. He really appreciated the constructive, candid comments, and the professionalism throughout the council. The SSC is an AF O-6 / GS-15 level

forum that feeds the 2-star level Senior Safety Advisory Council (SSAC) that feeds the Joint Service Safety Council (JSSC). Mr. (b)(6) noted the next SSC should be around the August timeframe before the SSAC. He considered sending out the SSC charter, but SES is in the middle of writing the SSAC charter to mirror the JSSC charter, and wants to hold off on the SSC charter. Mr. (b)(6) thanked the training events supported by AFSPC and acknowledged their obvious contribution to the effectiveness of the Space Safety community. The next SSC will be in August; it will be a virtual meeting hosted by AFSEC/SES.

Final briefings available on AFSEC SharePoint

(b)(6)

(b)(6) GS-15, DAF
Director, Air Force Space Safety

DISTRIBUTION: SSC Attendees (see attached attendance roster)

SSC Attendance 24 – 25 Feb 15	
Participating Organizations	**Representatives**
Air Force Safety Center, Space Safety Division (HQ AFSEC/SES)	Mr. (b)(6)
Air Force Space Command, Directorate of Safety (HQ AFSPC/SE)	Col West
HQ AFSEC/SES	Lt Col (b)(6)
HQ AFSEC/SES	Lt Col (b)(6)
HQ AFSEC/SES	Maj (b)(6)
HQ AFSPC/SES	Maj (b)(6)
HQ AFSPC/SEK	Lt Col (b)(6)
HQ APSPC/SEK	Ms. (b)(6)
HQ APSPC/SEK	Mr. (b)(6)
HQ AFSPC/SEG	MSgt (b)(6)
Air Force Research Laboratory, Detachment 8, Directorate of Safety (AFRL/SE)	Mr. (b)(6) (T)
AFRL/Det 8/SE	Mr. (b)(6) (T)
Headquarters Air Force, Space Operations (HAF/A3SO)	Maj (b)(6) (T)
Deputy Under Secretary of the Air Force for Space Policy (SAF/SP)	Maj (b)(6) (T)
SAF/SP	Mr. (b)(6) (T)
14th Air Force, Directorate of Safety (14 AF/SE)	Mr. (b)(6)
21st Space Wing Safety (21 SW/SE)	Lt Col (b)(6)
21 SW/SES	SSgt (b)(6)
30th Space Wing Safety (30 SW/SE)	Mr. (b)(6)
45th Space Wing Safety (45 SW/SE)	Col Gottrich
50th Space Wing Safety (50 SW/SE)	Mr. (b)(6)
50 SW/SEO	Capt (b)(6)
460th Space Wing Safety (460 SW/SE)	Mr. (b)(6)
460 SW/SE	TSgt (b)(6)
Space & Missile System Center, Directorate of Safety (SMC/SE)	Mr. (b)(6)
SMC/ADS	Dr. (b)(6) (T)
SMC/ADE	Mr. (b)(6)
SMC/ADE	Mr. (b)(6)
SMC/ADY	Mr. (b)
SMC/SYA	Mr. (b)(6)
SMC/SYG	Ms. (b)
SMC/GPE	Ms. (b)(6)
SMC/GPE	Mr. (b)(6)
SMC/ENC	Mr. (b)(6)
SMC/LRE	Mr. (b)(6)
SMC/LRE (ManTech SE&I)	Mr. (b)
SMC/RS	Mr. (b)(6)
National Reconnaissance Office Safety Office (NRO/OSL/SE)	CMSgt (b)(6)
Director, Systems Safety Engineering Directorate, U.S. Combat	Dr. (b)(6) (T)

Readiness/Safety Center (Army Safety Center)	
Missile Defense Agency	Mr. (b)(6)
National Traffic and Safety Board	Ms. (b)(6)
Federal Aviation Administration (FAA)	Mr. (b)(6)
FAA	Mr. (b)(6)
FAA/AST	Mr. (b)(6)
FAA/AST	Mr. (b)(6)
NASA	Mr. (b)(6)
Northrop Grumman Electronic Systems	Mr. (b)(6)
California Polytechnic State University	Dr. (b)(6) (T)
Boeing	Mr. (b)(6)
Aerospace	Mr. (b)(6)
SAIC	Mr. (b)(6)
SAIC	Mr. (b)(6)
Scitor	Mr. (b)(6)
(T) Attendance via telecom/DCO	

Air Force Safety Center
Space Safety Council
4 August 2015 @ by Teleconference
Telecon Number: 505-853-7725 or DSN 263-7725
DCS: https://conference.apps.mil/webconf/f1cb3223683a381a5d61aa1470d382a0
All times are in Mountain Daylight Time

Tuesday, 4 Aug 2015

0800 – 0820: DCS Log In/Telecom Setup	All participants
0820 – 0830: Administration Announcements	Maj (b)(6), HAF AFSEC/SES
0830 – 0845: AF/SE Opening Remarks	Maj Gen (b)(6), AF/SE
0845 – 0855: HAF AFSEC/SES Opening Remarks	Mr. (b)(6), HAF AFSEC/SES
0855 – 0905: HQ AFSPC/SE Opening Remarks	Col Clark Risner, HQ AFSPC/SE
0905 – 1020: HQ AFSPC/SE Update	Col Clark Risner, HQ AFSPC/SE
HQ AFMC/SE Update	Mr. (b)(6), AFRL; AFMC/SE
HQ AFOTEC/SE Update	Mr. (b)(6), AFOTEC/SEW
HAF AFSEC/SES Update	Mr. (b)(6), HAF AFSEC/SES
1020 – 1030: Break	
1030 – 1130: Action Item Review	Maj (b)(6)
1130 – 1225: AFMAN 91-222 Rewrite	Lt Col (b)(6), HAF AFSEC/SES
1225 – 1230: Task Force Cyber Secure (TFCS)	Lt Col (b)(6), HAF AFSEC/SES
1230 – 1330: Lunch	
1330 - 1445: AFI 91-217 “Big Rocks” Post-mission EOL operations	Lt Col (b)(6), HAF AFSEC/SES
1445 – 1515: Convening Authority	Col Daniel Gottrich, AFSPC 45 SW/SE
1515 – 1530 MIL-STD-882E Tailoring	Lt Col (b)(6), HAF AFSEC/SES
1530 – 1545: Open Discussion	Maj (b)(6)
1545 – 1600: Break	
1600 – 1615: New Action Item Review	Maj (b)(6)
1615 – 1630: HAF/AFSEC/SES wrap-up, closing comments	Mr. (b)(6)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

24 Aug 15

MEMORANDUM FOR (SEE DISTRIBUTION)

FROM: HQ AFSEC/SES

SUBJECT: Space Safety Council (SSC) Minutes

Attendees/Representatives: (see attached attendance roster)

Air Force Safety Center, Space Safety Division (AFSEC/SES) provided a telecom bridge and Defense Collaboration Services (DCS) for participants of the SSC held 4 Aug 15.

Opening Remarks – Maj Gen Andrew Mueller (AF/SE)
Maj Gen Mueller welcomed the SSC participants. He stated the importance of space and our space assets that support many Airmen and their operations. Maj Gen Mueller acknowledged a strong safety program ensures readiness. He highlighted that this SSC and the Senior Safety Advisory Council (SSAC) are part of listening to the Airmen and ensuring they can do their job safely. As the Air Force Chief of Safety, he is responsible for responding to the safety offices and the importance of resolving action items. Maj Gen Mueller mentioned that he is looking forward to meeting everyone at the next SSC in February.

Opening Remarks – Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) welcomed Maj Gen Mueller as the new Air Force Chief of Safety. He thanked everyone for dialing in and welcomed all the participants to the SSC. He also welcomed Col Clark Risner, the new HQ AFSPC/SE. Mr. (b)(6) mentioned recent trips to Space and Missile Systems Center (SMC) safety offices and appreciation for the good feedback as AFSEC/SES addresses the needs of the field. He highlighted the increase in SSC participation over the past two years. Mr. (b)(6) explained the expectation for this SSC to focus on review of action items and identifying matters to bring up to the SSAC.

Opening Remarks – Lt Col (b)(6) (AFSPC/SE)
Lt Col (b)(6) presented for Col Clark Risner. She noted the high tempo of activity and changes occurring in the Air Force Space Command (AFSPC) Safety Office and transitioned to the executive member update.

SSC Executive Members Updates

Lt Col (b)(6) (AFSPC/SE)
Lt Col (b)(6) welcomed Mr. (b)(6) for launch and range; and Ms. (b)(6) for orbital. Both are available (listed in the AF Global Address List) to start working items in their respective areas. The new team will start working on updating Air Force Space Command Instructions (AFSPCI) and supplements for AF safety instructions. Lt Col (b)(6) highlighted AFSPC collaboration with the space community, noting investigation board observers provided

to Federal Aviation's Administration's (FAA's) Falcon-9 mishap investigation and National Aeronautics and Space Administration's (NASA's) Antares mishap investigation. She relayed the news that SMC received permission for AF attendance to the International Systems Safety Conference (ISSC). Lt Col (b)(6) noted that there are still questions on how to resolve risk acceptance processes for orbital debris mitigation. She also shared an important lesson learned from AFSPC's experience with public affairs because of the Defense Meteorological Satellite Program Flight 13 (DMSP-13) debris-causing event. Lt Col (b)(6) identified a need for Air Force Safety Automated System (AFSAS) updates to correct timeline requirements and possibly add an option to report an Engineering Investigation. AFSPC also shared the challenge of identifying potential board presidents and mishap investigators because there are gaps in tracking such training.

Action Item Taken: Review how AF organizations track safety training for identifying mishap investigation trained personnel and report findings.

Mr. (b)(6) (AFRL; AFMC/SE)
Mr (b)(6) briefly reviewed an event where the Automated Navigation and Guidance Experiment for Local Space (ANGELS) mission communications laser propagated at incorrect target. Mr (b)(6) participated in the Air Force Manual (AFMAN) 91-222, *Space Safety Investigation and Reports* working group and noted the effort on R&D addressed AFMC needs.

Mr. (b)(6) (AFOTEC/SEW)
Mr. (b)(6) noted that Air Force Operational Test and Evaluation Center (AFOTEC) evaluations of Air Force test activities do not have space-experienced managers and depends primarily on program managers for safety documentation and expertise, as identified in Department of Defense Instruction (DoDI) 5000.02, *Operation of the Defense Acquisition System* and Air Force instruction (AFI) 91-202, *The US Air Force Mishap Prevention Program*. Current challenge is to work with the different programs to determine what systems safety documentation is on contract for upcoming efforts. Mr. (b)(6) asked about the AFI 91-202 update and the intent behind AFOTEC providing recommendations and mitigating actions to a program office.

Action Items Taken: Investigate and document the various contractual terms utilized in system safety documentation and develop a standardized list of CDRLs for systems safety.
Action Item Taken: Discuss with AFI 91-202 POC the increased AFOTEC requirements.

Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) reviewed the intent of the executive update slides and gave the action that slides executive members would brief will include status and issues at the winter meeting, following a new template (AI recorded). He introduced Task Force Cyber Secure (TFCS) and the challenges of no "cyber safety". AFSEC/SES is working on potential Space Mishap Investigation Course (SMIC); and continues to push for slots for space professionals in Aircraft Mishap Investigation Course (AMIC). Mr. (b)(6) noted that clarifying indemnification issues is an ongoing effort. He introduced Lt Col (b)(6) Launch and Range Branch Chief who will revitalize AFSEC's participation in the Range Commanders Council (RCC) and Range Safety Group. Mr.

(b)(6) thanked the SSC members for their participation in the AFMAN 91-222 working group and asked for SSC support on the formal coordination.

Action Item Taken: Review and change presentation requirements for SSC executive members.

Maj (b)(6) reviewed the status of action items from prior SSCs with the SSC members. Table 1 (below) outlines action items that the SSC agreed to close.

CLOSED from 4 Aug 15 SSC	OPR/OCR	Suspense	Notes
Coordinate with AFSEC/SEF on partnering opportunities with remote piloted aircraft (RPA) community for training/education and mishap investigation support	Lt Col (b)(6) Lt Col	N/A	Coordination with AFSEC/SEF complete **CLOSED**
Determine if AFSEC/SEGS updated the language in the new version of AFI 91-202, and then close	Lt Col (b)(6)	N/A	Language updated in new version **CLOSED**
What is changing in AFSAS and ASAP? What is the value of the change and whom does it serve?	Maj (b)(6) Ms. (b)(6)	N/A	Changes tracked **CLOSED**
Develop course of action (COA)(s) for the next SSC on the slide format for the SSC executive members.	Maj (b)(6) SSC executive members	N/A	COAs developed **CLOSED**
Determine Space Mishap Investigation Course (SMIC) topics and start a working group to develop course	Maj (b)(6) SSC Community	N/A	Topics determined **CLOSED**
Discuss combining or separating AFMAN 91-222 and AFPAM 91-222	SES / WG Community	N/A	Decision to use AFPAM 91-222 in future, "Space Safety Investigation Guide" **CLOSED**
As part of the AFMAN 91-222 WG discuss whether to include small satellites	AFSEC/SES/ 91-222 WG	N/A	Including small satellites **CLOSED**
Solicit AFMAN 91-222 big rock topics and develop working group members list	AFSEC/SES, AFMAN 91-222 WG (Mr. (b)(6)	8 Aug	WG effort complete **CLOSED**
Review acquisition personnel training and look at acquisition personnel's thoughts on safety.	Lt Col (b)(6) /Mr. (b)(6)	N/A	Ongoing issue identified **CLOSED**

Determine if the issue is endemic across the acquisition community			
Determine where to teach SMC Sponsored Jun 15 Space System Safety course	Mr. (b)(6) Lt Col	N/A	No more courses in FY15 **CLOSED**
Review System Safety concepts are taught to Acquisition Government personnel via DAU or other training programs to determine delta training required for Space System community	Lt Col (b)(6) Maj (b)(6) Lt Col (b)(6) Lt Col (b)(6)	N/A	Training already a part of DAU **CLOSED**
Add Defense Contract Management Agency (DCMA) System Safety to SSC membership	Lt Col (b)(6)	N/A	DCMA added **CLOSED**
Document impacts of Air Education and Training Command (AETC) transferring education (Space 200) to AFSPC/A2/3/6	AFSPC/SEK	N/A	Impacts discussed **CLOSED**
Forward SSC charter to Mr. (b)(6)	Maj (b)(6)	N/A	E-mail sent **CLOSED**

Table 2 (below) provides update to open action items.

REVIEWED from 4 Aug 15 SSC	OPR/OCR	Suspense	Notes
IPT Form training Integrated Product Team (IPT) and develop schedule to update Air Force Space System Safety Course including Space, Launch, Operations, Test, & Acquisition	Lt Col (b)(6)	Before next SSC	OPEN until IPT develops the course methodology and timeline for course material development, will be briefed at next SSC
AMIC Advocate for additional annual Aircraft Mishap Investigation Course (AMIC) slots for HQ AFSPC personnel -Work with AFSEC/SET Representative to develop slots for Space Safety Professionals	Mr. (b)(6) Mr. (b)(6)	Before next SSC	OPEN as a reminder to continue pressing for slots for SSPs
AFSAS	Lt (b)(6) Ms. (b)(6)	Before next	OPEN until AFSAS

Rewrite quick guide on the Aviation Safety Action Program (ASAP) website to distribute to Space Safety Representatives		SSC	mobile goes live
TTX for SMIC Maj Souders is tasked for inputs on table top exercises (TTXs) to support Space Mishap Investigation course (SMIC) -information and examples needed from content expertise	SES (Maj (b)(6) (Lt Col (b)(6)	31 Aug 15	OPEN until receipt of inputs; deadline is 31 Aug 15 -Maj (b)(6) sent out template
91-217 BIG ROCKS SSC members need to send AFI 91-217/MIL-STD-882E disconnects top AFSEC/SES - Invite Mr. Forbes of SAF/AQ to next AFI 91-217 discussion	SES (Lt Col (b)(6) (Maj (b)(6)	31 Aug 15	OPEN until receipt of inputs
SMALL SAT SOP Determine SMC feasibility/resource availability to investigate/pursue technical options for tracking small satellites	AFSPC/SE	Next SSC	OPEN until AFSPC/SE briefs approach to technical options for tracking small satellites
AFSAS Formalize the process in AFSAS to include appropriate unclassified information regarding classified incidents -need a better way -issue of classification across the AF	Lt (b)(6) AFSEC/SEA	Next SSC	OPEN until process is formalized and briefed at next SSC

Maj (b)(6) reviewed the new AFSEC/SES website at www.afsec.af.mil. Select the "Space Safety" tab (3rd tile from the bottom right). Here you will find information on our Space Safety brochure, Space Manifesto, and Space Publications. There is a "suggestions/comments" tab that safety professionals can submit a question to the Space Safety Division.

AFMAN 91-222 Rewrite Progress – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) briefed the re-write status of AFMAN 91-222 *Space Safety Investigations and Reports* and thanked the SSC members who participated in the re-write working group. She addressed the major changes between the 9 August 2005 version and the July 2015 draft. Lt Col (b)(6) highlighted the memo published on 23 June 2015 (AFMAN91-222_AFGM2015-01). There was a discussion on the memo and its genesis (the Space Environmental NanoSat Experiment (SENSE) mission). The memo provides direction for mishap investigations for failures of R&D and experimental satellites. Lt Col (b)(6) clarified the new mishap classification

matrices in draft AFMAN 91-222 and the purpose behind them. Lt Col (b)(6) reviewed the use of the Engineering Analysis Group (EAG), and the responsibilities of the convening authority. Per AFI 91-204, *Safety Investigations and Reports* (and the draft AFMAN 91-222), the convening authority has the ability to tailor the investigation– increasing or decreasing its scope as needed. Lt Col (b)(6) closed the discussion asking for any additional action officer comments or suggestions be sent to AFSEC/SES by 7 Aug 15 so that formal coordination can start. AFSEC/SES plans to send out the re-write for formal 3-letter coordination by the end of the month.

Task Force Cyber Secure (TFCS) - Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) emphasized that this briefing is informational only. He explained that AFSEC/SES is managing the Team Cyber Assure (TCA) for AF/SE. Team Cyber Assure is charging ahead with Cyber Phoenix, "A Cyberspace Domain Resurgence Initiative". With the Cyber Phoenix initiative, Mr. (b)(6) is leading the Definitions/Construct Working Group, Lt Col (b)(6) is leading the Documentation Working Group, and Maj (b)(6) is leading the Enculturation/Tools Working Group with assistance from Lt Col (b)(6) By March 2016, the Team Cyber Assure owes the Task Force and CSAF a roadmap that arms our Cyberspace warriors. Lt Col (b)(6) invited everyone to participate in the Team Cyber Assure effort going forward.

AFI 91-217 Big Rocks - Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) continued her AFI 91-217, *Space Safety and Mishap Prevention Program* "Big Rock" series. During the last AFI 91-217 re-write, a number of issues caused much consternation among SSC members. AFSEC/SES staff tabled the issues to publish the AFI with the agreement to address the concerns. Lt Col (b)(6) first reviewed the progress of the Big Rock reviews and completing the original list of concerns. This session relooked at risk thresholds in AFI 91-217 and concerns related to MIL-STD-882. Discussion followed past reviews about high risks in tailored assessments when constrained by AFI 91-217, like in the case of launch collision avoidance (LCOLA) calculations. SMC/Launch Readiness (LR) will share the risk acceptance model with SSC after development is complete. There was agreement to make sure in future policy to remove "should" so as not to introduce loopholes, as in the current case of probability of end-of-life operations. Lt Col (b)(6) then reviewed roles and responsibilities in AFI 91-217 for Space Safety System risks decision acceptance.

Convening Authority (CA) - Col Daniel Gottrich (AFSPC 45 SW/SE)
Col Gottrich briefed a new topic to the SSC. Given the reduced emphasis on off-duty Class Cs, as well as the relatively minor impact to wing operations for Class D mishaps and Class E aviation events Col Gottrich is recommending a change in release authority for Class C (off-duty), D, and E mishaps. Chiefs of Safety have charge to keep wing leadership informed and do that through weekly reports, monthly tallies, annual reports, and semi-annual Environment, Safety, and Occupational Health (ESOH) Councils. Col Gottrich suggested a potential end state that allows the Chiefs of Safety to handle some mishaps via safety channels while taking an administrative process off the Wing/CC's plate. Mr (b)(6) agreed to an action item, that has AFSEC look into Convening Authority responsibilities and delegation for lower level (Class C, D, and E) mishap reporting.

Action Items Taken: Investigate Convening Authority responsibilities and potential impacts of commander delegation for lower level (Class C, D, and E) mishap reporting.

MIL-STD-882E Tailoring - Lt Col Bill (b)(6) (AFSEC/SES)
Lt Col (b)(6) discussed MIL-STD-882E, *DoD Standard Practice for System Safety*, 2012 tailoring. Of specific interest to members of the SSC, is the requirement that tailored risk matrices must be approved by the Component Acquisition Executive (CAE) and risk packages must clearly define the matrix parameters used and document CAE approval. New risk acceptance packages must convert to the MIL-STD-882E matrix and definitions (or an approved tailored matrix and definitions). Lt Col (b)(6) suggested an IPT to figure out what a risk package involves. In addition, in accordance to DoDI 5000.02, the Milestone Decision Authority, or designee, approves tailoring of the MIL-STD-882E Matrix and that process is undefined. Lt Col (b)(6) suggested organizations involved with High Risk Acceptance coordination for the IPT.

Action Item Taken: Propose Tailor 882E IPT and outline expected effort.

Open Discussion

Open question on software safety standards; has anyone moved forward on a software safety standard? There was a suggestion to look at incorporating software safety policy into RCC standards to meet the needs for flight termination systems.

Open question about risk assessment; how do other organizations handle long-term open risks through major milestones? The SSC discussed how program managers review different documents and the status of different risks, including safety risks at the major acquisition milestones.

Open question on status of joint policy; is the AFI 91-217 consistent with Joint Instructions (e.g., United States Strategic Command Instruction (SI) 505-4 *Satellite Disposal Procedures*?

Action Item Taken: Review and documenting disconnects between Joint Instructions and AFI 91-217.

Open question on safety career management; how are safety professionals managed in their experience tracked outside the Safety and Occupational Health Management Series, GS-0018?

Action Item Taken: AFSEC investigate how the Air Force tracks safety experience.

New Action Item Review - Maj Souders (AFSEC/SES)

NEW from 4 Aug 15 SSC	OPR/OCR	Suspense	Notes
Review how AF organizations track safety training for identifying mishap investigation trained personnel and report findings.	Lt Col (b)(6) Ms. (b)(6)	Next SSC	OPEN
Investigate and document the various contractual terms utilized in system safety documentation and develop a standardized glossary.	Lt Col (b)(6) Mr. (b)(6)	Next SSC	OPEN
Discuss with the POC for AFI 91-202, *The US Air Force Mishap Prevention Program* the increased AFOTEC requirements.	Lt Col (b)(6)	Next SSC	OPEN
Review and change presentation requirements for SSC executive members.	Maj (b)(6)	December 2015	OPEN
Investigate Convening Authority responsibilities and potential impacts of commander delegation for lower level (Class C, D, and E) mishap reporting.	Maj (b)(6)	Next SSC	OPEN
Propose tailored 882E IPT and outline expected effort.	Lt Col (b)(6)	Next SSC	OPEN
Review Strategic Command Instruction (SI) Satellite Disposal Procedures, SI 505-4, document disconnects with AFI 91-217 and recommend COA for resolution.	Maj (b)(6) Mr. (Aerospace), Mr (b)(6) (14th AF)	Next SSC	OPEN
Investigate how the AF tracks safety professionals outside the Safety and Occupational Health Management Series, GS-0018.	Mr (b)(6)	Next SSC	OPEN

Closing Remarks – Mr. (b)(6) (AFSEC/SES)

Mr. (b)(6) appreciated the constructive, candid comments, and the professionalism of the SSC. The SSC is an AF-level O-6 / GS-15 forum that advises the flag-level Senior Safety Advisory Council (SSAC) which in-turn takes part in the Joint Service Safety Council (JSSC). Topics and discussions should be appropriate for the right level of discussion and decision. Mr. (b)(6) noted the next SSC will be in Feb 16 at AFSEC (Kirtland AFB, NM) and looks forward to seeing everyone.

Final briefings available on **AFSEC SharePoint**.

(b)(6)
(b)(6)
GS-15, DAF
Director, Air Force Space Safety

Attachment:
Attendance Roster

DISTRIBUTION:
SSC Attendees

SSC Attendance 4 Aug 15	
Participating Organizations	**Representatives**
USAF AF-SE	Maj Gen Mueller
HQ AFSEC/SES	Mr. (b)(6)
HQ AFSEC/SES	Lt Col (b)(6)
HQ AFSEC/SES	Lt Col
HQ AFSEC/SES	Lt Col
HQ AFSEC/SES	Lt Col
HQ AFSEC/SES	Maj (b)(6)
HQ AFSEC/SES	Maj
HQ AFSPC/SE	Col Risner
HQ AFSPC/ SEK	Lt Col (b)(6)
HQ AFSPC/SEK	Mr. (b)(6)
HQ AFSPC/SEK	Ms.
AFSPC 14 AF/SE	Mr.
AFSPC 45 SW/SE	Col Gottrich
AFSPC 30 SW/SE	Lt Col (b)(6)
AFSPC 30 SW/SE	Mr. (b)(6)
AFSPC 30 SW/SEL	Mr.
AFSPC 30 SW/SEAP	Mr.
AFSPC 30 SW/SEAP	Mr.
AFSPC 50 SW/SE	Lt Col (b)(6)
AFSPC 50 SW/SES	Mr. (b)(6)
AFSPC SMC/SE	Mr.
AFSPC SMC/SES	Ms.
AFSPC SMC/SES	Mr.
AFSPC SMC/EN	Mr.
AFSPC SMC/EN (Aerospace)	Ms.
AFSPC SMC/ENC	Mr.
AFSPC SMC/ENC	Mr.
AFSPC SMC/ENC	Mr.
AFSPC SMC/RNN	Mr.
AFSPC SMC/AD	Mr.
AFSPC SMC/LRE	Mr.
AFSPC SMC/LR (Aerospace)	Mr.
AFSPC SMC/LR	Mr.
AFSPC SMC/ORS	Mr.
AFSPC SMC/ORS	Mr.
AFMC AFRL DET 8/SE	Mr.
AFMC AFRL DET 8/SE	Mr.
AFOTEC/SEW	Mr.
NROV/ SE	Mr.

NRO/OSL (Aerospace)	Mr. (b)(6)
Naval Safety Center	Col Butler
ANG 250 IS/CCV	Lt (b)(6)
ANG 205 IS/IN	MSgt (b)(6)
US Army Combat Readiness Center	Mr. (b)(6)
USAFE-AFAFRICA	Mr.
USAFE-AFAFRICA/SEG	Mr.
ATG Norfolk, N88	Capt (b)(6)
Tyvak Inc.	Mr. (b)(6)
FAA Commercial Space Transportation	Mr.
NASA	Mr.
DCMA	Mr.
US Strategic Command JQ/J5	Mr.
614 AOC	Mr.
Army	Ms.

SPACE SAFETY COUNCIL (SSC)

Air Force Safety Center (AFSEC) Bldg. 24499
9700 G Avenue SE
Kirtland AFB, NM 87117

23-24 February 2016

OVERVIEW INFORMATION

- **22 & 25 Feb are travel days**
- **All times are local (Mountain Standard Time) unless otherwise indicated**
- **Meet Me line (505) 853-8825**
- DCS link: https://conference.apps.mil/webconf/b03345cc72cd3963630fabcfcdc97777
- **If the link does not work, please copy and paste the DCS URL above into your web browser to request access to the SSC. Fill in your first and last name, and organization to join the web conference.**
- **All events will be held in the Enola Gay Conference Room, at AFSEC.**

Tuesday, 23 February 2016

Time	*Topic*	*POC*	*Synopsis*
0750-0800	Administration	Maj (b)(6), AFSEC/SES	In place NLT 0745
0800-0810	AF/SE Welcoming comments	Maj Gen Andrew Mueller AFSEC/CC	
0810-0820	HQ AFSEC/SES Welcoming comments	Mr. (b)(6) (b)(6) AFSEC/SES	
0820-0830	HQ AFSPC/SE Update	Col Clark "Rizzo" Risner AFSPC/SE	
0830-0840	HQ AFOTEC/SE Update	Mr. (b)(6) AFOTEC/SE	
0840-0850	HQ AFMC/SE Update	Mr. (b)(6) AFMC/SE	
0850-0900	HQ AFSEC/SES Update	Mr. (b)(6)	
0900-0945	Action Item Review	Maj (b)(6)	Review minutes from last SSC and cover progress of each open AI
0945-1000	**Break**		
1000-1015	AFI 91-202 update	Mr. (b)(6), AFSEC/SEGS	Interim Change (IC)
1015-1045	AFI 91-217 Big Rocks	Lt Col (b)(6), AFSEC/SES	
1045-1100	AFI 91-204 update	Mr. (b)(6), AFSEC/SEF	AFI 91-204 re-write
1100-1130	AFMAN 91-222 update	Lt Col (b)(6), AFSEC/SES	Goal: SSC understanding of changes and what is remaining the same
1130-1300	**Lunch Break - Jason's Deli or on own; side bar discussions, or individual work**		
1300-1310	IAASS	Maj (b)(6), AFSEC/SES	Paper submissions; cover topics for the May event
1310-1400	Small Satellites	Dr. (b)(6), AFRL/RVEP	
1400-1415	**Break**		
1415-1500	Small Satellites cont…	Lt Col (b)(6)	Policy Roadmap
1500-1545	Open discussion – parking lot items; Table Top Exercise (TTX)		
1545-1600	Wrap-up – End of Day		
1800	**Dinner**	El Pinto 10500 4th St NW, Albuquerque	Please RSVP in e-invite if planning to attend dinner social

Wednesday, 24 February 2016

Time	*Topic*	*POC*	*Synopsis*
0750-0800	Day 1 review	Maj (b)(6)	In place NLT 0745
0800-0820	882E Tailoring	Lt Col (b)(6), AFSEC/SES	A workshop invitation will be sent out after the SSC
0820-0900	How do we handle experimental mishaps and small satellite missions	Lt Col (b)(6)	Lessons learned from the SENSE Class E mishap declaration; discussion on adequacy of Space Safety policy, Space R&D, and testing efforts
0900-0930	ORS mission briefing	Mr. (b)(6), SMC/ORS	Who and how they are funded
0930-0945	**Break**		
0945-1000	MFOQA	Mr. (b)(6), AFSEC/SEFE	MFOQA brief
1000-1015	EGS with an MFOQA-like space capability	Lt Col (b)(6), SMC/ADG/Mr. (b)(6) (b)(6), SMC/ADGO	Discuss MFOQA like space capability
1015-1045	COLA discussion	Mr. (b)(6), Aerospace	COLA Gap analysis methodologies
1045-1215	**Lunch Break - side bar discussions or individual work**		
1215-1245	COLA discussion	Ms. (b)(6) (b)(6), AFSPC/SEK	RCC COLA standards that differ from the 91-217 requirements
1245-1315	Falcon 9 Dragon mishap observer	Mr. (b)(6), AFSPC/SEK	Air Force lessons learned from Space X mishap
1315-1330	**Break**		
1330-1345	SMIC Update	Maj (b)(6)	Current efforts for Space Safety training for FY18
1345-1400	Air Force Safety Management System (AFSMS)	MSgt (b)(6), AFSEC/SES	Review SMS and how it ties into the Space Enterprise
1400-1445	Open Discussion	Maj (b)(6)	Around the room: Sustainment issues – DoD and Interagency. Launch deliverables, not getting info as quickly; MICT and SAC
1445-1545	Action Item Review	Maj (b)(6)	Will be included in the minutes that will go out to the SSC
1545-1600	Closing comments	Col Risner/ Mr. (b)(6)	n/a
1600	AF/SE Closing comments	Maj Gen Mueller	

Attendee list:

Rank/Grade	Name	Office Symbol
Maj Gen	Andrew Mueller	AF/SE
GS-15 (Chair/Executive member)	(b)(6)	AFSEC/SES
Col (Vice-Chair/Executive member)		AFSPC/SE
Mr. (Executive member)		AFRL/SE
GS-13 (Executive member)		AFOTEC/SEF
Col	Dan Gottrich	45 SW/SE
GG-15	(b)(6)	SMC/SE
Dr.		AFRL/RVEP
GS-15		ORS Office
GS-15		AFSEC/SEF
GS-14		30 SW/SEL
GS-14		AFSEC/SEGS
Mr.		NASA
Mr.		FAA/AST
Ms.		NTSB
GS-14		14 AF/SE
GS-14		AFSEC/SEFE
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		SMC/SYE
Lt Col		AFSEC/SES
Maj		AFSEC/SES
Maj		AFSEC/SES
Maj		AFSEC/SES
GS-13		AFSPC/SEK
GS-13		AFSPC/SEK
Mr.		AFRL/RDMW
2d Lt		SMC/LEX
MSgt		AFSEC/SES
GG-13		SMC/GPEIY
GS-12		SMC/LEX
GG-12		SMC/ENC
Mr.		AFRL DET 8/SE
Mr.		SMC/LEE
Mr.		Aerospace/OSL
Mr.		AFRL Det 8/SE
Mr.		DCMA
Mr.		Aerospace
Ms.		SMC/ADEE
Ms.		Aerospace
Ms.		SMC/LE
Mr.		SMC/SY

Contact Information

POC information:

Maj (b)(6)

Lt Col (b)(6)

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

16 Mar 16

MEMORANDUM FOR (SEE DISTRIBUTION)

FROM: HQ AFSEC/SES

SUBJECT: 23-24 Feb 16 Space Safety Council (SSC) Minutes

Attendees/Representatives: (see attached attendance roster)

Air Force Safety Center, Space Safety Division (AFSEC/SES) provided a telecom bridge and Defense Collaboration Services (DCS) for remote participants of the SSC.

Opening Remarks – Maj Gen Andrew Mueller (AF/SE)
Maj Gen Mueller welcomed the SSC participants. He stated the importance of space operations now and in the near future and how he can help. One way the Space Safety community has prevailed is through the Air Force Safety Management System (AFSMS) and that participants receive a brief on AFSMS to inform the group of how this is accomplished. Maj Gen Mueller stated, "This (SSC) is the most important thing going on this week at the Safety Center." He concluded with challenging all attendees both in person and virtually to four items:

- Learn something about the Air Force Safety Center
- Foster relationship building
- Have fun
- Give honest feedback

Opening Remarks – Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) welcomed and thanked Maj Gen Mueller for the opening comments. (b)(6) reemphasized the need for codification and working with others to accomplish the mission and the need for honest, candid, and constructive feedback. This feedback makes the SSC a value added council that provides responses to the field's questions and concerns, and presents the Space Safety community's voice at the Senior Safety Advisory Council (SSAC). (b)(6) thanked everyone for being the leading edge in the Space Safety community and covered his position as the co-chair for the International Association for the Advancement of Space Safety (IAASS) along with the Japanese Space Agency Administrator and Kennedy Space Center (KSC) Administrator. Maj Gen Mueller will provide a keynote speech during the 8th Annual IAASS Conference at Florida Institute of Technology, Melbourne, Florida in May 2016, as well as other distinguished personnel such as the National Aeronautics and Space Administration's Administrator. Furthermore, (b)(6) noted the Air Force Safety Center combined with the Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), and NASA combine to form the Quad Agency Working Group for standardizing accident investigations across the board. (b)(6) thanked everyone again for attending the SSC and reminded them that, "We exist for you!"

Opening Remarks – Col Clark Risner (AFSPC/SE)
Col Risner welcomed and thanked everyone for their participation at this year's SSC. He highlighted AFSPC collaboration with the safety community and its importance. Col Risner and his team have worked hard with the FAA, NTSB, and other agencies to continue to foster these relationships regarding Space Safety.

SSC Executive Members Update

Col Risner (AFSPC/SE)
Col Risner discussed AFSPC's collaboration with the FAA/NASA/DoD and within the USAF regarding common safety standards, the future of Spaceports, and the impact of new technologies such as the Autonomous Flight Safety System (AFSS) and first stage fly-backs. He then briefly discussed AFSPC's role as observers in two FAA investigation boards and summarized the AFSPC space mishaps that occurred since the last SSC. Finally, Col Risner discussed the status of safety policy and publication updates within AFSPC. During Col Risner's comments, Maj Gen Mueller made a few remarks regarding the recent Operationally Responsive Space (ORS)-4 event. He noted that this is a way to use safety as one of the investigative arms to figure out the cause of the accident and did not want to minimize the value or cost of items involved. Maj Gen Mueller re-emphasized the importance of organizational relationships that could help foster improvements in space and Space Safety.

Mr. (b)(6) (AFOTEC/SEF)
Mr. (b)(6) noted that Air Force Operational Test and Evaluation Center (AFOTEC) are limited on work force expertise to complete space system safety reviews. They rely on expertise from flight and weapons system safety managers to assess system safety documentation. These reviews develop a "risk to test" decision for leadership. As an incentive to find space system safety expertise, Mr. (b)(6) noted there were MPA days available for test purposes at Det 4, Peterson AFB, CO so individuals did not have to relocate to Kirtland. As part of the overall effort, AFOTEC monitors acquisitions programs and determines if they should be involved in the Milestone Decision process. He did note that at Milestone B, there is an involvement order, but typically, there is not enough safety documentation to gather insight. He recommended that anyone involved in a program ensure the correct system safety documentation gets on contract.

Mr. (b)(6) (AFMC/AFRL)
Mr. (b)(6) briefly described three programs; the Automated Navigation and Guidance Experiment for Local Space (ANGELS), Demonstration and Science eXperiments (DSX) scheduled to launch in 2017, and ESPA Augmented Geosynchronous Laboratory Experiment (EAGLE) scheduled to launch 4QFY16/1QFY17.

Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) reviewed the intent of the executive member updates to the SSC and asked the forum for feedback regarding their usefulness. He requested the SSC members for suggestions regarding chart templates to provide value-added information to the SSC and not just re-iterate

old business or information with no value. The executive slides are purpose driven and building slides with nothing significant to report or that have no information do not meet the intent, nor purpose of this meeting.

Mr. (b)(6) made follow-on comments to Maj Gen Mueller's AFSMS push and asked a number of individuals how they understand and comply with SMS, receiving varying results. He intends to provide a clear direction to the field for everyone to be on the same page and know exactly what is required to comply with AFSMS. Mr. (b)(6) noted that clarifying AFSMS instructions is an ongoing effort within the Safety Center.

Mr. (b)(6) introduced Team Cyber Assure (TCA) innovation and efforts that are currently ongoing at the AFSEC/SES and Pentagon level. He noted Maj (b)(6), Innovation and Development branch chief, is working on a number of items for the field to include adding a 10-day Space Mishap Investigation Course (SMIC), working training slots for classes and the IAASS conference in May. Next, he introduced Lt Col (b)(6), Launch and Range branch chief. Lt Col (b)(6) branch covers the Quad-Agency working group, and clarifies Indemnification Guidance. He continued with discussing the ORS-4 mishap classification that was completed with due diligence. (b)(6) reminded the SSC members of Lt Col (b)(6) serving as both the Deputy and Systems branch chief covering MIL-STD-882E implementation issues. Finally, Mr. (b)(6) introduced the Reservists and Guardsmen performing critical functions within AFSEC/SES's efforts.

Action Item Review

Maj (b)(6) reviewed the status of Action Items from prior SSCs with the council executive members. Table 1 (below) includes the action items that the SSC agreed to close.

Table 1

CLOSED from 4 Aug 15 SSC	OPR/OCR	Suspense	Notes
Aircraft Mishap Investigation Course (AMIC) slots	Mr. (b)(6) Maj (b)(6)	N/A	**CLOSED**
How does the AF track non-Safety and Occupational Health Management (SOHM) professionals?	Mr. (b)(6)	N/A	**CLOSED**
AFI 91-202 Requirements	Lt Col (b)(6)	N/A	**CLOSED**
Strategic Command Instruction 505-4 & AFI 91-217	Maj (b)(6) Mr. (b)(6) Mr. (b)(6)	N/A	**CLOSED**

Table 2 (below) includes a review and update of open action items since the August 2015 SSC.

Table 2

REVIEWED from 4 Aug 15 SSC	OPR/OCR	Suspense	Notes
Executive Member Presentation Review and change presentation requirements for Space Safety Council (SSC) executive member updates	Mr. (b)(6)	Before next SSC	OPEN DRAFT template to accompany Feb minutes
Integrated Product Team (IPT) Form training IPT and develop schedule to update Air Force Space Systems Safety Course including Space, Launch, Operators, Test and Acquisition	Lt Col (b)(6)	Before next SSC	OPEN IPT will develop the course methodology and timeline for course material development
System Safety terminology Investigate and document the various contractual terms utilized in system safety documentation and develop a standardized Contract Data Requirements Listing (CDRLs) for system safety	Lt Col (b)(6) / Mr. (b)(6)	Next SSC	OPEN until AFSPC/SEK and SMC/SE determine path forward
882E tailoring Propose tailored 882E Integrated Product Team (IPT) and outline expected effort	Lt Col (b)(6)	Next SSC	OPEN – recommend having a Mar/Apr 16 workshop
Space Mishap Investigation Course (Update) Look at feasibility of Space Mishap Investigation Course (SMIC) Roadshow. Start a working group to develop course.	Maj (b)(6), Mr. (b)(6), Mr. (b)(6)	Next SSC	OPEN SMIC course number package complete pending funding and signatures. Then submit to AU.
Convening Authority Investigate Convening Authority responsibilities and potential impacts of commander delegation for lower level (class C, D, and E) mishap reporting	Maj (b)(6) /Col Gottrich	Next SSC	OPEN - recommend monitor for AFI 91-204 rewrite
Small Satellite SOP (Standard Operating Procedure) Determine SMC feasibility/resource availability to investigate/pursue technical	Lt Col (b)(6)	Next SSC	OPEN until AFSPC/SE briefs approach to technical options for tracking small satellites

options for tracking small satellites			
AFSAS/ASAP Rewrite quick guide on the Air Force Safety Automated System (AFSAS) and Aviation Safety Action Program (ASAP) website to distribute to Space Safety Representatives	Maj (b)(6) /Mr. (b)(6)	Next SSC	OPEN until AFSAS mobile goes live
AFSAS Formalize the process in AFSAS to include appropriate unclassified information regarding classified incidents	Maj (b)(6) AFSEC/SEA	Next SSC	OPEN- recommend changing definition to clarify how to input in AFSAS a classified report and who to contact for details
Safety Training Review how AF organizations track safety training for identifying mishap investigation trained personnel and report findings	Maj (b)(6)	Next SSC	OPEN until process is formalized

AFI 91-202 Update - Mr. (b)(6) (AFSEC/SEG)
Mr. (b)(6) briefed the update to AFI 91-202 *The US Air Force Mishap Prevention Program*. AFSEC/SEG published the Air Force Guidance Memo (AFGM) 2016-01 on 16 Feb 16 and he is writing an Intermediate Change (IC-1) based on inputs from the MAJCOM&DRU/SE staffs. The estimated publish date is this summer. Mr. (b)(6) stated AFSEC provides a 3-4 week review turn time for MAJCOM/DRUs to consolidate inputs for all packages sent out for coordination.

AFI 91-217 - Big Rocks (Continued) - Lt Col (b)(6) (AFSEC/SES)
Lt Col Braun continued her AFI 91-217, *Space Safety and Mishap Prevention Program* "Big Rock" series. She stated the "Big Rocks" portion is deliberated at every SSC since the 2014 release of AFI 91-217. Lt Col (b)(6) mentioned the need to address fly-back in future revisions. Due to the operational test and evaluations activities happening in the commercial space industry, there is a need to understand how this will affect future Air Force operations. Lt Col (b)(6) mentioned there is a need to identify who will have responsibility for safety issues between reusable vs. staged orbital vehicles. She recapped by stating AFI 91-217 is still a viable and valuable regulation that contains requirements not documented anywhere else. AFSEC/SES Innovation and Development branch will revisit any changes needed during the next re-write or interim change if needed.

AFI 91-204 - Mr. (b)(6) (AFSEC/SEF)
Mr. (b)(6) discussed upcoming changes to AFI 91-204, *Safety Investigations and Reports.* He noted that AFSEC codified AFSMS and the FAA standardized the Safety Management

System. One of the changes he discussed was to enable Air Force personnel to report, and investigate hazards in absence of damage and injury in hopes to prevent mishaps. Through reporting hazards in AFSAS and AFSMS, AFSEC leadership is bringing new tools online to prevent mishaps.

AFMAN 91-222 - Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) briefed the re-write status of AFMAN 91-222 and thanked the SSC members who participated in the working group. The document is through formal 3-letter formal review. Lt Col (b)(6) mentioned there were a number of questions about the alignment with AFI 91-202, AFI 91-204 and other AF Manuals related to safety as well as classification of mishaps and events, and working with contractors/Non-DoD partners rounded out the CRM. Once the adjudication process is over, AFSEC/SES plans to send out a 2-letter review via Task Management Tool (TMT) by Spring 2016 with the final revision staffed soon after.

International Association for the Advancement of Space Safety (IAASS) – Maj (b)(6) (AFSEC/SES)
Maj (b)(6) commented that the IAASS is a non-profit organization dedicated to furthering international cooperation and scientific advancement in the fields of space systems safety and sustainability. Maj (b)(6) reiterated Mr. (b)(6) opening comments as to why the IAASS is important and invited the SSC members to attend the upcoming 8th Annual IAASS Conference at Florida Institute of Technology, Melbourne, Florida in May 2016. .

Policy Roadmap for Small Satellites – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) discussed the history and background as to why this is an issue the SSC tracks. Emerging trends and cost constraints in the 21st century space industry have increased the use of ridesharing, proliferations of small satellites, a large number of new non-traditional entrants (e.g., universities, private entities) and hosted payloads. As this trend continues, the concern is that policy and approval authorities are lagging behind the technological advances. Lt Col (b)(6) discussed the DoD Space and Test program and Air Force Research Laboratory (AFRL) are developing the "policy roadmap" to untangle these issues. She reemphasized that a policy gap does exist and it is not just for small satellites and CubeSats, however the roadmap includes all satellites regardless of size. Ridesharing requires new thinking on certification and approval authorities as well as mission assurance on the "Do No Harm" concept with new insurance carriers for satellites and launch vehicles. Lt Col (b)(6) commented that one of the concerns with implementation of insurance companies and an insurance requirement is this may drive business to seek overseas companies who do not follow the same regulations.

Small Satellite Portfolio – Dr. (b)(6) (AFRL/RVEP)
Dr. (b)(6) works closely w/ the space test program and note Small Satellites provide opportunity and capability to stay one-step ahead of our advisories in space. As technology increases, the ability to develop, procure and launch into space a small satellite rapidly increases the ability to provide to support to the warfighter as well as other mission areas for a fraction of the cost of a large satellite. Dr. (b)(6) mention General Hyten and his comment regarding now is the third revolution of space. New capabilities and reduce cost of small satellites provide greater

capability as technology increases making these capabilities easier and cheaper to utilize to our advantage.

Dr. (b)(6) illustrated how CubeSats can meet the needs of the Air Force. Capabilities such as Planet Labs shoebox size satellites provide great capability in various forms and if placed in groupings can provide a broad and vast picture. With the ability to increase with technology as enabled the small satellite that can provide greater capabilities than the bigger, more expensive brethren of the past can. Dr. (b)(6) also mentioned that objectives met through research performed at AFRL as well as partnerships between AFRL and other government labs, industry and academia.

Dr. (b)(6) noted that AFRL does not follow MIL-STD 882 risk matrices but use their own in-house risk matrix and the AFRL/CC accepts the risk once completed. However, they are working on standing up an office as a repository to provide feedback as to why satellites fail and or to provide accident/mishap reporting so it does not happen again. As a standard, AFRLs local policy is to send all MOAs through the AFRL Safety office for review. Dr. (b)(6) closed by stating it is critically important that implemented safety policies are complaint with the scope of the mission.

Open Discussion

There was a good discussion on including Table Top Exercises (TTXs) for the next in-person SSC.

New Action Item: AFSEC/SES requested executive members along with FAA, NASA, NRO, and NTSB reps provide feedback by 22 Apr 16 on adding an extra day to future in person SSCs to conduct Table Top Exercise(s). Responses need to address organization position and identify any projected funding or travel issues.

Wednesday, 24 Feb 16

MIL-STD-882E Tailoring - Lt Col (b)(6) (AFSEC/SES)

Lt Col (b)(6) discussed MIL-STD-882E, DoD Standard Practice for System Safety, 2012 tailoring. DoDI 5000.02 mandates different levels for the Milestone Decision Authorities (MDA) of Acquisition Category (ACAT) I and ACAT II programs, which are different from risk acceptance authorities in MIL-STD-882E. Lt Col (b)(6) noted the additional disconnect between Space acquisition programs considered non-ACAT (Satellite Test Program (STP) and ORS) receiving direction from DoD leadership do not follow acquisition regulations, and AF guidance that all acquisition efforts are designated ACAT. Because of this disconnect, the program offices receive additional requirements from AF staff. Lt Col (b)(6) invited members of the SSC to participate in a telecom workshop to discuss 882E tailoring. In addition, an effort is underway to identify affected programs to resolve issues. Lt Col (b)(6) also commented about the technical risk accepted by the program office vs the operational risk accepted by the user where there is a gap in the policy and how this affects safety and mission assurance. He noted as the working group members discuss the issues, additional aspects might drive a second workshop to clarify and resolve.

New Action Item: Address what rules non-Acquisition Category (non-ACAT) programs follow in the 882E WG. Clarify the 91-series and DoDI 5000.02 risk acceptance requirements, and develop a process to utilize quantitative numbers in 882E appendix – too many risks end up pegged at "high" and there is no way to differentiate.

Mishaps and Small Satellites Discussion – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) noted that there are different levels of mishap investigation, and that an experimental or risk-tolerant mission does not fall into a full Class A investigation if it fails, and the failure was, to varying extents, expected. The table in AFMAN 91-222 provides guidance on what type of mishap investigation with "expected" failure would be. A low-reliability mission such as SENSE has a higher expectation of failure than SBIRS--a high-reliability mission. A failure of SENSE would be, at most, a Class E event; a failure of SBIRS (which is not expected to fail), would be potentially a Class A. Right now, the guidance lumps them together, and insists that both would be Class A mishaps. She does not think the guidance is right, nor does it reflect what is being done in the field (i.e., SENSE was declared a Class E). She also noted that the space community is unsure why the failure of an experimental satellite is a safety mishap at all. Lt Col (b)(6) notes lessons learned are valuable, and a good idea to investigate failures even on experimental missions, she did not agree it is a safety concern when the only harm done is to the experimental satellite itself. Lt Col (b)(6) closed by stating the action out of the discussion was to revisit the cost thresholds in higher policy and see if they - or some other part of the higher policy – need revision. A $2M cost threshold does not make much sense in space where every mission will exceed that threshold.

ORS Mission Brief – Mr. (b)(6) (SMC/ORS)
Mr. (b)(6) opened his speech by noting the comments made during Lt Col (b)(6) previous brief in regards to the Do No Harm vs. Do Good requirements discussion. There needs to be just as much emphasis placed on risk assessment and mission assurance (MA) as there is with the Do No Harm vs. do-good philosophy. Mr. (b)(6) stated that ORS has a unique challenge in the mission assurance standard. He stressed the importance with the ability to derive a consistent, effective, comprehensive, executable, and endorsed MA process and how to apply that to current and future missions (e.g., ORS-5, ORS-6). One of the main reasons for securing the process is most ORS missions average from $50M to over $100M dollars. Mr. (b)(6) is asking the SSC to provide feedback on the ORS SMA process and participate in upcoming initiatives regarding the MA process with the goal to update the ORS MA process and address weaknesses, deficiencies, and lessons learned.

New Action Item: AFSEC/SES follow up on ORS-5 launch and review of the Space Debris Assessment Report (SDAR) way ahead with appropriate SSC members.

Military Flight Operations Quality Assurance (MFOQA) – Mr. (b)(6) (AFSEC/SEFE)
Mr. (b)(6) briefed the MFOQA program and the main reason is to help identify mishap precursors, implement mitigation strategies, and prevent mishaps rather than reacting to mishaps requiring considerably more resources. Mishap precursors are the same series of hazards (threats and errors) that affect "near-miss" mishaps and not just "actual" mishaps. MFOQA attempts to

focus on identifying these precursors without waiting for a mishap to occur first. One key to successful implementation of MFOQA and any voluntary proactive safety program are establishing a "just culture". Mr. (b)(6) presentation led to further discussion on how easily these processes are to Space Safety expanding and formalizing MFOQA principles appears to be the next logical step in data analysis efforts within Space Command in support of mishap prevention efforts.

Enterprise Ground Systems (EGS) – Lt Col (b)(6) (SMC/ADG)
Lt Col (b)(6) followed up from the MFOQA brief by talking about the Enterprise Ground System (EGS) and the possibilities for a similar MFOQA like capability. EGS provides an infrastructure that allows the Joint Space Operations Center (JSpOC) to have common access to Tracking, Telemetry, and Command (TT&C) data and that EGS is robust enough to handle the new mission's sets as space operations continue to grow. Lt Col (b)(6) noted that this was a key element to realizing Air Force Space Command's System Enterprise Vision for operating in contested space. EGS includes commercial off the shelf hardware and software to reduce the cost to build and sustain. EGS creates a set of government owned standards and interfaces, which host Mission Unique Software elements. New systems and transition legacy systems will take a number of years to accomplish. There is a potential for a capability to build tools, which could ride on the EGS architecture to provide data for a MFOQA style system. SMC/ADG has a limited development funding line (3600 funds), so developing new applications such as the potential MFOQA tool requires customer funds.

New Action Item: Create a working group (AFSEC/SES, SMC/ADE, AFSEC/SEFE), and other SSC participants to discuss a course of action (COA) for a developing an MFOQA-like space capability.

Collision Avoidance (COLA) Gap Analysis Methodologies – Mr. (b)(6) (Aerospace)
Mr. (b)(6) opened up with a background on the time between the ends of standard launch COLA and the start of on-orbit COLA known as "COLA Gap". He provided a summary of the known existing analysis methods for mitigating the COLA gap to include nodal separation, screening volume + nodal separation, probability-based model using kernel density estimation (all Aerospace methods), radial and argument of latitude separation method. The COLA Gap analysis is a big deal at Air Force ranges, but ORS-4 launched from a Navy range. Mr. (b)(6) also noted the risk assumer in this process for the upper stage is the Launch Decision Authority (LDA). One of the questions posed is for satellites deployed from launch vehicles, should the risk assumer be the LDA until the 36- hour COLA gap is completed? In summary, Mr. (b)(6) recommended that COLA gap requirements formulate to utilize any of the methods available from his brief and each of the practices for COLA are industry best practices.

COLA Discussion – Ms. (b)(6) (HQ AFSPC/SEK)
Ms. (b)(6) presented changes to the Range Commander's Council (RCC) Standard 321-2010 and how the FAA, NASA, both AF ranges, Navy and associated contactors support the RCC. The RCC 321's current version is from 2010 and is under revision. Ms. (b)(6) highlighted differences between the AFI 91-217 requirements and RCC 321. She noted the launch safety communities desire to align RCC 321 and AFI 91-217 requirements.

New Action Item: Create an AFI 91-217 working group (WG) with SSC participants to look at collision avoidance (COLA) gap analysis, RCC standards, JSpOC memo, etc.

Falcon Mishap Observer Outbrief – Mr. (b)(6) (AFSPC/SEK)
Mr. (b)(6) informed the SSC members on the Falcon mishap to generate discussion regarding AFSPCs observer role in FAA-licensed launch mishaps. He shared many observations and lessons learned from his recent experience.

Maj Gen Mueller indicated that AFSEC shall be the single source of information for coordination of USAF observers to FAA/NTSB/NASA investigation boards. However, coordination with the lead MAJCOM/DRU is crucial as they will provide subject matter expertise and in most cases, act as lead agency.

New Action Item: Review the 2004 MOU between the AF, NTSB, and FAA on observer roles, and coordinate with AF/SE and SAF/IE. This is a push to standardize the roles of the Chief of Safety and the roles of the Air Force Safety Center. AFSEC will become a conduit between the MAJCOM and the investigative agency.

New Action Item: AFSEC/SES follow-up with FAA to clarify Commercial Mishap Response Plan requirements and identify/close any gaps in Falcon 9 mishap plan(s) by May 2016.

Air Force Safety Management System (AFSMS) – MSgt (b)(6) (AFSEC/SES)
MSgt (b)(6) provided the Space Safety Community an overview of the Air Force Safety Management System, the four pillars, and the characteristics of safety culture in the Air Force. The main purpose was Risk Management Prevention Program and minimizing loss of AF resources, to prevent personnel from death, injury or occupation illness and managing risk on and off duty. He noted that AFSMS requires annual reviews according to AFI 91-202, attachment 17. However, MSgt (b)(6) said there is a need for clarification regarding the annual review. It is unclear of what exactly is required, when it is required, who receives it, and where to post it. Mr. (b)(6) queried the executive members regarding their processes and the results were not uniform on how everyone was accomplishing the annual requirements. He commented on MSgt (b)(6) previous statement about the questions from the field on who, what, when, where, why and how to complete this requirement. AFSMS should provide senior leaders with a clear picture of the safety program effectiveness and the wing Chief of Safety provides a brief to their commander on the results of the annual AFSMS Management Review. Maj Gen Mueller made reminded the SSC members of the need to review all safety waivers and if the waivers do not get attention, they become useless. Some commanders do not know what risks accepted at lower levels, and the lower levels do not see the cumulative risk that arises out of the lower-level decisions. MSgt (b)(6) closed by making note the Air Force Safety Management System is the engine and modus operandi for AF Risk Management prevention program, to establish policy, practice RM and provides a means for continuous improvement through Assurance and promotion.

Space Mishap Investigation Course (SMIC) – Maj (b)(6) (AFSPC/SES)

Maj (b)(6) briefly reviewed his continuing progress on getting Air University (AU) to approve a Space Mishap Investigation Course. He noted that Aircraft Mishap Investigation Course (AMIC) is continually full and hard to get a seat for space professionals. Maj (b)(6) queried the SSC executive council regarding how many students each area could provide when SMIC was established. Resounding responses from the attendees agreed they could fill the requested seats if a class was coordinated and approved. However, a question of what is the possibility about a making a traveling SMIC roadshow/class was presented to Maj (b)(6). Maj (b)(6) took this for consideration and made final note that he would continue to work with AU to get the course approved first and then work with the field to provide the necessary training.

Action Item Taken: AFSEC/SES Innovation and Development branch chief will continue to pursue a Space Mishap Investigation Course (SMIC) course number, and look at options for a roadshow. This action item will encompass the existing SMIC action item.

New Action Item Review - Maj (b)(6) (AFSEC/SES)

NEW from 24 Feb 16 SSC	OPR/OCR	Suspense	Notes
Identify ACAT/Non-ACAT rules& gaps for Space Program Offices; Clarify the 91-series and DoDI 5000.02 risk acceptance requirements; Develop a process to utilize quantitative numbers in 882E appendix	Lt Col (b)(6)	Next SSC	OPEN
Create working group discussing COA for a developing an MFOQA-like space capability	Maj (b)(6) / Ms. (b)(6)	Next SSC	OPEN
Create working group to review collision avoidance (COLA) gap analysis requirements within AFI 91-217, RCC standards, and JSpOC policy	Maj (b)(6) / Ms. (b)(6)	Next SSC	OPEN
Collect TTX Feedback from Executive Members, FAA, NASA, NRO, and NTSB reps - send inputs w/in 60 days to Maj (b)(6)	Maj (b)(6)	22 Apr 16	OPEN
Follow-up ORS-5/SDAR way ahead	Lt Col (b)(6)	Next SSC	OPEN
Clarify Commercial Mishap Response Plan requirements and identify/close any gaps identified in Falcon 9 mishap plan	Lt Col (b)(6)	May 2016	OPEN
Review the 2004 MOU between the AF, NTSB, and FAA and	Maj (b)(6)	Next SSC	OPEN

codify AFSEC's role as the tasking conduit between the MAJCOM and the investigative agency			

Closing Remarks – Mr. (b)(6) (AFSEC/SES)
Mr. (b)(6) thanked everyone's participation and thought this council was a "leap forward" from previous ones based on the increased efforts of administrative support, attendee participation, and positive progress to support the field. He asked the field to provide feedback to the council and include inputs on "out of date" regulations so AFSEC/SES can update policy with an Air Force Guidance Memorandums (AFGM), or Interim Changes (IC).

Closing Remarks – Maj Gen Andrew Mueller (AF/SE)
Maj Gen Mueller thought the SSC included valuable discussion and feedback. He mentioned that safety is 90% pro-active and 5% re-active and add value to a successful safety program. AFSEC works hard on the 95% so we are ready to go when called upon.

Final briefings are available on AFSEC SharePoint.

3/19/2016

(b)(6)
GS-15, DAF
Air Force Chief of Space Safety
Signed by: (b)(6)

Attachment:
Attendance Roster

Distribution:
SSC Attendees

23-24 Feb 16 SSC Attendance list		
Rank/Grade	**Name**	**Office Symbol**
Maj Gen	Andrew Mueller	AF/SE
GS-15 (Chair/Executive member)	(b)(6)	AFSEC/SES
Col (Vice-Chair/Executive member)	Clark Risner	AFSPC/SE
Mr. (Executive member)	(b)(6)	AFRL/SE
GS-13 (Executive member)	(b)(6)	AFOTEC/SEF
Col	Dan Gottrich	45 SW/SE
GG-15	(b)(6)	SMC/SE
Dr.		AFRL/RVEP
GS-15		AFSEC/SEG
GS-15		AFSEC/SEF
GS-15		ORS Office
GS-14		AFSEC/SEF
GS-14		30 SW/SEL
GS-14		AFSEC/SEGS
Mr.		NASA
Mr.		FAA/AST
Ms.		NTSB
GS-14		14 AF/SE
GG-14		SMC/ADE
GS-14		AFSEC/SEFE
GG-14		SMC/ENC
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSPC/SEK
Lt Col		SMC/SYE
Lt Col		SMC/ADG
Lt Col		AFSEC/SES
Maj		AFSEC/SES
Maj		AFSEC/SES
Maj		AFSEC/SES
GS-13		AFSPC/SEK
GS-13		AFSPC/SEK
GS-13		AFSPC/SEK
GS-13		50 SW/SES
GG-13		SMC/ADEE
GG-13		SMC/GPEIY
GS-12		SMC/LEX
GG-12	(b)(6)	SMC/ENC

2d Lt	(b)(6)	SMC/LEX
MSgt		AFSEC/SES
Mr.		AFRL DET 8/SE
Mr.		AFSPC/SEK
Mr.		Aerospace/OSL
Mr.		AFRL Det 8/SE
Mr.		DCMA
Mr.		Aerospace
Ms.		Aerospace
Ms.		SMC/LEE
Mr.		SMC/SY
Mr.		AFRL/RDMW
Mr.		SMC/SES

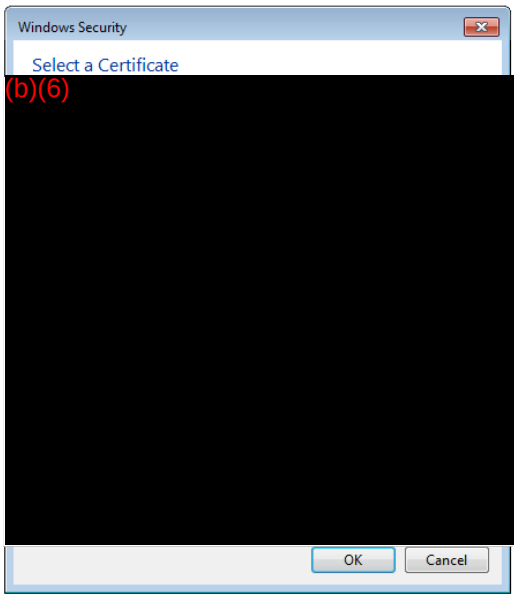
SPACE SAFETY COUNCIL (SSC) TELECON

Air Force Safety Center (AFSEC) Bldg. 24499
9700 G Avenue SE
Kirtland AFB, NM 87117

23 August 2016

OVERVIEW INFORMATION

- **All times are local (Mountain Standard Time)**
- **Meet Me line (505) 853-7725**
- DCS link: https://conference.apps.mil/webconf/49c988edc98177f1079c334018874e6a
- You will need to select your **DOD EMAIL** certificate, highlighted in blue below.



- If the link If the link does not work, please copy and paste the DCS URL above into your web browser to request access to the SSC. Fill in your first and last name, and organization to join the web conference.
- For locals, all events will be held in the Enola Gay Conference Room, at AFSEC.

▪ Contact Information / AFSEC/SES link

Maj (b)(6)

AFSEC/SES site: http://www.afsec.af.mil/spacesafetydivision/index.asp

Tuesday, 23 August 2016

Time	*Topic*	*POC*	*Synopsis*
0750-0800	Administration	Maj (b)(6), AFSEC/SES	DCS set up at 0730
0800-0815	HQ AFSEC/SES Welcoming comments	Mr. (b)(6), AFSEC/SES	SSC Charter
0815-0830	AFSPC/SE comments	Col Clark Risner, AFSPC/SE	
0830-0845	DMSP Space SIB lessons learned	Maj (b)(6)	Non privilege discussion
0845-0855	AFMAN 91-222 update	Lt Col (b)(6), AFSEC/SES	Goal: SSC understanding of changes and what is remaining the same.
0855-0905	AFI 91-217 IC	Lt Col (b)(6)	
0905-1000	Action Item Review	MSgt (b)(6), AFSEC/SES	Review Feb minutes and Executive members will vote on 8 recommended closed items.
1000-1045	Open discussion – concerns from field; Table Top Exercise (TTX) ~extra day on TDY's at next in-person SSC	Maj (b)(6)	location of next SSC ~Feb/Mar/Apr 17? If TTX then present SMIC Roadshow vision.
1045-1100	Wrap-up – End of Day	Col Risner and Mr. (b)(6)	

Attendee list:

Rank/Grade	Name	Office Symbol
GS-15 (Chair/Executive member)	(b)(6)	AFSEC/SES
Col (Vice-Chair/Executive member)	Clark Risner	AFSPC/SE
Mr. (Executive member)	(b)(6)	AFRL/SE
GS-13 (Executive member)	(b)(6)	AFOTEC/SEW
Col	Michael Wulfestieg	30 SW/SE
Col	Dan Gottrich	45 SW/SE
Ms.	(b)(6)	NTSB
Mr.		NASA
Ms.		NASA
Mr.		NASA
Mr.		NASA
Mr.		FAA
Mr.		BAH
Mr.		FAA/AST
GS-14		14 AF/SE
GS-14		30 SW/SEL
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
GG-13		SMC/EN
GG-14		SMC/LRG
GG-14		SMC/ADE
Maj		AFSEC/SES
Maj		310 SW/SE
Maj		AFSEC/SES
Mr.		SMC/RNN
GG-13		SMC/LRE
Mr.		AFSPC/SEW
Mr.		NRO
GS-13		SMC/LEX
GS-13		30 SW/SELF
MSgt		AFSEC/SES
GS-11		21 SW/SEF
GG-14		SMC/ENC
Mr.		AFRL DET 8/SE
GS-13		50 SW/SE
Mr.		SMC/ORS
Ms.		BAH
Mr.		JFCC SPACE/SMC/ORS
GG-13		SMC/GPEY
Mr.		SMC/GPE
Mr.		SAF-AQ

Lt Col	(b)(6)		460 SW/COS
Mr.			AFRL/RMDW
TSgt			4 SPCS/21SW/SES

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

15 Sep 16

MEMORANDUM FOR (SEE DISTRIBUTION)

FROM: HQ AFSEC/SES

SUBJECT: 23 Aug 16 Space Safety Council (SSC) Minutes

Attendees/Representatives: (see attached "Attendance Roster")

Air Force Safety Center, Space Safety Division (AFSEC/SES) provided a telecom bridge and Defense Collaboration Services (DCS) for remote participants of the SSC.

Welcoming Comments – Mr. (b)(6) (AFSEC/SES)
(b)(6) welcomed the participants and reminded everyone "We exist for you!" He highlighted the intent of this SSC was to review the action items and other topics important to all of you in the field. He encouraged us to have a successful SSC and went on to emphasize the need for codification and to work with others to accomplish the mission. He went on to mention that the need exists for honest, candid, and constructive feedback. This feedback makes the SSC a value added council that provides responses to the field's questions and concerns, and presents the Space Safety community's voice at the Senior Safety Advisory Council (SSAC), which is typically a month away. (b)(6) thanked everyone for being the leading edge in the Space Safety community and covered his position as the co-chair for the International Association for the Advancement of Space Safety (IAASS). Furthermore, He noted the Air Force Safety Center combined with the Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), and the National Aeronautics and Space Administration (NASA) form the Quad Agency Working Group (QAWG) for standardizing accident investigations across the board. (b)(6) thanked everyone again for attending the SSC.

Air Force Space Command (AFSPC) – Col Clark Risner (AFSPC/SE)
Col Risner joined the conversation and welcomed/thanked everyone for his or her participation at this year's SSC. He encouraged everyone not be be a silent voice today and "pipe up" if you have questions. Lastly, he reminded us that consensus is important and do not assume that silence implies consensus.

Defense Meteorological Satellite Program (DMSP) Lessons Learned – Maj (b)(6) (AFSEC/SES)
Maj (b)(6) led a non-privilege discussion on his recent experience as an Air Force Safety Center (AFSEC) representative on the DMSP Class A mishap. Maj (b)(6) covered the Safety Investigation Board (SIB) composition and delineated between voting and non-voting members, timelines (mishap declared on 17 Mar and ended with a convening authority (CA) out brief on 20 Jun). He went over tailoring interview questions based on roles, transcription challenges, additional briefings to SMC/CC and 14 AF/CC, and the need for Microsoft Visio software

access. He went over an Air Force Safety Automated System (AFSAS) issue with the drop-down menu. The problem was if selecting "damaged" AFSAS treats the report as a Class E and doesn't enable all of the fields for a Class A report. Maj (b)(6) has worked this issue and provided feedback to AFSEC/SEAR. Maj Souders will make the "Space Mishap Guide" available on the AFSEC/SES SharePoint site.

AFMAN 91-222 Update – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) reported on the formal review effort. The formal review effort to replace AFMAN 91-222, 9 August 2005 started in April 2015 after a yearlong working group effort. AFSEC/SES received over 150 comments from the July-August 2-letter coordination. Working through all of the comments, with plans to finish adjudication in the coming week. AFSEC will support additional discussions with the field.

AFI 91-217 Interim Change Update – Lt Col (b)(6) (AFSEC/SES)
Lt Col (b)(6) mentioned a 217 working group was established to identify the content for the Interim Change (IC). The group met several times and assembled the draft IC. The draft IC went out for 3-letter coordination in Jun 16. Ninety-six comments were received, with three critical by 1 Aug 16. The goal is to finish adjudicating all three letter coordination comments by 1 Sep 16. Once 3-letter adjudication is complete, staffing of the document with an adjudicated comment Recommendation matrix (CRM) for two letter and final coordination.

Action Item Review – MSgt (b)(6) (AFSEC/SES)
MSgt (b)(6) reviewed the status of Action Items from the prior SSC with the council executive members. Table 1 (below) includes the action items that the SSC agreed to close.

Table 1

CLOSED Action Items from the 23 Aug 16 SSC	OPR/OCR	Suspense	Notes
System Safety Terminology Investigate and document the various contractual terms utilized in system safety documentation and develop a standardized list of CDRLs for systems safety.	Lt Col (b)(6)	N/A	**CLOSED**
ACAT/non-ACAT, WG development Determine System Safety policy requirements for program offices designated "Non-ACAT".	Lt Col (b)(6) / Ms. (b)(6) & Mr. (b)(6)	N/A	**CLOSED**

CLOSED 23 Aug 16 SSC	OPR/OCR	Suspense	Notes
Convening Authority Investigate CA delegation.	Maj (b)(6) /Col Gottrich	N/A	**CLOSED**
AFSAS/ASAP Rewrite quick guide on the Airmen Safety Action Program (ASAP) app to distribute to Space Safety Representatives.	MSgt (b)(6)	N/A	**CLOSED** Present at next in person SSC
COLA, 91-217 analysis Analyze Collision Avoidance (COLA) requirements and update AFI 91-217 accordingly.	Lt Col (b)(6)	N/A	**CLOSED**
Commercial DoD/EOD gaps Verify with the FAA that there is not a gap in procedures for utilizing 45 SW EOD resources for a commercial space launch mishap.	Lt Col (b)(6)	N/A	**CLOSED**
Chief of Safety MOU assessment Review the 2004 MOU between the Department of the Air Force, National Transportation Safety Board (NTSB), and Federal Aviation Administration (FAA) on observer roles.	Maj (b)(6)	N/A	**CLOSED**
Table Top Exercise (TTX) possibilities Request executive members along with the FAA, NASA, NRO, and NTSB reps to provide feedback on adding an extra day to future in person SSC's in order to allow enough time for properly conduct a TTX, working through one, and gathering feedback.	Maj (b)(6)	N/A	**CLOSED**

Table 2 (below) includes a review and update of open action items since the Aug 16 SSC.
Table 2

OPEN Action Items from the 23 Aug 16 SSC	OPR/OCR	Suspense	Notes
Executive Member Presentation Review/modify presentation requirements for SSC updates.	Mr. (b)(6)	Next SSC	**OPEN**
IPT Form training Integrated Product Team (IPT) and develop schedule to update Air Force Space System Safety Course including Space, Launch, Operators, Test, and Acquisition.	Maj (b)(6) /Lt Col (b)(6)	Next SSC	**OPEN**
882E tailoring Propose tailored 882E IPT and outline expected effort.	Lt Col (b)(6)	Next SSC	**OPEN** Recommendation, closing per Mr. (b)(6) , OPEN new AI. Mr. (b)(6) , DCMA offered his assistance.
SMIC Roadshow Submit course number documents to AU for Space Mishap Investigation Course (SMIC).	Maj (b)(6)	Next SSC	**OPEN** Recommend clarification on how the course is funded and provide update at next in person SSC.
SMC/AD Database Development Create a working group (AFSEC/SES, SMC/ADE, SMC/ADG, AFSEC/SEFE), and others if required to discuss if developing a Military Space Operations Quality Assurance (MSOQA) program makes sense.	Maj (b)(6)	Next SSC	**OPEN** Mr. (b)(6) clarified AI, need to determine if necessary or not. Brief at next in person SSC.
SMALL SAT SOP Determine SMC feasibility/resource availability to investigate/pursue technical options for tracking small	Lt Col (b)(6)	Next SSC	**OPEN** Establish WG to include all OCR's, plus Dr. (b)(6) & Dr. (b)(6) ,

satellites.			& any others as applicable; Develop SOP COAs.
AFSAS Classified Incidents A need exists to record, store, and access classified mishap data; however, AFSAS is too expensive to create & maintain this capability.	MSgt (b)(6) & Ms. (b)(6) /Mr. (b)(6)	Next SSC	**OPEN** Until process is formalized.
Safety Training Tracker Review how AF organizations track safety training for mishap investigation personnel and report findings.	Ms. (b)(6) /Mr. (b)(6)	Next SSC	O**PEN**
Follow up on ORS-5, SDAR AFSEC/SES follow up on ORS-5 launch and review of the Space Debris Assessment Report (SDAR) way ahead with appropriate SSC members.	Lt Col (b)(6)	Next SSC	**OPEN**

Open Discussion to address concerns from the field – Maj (b)(6) (AFSEC/SES)
Maj (b)(6) kicked this off and (b)(6) immediately "chimed in" and highly encouraged the field to use this opportunity to voice any concerns. Mr. (b)(6) asked for the 18th SCS briefing and (b)(6) stated that (b)(6) has it on his to-do-list. Col Gottrich then spoke and asked the question: "Are we postured correctly in terms of AFIs and policies to handle future commercial space launches?" The reason he mentioned this was to propose we discuss this at the next SSC. (b)(6) responded by stating that the QAWG is also in the process of discussing this, Memorandum of Understandings (MOUs), and other inter-agencies concerns. He went on to say that, this is a great topic to put on the agenda for the next SSC and thanked him for mentioning it.

Ms. (b)(6), SMC/SES, asked about indemnification. She stated she was not clear on how all this works. (b)(6) tasked Maj (b)(6) to include indemnification as a topic for the next SSC. (b)(6) mentioned that we (HQ AFSEC) do not own that document; however, we influence it. Questions were asked as to who owns it, and (b)(6) replied that the acquisition (AQ) community owns it (specifically SAF/AQ).

Closing Remarks – Col Clark Risner (AFSPC/SE)
Col Risner thanked everyone for their participation today and liked the discussions. He also mentioned that the AFSPC FY17 Aircraft Mishap Investigation Course (AMIC) slots are being scheduled and to please respond to by 8 Sep 16.

Closing Remarks – Mr. (b)(6) (AFSEC/SES)

(b)(6) encouraged everyone to contact him directly anytime and the Space Safety Division needs to respond to you in a timely manner. He reminded all participants that we would post relative pamphlets and guides on the AFSEC/SES SharePoint site. In lieu on pushing e-mails, (b)(6) highly encouraged all participants to start forming the muscle memory to check the AFSEC/SES website from time-to-time for the pertinent information. The intent is for the site to be a "one-stop-shop". The URL is http://www.afsec.af.mil/spacesafetydivision/index.asp. He reminded us that the Space Safety Division here at the Air Force Safety Center is only 3 years old and having said that, at the time, many of the Space Safety related documents were out of date. (b)(6) reassured those on the telecom that the goal of him and his staff is to keep all documents current and get the new guidance out as soon as possible. Speaking of that, he mentioned that his staff often gets a lot of input; however, it may not always be possible to adjudicate all comments and that we have to speak on behalf of the entire AF. We will listen to everyone and do what is best for the entire AF. Lastly, (b)(6) reiterated that we need to be more responsive to the field and he highly encouraged all participants to contact us via phone, e-mail, or website anytime.

(b)(6) encouraged participants to utilize the "SUGGESTIONS/COMMENTS" link within the AFSEC/SES website as well at: https://afsec.usaf.afpims.mil/Divisions/Space-Safety-Division

Mr. (b)(6) thanked everyone again and officially closed the telecom.

Final briefings available on AFSEC SharePoint

(b)(6)

Director, Air Force Space Safety

Attachment:
Attendance Roster

DISTRIBUTION: SSC Attendees (see attached attendance roster)
SSC Attendees

23 Aug 16 SSC Attendance Roster		
Rank/Grade	**Name**	**Office Symbol**
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GG-15		SMC/SE
Lt Col		AFSPC/SEK
Lt Col		USAFA/SE
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		AFSEC/SES
Lt Col		50 SW/SE
GS-14		14 AF/SE
GS-14		AFSPC 30 SW/SEL
GG-14		SMC/ENC
GS-14		18 SPCS
Maj		AFSEC/SES
Maj		AFRC 310 SW/SE
Maj		AFSEC/SES
Mr.		AFSPC SMC/RNN
Mr.		NRO
GS-13		30 SW
MSgt		AFSEC/SES
GS-11		21 SW/SEF
Mr.		AFRL DET 8/SE
GS-13		50 SW/SE
Mr.		USARMY SMC/ORS
Ms.		Booz Allen Hamilton
GG-13		SMC/GPEY
Mr.		SMC/GPE
Mr.		SAF-AQRE
Mr.		AFRL/RMDW
TSgt		4 SPCS/21SW/SES
GG-11		SMC/ENC
GS-12		SMC/RNLE

GG-13	(b)(6)		SMC/ENC
Mr.			SMC/SY
Mr.			NASA Safety Center
Capt			460 SW/SE
Mr.			AFRL Det 8/SE
Mr.			Booz Allen Hamilton
GS-13			AFSPC/SEK
GS-13			AFSPC/SEK
Mr.			AFSPC/SEK
Mr.			SMC/LEE
Mr.			Army Safety Center
GG-13			AFSPC SMC/ENC
Mr.			AFSEC/SEG
Ms.			SMC/SES
Mr.			Northrop Grumman
Mr.			SMC/ENC
Mr.			DCMA
Ms.			18 SPCS/DOU
GG-13			SMC/SES
NH-03			AFLCMC/HBQC
Mr.			Booz Allen Hamilton
Mr.			SMC/RN