

COE CST 2012

ANNUAL TECHNICAL MEETING:

Task 220:

Integrate into the Spaceport Operations Framework Applicable Documents & Relevant Materials; Enable Documents to Be Found by Title, Subject, Or Keyword; Assure Copyright Protections.

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**Federal Aviation
Administration**



Overview

- Team Members
- Purpose of Task 1 & Survey Results
- Purpose of Current Task 2 – Integrate into the Spaceport Operations Framework Applicable Documents & Relevant Materials; Enable Documents to Be Found by Title, Subject, Or Keyword; Assure Copyright Protections.
 - Implementation of a Document Management System including Development & Implementation of DMS Parameters & Data Fields
 - Documents added to the Body of Knowledge DMS Database
- Access the Body of Knowledge Database & Beta Test
- Next Step Task 3 – Gap Analysis
- COE CST Study Team Web Site

Team Members

- **Pat Hynes**, Principal Investigator, New Mexico State University
- **Herb Bachner**, HBachner & Associates
- **Jim Hayhoe**, Spaceport America Consultants
- **Paul Arthur**, Rear Admiral (Retired), Former Technical Director/Deputy Commander, White Sands Missile Range
- **Craig Day**, Director, Business Development, AIAA
- **Robert Reuter**, Project Manager, The Boeing Company
- **Bill Gutman**, Chief Technical Officer, Spaceport America
- **Lou Gomez**, Program Manager, Spaceport America
- **David Headley**, Program Strategic Planning, The Boeing Company
- **Sandy Saunders**, Vice President Operations, Locked On, Inc.
- **Norice Lee**, Associate Dean, Library, NMSU
- **Ingrid Schneider**, [Metadata & Authority Control Librarian](#), Library, NMSU
- **Hank Strevel**, Graduate Intern, Dept. of Government, NMSU
- **Jacob Deaven**, Former Graduate Intern, Dept. of Government, NMSU

Purpose of Task 1

Task 1: Develop a Framework - Completed

Prepare the framework in collaboration with spaceport directors

- Project began in February, 2011
- Held Public meeting to discuss framework variables
- Updated framework variables to account for public input
- Surveyed 100% of FAA licensed Spaceport Executive Directors & 5 Federal range operators w Range Commanders Council

Survey Results – Sample

5	GROUND & FLIGHT SAFETY	Include	Do Not Include	Not in This Topic
5.1	Safety Policy	100%	0%	0%
5.2	Safety Management System	75%	25%	0%
5.2.1	Safety Risk Management	78%	22%	0%
5.2.2	Safety Promotion	67%	33%	0%
5.2.3	Safety Assurance	78%	22%	0%
5.3	Ground Safety	100%	0%	0%
5.3.1	Runway Safety	78%	22%	0%
5.3.2	Safety of the General Public	78%	22%	0%
5.3.3	Motor Vehicle Safety	56%	33%	11%
5.3.4	Fuel Safety	67%	22%	11%
5.3.6	FAA Launch Site License Requirements	89%	11%	0%
5.4	Flight Safety	78%	22%	0%
5.4.1	Mission Planning & Flight Analysis	63%	37%	0%
5.4.1.1	Development & Coordination of the Mission Plan	67%	33%	0%
5.4.1.2	Air Traffic Coordination	56%	33%	11%

Purpose of Current Task

Task 2: Integrate into the Spaceport Operations Framework Applicable Documents & Relevant Materials; Enable Documents to Be Found by Title, Subject, Or Keyword; Assure Copyright Protections.

- In progress

- Began work January 2012
- The FAA determined that Section 5 (Ground & Flight Safety) should be our first priority

Research Methodology—Document Management

- Problem:
 - Initial document estimate on Section 5 of the Framework: >1,000 documents
 - Government & Commercial Documents

Research Methodology—Document Management Cont'd

- Proposed Solution:
 - Analyze an initial target sample of 45 documents:
 - Review for applicability
 - Map into Framework established in Task 1

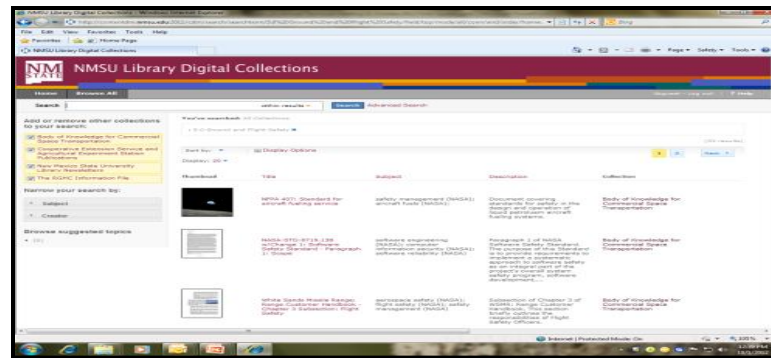
Research Methodology—Document Management Cont'd

- Labs/Facilities:
 - NMSU Library Digital Library selected to develop the DMS
 - NMSU Library licenses/utilizes CONTENTdm system that facilitates storage, management, & delivery of digitized documents & collections to users across the web.
 - Body of Knowledge (BoK) Database has secure access & easily updated.
 - Working Group determined parameters & data fields for DMS.
 - Procedure for document data extraction defined & implemented

Results

Current Status:

- Defined approach for capturing safety requirements
 - Defined what is in the “family” of commercial spaceport safety documents & what is not. Accepted that some documents used by Federal Ranges (NASA & Air Force) may be useful in a “family” of commercial spaceport safety documents.
 - Clarified/defined the criteria for Spaceport Operator & Spaceport User. A Spaceport User may include a launch operator, a payload developer, a payload operator or funding provider.



Results Cont'd

- Reviewed copyright requirements & developed letters requesting the use of on-line documents by the Spaceport working group in the establishment of the Body of Knowledge (BoK).
 - Currently 45 documents have been inserted into the DMS
 - Multiple document sources reviewed (NASA, AF, FAA, WSMR, NFPA)
- DMS has been Beta Tested by peers

Results Cont'd: Sample of Documents Added to Body of Knowledge (BoK)

- Air Force Space Command Manual 91-710 Range Safety User Requirements [USAF]
- NASA-STD-8719.12 : Safety standards for explosives, propellants, & pyrotechnics [NASA – JSC]
- NASA-STD-8719.13B NASA technical standard: Software Safety Standard [NASA]
- National Fire Protection Association 407 Standard for Aircraft Fueling Service [NFPA]
- NFPA 495: Explosives materials code [NFPA]
- NPD 8700.1E NASA policy for safety & mission success [NASA]
- NPR 8705.5A Technical probabilistic risk assessment (PRA) procedures for safety & mission success for NASA programs & projects [NASA – JSC]
- NPR 8715.3C NASA General Safety Program Requirements [NASA - JSC]
- NPR8715.5A Range flight safety program [NASA]
- United Facilities Criteria (UFC) 3-575-01: Lightning & static electricity protection systems [DoD]
- White Sands Missile Range: Range Customer Handbook [WSMR]
- Guide to reusable launch & reentry vehicle software & computing system safety [FAA]

Results cont'd: Access the Body of Knowledge (BoK) Database

- **ACCESS** the URL: <http://contentdm.nmsu.edu>

- **LOGIN:**

 - USERNAME: libguest

 - PASSWORD: libguest23

- **REFRESH** the page (or it won't load the BoK information)

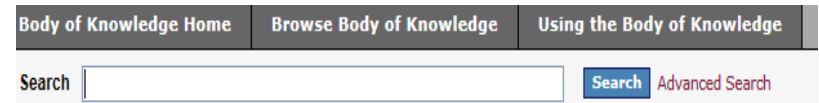
- **CLICK** on the link:

Body of Knowledge for Commercial Space Transportation

Beta Test—Next Step

One you have logged in, please complete the following five (5) tasks:

1. Please scroll through & read “Using the Body of Knowledge,” the link for which found at the top left, third tab from the left. This document provides an overview of how the collection works. Some users may find it helpful to print the document & keep a copy on hand as they work through the beta.



2. Briefly describe how to remove a term or keyword from a search parameter.
3. Please find the 2nd chapter of NPR 8715.3C NASA General Safety Program Requirements, & determine the document’s date of expiration.
4. Please search for all documents that contain the keyword “fire” & are in Framework Category 5.3 Ground Safety. How many are there?
5. Please search for all the documents that originate from the United States Air Force. How many are there?

Summary

- Integrated Spaceport Operations Framework, applicable documents, & relevant material
- Enabled documents to be found by title, subject, or keyword
- Assured copyright protections
- Evaluated 45 documents
- Established a process
- University Library perfect for:
 - Size of this task
 - Management of updates
 - Copyright protection
 - Searchable user-friendly database in common use across most university libraries
 - Workforce development will be required
 - Easily accessed user-friendly database is essential

Next Steps

Next 3 Sections to Be Parsed into the Body of Knowledge (BoK):

- Section 1.0 – **Airfield & Launch Operations**
 - There will be plenty of source documents across subsections 1.1, 1.2, & 1.3
 - NASA, FAA, Military, & Commercial
 - This is the main area that Spaceport America is working on developing procedures for through a contractor

Next Steps Cont'd

- Section 8.0 – ITAR Requirements
 - “Low hanging fruit” for small list of source documents
 - Having the Virgin Galactic Export Control resident here in Southern New Mexico should expedite filling out this section
 - Recent panel at ISPCS 2012 provided insight

Next Steps Cont'd

- Section 9.0 – **International Coordination among Spaceports**
 - New Mexico Space Grant Consortium has an excellent relationship among the Swedish & French launch sites
 - Sub-sections 9.1 & 9.2 are very specific & narrow topics