# 4th Transition Risk TIM

August 28, 2009

# Agenda

(All Times Eastern)

| | | |
|---|---|---|
| 0900-0915 | Augustine Impact on Transition (PA&E/Mike Hawes) | |
| 0915--0930 | SOMD / ESMD Transition Update (Joel Kearns / Bob Soltess) | |
| 0930--0950 | ESMD Transition Risks (Bob Soltess / Ted Bujewski / Dave Lengyel) | |
| 0950--1015 | I&A (HQ) Transition Risks (Rich Wickman / Bob Sherouse) | |
| 1015--1045 | CxP Transition Risks (Michael Baugh) | |
| 1045--1055 | C3PO Transition Risks (Mark Erminger) | |
| 1055--1110 | ISS Transition Risks (Carol Grunsfeld/Ryan Rushing) | |
| 1110--1120 | HRP Transition Risks (Liz Bauer) | |
| 1120--1150 | SSP Transition Risks (Dorothy Rasco) | |
| 1150--1200 | KSC Transition Risks (Kelly Gorman) | |
| 1200--1210 | SSC Transition Risks (Buddy Newbold) | |
| 1210--1225 | MSFC Transition Risks (Elliot/Glover/Jones) | |
| 1225-1245 | JSC Transition Risks (Scott Field) | |
| 1245-1250 | OSMA Transition Risk Assessment (Richard Fullerton) | |
| 1250--1300 | Wrap-up / Actions | All |

# Transition Risk TIM # 4

Themes for this Review

Enhanced Horizontal Integration

The Big Four Transition Risk Categories – An ESMD Perspective

- Human Capital/Civil Servant and Contractor
- Sites (MAF, WSTF) and Facilities
- Personal Property
- Supply Chain/Industrial Base

Risk Management in Unsettled Times – Are We Ready to Respond?

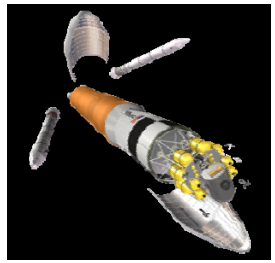

**Shuttle**


**ISS**


**COTS**


**Ares I**


**Orion**


**Ares V**

**Focus is on Horizontal Integration across the Agency**

# Transition Risk TIM # 4

Questions We Need to Answer At the Completion of this Review

Have We Captured all of the Key Transition Risks ?

Have We Assessed the Risks Properly and Consistently ?

Have We Put in Place Solid Mitigation Plans incl. Cost Impacts ?

Are our Burn Down Plans Logical and Reasonable ?

Are We Communicating our Risks Across Programs / Centers?

Are Our Systems Capable of Adjusting to Future Changes Effectively ?

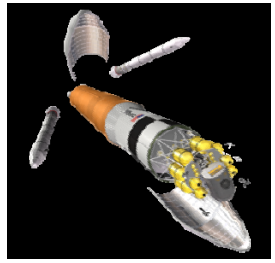
**Shuttle**

**ISS**

**COTS**

**Ares I**

**Orion**



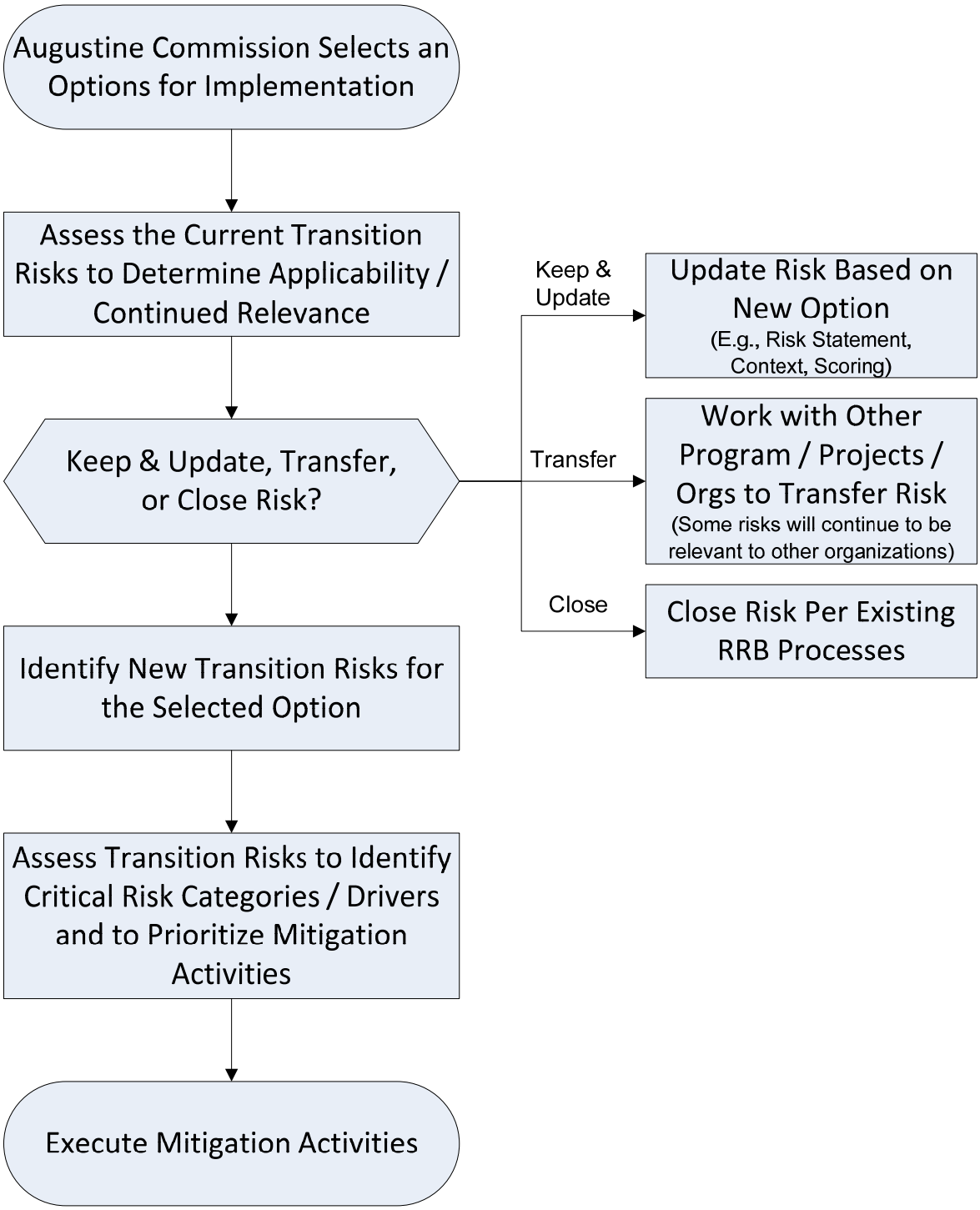
**Ares V**

**Focus is on Horizontal Integration across the Agency**

# *NOTIONAL - Preliminary Framework for Discussion*

| Selected "Augustine Outcomes" / "Transition Risk" Categories (Relative Impact - Short Term/Long Term) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Main Option | Option Description | $ | NASA Human Capital | Ctrct Human Capital | Supplier (Critical Parts) | Facility Readiness | Shuttle Property Dispo | KSC Grd Ops Conflicts | Flight Safety |
| 1 –PROGRAM OF RECORD (Exceeds Current Projected Resource Plan) | Over budget, SSP end 2011,ISS end 2015, A1&5, Lunar+ | | | | | | | | |
| 2 – BASELINE DERIVED FROM PROGRAM OF RECORD | In budget, SSP end 2011, ISS end 2015, A1&5, Lunar+ | | | | | | | | |
| 3A – ISS FOCUSED (ARES I) | In budget, SSP end 2011, ISS end 2020, A1&5, Lunar+ | | | | | | | | |
| 3b – ISS FOCUSED (COMMERCIAL CREW) | In budget, SSP end 2011, ISS end 2020, A5L, Comm, Lunar+ | | | | | | | | |
| 4– DASH OUT OF LEO | In Budget, SSP end 2011, ISS end 2015, A5L, Com, Lunar+ | | | | | | | | |
| 5 – USE SHUTTLE SYSTEMS | Over budget SSP 2015/ISS 2020 SSP Derived/Comm | | | | | | | | |
| 6 – DEEP SPACE | Over Budget SSP 2011/ISS 2020 A5l+, Comm, Lunar++ | | | | | | | | |
| 7– DEEP SPACE (EELV) | Over Budget SSP end 2011 ISS end 2020 EELV Comm, Lunar++ | | | | | | | | |

# Notional Risk Disposition Process, Post-Augustine



# ARM Risk: 4303 - U.S. Human Spaceflight Launch Gap

## Risk Detail Report

**Open Date:** 7/23/2007 **Status as of:** 8/26/2009 **ECD:** 3/30/2015

| | |
|---|---|
| **Risk Title:** U.S. Human Spaceflight Launch Gap | **Owning WBS Element:** Directorate Integration Office |
| | **Risk Status:** Approved |
| **Escalation Level:** Top Directorate Risk | **Risk Owner:** John Olson |

**Risk Statement:** Given there will be a gap between the Space Shuttle Program and Initial Operations Capability (IOC) of the Constellation Program (CxP), there is a possibility of a negative impact to the successful implementation of the Constellation Program

**Likelihood: 5** **Safety: 2** **Performance: 3** **Schedule: 5** **Cost: 5**

**Context:** The Executive Branch directed the Agency to develop and launch the Crew Exploration Vehicle/Crew Launch Vehicle (CEV/CLV) no later than 2014 and the Legislative Branch directed the Agency to minimize the time between IOC and Shuttle retirement in order to retain competency in human spacecraft operations. However, the current CxP funding does not support a CEV/CLV development and launch timeline which minimizes GAP between programs. A gap between Shuttle retirement in 2010 and IOC in 2015 increases the opportunity to lose skills in launch processing and mission operations capability within the national aerospace community. In addition, the delay until 2015 or beyond places the US in a sole dependency for support to ISS on foreign launch service providers. Further, a gap between programs can result in loss of national interest in NASA. The Augustine Commission final report and architectural option selection will have a significant impact on the length of the gap as well.

**Status:** CxIRMA 1102 - Closed on 8/10/2007

8/26/2009 10:55:54AM - Updated risk record based on current status of Augustine Commission options. D. Lengyel

6/2/2009 7:34:06AM - Updated Risk 22 May 2009 With Dr. John Olson. Assigned Owners to Mitigation / Watch Items.

5/11/2009 12:52:40PM - Will conduct a thorough review of this risk with ESMD / SOMD / I&A / OSMA during the week of 18 May 2009. Watch list items will be updated. Status as of 11 May 2009. Dave Lengyel

5/11/2009 12:52:37PM - Will conduct a thorough review of this risk with ESMD / SOMD / I&A / OSMA during the week of 18 May 2009. Watch list items will be updated. Status as of 11 May 2009. Dave Lengyel

# ARM Risk: 4303 - U.S. Human Spaceflight Launch Gap

## Risk Detail Report

**Open Date:** 7/23/2007 **Status as of:** 8/26/2009 **ECD:** 3/30/2015

4/12/2009 10:23:39AM - Dr. Feng Hsu will collaborate with ESMD/DIO to assess this risk using the Programmatic & Strategic Risk Assessment and Management (PgRAM) framework. Status from Dave Lengyel on 04/12/09

2/2/2009 11:22:24AM - Awaiting new administator and executice branch policy guidance before updating risk -- watch and mitigation activities. 02 Feb 2009. Dave Lengyel

12/15/2008 10:25:09AM - Conducted a ThinkTank review of watch items on Friday 12 December 2008. A follow-on session will be scheduled in early January 2009. Watch items include: Monitor extension of SSP manifest, Await interpretation and potential implementation of CxP Acceleration Team project, Industrial base viability and continue to evaluate critical supplier availability, Monitor new Administration review of current CxP ARES-1 /Orion approach, Monitor workforce stability through Shuttle of CxP transition, Monitor COTS D activities and successes, and so on. D. Lengyel - 15 Dec 2008.

9/19/2008 12:39:57PM - Risk transferred from CxSD to Transition per 18Sep08 RMWG action.

5/5/2008 11:45:46AM - 5/5/08 - Risk statement updated to reflect potential consequences that could result from Shuttle/Constellation gap. Child candidate risks have been identified for each potential consequence and researching to see if risks all ready exist. CSD parent risk will remain a watch risk while children risks are mitigated.

12/3/2007 8:39:53AM - Risk reviewed at GSFC ESMD QPMR including likelihood of additional funding toward Constellation Goals from temporary upswell of congressional support. Management team decided any increase in CxP funding would likely offset cost threats and would not reduce the Human Launch Gap. Continue in Watch category.

8/8/2007 1:09:03PM - Changed Risk Status fom Candidate to Approved per 31July07 Top Risk Review

**Handling Strategy:** Watch

**Mitigation Plan:** ESMD/DIO will monitor related risks, risk drivers, activities, milestones, budget levels, international partners, and space policy to gage the trend of the human spaceflight gap in order to take advantage of opportunities to reduce the gap.

**Fallback Plan:** Dependence of foreign launch services (e.g. Russian Space Agency) for continued human spaceflight capabilities to ISS.

# ARM Risk: 4303 - U.S. Human Spaceflight Launch Gap

## Risk Detail Report

**Open Date:** 7/23/2007 **Status as of:** 8/26/2009 **ECD:** 3/30/2015

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 15602 | Evaluate Opportunities in CxP Acceleration Team Report | John Olson | 1/30/2009 | 3/31/2009 | 4 x 5 - Red | Complete evaluation of acceleration opportunities |
| 15611 | Monitor Shuttle Extension Study | John Olson | 5/29/2009 | 5/28/2009 | 4 x 5 - Red | Analyze Shuttle Extension Study for impact to gap, |
| 15607 | Monitor Potential EELV vs Ares Trades | John Olson | 7/31/2009 | | 4 x 5 - Red | Analysis of Augustine Commission solution set pertaining to this trade (if required). |
| 15604 | Monitor Augustine Commission Review of Current CxP ARES-1 /Orion Approach | John Olson | 8/31/2009 | | 4 x 5 - Red | Analysis of Augustine Commission solution set. |
| 15608 | Monitor EELV Human Rating Evolution and Maturity | John Olson | 12/31/2009 | | 4 x 5 - Red | Analysis of Augustine Commission solution set pertaining to this area. |
| 15606 | Monitor COTS D Activities and Successes | Geoff Yoder | 12/31/2009 | | 4 x 5 - Red | Analysis of Augustine Commission solution set pertaining to this area. |
| 15615 | Monitor SOMD Safety Risks Associated With Extended Shuttle Operations | Dave Lengyel | 5/28/2010 | | 4 x 5 - Red | Collaborate with OSMA / NSC to evaluate opportunities. |
| 15609 | Monitor Facility Handover/Turnover from Shuttle to CxP | Robert Soltess | 5/28/2010 | | 4 x 5 - Red | Monitor facility handover/turnover from Shuttle to CxP on a routine basis. |
| 15601 | Monitor SSP Manifest | Joel Kearns | 5/28/2010 | | 4 x 5 - Red | Monitor manifest on routine basis- -analyze impacts on CxP. |
| 15616 | Monitor ESAs Plans to Human Rate ATV for ISS Support | Richard Leshner | 12/31/2012 | | 4 x 5 - Red | Monitor ESAs ATV plans. |
| 15617 | Monitor Key Risk Drivers for Development of Ares 1 and Orion to LEO. | Dave Lengyel | 12/31/2012 | | 4 x 5 - Red | Adjust this step per Augustine Commission path forward. |
| 15612 | Monitor Russian Spaceflight Capabilities, Costs/Contracts | Richard Leshner | 12/31/2014 | | 4 x 5 - Red | Monitor Russian spaceflight capabilities. |
| 15605 | Monitor Workforce Stability Through Shuttle of CxP Transition | Stephen Morton | 12/31/2014 | | 4 x 5 - Red | Monitor both FTE and WYE workforce risk mitigation plans. |

# ARM Risk: 4303 - U.S. Human Spaceflight Launch Gap

## Risk Detail Report

**Open Date:** 7/23/2007 **Status as of:** 8/26/2009 **ECD:** 3/30/2015

| | | | | | | |
|---|---|---|---|---|---|---|
| 15610 | Monitor French Ariane V and ATV, Japanese HTV and H-2B Integrated ISS Support Capability | Richard Leshner | 12/31/2014 | | 4 x 5 - Red | Monitor individual space agency sustaining support capabilities past 2015. |
| 15613 | Monitor Extension of the ISS | Geoff Yoder | 12/31/2014 | | 4 x 5 - Red | Analyze Augustine Commission recommendations. |
| 15614 | Monitor Privately Funded Commercial Spaceflight Developments | Geoff Yoder | 12/31/2014 | | 4 x 5 - Red | Monitor privately funded commercial spaceflight developments. |
| 15603 | Monitor Industrial Base Viability | Theodore Bujewski | 12/31/2014 | | 4 x 5 - Red | Implement SCM database and monitoring processes. |

# ARM Risk: 6808 - WYE-Based Critical Skills Usage During the Shuttle Transition
# Risk Detail Report

**Open Date:** 5/20/2009 **Status as of:** 8/27/2009 **ECD:** 5/31/2010

| | |
|---|---|
| **Risk Title:** WYE-Based Critical Skills Usage During the Shuttle Transition<br><br>**Escalation Level:** Undefined | **Owning WBS Element:** Transition<br>**Risk Status:** Approved<br>**Risk Owner:** Robert Soltess |

**Risk Statement:** Given that there are lapses in WYE-based critical skills usage during the Shuttle Transition gap timeframe (from approximately FY2011 to FY2012); there is the possibility that the skilled and experienced workforce needed to adequately support Exploration programs will not be available on time, resulting in schedule delays, safety impacts, and cost overrun to Constellation program milestones.

| | | | | |
|---|---|---|---|---|
| **Likelihood: 4** | **Safety: 2** | **Performance: 5** | **Schedule: 4** | **Cost: 5** |

**Context:** WYE availability and critical skill sets will be affected by Shuttle transition and retirement as well as the architectural decisions coming from the Augustine Commission activities.

**Status:** Also review reports from the Space Shuttle Transition liaison office on status

8/26/2009 10:43:40AM - Conducted tabletop review with risk owner and Scott Chandler to update record based on potential outcomes from Augustine Commission architectural decisions.

8/14/2009 3:33:47PM - Conducted a tabletop review of this risk with Scott Chandler and Garth Henning on this date. Will defer discussion of this risk at the ESMD RMWG (HQ Only) to the September 2009 timeframe in order to research the risk across the projects (Level III). Dave Lengyel

7/13/2009 2:04:38PM - 7/13 - Waiting for the official release of the Workforce Transition report to Congress, Expected release sometime this month.

6/18/2009 10:00:35PM - Approved per 17Jun09 RMWG action.

**Handling Strategy:** Research

**Mitigation Plan:** Asses WYE workforce needs across ESMD and Levels II/III after Post Augustine architecture selection--determine risk posture--develop plan(s) to retain WYE workforce as required.

# ARM Risk: 6808 - WYE-Based Critical Skills Usage During the Shuttle Transition
# Risk Detail Report

**Open Date:** 5/20/2009 **Status as of:** 8/27/2009 **ECD:** 5/31/2010

**Fallback Plan:** Allow Level II/III to develop discrete WYE risks as required with no integrated solution set.

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 17075 | Review Data from Phase II Workforce Skills Mapping Report | Robert Soltess | 6/15/2009 | 6/19/2009 | 4 x 5 - Red | Completed Phase II report review |
| 17579 | Perform WYE Workforce Risk Identification | Robert Soltess | 10/30/2009 | | 4 x 4 - Red | Competed Candidate Risk Identification at Levels I/II/III |
| 17580 | Review WYE Workforce Candidate Risks at 5th Transition Risk TIM | Robert Soltess | 11/20/2009 | | 4 x 4 - Red | Conduct Review of Candidate WYE Risks - Analyze Drivers |
| 17578 | Initiate Analysis of WYE Workforce Requirements Based on Augustine Options | Robert Soltess | 11/30/2009 | | 4 x 4 - Red | Start Macro Analysis of WYE Risks from WYE Risks Basd on Augustine Options |
| 17583 | Develop WYE Workforce Retention Strategy / Plan | Robert Soltess | 12/18/2009 | | 3 x 3 - Yellow | Complete DRAFT of ESMD WYE Workforce Retention Strategy / Plan |
| 17584 | Brief ESMD WYE Workforce Retention Plan to JICB | Robert Soltess | 1/29/2010 | | 3 x 3 - Yellow | Brief ESMD WYE Workforce Retention Plan to JICB - Assign Actions |
| 17585 | Implement / Communicate ESMD WYE Retention Plans / Actions | Robert Soltess | 2/05/2010 | | 3 x 3 - Yellow | ESMD AA Memo to Implement ESMD WYE Retention Plans / Actions |
| 17581 | Disposition Candidate WYE Risk Records at Level I/I/II Risk Boards | --BLANK-- | 2/12/2010 | | 2 x 3 - Yellow | Disposition Candidate WYE Risk Records at Level I/I/II Risk Boards |
| 17582 | Review / Audit WYE Risks at 6th Transition Risk TIM | Robert Soltess | 3/31/2010 | | 2 x 2 - Green | Review WYE Risks at 6th Transition Risk TIM - Analyze Drivers |
| 17586 | Report ESMD WYE Workforce Retention Plan Implementation Status to JICB | Robert Soltess | 4/30/2010 | | | Report ESMD WYE Workforce Retention Plan Implementation Status to JICB - Assign Actions |

# ARM Risk: 6809 - Shortage of FTE-Based Critical Skill Requirements for ESMD Developmental Programs
# Risk Detail Report

**Open Date:** 5/20/2009 **Status as of:** 8/18/2009 **ECD:** 10/29/2010

| | |
|---|---|
| **Risk Title:** Shortage of FTE-Based Critical Skill Requirements for ESMD Developmental Programs<br><br>**Escalation Level:** Undefined | **Owning WBS Element:** Transition<br><br>**Risk Status:** Approved<br>**Risk Owner:** Robert Soltess |

**Risk Statement:** Given that shuttle is retiring and ESMD development activities are ramping up, there is a possibility that a potential shortfall of specialized and ready FTE-based critical skill sets to meet requirements for ESMD developmental programs.

| **Likelihood: 3** | **Safety: 0** | **Performance: 4** | **Schedule: 4** | **Cost: 5** |
|---|---|---|---|---|

**Context:** With end of 30 years of Shuttle operations coming to a close, there is a concern of a looming shortage of skilled civil service workforce needed to conduct and administer developmental and testing type Exploration programs. Retraining initiatives must be optimally applied and are often expensive for a constrained Constellation budget. An issue is not getting experienced and skilled WYE and FTE workforce in place at the optimal time (too early is a resource impact and too late is a schedule and supportability impact). In addition, ten Healthy centers initiatives and FTE overhead freezes also affect the FTE workforce planning and staffing needed to adequately meet Exploration supportability requirements

**Status:**

8/14/2009 3:31:28PM - Conducted a tabletop review of this risk with Scott Chandler and Garth Henning on this date. Will defer discussion of this risk at the ESMD RMWG (HQ Only) to the September 2009 timeframe in order to research the risk across the projects (Level III). Dave Lengyel

7/13/2009 2:06:15PM - 7/13 - Waiting for the official release of the Workforce Transition report to Congress, Expected release sometime this month.

6/18/2009 10:01:56PM - Approved per 17Jun09 RMWG.

**Handling Strategy:** Research

**Mitigation Plan:** Exploration must work with OHCM and the Centers to continue to refine FTE workforce supply and demand needs and weaknesses as well as implement creative HR retraining and matrixing solutions to help mitigate this risk.

# ARM Risk: 6809 - Shortage of FTE-Based Critical Skill Requirements for ESMD Developmental Programs
# Risk Detail Report

**Open Date:** 5/20/2009 **Status as of:** 8/18/2009 **ECD:** 10/29/2010

**Fallback Plan:** Potential outsourcing solution(s)

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 17082 | Review FTE Workforce Skills mapping exercises | Robert Soltess | 6/15/2009 | 8/14/2009 | 3 x 5 - Red | |
| 17083 | Review Center Workforce planning and PPBE process | Robert Soltess | 7/01/2009 | 8/14/2009 | 3 x 5 - Red | |
| 17084 | Release/Analysis of Phase III OHCM FTE Report | Robert Soltess | 8/31/2009 | | 3 x 4 - Yellow | |
| 17086 | Conduct Human Resources Tools implementation | Robert Soltess | 10/01/2009 | | 3 x 3 - Yellow | |
| 17085 | Review Transition Workforce Strategy reports | Robert Soltess | 10/31/2009 | | 3 x 4 - Yellow | |
| 17557 | 1st Reporting of FTE Transition Progress | Robert Soltess | 1/15/2010 | | 2 x 3 - Yellow | |
| 17558 | 2nd Reporting of FTE Transition Progress | Robert Soltess | 4/15/2010 | | 2 x 2 - Green | |
| 17559 | 3rd Reporting of FTE Transition Progress | Robert Soltess | 7/15/2010 | | 2 x 2 - Green | |
| 17560 | 4th Reporting of FTE Transition Progress | Robert Soltess | 10/15/2010 | | 1 x 1 - Green | |

# ARM Risk: 6810 - Space Shuttle Program Knowledge Capture Planning, Integration and Execution Risk Detail Report

**Open Date:** 5/29/2009 **Status as of:** 8/21/2009 **ECD:** 6/30/2011

| | |
|---|---|
| **Risk Title:** Space Shuttle Program Knowledge Capture Planning, Integration and Execution<br><br>**Escalation Level:** None | **Owning WBS Element:** Directorate Integration Office<br>**Risk Status:** Approved<br>**Risk Owner:** Dave Lengyel |

**Risk Statement:** Given the lack of an integrated plan for the capture of Space Shuttle Program data, documentation, and personal experiences; there is a possibility that this knowledge will not be captured and transferred to CxP reduce overall programattic and technical risk.

| **Likelihood: 4** | **Safety: 0** | **Performance: 2** | **Schedule: 2** | **Cost: 3** |
|---|---|---|---|---|

**Context:** As the Space Shuttle Program winds to a close in 2010--data, documentation, and personal experiences will need to be captured and transferred to the Constellation Program to address current and future knowledge gaps. There are several organizations chartered to accomplish these tasks but an integrated approach that takes into account the scope and priority of knowledge capture activities is lacking.

**Status:**

8/14/2009 10:52:37AM - Status as of 14 August 2009. Coordinated with USA Chief Engineer, JSC Engineering Academy, JSC Chief Knowledge Officer, CxP Information Systems, NASA History Office and NASA Historic Preservation Offices to produce first draft of mitigation plan and steps. Will conduct an SSP KC working group meeting in the September 2009 timeframe. Dave Lengyel.

7/21/2009 11:37:25AM - Approved per 15Jul09 RMWG action

7/14/2009 11:26:44AM - Conducted first SSP Knowledge Capture Working Group meeting on Monday 29 Jun 2009. Major takeaways included: 1) develop a charter, 2) integrate charter into transition plans, 3) conduct SSP knowledge inventory, 4) utilize wiki to collaborate on activities, 5) develop SSP knowledge requirements from a CxP perspective, 6) develop a schedule of activities, 7) integrate the human capital activities, 8) brief senior ESMD/SOMD and program management on plan, 9) meet on quarterly basis to share status of current captue activities. 14 July 2009. ESMD RMO/Dave Lengyel

# ARM Risk: 6810 - Space Shuttle Program Knowledge Capture Planning, Integration and Execution Risk Detail Report

**Open Date:** 5/29/2009 **Status as of:** 8/21/2009 **ECD:** 6/30/2011

**Handling Strategy:** Mitigate

**Mitigation Plan:** Develop integrated SSP knowledge capture plan / schedule and make this information widely available to ESMD, SOMD, CxP, SSP and other institutional organizations so that informed resource decisions can be made with regards to knowledge capture activities.

**Fallback Plan:** Continue individual activities to capture SSP knowledge thru data/information/property archiving, KBRs, Knowledge Sharing Forums, RM Case Studies

# ARM Risk: 6810 - Space Shuttle Program Knowledge Capture Planning, Integration and Execution
# Risk Detail Report

**Open Date:** 5/29/2009 **Status as of:** 8/21/2009 **ECD:** 6/30/2011

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 17537 | Identify SSP Data Required by CxP | Thad Henry | 8/14/2009 | | 4 x 3 - Yellow | Coordinated List of SSP Data Required for CxP |
| 17541 | Develop ICE Wiki Page for SSP Knowledge Capture Activities | Dave Lengyel | 8/21/2009 | | 4 x 3 - Yellow | SSP Knowledge Capture Wiki Page Up and Available to All Working Group Personnel |
| 17536 | Develop Charter for SSP Knowledge Capture Working Group | Dave Lengyel | 8/31/2009 | | 4 x 3 - Yellow | Charter Signed by ESMD Transition Manager |
| 17567 | Conduct Quarterly SSP Knowledge Capture Working Group Meeting | Dave Lengyel | 9/10/2009 | | 4 x 3 - Yellow | Status working grouup activities--assign actions |
| 17539 | Assess Integrated SSP Data Requirements for CxP | Thad Henry | 9/30/2009 | | 4 x 3 - Yellow | Integrated SSP Data Requirements Transfer - ROM Cost & Schedule |
| 17548 | Distribute USA Space Shuttle Lessons Learned Report | Dave Lengyel | 9/30/2009 | | 4 x 3 - Yellow | Distribute USA Space Shuttle Lessons Learned Report through multiple channels--post to ICE portals / wikis |
| 17568 | Conduct Quarterly SSP Knowledge Capture Working Group Meeting | Dave Lengyel | 12/10/2009 | | 4 x 3 - Yellow | Status activities--assign actions |
| 17538 | Obtain Signed Data Transfer Agreement | Thad Henry | 12/11/2009 | | 4 x 3 - Yellow | Signed Data Transfer Agreement from CxCB Chair |
| 17569 | Conduct Quarterly SSP Knowledge Capture Working Group Meeting | Dave Lengyel | 3/11/2010 | | 4 x 3 - Yellow | Status activities - assign actions |
| 17540 | Move SSP Data / Information to CxP Repository | Thad Henry | 4/30/2010 | | 3 x 3 - Yellow | SSP Data / Information Available to CxP Personnel |
| 17556 | Conduct APPEL Masters Forum on Shuttle Knowledge Transfer | --BLANK-- | 5/05/2010 | | 3 x 3 - Yellow | |
| 17570 | Conduct Quarterly SSP Knowledge Capture Working Group Meeting | Dave Lengyel | 6/10/2010 | | 3 x 3 - Yellow | Status activities - assign actions |

Printed: 8/21/2009 1:43:22PM

# ARM Risk: 6810 - Space Shuttle Program Knowledge Capture Planning, Integration and Execution
# Risk Detail Report

**Open Date:** 5/29/2009 **Status as of:** 8/21/2009 **ECD:** 6/30/2011

| | | | | | | |
|---|---|---|---|---|---|---|
| 17571 | Conduct Quarterly SSP Knowledge Capture Working Group Meeting | Dave Lengyel | 9/09/2010 | | 3 x 3 - Yellow | Status activities - assign actions |
| 17572 | Conduct Quarterly SSP Knowledge Capture Working Group Meeting | Dave Lengyel | 12/09/2010 | | 3 x 3 - Yellow | Status activities - Assign actions |
| 17554 | Develop Shuttle Knowledge-Based Risks: ESMD | Dave Lengyel | 12/23/2010 | | 2 x 2 - Green | Develop 8 KBRs from Shuttles top risk list. |
| 17555 | Develop Space Shuttle Return to Flight Risk Management Case Study: ESMD | Dave Lengyel | 2/01/2011 | | 2 x 2 - Green | Deploy Space Shuttle Return to Flight Risk Management Case Study in ESMD ICE |
| 17553 | Archive Software Associated with the Shuttle: JSC EA | --BLANK-- | 2/28/2011 | | 2 x 2 - Green | Completed software dispositioning/archiving in accordance with established NASA regulations and policies. |
| 17551 | Archive Shuttle Documents and Data: JSC EA | --BLANK-- | 3/31/2011 | | 2 x 2 - Green | Shuttle Documents and Data Properly Archived |
| 17550 | Assess and Disposition Shuttle-Related Property: JSC EA | --BLANK-- | 5/31/2011 | | 1 x 1 - Green | Signed Assessment and Dispositioning Agreement. |
| 17549 | Publish Space Shuttle Engineering and Technical Accomplishments Book | --BLANK-- | 6/30/2011 | | 1 x 1 - Green | Publish and Distribute Space Shuttle Engineering and Technical Accomplishments Book |

# ARM Risk: 5363 - Lack of an Agency capability to track and monitor the health of the NASA supplier base
# Risk Detail Report

**Open Date:** 7/9/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Lack of an Agency capability to track and monitor the health of the NASA supplier base<br><br>**Escalation Level:** Undefined | **Owning WBS Element:** Transition<br><br>**Risk Status:** Approved<br>**Risk Owner:** Robert Soltess |

**Risk Statement:** Given that a Supplier Base Management System is not in place; there is a risk that NASA will not be able to identify, track, monitor and mitigate the potential risk to the health of its supplier base.

| Likelihood: 2 | Safety: 0 | Performance: 3 | Schedule: 4 | Cost: 4 |
|---|---|---|---|---|

**Context:** NASA does not currently understand the ability of the SSP supply base to continue to support CxP post SSP. The human spaceflight gap due to the transition from Shuttle to Constellation threatens the health of NASA's supplier base; any risk to the health of the supplier is a risk to NASA's ability to effectively execute the Constellation Program. NASA currently does not have an Agency-wide system for Supplier Base Management. This responsibility has historically been delegated to the Elements and to the prime contractors. Without an Agency-wide Supplier Base Management system NASA cannot systematically indentify risks to the viability of its supplier base during the Transition to Constellation. Risks to supplier base viability could have cost and schedule impacts on the Constellation Program.

**Status:** Until now, NASA has delegated the primary responsibility of managing the supply base to each individual project element and to the prime contractors.

7/15/2009 11:13:43AM - 7 /15 Mitigation steps have been updated. Currently plan to a process TIM on Sept 1.

4/16/2009 11:29:10AM - April 16, 2009
Adjusted schedule risk from > 9 mos to between 6 and 9 mos to reflect availability of software.

TJB

3/23/2009 12:58:50PM - March 23
Reduced risk metric to low due to experience with beta testing software.

# ARM Risk: 5363 - Lack of an Agency capability to track and monitor the health of the NASA supplier base
# Risk Detail Report

**Open Date:** 7/9/2008 **Status as of:** 8/18/2009 **ECD:**

3/17/2009 10:55:32AM - March 17 2009
Have taken delivery of the phase 1 software PrimeMap. Are currently testing the software and presenting it to other organizations including OSMA and DIO. Have integrated OSMAs SAS tool into PrimeMap. Also considering integrating PrimeMap with ARM and/or IRMA. In discussions with OSMA for them to use PrimeMap in their NASA Audit Managment Process.

3/3/2009 12:01:48PM - The contractor has been placed on contract and has delivered an initial beta version of the product. We are currently testing the beta version.

1/13/2009 4:23:41PM - Money has been allocated and added to Futrons contract. Have been delayed by Contract Officers at JSC in getting the ACC, the contractor on contract with Futron. It should be any day now.

12/10/2008 1:58:27PM - Wed Dec 10, 2008 Ted Bujewski
Finalizing acquisition of mapping software through contractor. Released RFQ on Dec 10, 2008, Expect response by Dec 12, 2008. Completed data scrub of Ares 1 supplier list needed as input for mapping software. Expect contractor to begin work immediately following receipt of purchase order no later than Jan 1. Data loading should take no more than two weeks.

10/30/2008 8:36:27AM - Acquire initial data from SSP and CxP. Have intial data from SSP. CxP will not provide supplier data. Mitigation step not completed moving on in process without CxP data.

8/12/2008 11:13:33AM - Risk Risk Status Changed.

**Handling Strategy:** Mitigate

**Mitigation Plan:** Put a Supplier Base Management System in place, including appropriate software tools. Develop an organizational structure and processes for gathering and inputting data into the tool and for analyzing and acting on that data.

**Fallback Plan:** -Use SMRT document process
- Use CRM across Programs
- Use 'Prime Supplier' tool

# ARM Risk: 5363 - Lack of an Agency capability to track and monitor the health of the NASA supplier base
## Risk Detail Report

**Open Date:** 7/9/2008 **Status as of:** 8/18/2009 **ECD:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12649 | Define requirements | Robert Soltess | 9/30/2008 | 9/ 1/2008 | 4 x 5 - Red | |
| 12650 | Acquire data | Robert Soltess | 9/30/2008 | 9/25/2008 | 4 x 5 - Red | |
| 12651 | Funding | Robert Soltess | 9/30/2008 | 9/19/2008 | 4 x 5 - Red | |
| 12652 | Phase I developmnent | Robert Soltess | 1/30/2009 | 2/19/2009 | 4 x 5 - Red | |
| 12653 | Phase I testing | Robert Soltess | 2/15/2009 | 2/15/2009 | 3 x 5 - Red | |
| 12700 | Supplier Base Management Program Plan | Robert Soltess | 2/18/2009 | 6/24/2009 | 3 x 4 - Yellow | |
| 12701 | Document approval | Robert Soltess | 9/30/2009 | | 3 x 4 - Yellow | |
| 12656 | External Audit | Robert Soltess | 9/30/2009 | | 3 x 4 - Yellow | |
| 12698 | Present software and concept | Robert Soltess | 9/30/2009 | | 3 x 4 - Yellow | |
| 12699 | Process and organizational structure | Robert Soltess | 10/01/2010 | | 3 x 2 - Green | |

# ARM Risk: 5365 - Unfunded Gaps in Critical Capabilities

## Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Unfunded Gaps in Critical Capabilities<br><br>**Escalation Level:** Top Directorate Risk | **Owning WBS Element:** iTransition<br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that there will be a time delay between the SSP last need date and identification of firm CxP or other program requirements for some critical capabilities needed by CxP or other programs; there is a possibility that the physcial condition and/or the human skills necessary to operate and maintain these facilities will degrade before a firm decision on future use can be determined, thereby requiring extensive repair and refurbishment at a later date as well as re-establishment of the human skills necessary to operate and maintain them. Depending upon the facility and the length of the period of indecision, this could generate the need for large capital expenditures and cause lengthy program/project delays.

**Likelihood: 3** **Safety: 2** **Performance: 5** **Schedule: 5** **Cost: 5**

**Context:** It is very likely that the MOST critical facilities currently used by SSP and expected to be used by CxP WILL be identified. For these facilities, it will be essential to develop an appropriate maintenance/mothball strategy and to identify the critical human resources necessary to restore the facility to operating status in a timely manner. It is moderately likely that some facilities which will be needed will NOT be identified and that resources to support some of the critical facilities will not be available. For these facilities, it will be desirable to develop a less aggressive, but still appropriate maintenance/mothball strategy and human resources plan in order to restore the facility to operating status in a reasonably timely manner.

**Status:** Incorporates changes recommended by Frank Bellinger. Not a FERPD risk (SCAP or iTransition). Facility aspect of this risk covered in Risk 5381.

12/15/2008 8:52:09AM - OI approved this risk and made this a TDR on 12-15-08

**Handling Strategy:** Mitigate

**Mitigation Plan:** Develop a tiered plan which incorporates the probability that a facility will be needed with the costs of maintaining. Address the human resource requirements related to specific facilities by examining the various personnel and community of practice databases in the context of specific facilities. This type of activity has been contemplated by some within NASA HQ, but has not been fully explored.

# ARM Risk: 5365 - Unfunded Gaps in Critical Capabilities

## Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

**Fallback Plan:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12681 | ERIC Reviews | Rich Wickman | 10/31/2008 | 10/31/2008 | 3 x 5 - Red | |
| 16148 | Develop comprehensive list of Shuttle facilitiies | Rich Wickman | 1/30/2009 | 1/30/2009 | 3 x 5 - Red | |
| 12682 | HSFC Capabilities Gap Resolution | Rich Wickman | 8/31/2009 | | 3 x 4 - Yellow | |
| 12683 | Reach consensus of facility funding business models | Rich Wickman | 12/31/2009 | | 2 x 4 - Yellow | |

# ARM Risk: 5368 - Orbiter Placement Decision

## Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Orbiter Placement Decision | **Owning WBS Element:** iTransition |
| | **Risk Status:** Approved |
| **Escalation Level:** Top Directorate Risk | **Risk Owner:** Rich Wickman |

**Risk Statement:** Given that the retired Space Shuttle Orbiters will become available for placement within or external to NASA, interest in these rare artifacts is exceedingly high, and Orbiter placement decisions will be subject to scrutiny by Congress and the American public; there is a possibility that NASA's placement decisions may be challenged and the Agency may suffer negative repercussions including possible budgetary earmarks from conflicts or challenges that may arise.

**Likelihood: 3** **Safety: 0** **Performance: 0** **Schedule: 3** **Cost: 5**

**Context:** NASA will retire the Space Shuttle Program (SSP) by 2010. NASA Transition and Retirement necessitates the disposition of all SSP assets no longer required by NASA, including the Space Shuttle Orbiters themselves. While NASA's first priority is flying out the remaining Shuttle missions safely, because of the quantity, complexity, and dispersion of SSP assets, successful Transition and Retirement requires careful planning now, particularly in light of the increasing interest expressed by U.S. educational institutions, science museums and other organizations in acquiring major Space Shuttle assets, including the Orbiters themselves. NASA has already received multiple expressions of interest from the museum and educational outreach community for acquiring an Orbiter once these assets are no longer needed by NASA. In the current climate, NASA may be perceived to be making placement and final disposition decisions for the Orbiters and other major SSP assets without using a rigorous, objective evaluation process. In addition, the scope and depth of the interest in acquiring an Orbiter is largely unknown at this time, but appears to be escalating over time.

**Status:** Related to EMDs #5329 CRM Impacts Scoped to Transition

9/15/2008 9:33:57AM - Risk approved by Board

**Handling Strategy:** Mitigate

# ARM Risk: 5368 - Orbiter Placement Decision

## Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

**Mitigation Plan:** 1) Establish Assessment Panel
2) Develop placement criteria
3) Issue RFI
4) Develop recommendations

**Fallback Plan:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12622 | Issue RFI | Rich Wickman | 11/30/2008 | 12/17/2008 | 4 x 5 - Red | |
| 17492 | Designate Discovery for NASM | Rich Wickman | 12/17/2008 | 12/16/2008 | 3 x 5 - Red | |
| 12621 | Develop Placement Criteria | Rich Wickman | 4/30/2009 | 5/26/2009 | 3 x 5 - Red | |
| 16149 | Analysis of Alternatives | Rich Wickman | 7/31/2009 | 6/24/2009 | 3 x 5 - Red | Agency selects next step (e.g., immediate placement decision or RFP). |
| 12623 | Communicate Proposed Plan to External Stakeholders | Rich Wickman | 12/31/2009 | | 3 x 4 - Yellow | |

# ARM Risk: 5369 - Increased Processing Costs and Decreased Revenues for Shuttle-related Property Due to Export Control
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Increased Processing Costs and Decreased Revenues for Shuttle-related Property Due to Export Control Regulations (ITAR)<br><br>**Escalation Level:** None | **Owning WBS Element:** iTransition<br><br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that export control regulations, as interpreted by the NASA Office of External relations, classify most SSP property, including ground infrastructure, hardware and systems, as governed by International Traffic in Arms Regulations (ITAR) requirements, categories 4 and 15; there is a possibility that NASA may not have adequate resources to process the volume and surge of property requiring ITAR scrutiny and experience significant delay in disposition of SSP property and in the FY 2008 – FY 2014 timeframe.

| **Likelihood: 4** | **Safety: 1** | **Performance: 3** | **Schedule: 3** | **Cost: 3** |
|---|---|---|---|---|

**Context:** Section 38 of the Arms Export Control Act (22 USC 2778) authorizes the President to control the export and import of defense articles and defense services. ITAR Categories IV and XV, “Launch Vehicles, Guided Missiles, Ballistic Missiles, Rockets, Torpedoes, Bombs and Mines,” and “Spacecraft Systems and Associated Equipment,” respectively, apply to all shuttle components, hardware, systems and subsystems, as well as associated ground components and systems. These ITAR requirements levy an additional workload and resources on the SSP program and on I & A to identify and tag, and track all pieces of shuttle-related property

**Status:**

9/15/2008 9:34:29AM - Risk approved by Board.

**Handling Strategy:** Mitigate

**Mitigation Plan:** Perform certain preliminary relatively low-cost planning steps to identify and scope the ITAR requirements as they apply specifically to classes of shuttle property. Develop a property disposition plan to specifically address ITAR considerations, in consultation with the NASA export control, shuttle and infrastructure communities.

**Fallback Plan:**

# ARM Risk: 5369 - Increased Processing Costs and Decreased Revenues for Shuttle-related Property Due to Export Control
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12624 | Interact with the following NASA internal communities: Export Control, Logistics, and shuttle and exploration program and project managers. on requirements, definitions, and scope of property and work. | Richard Wickman | 5/08/2008 | 5/ 8/2008 | 4 x 4 - Red | |
| 12625 | Develop PPBE 2010 estimate for making export control determinations. | Richard Wickman | 7/31/2008 | 9/15/2008 | 4 x 4 - Red | |
| 15106 | KSC Property Disposition Kaizen | Susan Kinney | 12/04/2008 | 12/ 4/2008 | 4 x 3 - Yellow | |
| 15107 | JSC Property Disposition Kaizen | Susan Kinney | 12/11/2008 | 12/11/2008 | 4 x 3 - Yellow | |
| 12626 | Develop NASA special handling guidance and procedures vetted with stakeholders. | Richard Wickman | 7/31/2009 | | 2 x 3 - Yellow | |
| 12631 | Budget for remaining institutional workload post-2010 | Rich Wickman | 1/01/2010 | | 2 x 2 - Green | OI and Centers Ops are comfortable with T&R budget for institutional workload |

# ARM Risk: 5367 - Difficulty Identifying Historically Relevant Personal Property
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Difficulty Identifying Historically Relevant Personal Property<br><br>**Escalation Level:** None | **Owning WBS Element:** iTransition<br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that NASA has numerous artifacts with a wide variety of historic, scientific, and sometimes military applications that are important to preserve for both NASA's and the nation's interests; there is a possibility that poor records management could result in items being improperly identified/categorized and that some or all information associated with certain items might be lost, confused or altered.

**Likelihood: 4** **Safety: 1** **Performance: 3** **Schedule: 1** **Cost: 3**

**Context:** Many of NASA's artifacts and facilities served unique functions as part of the Space Shuttle Program. Many of these items do not have a detailed history attached to the item. For example, SRB hold-down bolts may not have historical tags identifying which have been flown, which flights they were used on, and anything of note associated with their use. Given the potential large number of artifacts NASA must disposition at the end of the Shuttle Program, this information needs to be documented and maintained with the items in question.

**Status:**

9/15/2008 9:33:10AM - Risk approved by Board

**Handling Strategy:** Mitigate

**Mitigation Plan:** Work with Space Shuttle Program personnel to develop a simple and effective method for ensuring the significant information about potential artifacts are preserved. Engage experts from museums like the National Air and Space Museum or the Smithsonian Institute as a whole to help ensure the appropriate information is preserved.

**Fallback Plan:**

# ARM Risk: 5367 - Difficulty Identifying Historically Relevant Personal Property
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12538 | Add Cultural Resource Considerations into Transition Planning Process | Tina Norwood | 2/01/2009 | | 3 x 3 - Yellow | Deliverables:<br>1) Modified Center program and project management due diligence checklists with cultural resources added<br>2) List of Center Historic Preservation Officers to Center Transition POCs<br>3) Center Historic Preservation Officers invited to critical Center Transition meetings by Center Transition POCs<br>4) List of Center Transition POCs provided to Center Historic Preservation Officers. |
| 12616 | Identify Potential SSP Artifacts from TPA | Rich Wickman | 3/03/2009 | 2/28/2009 | 3 x 2 - Green | |
| 17493 | Collect Missing Information on Potential SSP Artifacts | Rich Wickman | 11/30/2009 | | 2 x 2 - Green | All Shuttle Elements deliver complete responses to SSP CR# S070020. |
| 17564 | Identify Property Kits for Flown Orbiters | Rich Wickman | 12/31/2009 | | 2 x 2 - Green | Items that are part of the standard orbiter kit are identified prior to artifact prescreening of Shuttle potential artifacts identified through CR# S070020. |

# ARM Risk: 5373 - Cost/Capacity for Disposition Surge- Personal Property
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Cost/Capacity for Disposition Surge- Personal Property<br><br>**Escalation Level:** None | **Owning WBS Element:** iTransition<br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that there are a large number of Space Shuttle Program personal property assets that require disposition over a relatively short time-frame; there is a possibility that the cost of disposition is grossly under- or over-estimated and not enough resources are devoted to the task.

**Likelihood: 3** **Safety: 0** **Performance: 3** **Schedule: 2** **Cost: 3**

**Context:** Due to the large number (over one million line items) and location (many in contractor possession) of component parts, as well as the uncertainties associated with cost reimbursements, the exact cost of disposition of Shuttle components is difficult, if not impossible, to determine. The vast quantity of personal property items, all needing disposition over a fairly short period of time, will over-burden the current systems that are in place.

**Status:**

9/15/2008 9:36:10AM - Risk approved by Board.

**Handling Strategy:** Mitigate

**Mitigation Plan:** As cost estimation refinements are made, costs will be adjusted accordingly in the Plan.

**Fallback Plan:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12630 | Refine Cost Estimations | Rich Wickman | 4/30/2009 | 6/24/2009 | 3 x 3 - Yellow | |
| 12631 | Budget for remaining institutional workload post-2010 | Rich Wickman | 1/01/2010 | | 2 x 2 - Green | OI and Centers Ops are comfortable with T&R budget for institutional workload |

# ARM Risk: 5366 - Lack of Coordinated Outreach Planning and Communication for Artifacts
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Lack of Coordinated Outreach Planning and Communication for Artifacts<br><br>**Escalation Level:** None | **Owning WBS Element:** iTransition<br><br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that NASA currently has an indeterminate number of SSP artifacts with potentially more being identified after Program fly-out; there is a possibility that NASA will not have adequately informed the public about the availability of the artifacts and communicated the process by which organizations or individuals might acquire specific artifacts for personal or professional use.

**Likelihood: 3** **Safety: 0** **Performance: 3** **Schedule: 3** **Cost: 1**

**Context:** Although the Agency has procedures for disposition of historic artifacts, those procedures are time-consuming and difficult to apply in the case of Space Shuttle Program T&R due to the vast number of items to be dispositioned over a relative compressed timeframe. Clear guidance and a standard process is required to identify potential artifacts, make artifact determinations, advertise artifact availability to eligible recipients, make placement decisions, and transfer the artifacts. The Agency will be subject to public criticism and increased oversight if a clear, open, and transparent process for artifact identification and disposition is established.

**Status:**

9/15/2008 9:32:36AM - Risk Risk Status Changed.

**Handling Strategy:** Mitigate

**Mitigation Plan:** 1) Establish Agency SSP Artifacts Working Group
2) Identify Potential Agency Artifacts from TPA
3) Prescreening Agency Artifacts for Donation to Eligible Institutions

**Fallback Plan:**

# ARM Risk: 5366 - Lack of Coordinated Outreach Planning and Communication for Artifacts
# Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12615 | Establish Agency SSP Artifacts Working Group | Richard Wickman | 7/31/2008 | 8/11/2008 | 4 x 4 - Red | |
| 12610 | Develop Property Disposition Plan | Diana Hoyt | 8/31/2008 | 11/17/2008 | 3 x 3 - Yellow | Property Disposition Plan accepted by appropriate Transition Management Boards (JICB, TCB, iJICB and iTCB). |
| 12616 | Identify Potential SSP Artifacts from TPA | Rich Wickman | 3/03/2009 | 2/28/2009 | 3 x 3 - Yellow | |
| 17493 | Collect Missing Information on Potential SSP Artifacts | Rich Wickman | 11/30/2009 | | 2 x 2 - Green | All Shuttle Elements deliver complete responses to SSP CR# S070020. |
| 5272 | Prescreening of SSP Potential Artifacts | Rich Wickman | 5/31/2010 | | 1 x 1 - Green | Predecisional placement determinations made for all requested artifacts. |

# ARM Risk: 3340 - Space Shuttle Program Personal Property Disposition Planning
# Risk Detail Report

**Open Date:** 3/15/2007 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Space Shuttle Program Personal Property Disposition Planning<br><br>**Escalation Level:** Top Directorate Risk | **Owning WBS Element:** iTransition<br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that the Space Shuttle Program (SSP) fly-out will be completed in 2010, there is a significant amount of SSP personal property that will require disposition, much of the property will not be available for disposition until after the program concludes, and personnel familiar with the propertys use and characteristics will begin moving to other positions after 2010; there is a possibility that required resources may not be available to properly and safely dispose of remaining personal property; higher costs may be incurred as disposition occurs in a condensed period of time, NASA may fail to fully comply with regulatory and legal requirements for personal property disposition, property with possible historic value may be inadvertently disposed of, and improper storage or disposition of hazardous materials and waste may occur.

**Likelihood: 3** **Safety: 0** **Performance: 3** **Schedule: 4** **Cost: 4**

**Context:** Personal property disposition poses a huge challenge to Space Shuttle Program Transition and Retirement due to the large quantity (over one million line items) and muliple locations (NASA-held on-site, contractor-held on-site, and contractor-held off-site) of property requiring disposal, lack of detailed information about the property (salient characteristics required for proper disposition), as well as the compressed time period over which the property must be disposed.

**Status:**

6/2/2008 8:19:39AM - approved by I&A RMB

**Handling Strategy:** Mitigate

# ARM Risk: 3340 - Space Shuttle Program Personal Property Disposition Planning
# Risk Detail Report

**Open Date:** 3/15/2007 **Status as of:** 8/18/2009 **ECD:**

**Mitigation Plan:** 1. Establish iJICB and iTCB and develop a high-level Property Disposition Plan to oversee and manage property transition efforts and progress.
2. Coordinate with Constellation Program to validate personal property transfers.
3. Prescreen as much property as possible to determine whether a NASA, Federal or donation use exists prior to its actual availability.
4. Establish an Agency Space Shuttle Program Artifacts Working Group to validate artifacts, develop artifacts placement criteria, review prescreening results and make artifact placement decisions, and periodically report results to the iTCB and Agency Artifacts Committee.

**Fallback Plan:** Dispose of property over longer period of time after completion of program and assess costs associated with the process over remaining agency programs.

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12610 | Develop Property Disposition Plan | Diana Hoyt | 8/31/2008 | 11/17/2008 | 3 x 3 - Yellow | Property Disposition Plan accepted by appropriate Transition Management Boards (JICB, TCB, iJICB and iTCB). |
| 12551 | Establish an Agency Space Shuttle Program Artifacts Working Group | Rich Wickman | 9/30/2008 | 8/11/2008 | 3 x 3 - Yellow | The Agency Space Shuttle Program Artifacts Working Group completes placement determinations for all artifacts subjected to prescreening process. |
| 12550 | Coordinate property transfer estimate with Constellation Program. | Rich Wickman | 3/31/2009 | 1/15/2009 | 3 x 3 - Yellow | Transfer estimate used as basis for PPBE 2011 planning. |
| 12633 | CAPP Validation of TPA Transfer Estimates | Robert Soltess | 7/31/2009 | | 3 x 2 - Green | |
| 12631 | Budget for remaining institutional workload post-2010 | Rich Wickman | 1/01/2010 | | 3 x 2 - Green | OI and Centers Ops are comfortable with T&R budget for institutional workload |
| 5272 | Prescreening of SSP Potential Artifacts | Rich Wickman | 5/31/2010 | | 2 x 2 - Green | Predecisional placement determinations made for all requested artifacts. |

# ARM Risk: 5374 - CxP Validation of SSP Property Transfer Estimate

## Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** CxP Validation of SSP Property Transfer Estimate<br><br>**Escalation Level:** None | **Owning WBS Element:** iTransition<br>**Risk Status:** Approved<br>**Risk Owner:** Rich Wickman |

**Risk Statement:** Given that there are a large number of SSP personal property assets that require disposition over a relatively short time-frame, and CxP development and operations plans are not fully defined; there is a possibility that estimates of the amount of SSP property to be transferred to CxP are overstated and the T&R budget will be insufficient to accommodate actual property disposal workload and costs in the year of execution.

**Likelihood: 3** **Safety: 1** **Performance: 1** **Schedule: 1** **Cost: 3**

**Context:** CxP's current focus is on Orion and Ares I design and development and defining its long-term facilities requirements. Although some effort has been put into defining CxP requirements for personal property, CxP has relied primarily on SSP knowledge of what SSP personal property should be transferred to CxP. The number of line items to be transferred from SSP to CxP has increased from approximately 342,000 line items (PPBE 2009 estimate) to approximately 490,000 line items (PPBE 2010 estimate), a 49 percent increase. The T&R budget will be based in part on these assumptions. It is less costly to transfer items between NASA programs than to excess them through the property disposition process. Any items that do not transfer to CxP will ultimately need to be disposed, but the T&R budget may be insufficient to support that additional workload.

**Status:**

9/15/2008 9:36:40AM - Risk approved by Board

**Handling Strategy:** Mitigate

**Mitigation Plan:** As property transfer estimates are refined, T&R property disposition costs will be adjusted accordingly in the Plan.

**Fallback Plan:**

# ARM Risk: 5374 - CxP Validation of SSP Property Transfer Estimate

## Risk Detail Report

**Open Date:** 7/14/2008 **Status as of:** 8/18/2009 **ECD:**

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 12632 | Complete Transition Property Assessment (TPA) | Rich Wickman | 1/31/2009 | | 3 x 3 - Yellow | |
| 12633 | CAPP Validation of TPA Transfer Estimates | Robert Soltess | 7/31/2009 | | 2 x 2 - Green | |

# CX IRMA Risk: 3174 Summary Report

**Open Date:** 04/10/2008 Status as of 08/18/2009 **ECD:** 07/01/2009

**Risk Title:** Michoud Assembly Facility (MAF) Transition

**Escalation Level:** TDR

**Phase(s):** IOC, CxLEO OPS

**Owning WBS Element:** Facility_and_Asset_Intg

**Risk Owner:** Linda Ham

## Risk Statement:

Given the ; there is a possibility that MAF transition from an ET anchor tenant funded facility to a multi-tenant facility has left behind a MAF funding shortfall.Also, the contract transition from a GOCO contractor operated to a GOGO facility has left behind a shortfall in the area of facility data and system information. It is the combination of these two transitions that have made bridging the gap difficult. Issues include: 1). MAF is not fully utilized resulting in high overhead costs. There is a high ration of space available to space required. 2). Ops cost must be reduced and adjustments in general support must be scaled. 3). Current user rates do not cover costs of services (including non-NASA users), and 4). Best practices for site planning are required to minimize costs.

## Context:

The MAF independent cost assessment reduced the funding gap considerably. Finding additional customers for MAF, scaling general support, modifying current rate structure, and adopting best practices for site planning will further reduce the funding gap. In addition, the MAF facility revitilization plan is undergoing a "bottoms up" review.

**Likelihood: 4** **Safe: 0** **Perf: 1** **Sched: 5** **Cost: 4**

## Status:

7/8/2009 The MAF independent cost assessment is complete. This risk has been updated to reflect the funding gap that results assuming all TOR recommendations are implemented. Note that there is an increase to Orion and US charges and no CoF projects are reflected in these Most Likely numbers.

# CxIRMA Risk: 3174 Summary Report

**Open Date:** 4/10/2008 Status as of 8/18/2009 **ECD:** 7/1/2009

## Mitigation Summary

**Mitigation Plan:** Obtain a comprehensive list of major near and long term CoF maintenance tasks. Determine associated costs and schedule sensitivity. Identify shared institutional costs and determine allocation.

Determine appropriate funding source. Coordinate with MAF Transition Team to assure Constellation Program priorities are met.

**Fallback Plan:**

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Begin participation in MAF Transition Team Meetings (Transition schedule) | dfender | 10/15/07 | 10/15/07 | 4 x 5 red | Participation in meetings established |
| 2 | Get updated list of CoF maintenance tasks and cost estimates. (maintenance) | dfender | 9/14/07 | 12/14/07 | 4 x 5 red | Detailed list of needed facility CoF projects and justification |
| 3 | Presented upper stage MAF requirements to CxAMP and Program Manager. (Transition schedule) | dfender | 1/25/08 | 1/25/08 | 4 x 5 red | CxAMP made recommendation on plan for Upper Stage and external tank conflict (MDF) |
| 4 | Establish regular communication w/MAF Transition Team (Utilization) | dfender | 2/11/08 | 2/11/08 | 4 x 5 red | Communication established |

# CxIRMA Risk: 3174 Summary Report

**Open Date:** 4/10/2008 Status as of 8/18/2009 **ECD:** 7/1/2009

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 5 | Determine schedule sensitivity and cross reference with Constellation needs . MAF site survey. (maintenance) | dfender | 2/28/08 | 4/2/08 | 3 x 5 red | Concurrence from Cx Projects that the facility CoF tasks are required |
| 6 | Establish a MAF transition POC to CxAMP. (Transition schedule) | dfender | 2/28/08 | 4/8/08 | 3 x 5 red | MAF transition POC identified |
| 7 | Establish a T&E POC on the MAF I&O (Integrations and Operations) board. (Transition schedule) | dfender | 3/15/08 | 4/8/08 | 3 x 5 red | T&E POC identified (TFA Deputy) |
| 8 | Seek funding source(s) for MAF utilization and maintenance (cxCB, JICB, SCAP) | ktemplin | 6/16/08 | 6/16/08 | 3 x 5 red | Funding source(s) identified. In FY09 SOMD to provide $7.9M, $3M carried by CxP risk. In FY10 SOMD to provide $7.5M |
| 9 | Funding Plan established | ktemplin | 7/9/08 | 7/9/08 | 3 x 5 red | Funds commitments made |

# CxIRMA Risk: 3174 Summary Report

**Open Date:** 4/10/2008 Status as of 8/18/2009 **ECD:** 7/1/2009

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 10 | MAF transition team to present MAF operations plan to CxAMP and establish working process with CxP to address priority conflicts (Transistion schedule/Maintenance/Utilization) | ktemplin | 9/26/08 | 8/1/08 | 3 x 5 red | Present negotiated process at CxAMP to show reduction in current cost for operations |
| 11 | Ares and Orion provide OTI FAI their building requirements (Utilization) | ktemplin | 12/10/08 | 9/8/08 | 3 x 5 red | Facility requirements defined through ERIC |
| 12 | Determine key project (Ares, Orion, SSP) requirements milestones and schedule flexibility. (Transition schedule / Utilization) | ktemplin | 12/15/08 | 12/10/08 | 3 x 5 red | MAF floor space presented to CxP and SSP |
| 14 | Update cost projections based on assessment team results | ljham | 8/31/09 | 7/8/09 | 3 x 5 red | understanding of costs |
| 13 | Conduct a review of MAF under HQ TOR | ljham | 7/31/09 | | 3 x 5 red | |
| 15 | Negotiate funding source with SOMD | ljham | 9/1/09 | | 3 x 3 yellow | SOMD/ESMD/CxP agree to funding source |

# CX IRMA Risk: 2430 Summary Report

**Open Date:** 09/17/2007 Status as of 08/18/2009 **ECD:** 06/16/2010

**Risk Title:** Space Station Processing Facility (SSPF) Funding Risk

**Escalation Level:** None

**Phase(s):** HLR, Post HLR

**Owning WBS Element:** GO_LX_FP

**Risk Owner:** Shawn Quinn

## Risk Statement:

Given the Orion ground processing requirements no longer include use of the SSPF,; there is a possibility that 50% of the projected SSPF Operations & Maintenance costs are unfunded from FY11 through FY20, resulting in the risk that the Constellation Program may need to assume additional SSPF O&M funding during FY11-FY20 to ensure SSPF availability for planned Lunar Lander ground processing.

## Context:

Prior to the approval of CR000150 (which moved all Orion offline processing out of the SSPF, to the MPPF), the SSPFO&M funding profile for FY11-20 was: 1) ISS for 50% FY11 through FY16, 2) CxP Lander for 50% from FY17 through FY20, and 3) CxP Orion for the remaining 50% from FY11 through FY20. Due to approval of CR000150, the projected portion of the SSPF O&M funding attributable to Orion is no longer available for SSPF O&M funding. The source of the funding to fill this budget gap has not yet been identified.

**Likelihood: 4** **Safe: 0** **Perf: 0** **Sched: 0** **Cost: 4**

## Status:

3/20/2009 Per the 2009 PPBE, 100% of SSPF O&M costs will be covered by the ISS Program for FY11-16. For FY17-25, ground processing of Altair and Lunar Surface Systems project hardware was allocated to 50% of the SSPF and ISC O&M costs fully funded. The remaining 50% is currently unfunded. As a note, trade study TDS GOP-00-1019 is underway, and is intended to determine the facility architecture option that best suits the needs of Altair and LSS ground processing, as well as the ability to possibly facilitate Altair AI&P. The suitability of the SSPF to accommodate any or all of this work, as well as the overall percentage of SSPF utilization during FY17-25, is being evaluated as part of this trade

# CxIRMA Risk: 2430 Summary Report

**Open Date:** 9/17/2007 Status as of 8/18/2009 **ECD:** 6/16/2010

## Mitigation Summary

**Mitigation Plan:** The Human Lunar Return (HLR) SRR is planned for 6/2010. Determination of the trade studies and project interdependencies required to be understood and worked to support the HLR SRR is in work. Definition of planned SSPF use by Constellation projects must be considered as part of HLR SRR planning.

This risk was identified during the CR000150 approval process for visibility. An integrated trade study will be conducted to determine facility requirements for Altair Ground Processing, Altair Manufacturing and LSS Ground Processing. The results of this trade study will be used to determine revised spacecraft processing facility requirements for HLR.

**Fallback Plan:**

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Establish GO Lunar Planning Team | quinnsm | 10/1/08 | 8/26/08 | 4 x 4 red | |
| 2 | Produce Level III GO HLR schedule to define required trade studies and dependencies between GO and other Level III projects (Note: This schedule will be used to further define mitigation steps). | quinnsm | 10/1/08 | 9/25/08 | 4 x 4 red | Draft roadmap schedule complete |
| 3 | Continue to get feedback from UB Business Office as to any impact possible SSPF O&M contractual changes may have on cost threat | quinnsm | 2/1/09 | 3/1/09 | 4 x 3 yellow | New SSPF O&M cost projections provided by UB in support of LX budget development for the 2009 PPBE |

# CxIRMA Risk: 2430 Summary Report

**Open Date:** 9/17/2007 Status as of 8/18/2009 **ECD:** 6/16/2010

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 4 | Initiate Trade Study that will, in part, determine the role of the SSPF in supporting Altair AI&P and Ground Processing, and Lunar Surface System (LSS) Ground Processing | quinnsm | 1/29/10 | | 3 x 3 yellow | SSPF useage for lunar flight hardware ops determined and approved as part of overall ground architecture |
| 5 | SSPF O&M budget obtained through 2010 PPBE to cover costs for facility utilization recommended by TDS GOP-00-1019 that are above current 2009 PPBE funding levels | quinnsm | 3/15/10 | | 1 x 2 green | SSPF usage by Cx through 2025 understood and funded |
| 6 | SSPF O&M cost gaps for FY17-25 (ie the percentage of the SSPF O&M not covered by Cx specifically for Altair/LSS ops) are identified, and a funding sources determined | quinnsm | 3/15/10 | | 1 x 1 green | No SSPF funding gaps through FY in PPBE 2010 scope. |

# CX IRMA Risk: 2315 Summary Report

**Open Date:** 08/20/2007 Status as of 08/18/2009 **ECD:** 06/30/2009

| | |
|---|---|
| **Risk Title:** Preservation and Storage of Shuttle Hardware for Constellation<br>**Escalation Level:** None<br>**Phase(s):** No Phases identified | **Owning WBS Element:** GO_LXV_LV<br>**Risk Owner:** Bao Nguyen |

**Risk Statement:**

Given the fact that shuttle flight hardware to be used by Constellation Program may not be preserved and protected properly to support manifest; there is a possibility that flight worthy hardware will be costly to program if not preserved and stored properly.

**Context:**

SRB Project has a plan to put flight hardware in minimum condition for storage through 2010. Any remaining structures not in storage condition at that time shall be preserved by Constellation Program. Long term preservation (5-10 years) would require a high degree of preservation to maintain flight status. SRB Project is actively seeking storage solution for all flight structures designated for Constellation.

| Likelihood: 4 | Safe: 0 | Perf: 3 | Sched: 3 | Cost: 2 |
|---|---|---|---|---|

**Status:**

8/14/2009 Trade study for storage completed. Presented to OCP and GSCB August 2009. Will go to CxAMP September for decision. If recommendation is approved, this risk may be closed.

# CxIRMA Risk: 2315 Summary Report

**Open Date:** 8/20/2007 Status as of 8/18/2009 **ECD:** 6/30/2009

## Mitigation Summary

**Mitigation Plan:** Provide protective storage of flight hardware and put them on preservation/inspection plan so that they can maintain their flight-condition status.

**Fallback Plan:** Provide all hardware storage at various KSC facilities, including VAB, if a centralized location is not identified. Ancillary hardware and associated GSE may need to be stored separately from major flight structures.

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Arrangement for short ternm storage at the SLF warehouse completed. | NGUYEBT | 6/1/07 | 7/1/07 | 0 x 0 | Two forward skirts and two aft skirts are currently in storage at SLF. |
| 2 | LX-V to review 10PLN-0191 Preservation Plan and provide comments to USA SRBE | NGUYEBT | 11/30/07 | 12/14/07 | 0 x 0 | No comments provided at this time |
| 3 | Perform trade study with Ares of all potential storage options | NGUYEBT | 7/1/09 | | 0 x 0 | Recommendation to CxP |
| 4 | CCAFS hangars and offsite facilities are under discussions. | NGUYEBT | 9/1/08 | 9/1/09 | 0 x 0 | Move necessary hardware into Hangar/Storage facilities prior to 2009 Hurricane season |

# CX IRMA Risk: 1178 Summary Report

**Open Date:** 08/23/2006 Status as of 08/18/2009 **ECD:** 09/30/2010

| | |
|---|---|
| **Risk Title:** Turnover of Launch Site Processing Assets to Support GOP<br>**Escalation Level:** TDR<br>**Phase(s):** IOC, CxLEO OPS, HLR | **Owning WBS Element:** GO_LX_I_OI<br>**Risk Owner:** Melodie Jackson |

**Risk Statement:**

Given the history of Space Shuttle Program manifest changes; there is a possibility that Launch Processing assets turnover delays could result in Constellation Ground Operations inability to meet current baseline project milestones.

**Context:**

This risk has been updated to capture an overarching risk addressing the potential SSP manifest decisions that may result in delayed asset transition and Constellation Ground Operations project baseline milestone impacts.

| Likelihood: 3 | Safe: 0 | Perf: 0 | Sched: 4 | Cost: 0 |
|---|---|---|---|---|

**Status:**

8/14/2009 SMRT doc for VAB High bay 3 is going to be processed through boards (JTCB, PRCB, TCB) starting no earlier than September to document transfer to Cx. GOP is pressing with contracts to start demolition in January timeframe, with some flexibility built in. Risk 2325 was escalated to address specific High Bay turnover issues. At the July TRR Program approved de-escalation of 1178 and escalation of 2325, and will present at the next ESMD TRR.

# CxIRMA Risk: 1178 Summary Report

**Open Date:** 8/23/2006 Status as of 8/18/2009 **ECD:** 9/30/2010

## Mitigation Summary

**Mitigation Plan:** Work with SOMD and ESMD transition planning. This risk was escalated to the ESMD level for visibility and advocacy purposes. Establish "Children" risks as necessary. Children risks will provide details on specific impacts and will be managed at the project level. Work with the appropriate Agency Transition Governance entities,(e.g., Transition Control Board (TCB) and Joint Integration Control Board (JICB) to facilitate tactical implementation and alignment with strategic perspectives.

**Fallback Plan:** When an asset turnover delay cannot be avoided, as in the case of Pad B turnover due to Hubble Space Telescope (HST) Launch On Need (LON), every effort will be made to restrict impacts to less critical milestones preserving ORD and launch dates to the maximum extent possible.

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Assess alternative concepts both internally generated and resulting for the Broad Area Announcements (BAA) studies | SColloredo | 12/31/06 | 12/31/06 | 4 x 4 red | |
| 2 | Acquire a Transition Manager for Ground Systems to provide single POC for all Ground Systems transition management work. | reedmb | 12/10/07 | 1/21/07 | 4 x 4 red | |
| 3 | Evaluate the impact of HST LON on Pad B project development and establish "Children" risks as needed | browncm | 3/31/07 | 3/31/07 | 3 x 4 yellow | Children risks: 1184, Pad B and LON Hubble Flight Conflicts and 1638, HST LON Slip impact on Pad B established |

# CxIRMA Risk: 1178 Summary Report

**Open Date:** 8/23/2006 Status as of 8/18/2009 **ECD:** 9/30/2010

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 4 | Establish GOP transition manager position and supporting organization | tanderson | 6/15/08 | 6/15/08 | 4 x 4 red | Melodie Jackson designated as LX Transition Manager |
| 5 | Transfer ownership of risk to LX I and re-evaluate mitigation and score | tanderson | 6/15/08 | 6/15/08 | 4 x 4 red | moved to LX O&I |
| 6 | Provide CxP impacts to various SSP launch options. As soon as HST repair mission (STS-125) launch date is determined, impacts will be fully assessed. | mjackson | 11/25/08 | 11/25/08 | 4 x 4 red | |
| 7 | Temporarily Receive VAB HB 3 from SSP to support Ares I-X | mjackson | 1/20/09 | 1/16/09 | 4 x 4 red | Modifications are currently occurring on a non-interference basis; date for full use for Ares I-X is dependant on HST |
| 8 | Receive commitment from SSP to turnover VAB HB 3 in Jan 2010; proceed with advertising HB 3 design for contract award (DATE TBD) | mjackson | 1/22/09 | 1/26/09 | 3 x 4 yellow | |
| 9 | Temporarily Receive MLP 1 from SSP to support Ares I-X | mjackson | 3/19/09 | 3/26/09 | 3 x 4 yellow | Receive MLP after 2/19/09 SSP launch |

# CxIRMA Risk: 1178 Summary Report

**Open Date:** 8/23/2006 Status as of 8/18/2009 **ECD:** 9/30/2010

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 10 | Decision to turnover PAB B to Support Ares I-X and Ares I-Y | mjackson | 4/1/09 | 3/30/09 | 3 x 4 yellow | Shuttle decided on dual Pad |
| 11 | Receive Pad B from SSP to support 8/31/09 Ares I-X and Ares I-Y (Shuttle decided on dual Pad for HST LON) | mjackson | 5/29/09 | 5/30/09 | 3 x 4 yellow | HST Pad A date is 5/12/09; LON pad B date is 5/19/09, turnover would be following week |
| 12 | Develop a KSC Ground Operations Transition Plan that establishes internal processes and procedures that correlate with similar KSC & SSP Transition Plans | jacksonm | 10/15/09 | | 3 x 4 yellow | Release. ECD is TBD |
| 13 | Receive VAB HB 3 from SSP to support Ares I-Y | mjackson | 1/10/10 | | 1 x 1 green | |

# CX IRMA Risk: 1956 Summary Report

**Open Date:** 04/13/2007 Status as of 08/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Constellation Environmental Assurance<br>**Escalation Level:** None<br>**Phase(s):** No Phases identified | **Owning WBS Element:** Loads_SIG<br>**Risk Owner:** Michael Pedley |

## Risk Statement:

Given the continual issues with environmentally-related regulation and modification of materials and manufacturing processes and the need to mitigate obsolescence, performance and safety risks associated with such materials and processes; there is a possibility that there will be an excessive cost impact to the Constellation Program through duplication of uncoordinated, independent activities at the prime and subcontractor level to address these issues. Contractor lack of awareness of materials reformulation can result in risks to safety, performance, and schedule.

## Context:

A budget threat exists to ensure Coordination with both Program-level mitigation strategies such as obtaining regulatory approval to continue using specific materials and Project-level mitigations such as stockpiling critical materials, evaluation of materials formulation changes, and phasing out regulated items through design and process changes.

| Likelihood: 3 | Safe: 3 | Perf: 4 | Sched: 4 | Cost: 3 |
|---|---|---|---|---|

## Status:

5/14/2009 We need to note that if this risk does not get funded in March 2010, it will become an issue. (Please see all 5/12/09 entries for updated status of this risk.)

# CxIRMA Risk: 1956 Summary Report

**Open Date:** 4/13/2007 Status as of 8/18/2009 **ECD:**

## Mitigation Summary

**Mitigation Plan:** Brief Level II organizations in May 2007 with goal of validating need for CxEA coordination at Level II and identifying which organization shouold own the requirement. Obtain funding for centralized management of activity at Level II and set up team with active CS and Prime Contractor participation from all CxP Projects and Elements actively designing and building flight hardware. Close risk when functioning CxP Environmental Assurance team exists and track specific environmentally-driven risks separately.

**Fallback Plan:** Allow each Project/Element to work environmental issues individually. Potential consequences are excessive duplication of work, resulting in excessive cost to program, and failure to identify significant materials formulation changes, leading to cost, schedule, and hardware performance risks.

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | CxCB approval and resources Plan | jrhatiga | 6/17/07 | 6/17/07 | 3 x 4 yellow | Have CxCB approval and resources Plan. |
| 2 | Identify Level II Office to manage this | jrhatiga | 5/21/07 | 8/13/07 | 3 x 4 yellow | Have concurrance with new level II office to transfer risk. |
| 3 | Transfer ownership of risk to SE&I, ILSM SIG | mdpedley | 8/31/07 | 9/10/07 | 3 x 4 yellow | Identify a risk owner by name. |
| 4 | Establish detailed scope of activity through meetings and telecons with Shuttle Environmental Assurance lead (Steve Glover/MSFC). Refine cost estimate based on detailed scope. | mdpedley | 12/19/07 | 12/19/07 | 3 x 4 yellow | Detailed scope of activity is established. Refined cost estimate. |

# CxIRMA Risk: 1956 Summary Report

**Open Date:** 4/13/2007 Status as of 8/18/2009 **ECD:**

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 5 | Brief Projects, Elements, and Prime Contractors on CxPEA function and set up team to work integrated environmental issues with active contractor participation. | mdpedley | 4/30/09 | 4/29/09 | 3 x 4 yellow | Team is set up to work integrated environmental issues. |
| 6 | Create CxP Environmental Assurance Plan document based on NSTS 37345, Program Management Plan for Shuttle Environmental Assurance Initiative -- complete draft in time to support PPBE. | mdpedley | 6/30/09 | | 3 x 4 yellow | CxP Environmental Assurance Plan draft is complete. |
| 7 | Obtain CxCB approval of proposed task, together with funding for CxPEA activity starting in FY11 | mdpedley | 3/24/10 | | 2 x 2 green | Received CxCB approval of proposed task with funding for CxPEA activity. |
| 8 | Close risk and track specific environmentally driven risks individually as they arise | mdpedley | 10/31/12 | | 0 x 0 | |

# CX IRMA Risk: 4152 Summary Report

**Open Date:** 02/23/2009 Status as of 08/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** Mission Operations Constellation Skills/Workforce Retention<br>**Escalation Level:** None<br>**Phase(s):** No Phases identified | **Owning WBS Element:** MO<br>**Risk Owner:** Martin Demaret |

**Risk Statement:**

Given the reduced levels of manpower due to transition from Shuttle operations to Constellation in FY11 and FY12; there is a possibility that skillsets required in FY2013 and beyond will not be available for rehire, requiring increased costs to bring new hires up to the required level of capabilities for the Constellation Program.

**Context:**

This risk is intended to smooth out the workforce levels in FY11 and 12, which reflect significant downsizing in both years. Rehiring individuals with the required generic skills, and then training them in the specific skills used in operations, could take several years.

| Likelihood: 3 | Safe: 0 | Perf: 0 | Sched: 0 | Cost: 4 |
|---|---|---|---|---|

**Status:**

6/30/2009 Updated mitigation plan. Step 2 is being worked at the directorate level.

# CxIRMA Risk: 4152 Summary Report

**Open Date:** 2/23/2009 Status as of 8/18/2009 **ECD:**

## Mitigation Summary

**Mitigation Plan:** MOD worked yearly manpower requirements at the division level. This risk addresses the directorate issue of leveling the workforce over the coming years.

**Fallback Plan:**

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Workforce requirements developed at the division level for PPBE 09. | mdemaret | 2/20/09 | 2/20/09 | 3 x 4 yellow | Requirements presented to MOP management for review. |
| 2 | DA3 integrates workforce levels across directorate, develops plan to minimize reduction to skillset. | mdemaret | 9/1/09 | | 3 x 4 yellow | Enter risk into IRMA system for funding, incorporate into MOP presentation for face to face presentation to CxP. |
| 3 | Prioritize workforce assignments to buy back schedule and reduce risk to the programs. | mdemaret | 10/1/09 | | 1 x 1 green | |

# CX IRMA Risk: 1165 Summary Report

**Open Date:** 08/07/2006 Status as of 08/18/2009 **ECD:** 01/15/2009

**Risk Title:** Facilities Readiness

**Escalation Level:** TProjR

**Phase(s):** No Phases identified

**Owning WBS Element:** Facility_and_Asset_Intg

**Risk Owner:** Bonnie James

## Risk Statement:

Given the numerous facilities required by Constellation; there is a possibility that Agency and Constellation plans have not adequately accounted for restoration or replacement of facilities in time to meet Cx needs.

## Context:

Effects : Numerous facilities, including NASA and DoD, currently identified as Constellation required, have been left in a mothball state. Many of these are propulsion facilities but also include some wind tunnels and structural facilities. Results of trades have also led to identifying the need to upgrade facilities and construction of new facilities, in some cases with capabilities that do not exist. There is a possibility that the Constellation program may not have sufficient funds to bring these facilities to a operational readiness status to meet program milestones. Failure to bring facilities to the operational state will impact Constellation development schedules.

**Likelihood: 2** **Safe: 2** **Perf: 2** **Sched: 2** **Cost: 3**

## Status:

7/16/2009 CoF Lean Six Sigma, independent audits of SET and SSC A-2 test stand and CoF best practices complete. Working to implement the findings to establish process for continuous identification of facility requirements.

# CxIRMA Risk: 1165 Summary Report

**Open Date:** 8/7/2006 Status as of 8/18/2009 **ECD:** 1/15/2009

## Mitigation Summary

**Mitigation Plan:** Coordinate with Projects to identify near-term facility needs and a long-term process (Managed Asset Document) to maintain constant awareness of facility needs threats.

**Fallback Plan:**

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Support PMR Rev 2 to initially identify Facility liens | gxenofos | 10/15/06 | 10/25/06 | 4 x 4 red | PMR Rev 2 Review concurrence |
| 2 | Establish the Constellation Asset Management Panel | dfender | 12/6/06 | 12/6/06 | 3 x 4 yellow | Charter approved by CxCB |
| 3 | Develop CAMP CoF call and support other Constellation and Agency CoF | dfender | 3/8/07 | 3/8/07 | 3 x 4 yellow | Release with PPBE Guidelines |
| 4 | Baseline planning references from projects | dfender | 4/17/07 | 4/17/07 | 3 x 4 yellow | All Projects complete input |
| 5 | Baseline list of facilities gaps and overlaps in utilization and funding | dfender | 4/17/07 | 4/17/07 | 3 x 4 yellow | Roll-up of Gaps Identified and presentation to Cx |
| 6 | CxCB to release directive for CoF Process | dfender | 8/1/07 | 9/19/07 | 3 x 4 yellow | Signed by CxP Program Manager |
| 7 | Identify needed facilities to SCAP - Initial list | dfender | 11/27/07 | 11/27/07 | 3 x 4 yellow | A list of facilities required by CxP |
| 8 | Present official list of needed facilities at the CxAMP | dfender | 12/14/07 | 12/14/07 | 3 x 4 yellow | Initial input from Projects –facility list will continue to mature with program |

# CxIRMA Risk: 1165 Summary Report

**Open Date:** 8/7/2006 Status as of 8/18/2009 **ECD:** 1/15/2009

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 9 | Establish PPBE guidance for Facilities (at Program level) | dfender | 12/15/07 | 12/15/07 | 3 x 4 yellow | Facility guidance released from PP&C |
| 10 | Distribute Draft Program Executive Team (PET) CxAMP document | dfender | 2/5/08 | 2/5/08 | 3 x 4 yellow | meet with each project and negotiate content |
| 11 | Release PET CxAMP scenario | dfender | 2/20/08 | 2/20/08 | 3 x 4 yellow | PET approves CxAMP scenario |
| 12 | Final version of PET CxAMP scenario | ktemplin | 5/15/08 | 5/15/08 | 2 x 3 yellow | Approved and added to PET document |
| 13 | PPBE '08 | dfender | 6/1/08 | 5/15/08 | 2 x 4 yellow | Baseline established for facility funding; new risks generated for unfunded gaps. |
| 14 | Completed ERIC review. | ktemplin | 8/29/08 | 8/29/08 | 2 x 3 yellow | ERIC brief to CxAMP. CxAMP maintaining.. ERIC data on Wiki. |
| 15 | Review CoF projects for PPBE II | bjames | 1/16/09 | 1/16/09 | 2 x 3 yellow | CoF briefed to CxAMP |
| 16 | Roll ERIC results into PPBE II budget | bjames | 2/28/09 | 2/25/09 | 2 x 3 yellow | Funding requirements approved or risk accepted |
| 19 | CoF Best Practices Review | bjames | 5/31/09 | 5/31/09 | 2 x 3 yellow | Best practices review complete |
| 18 | CoF Lean Six Sigma Process Review | bjames | 6/25/09 | 6/25/09 | 2 x 3 yellow | Lean Six Sigma event complete |

# CxIRMA Risk: 1165 Summary Report

**Open Date:** 8/7/2006 Status as of 8/18/2009 **ECD:** 1/15/2009

## Mitigation Summary

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 17 | Independent audits of SSC A-2 Test Stand and Space Environment Test Facility | bjames | 7/15/09 | 7/15/09 | 2 x 3 yellow | Audits complete |
| 20 | Implement findings from CoF Best Practices, Facility Audits, Lean Six Sigma to establish process for continuous identification of facility requirements | bjames | 10/1/09 | | 0 x 0 | |

# ARM Risk: 2017 - COTS partners may not be able to achieve cargo and crew capabilities on planned schedule
# Risk Detail Report

**Open Date:** 10/27/2006 **Status as of:** 8/18/2009 **ECD:**

| | |
|---|---|
| **Risk Title:** COTS partners may not be able to achieve cargo and crew capabilities on planned schedule<br><br>**Escalation Level:** Top Directorate Risk | **Owning WBS Element:** Commercial Crew & Cargo Program<br>**Risk Status:** Approved<br>**Risk Owner:** Alan Lindenmoyer |

**Risk Statement:** Given the COTS partners have technical or financial problems and cant stay on schedule; there is a possibility that cargo and crew services would not be available to the Space Station Program in the time-frame that they need them.

**Likelihood: 4** **Safety: 0** **Performance: 3** **Schedule: 3** **Cost: 0**

**Context:** Since the Space Act Agreement is milestone driven and is tied to the COTS participants schedule, it is possible that the participant may miss a milestone.

**Status:**

6/4/2007 9:20:27AM - Designated as Top Program Risk during phone call with Mark Erminger

12/13/2006 12:04:32PM - Risk approved by C3CB on 12/13/06

**Handling Strategy:** Mitigate

**Mitigation Plan:** - Updated Orbital Space Act Agreement as a result of changes in development plan
- Monitor and assess development progress and facilitate NASA technical assistance as appropriate
- Conduct an independent C3PO assessment of COTS partner schedules

**Fallback Plan:** Develop a plan to end the current Space Act Agreement and start up another company to take their place if necessary

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| | | | | | | |

# ISS Risk: 5733 Detail Report

| Open Date: 10/13/2006 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

| Title: COTS-CEV Integration Impact on ISS Program Resources | Status: OPEN | Escalation: TPR |
|---|---|---|

**Risk Statement:** Given the addition of COTS and CEV vehicle integration with ISS, there is a possibility that current ISS resources may not be able to support both Programs on the current schedules.

**Description/Context:** Activities associated with integration of COTS and CEV impact the critical ISS resources required to support the ISS mission.

**Impact/Consequence:** Insufficient resources to meet dual program schedule requirements.

| Risk Owner (RO): Dillon, Ford (William) | Phone No.: 281-244-7074 | Mgmt. Org. (MO): ON | Sub Org (SO): ON | Likelihood | X | Cost | Schedule | Technical | Safety |
|---|---|---|---|---|---|---|---|---|---|
| Flights/Stages Affected: PROGRAMMATIC | | Orgs Affected: CA, DA, EA, EXTNL, OB, OC, OD, OE, OH, OM, OZ, SA, TA, XA, ZA | | 4 | | 4 | 4 | 4 | 4 |

**Scoring Rationale:** Likelihood: 4 (likely to happen) Consequence: 4 (cost)

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| Low: 17 | Most Likely: 40 | High: 54 | 0 | 0 |

**Cost Breakdown:** 6/09/09 Update: Updated cost breakdown reflects new cost threats from OC based on absorption of CR 11575 tasks with no additional STaR funds applied.

**Closure/Acceptance Criteria:** Program funding decision.

**Closure/Acceptance Rationale:**

**Risk Status:**

8/10/2009 - Updated status on 11558 and update to OC cost breakdown

6/15/2009 - Updated cost breakdown reflects new cost threats from OC based on absorption of CR 11575 tasks with no additional STaR funds applied.

3/24/2009 - Updated risk mitigation tasks for final Orbital Integration & CRS Implementation CRs. Also updated cost fields to reflect captured threat impacts for same CRs as presented at the SSPCB on 3/24/2009

2/2/2009 - 11015 negotiation completed. Contract mod in work.

12/12//2008 - Tech Evals submitted to Contracts

# ISS Risk: 5733 Detail Report

| Open Date: 10/13/2006 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

11/1/2008 - Partial UCA for 11015 extended until Jan 31, 2009. 11015 Proposal received Oct 30, 2008 by NASA and in review with teams.

6/12/2008 - Authorized to proceed with partial UCA for CR11015. CR 11015 will cover Orbital until Dec 2008. Space X and CEV will be covered for FY09 & FY10. A Generic vehicle will be covered from Jan 2009 to Sept 2009. Finalizing Non-Prime Cost numbers. Boeing firm proposal forthcoming.

3/3/08 -- Risk ownership is being transferred to the new ISS Transportation Integration Office (Code ON). Risk owner is Ford Dillon.

2/4/2008 -- CR 10261A for FY08 funding has been definitized. A follow-on CR for post FY08 funding is in work and will be sent to the ISS organizations for evaluation in early February. This new follow-on CR to 10261A will add T&V closeout and any additional commercial partner requirements. In addition, CR 10829 was approved at the SSPCB to capture Space X related software development avionics integrated testing and (COTS UHF Communications Unit) CUCU Boeing related integration support for the Avionics & Software Office (OD). Forward plan for COTS-CEV Integration is being updated and will be reflected in the mitigation summary.

8/13/07 -- Technical evaluations and the IGE for CR 10261A were finalized and submitted to NASA Procurement at the end of July. The intent is to have the CR negotiated and on contract by the end of this month.

7/25/07 -- For the COTS/CEV CR 10261A, technical evaluations and the Independent Government Estimate (IGE) are in-work and both should be completed by the end of July. Revision A refines the Boeing cost estimate for FY07 and provides the firm estimate for FY08. The COTS IDR CR was presented to the 7/24 PICB, with Board approval to proceed to SSPCB. The C3PO / SSP MOA is ready for ISS Program Management signature.

5/17/2007 -- CR 10261 Basic Boeing proposal package received. Verification reviews ongoing with SpaceX. RpK comments to IRD Section 4's scheduled to be received the week of May 21. Final MDA content being reviewed by COTS Program management.

4/4/07 -- TCM for CR 10261 Rev. A will be conducted 4/10/07. Plan is to take to SSPCB on 4/17. Cost estimate will be updated following PPBE come-back.

3/22/07 -- SSCN 10261 was approved at the SSPCB on 2/6/2007. Part of the FY07 risk was retired followng that approval. Remaining dollars are for potential software or testing required to start in FY07. CR 10261 Revision A was signed in for Program review on 3/6/07. Impact evaluations are due back on 3/27/07. Proposed TOR # 5806 opened in IRMA for cargo-related VVI tasks.

2/1/07 --- Identified early Govt. estimate of CAM costs being evaluated under CR 10261.

1/12/07 -- CR 10261 content was revised to cover the design review, verification planning, integrated analytical support, software requirements definition, and ops requirements planning for FY07 - FY10. Follow-on CRs will authorize specific modifications and operations products and integrated testing. CAMs have provided FY07 cost numbers for incorporation in this risk. Out-year costs will be developed as requirements are further defined and follow-on CRs authorized.

12/8/06 -- After several reviews with ISS senior management and key contractors, CR 10261 was authorized to collect cost estimates across Program organizations for FY07-FY10. A TCM is planned for mid-December. Any potential out-year costs (post-FY10) will be addressed via the FY07 PPBE.

10/03/2006 -- Established TPR per 10/12/06 PRAB Chair direction. Details are in-work pending based on COTS planning schedules.

# ISS Risk: 5733 Detail Report

| Open Date: 10/13/2006 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

# ISS Risk: 5733 Detail Report

| Open Date: 10/13/2006 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Amount Budgeted ($M) | Inaction Cost ($M) | Comments |
|---|---|---|---|---|---|---|
| 09 | 0 | 0 | 0 | 0 | 0 | Early estimate identified via original CR 10261. Added to the MLC the $3.8M estimated for CUCU (CR 10829). |
| 10 | 8 | 4.7 | 2 | 0 | 0 | Early estimate identified via original CR 10261. Added to the MLC the $1.2M estimated for CUCU (CR 10829) |
| 11 | 9 | 7 | 2 | 0 | 0 | |
| 12 | 8 | 5.3 | 2 | 0 | 0 | |
| 13 | 10 | 7.8 | 3 | 0 | 0 | |
| 14 | 11 | 9.1 | 5 | 0 | 0 | |

| Totals ($M) | 46 | 33.9 | 14 | 0 | 0 |
|---|---|---|---|---|---|

# ISS Risk: 5733 Detail Report

| Open Date: 10/13/2006 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan Overview:** 2/5/08 -- Incremental funding via CR 10261 revisions and separate CRs for any additional requirements not previously captured under STaR or CR 10261. 7/25/07 -- NASA Tech Eval and IGE for Boeing Proposal for CR10261A are nearing completion. ACES working with CAMs on key content/costing assumptions. IRD and associated ICDs in work to finalize requirements.3/22/07 -- Revision A of CR 10261 is under review to capture FY08 cost impacts. 1/12/07 -- CR10261 is in review to collect Program cost estimate for COTS and CEV integration.10/13/2006 -- MItigation strategy is in-work.

**Fallback Plan Overview:**

| Task No. | Task Description | MO | Individual | MTSD | ECD | ACD | Resulting L x C | | | | | Success Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | L | C | S | T | Sa | |
| 1 | Space X IRD release | OA | K. Lueders | | 12/22/2006 | 12/22/2006 | 4 | 4 | 4 | 4 | | Release |
| 2 | Develop mitigation strategy and plan forward. | OM | K. Lueders, A. Tabakman | | 12/31/2006 | 12/31/2006 | 4 | 4 | 4 | 4 | | Program concurrence and direction |
| 3 | CR10261 to SSPCB | OA | K. Lueders | | 1/30/2007 | 1/30/2007 | 4 | 4 | 4 | 4 | | SSPCB approval |
| 4 | Initiate verification planning | OA | K. Lueders | | 2/19/2007 | 2/26/2007 | 4 | 4 | 4 | 4 | | |
| 5 | Refine COTS partners & ISS Program responsibilities for COTS integration and C3PO/ISSP MOA. | OM | K. Lueders | | 6/11/2007 | 7/24/2007 | 4 | 4 | 4 | 4 | | Approved MOA |
| 6 | IRD CR to PICB | OA | K. Lueders | | 7/31/2007 | 7/24/2007 | 4 | 4 | 4 | 4 | | PICB approval |
| 7 | Integrated test requirements | OA | K. Lueders | | 9/30/2007 | 9/30/2007 | 4 | 4 | 4 | 4 | | Draft JIVTP (Space X - 9/30) |
| 8 | Data and hardware requirements | OA | K. Lueders | | 9/30/2007 | 9/30/2007 | 4 | 4 | 4 | 4 | | Draft Deliverable Items Agreement (Space X - 9/30) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | Initiate CR 10829 | OD | M. Urano | | 1/22/2008 | 1/22/2008 | 4 | 4 | 4 | 4 | | Board authorization to proceed; partial UCA |
| 10 | Initiate Follow-On Post 10261CR. | ON | F. Dillon | | 5/1/2008 | 5/20/2008 | 4 | 4 | 4 | 4 | | Authorization to proceed with Boeing Partial UCA for 11015 |
| 11 | Process Updated 11015 UCA | ON | F. Dillon | | 6/17/2008 | 6/30/2008 | 4 | 4 | 4 | 4 | 4 | Authorized UCA |
| 12 | Extension of 11015 UCA | ON | F. Dillon | | 10/1/2008 | 10/14/2008 | 4 | 4 | 4 | 4 | 4 | Signed 11015 UCA |
| 13 | Inititate CR for S/W integration CR 11431 | OD | M. Bordelon | | 2/23/2009 | 2/23/2009 | 4 | 4 | 4 | 4 | | CR in review |
| 14 | Initiate CR for Orbital Integration FY10 (CR 11558) | ON | F. Dillon | | 2/20/2009 | 2/24/2009 | 4 | 4 | 4 | 4 | | CR in review |
| 15 | Initiate CR for CRS Implementation (CR 11575) | ON | F. Dillon | | 3/10/2009 | 3/10/2009 | 4 | 4 | 4 | 4 | | CR in review |
| 16 | Full Implementation of 11015 | ON | F. Dillon | | 4/20/2009 | 4/16/2009 | 4 | 4 | 4 | 4 | | signed 11015 |
| 17 | Full Implementation of CR 11558 | ON | F. Dillon | | 10/1/2009 | 7/2/2009 | 4 | 4 | 4 | 4 | | Signed Directive |
| 18 | Full Implementation of CR 11431 | OD | M. Bordelon | | 10/1/2009 | | 4 | 3 | 4 | 4 | | Signed Directive |
| 19 | Full implementation of CR 11575 | ON | F. Dillon | | 10/1/2009 | | 4 | 3 | 4 | 4 | | Signed Directive |

# ISS Risk: 5733 Detail Report

| Open Date: 10/13/2006 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

## Flight/Stage Summary

| Flight/Stage No. | Flight/Stage Acceptance Rationale |
|---|---|
| PROGRAMMATIC | |

# ISS Risk: 5184 Detail Report

| Open Date: 6/2/2004 | Status As Of: 8/21/2009 | ECD: 12/31/2012 |
|---|---|---|

| Title: USOS Cargo Resupply Services (CRS) Shortfall - 2010 through 2015 | Status: OPEN | Escalation: TPR |
|---|---|---|

**Risk Statement:** Given STS retirement in 2010, there is a 40 metric ton USOS usable cargo transportation shortfall from 2010 through 2015. Based on the 2008 OSD, delay in 2010 leads to significant scaling back of utilization on-orbit. Delay in 2011 means you can no longer maintain 6 crew or utilization.

**Description/Context:** With STS retirement in 2010, the USOS usable cargo transportation through 2015 exceeds the USOS cargo transportation capabilities available to NASA from the ISSP International Partners via common systems operating cost and barter agreements. The projected shortfall is 40 metric tons of usable cargo (packaging not included).

**Impact/Consequence:** Lack of adequate USOS cargo capabilities will result in a loss of ISS functionality and productivity due to the elimination of ISS vehicle elements, insufficient quantities of maintenance and research cargo resupply, severe reduction of return mass; and crew time to support USOS maintenance and utilization.

| Risk Owner (RO): Dillon, Ford (William) | Phone No.: 281-244-7074 | Mgmt. Org. (MO): ON | Sub Org (SO): ON | Likelihood | X | Cost | Schedule | Technical | Safety |
|---|---|---|---|---|---|---|---|---|---|
| Flights/Stages Affected: PROGRAMMATIC | | Orgs Affected: CA, DA, EA, OB, OC, OE, OM, OX, OZ, SA, XA | | 4 | | 3 | 3 | 2 | |

**Scoring Rationale:** Likelihood = 4 Rationale: Space Shuttle retirement cannot be avoided, but alternatives exist for reducing requirements or procuring or developing additional transportation capability to meet ISSP requirements. Consequences = 5 Cost: 5 Rationale: Cost to reduce requirements, or procure or develop additional transportation capability will exceed $50M. Schedule: 4 Rationale: Inadequate transportation wil impact Program milestones. Technical: 4 Rationale: Inadequate transportation will result in major ISS performance degradation.

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| Low: 0 | Most Likely: 0 | High: 0 | 0 | 0 |

**Cost Breakdown:** Cost estimates to mitigate ISS crew and cargo transportation shortfall were assessed with all affected organizations. The MLC cost estimate was submitted as an overguide to the ISS Program Manager's Recommend in PPBE10 for cargo shortfall.

**Closure/Acceptance Criteria:** ISSP mission objectives are satisfied with available cargo transportation services.

**Closure/Acceptance Rationale:**

**Risk Status:**

6/15/2009 - Updated cost to reflect budget release.

2/13/2009 - Update to reflect Cargo risk only

1/1/2009 - Contracts awarded

8/25/2008 - Updated risk statement to reflect impacts to Utilization in the event of a delay in cargo transportation.

6/13/2008 - Updated risk statement usable cargo value to be consistent with the updated budget threats.

# ISS Risk: 5184 Detail Report

| Open Date: 6/2/2004 | Status As Of: 8/21/2009 | ECD: 12/31/2012 |
|---|---|---|

5/9/2008 - Updated the MLC to reflect the current budget threat.

3/3/08 -- Following the 2/20 PRAB, per agreement with the new ISS Transportation Integration Manager/K. Lueders (Code ON), this TPR is transferring from OM to ON. Risk owner is W. Ford Dillon. As part of the PPBE 10 exercise, ON will update the risk content and work with OH to update the MLC to reflect current the budget threat.

2/5/2008 -- SPARC Manager/ J. LaRochelle is working with Commercial Resupply Manager/K. Lueders to develop a more detailed risk mitigation plan as requested by the ISS Program Manager. The updated plan forward will be presented at the 2/20/08 PRAB.

9/28/07 -- The transportation shortfall has been updated with the latest requirements and vehicle capabilities, reviewed by Porgram Management, and is in review at HQ. Additional transportation service acquistion activities are ongoing for COTS, commercial, and IP vehicles. The COTS development continues to make progress with respect to ISS integration activities. A commercial transportation strategy Request For Information was released and comments received back from Industry. The ISS resupply proocurement strategy is in work and will be presented to NASA Headquarters this November. The External Relations Office continues fact finding the capability to obtain additional IP vehicle services post-2010 if required to mitigate shortfall. Budget discussions are ongoing to mitigate the cost risk associated with the procurement of additional transportation services.

6/20/07 -- Working with ISS PP&C, combined the the crew and cargo transporation risks into 5184 per PRAB Chair direction. Costs updated to reflect the initial PPBE submit (high) and the final PPBE submit (MLC).

05/16/07 – Developing a mitigation plan based on the results of the May, 2007, NASA Headquarter discussions. Plan to brief Program management on proposed mitigation plan and document results in Risk 5184 by the end of June, 2007.

04/04/07 – NASA has obtained 4.2 and 1.4 metric ton of cargo transportation services from Roscosmos for calendar year 2010 and 2011, respectively. Requirements, capability and resulting shortfall continue to be refined and will be presented to Program management.

1/14/2007 – OM Traffic Model Assessment complete. Results being briefed to ISSP management. Coordination of results in work with international Partners during January and February with results being brought to Feb 27, 2007 MPICB and subsequent SSCB(s) for review and concurrence. Results will establish updated cargo shortfall and mitigation strategy.

12/15/08 -- Strategic Planning & Analysis team continues to work closely with ISS and Shuttle management to refine the Transportation Plan (assembly sequence, Traffic Model, integrated carrier plan, resupply requirements, etc.), which forms the basis for mitigation of the 54.4 Mt shortfall.

10/20/06 -- No Significant change. ISS requirements and capabilities are under review with assessments due by January 2007.

8/18/206 -- The near-term (pre-STS retirement) challenge was split out to a separate Risk (#5666) to account for the utilization, resupply and corrective maintenance shortfall. This risk now addresses the post-STS timeframe. Risk was modified to clarify the conditions causing the shortfall, the time period covered by the risk, the Partners affected by the risk, the consequence rationale, and the mitigation plan. The team continues to assess the Prorgram's dynamic transportation requirements and capabilities.

6/29/06 -- Per PM direction, escalated to a Top Program Risk (TPR), reflecting the critical nature of the cargo transportation shortfall relative to overall mission success as well as the fact that the risk mitigation is contingent upon several external factors. Updated risk ranking and scoring rationale to more accurately reflect the risk posture.

6/19/06 -- Developed an updated risk mitigation plan and continued to calculate the cost of mitigation. Since the ISS Program (and SOMD) does not own the budget for obtaining all the transportation services required to meet the ISS requirements post-Shuttle retirement, the risk mitigation plan defines milestones and a schedule to support ISS transportation service acquisition decisions. Transportation services are expected to be acquired through the Commercial Orbital Transportation Services (COTS) Program, Crew Exploration Vehicle (CEV) Project, and commercial International Partner agreements. Cost estimates will have to be approved by the ISS Program Manager in conjunction with SOMD.

4/18/06 -- No change. Risk owner is in the process of defining mitigation steps.

4/4/06 -- Team continuing to assess and refine cargo transportation requirements based on HOA Assembly Sequence. CR expected to be initiated in mid-April to baseline the HOA Sequence as the Rev. H ISS Assembly Sequence. Will work with risk owner to identify mitigation steps for this high-profile TPR.

2/16/06 -- The ISS Transportation plan is being briefed to NASA and the International Partners at the SSCB on 2/22/06. The plan identifies the options for obtaining additional transportation services and the availability of these options through the life of the Program.

11/8/05 -- No change. Continuing to assess cargo transportation shortfall in concert with the overall Assembly Sequence review with Program teams and the International Partners.

8/8/05 – Per Program direction, Risk 5184 is modified to document the ISS cargo transportation shortfall that is outside of the ISSP ability to resolve. This cargo shortfall risk now addresses the cargo shortfall remaining after ISS has implemented efforts to reduce the transportation shortfall within the budget and authority of the Program. The USOS crew transportation and emergency return capability shortfall have been moved to OX Risk 5017.

7/20/05 – After the Tiger Team received concurrence from the OM Manager/C. Hatfield and the OH Manager/B. Waddell, the consensus recommendations were presented to ISS Deputy Program Manager/M. Suffredini who concurred on the 5220 approach. The recommendations will be briefed at the next PRAB.

6/15/05 – At the PRAB, direction given to ISS Program Integration Office (OM) to work with ISS Business Office (OH) and ISS External Relations Office (OX) to recommend to Program Management an integrated risk mitigation approach/strategy for the following Top Program Risks: 5017 - INA, 5220 - Shuttle Retirement impacts, and this Transportation cost risk. OM formed a Tiger Team that also included reps from ISS Mission Operations & Integration (OC) and ISS Vehicle Office (OB), as needed.

6/8/05 -- Per OM Mgr direction, mitigation cost estimates have been zero'ed out while ISS Transportation requirements and capabilities are being reassessed. Modified Mitigation Plan Overview and Fallback Plan Overview. Discussions in work to re-define Risk 5184 and 5220 to eliminate overlap/gaps and to characterize the objective and content of each risk more completely.

4/14/05 -- Transportation requirements and capabilities are under review and development by NASA and all ISS Partners. Conducted second mult-lateral transportation TIM to status efforts underway.

4/12/05 – Per direction by PRAB Chair, Soyuz transportation costs have been transferred from the ISS External Relations Office (OX) Risk 4107 to this risk to consolidate transportation costs in one threat. The ISS Program Integration Office (OM) continues to work with OX to assess the annual cost estimates based on Balance of Contributions discussions and Rev. G Assembly Sequence. This threat covers transportation costs not included in Watch Item 5220, ""Post-Shuttle Retirement Impacts.""

1/20/05 – The November Multi-lateral Transportation TIM defined the transportation shortfalls and possible mitigation strategies. The shortfalls and strategies are documented in the

proposed Assembly Sequence update contained in CR 8973A and the SSCB charts presented on 1/18/05. The SSCB presentation laid the groundwork for agreements made at the Heads of Agency (HOA) meeting scheduled for 1/26/05 and for future negotiations and commercial vehicle procurement.

10/26/04 – Transportation plan associated with the ISS Assembly Sequence is in work. A Technical Interchange Meeting is schedule for the week of November 15, 2004 to discuss the pre- and post- Assembly Complete transportation plan.

8/20/04 -- Transportation requirements and the revised Assembly Sequence are under review. A CR will be released by the end of September 2004 to baseline the ISS Assembly Sequence as agreed upon at the Heads of Agency (HOA) meeting in Noordwijk in July 2004. A detailed transportation plan is required to support the next HOA meeting currently scheduled for the December 2004 - January 2005 timeframe.

6/15/04 -- This risk relates to the Cargo/Crew Services line item in the President's Budget. With IRMA in cost lockdown, note the following add and correction (respectively) to the Comments for the cost section:
-- Low cost for each fiscal year was calculated as lbs * $10K.
-- For FY06-FY10, the Low Cost reflects possible option of buying upmass on existing Progress.

6/2/04 -- At the POP04 PMR review, it was determined that the POP assembly sequence requires more transportation capabilities than currently agreed upon by the Partners. In addition, discussions with HQ and the IPs have necessitated changes to the POP Assy Sequence. Additional launch vehicles would ensure that the pressurized maintenance, crew supply, and utilization outfitting requirements can be satisfied. Current capabilities do not fully protect for utilization resupply. Thus, the PM directed that this threat be opened as an ISS Level 1 risk.
NOTE:
This risk does not cover the threats caused by the lack of agreement regarding:
1) Russian vehicle support (Soyuz or Progress) to ISS post-2010.
2) Additional ESA ATVs above current agreements that may be required post-2010.
3) Additional JAXA HTV post-2010.
4) Additional post-2010 NASA transportation requirements.

Adjust requirements based on Programmatic decisions or on-orbit performance to eliminate cargo transportation shortfall.

# ISS Risk: 5184 Detail Report

| Open Date: 6/2/2004 | Status As Of: 8/21/2009 | ECD: 12/31/2012 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Amount Budgeted ($M) | Inaction Cost ($M) | Comments |
|---|---|---|---|---|---|---|
| 09 | 0 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | 0 | |
| 11 | 0 | 0 | 0 | 0 | 0 | |
| 12 | 0 | 0 | 0 | 0 | 0 | |
| 13 | 0 | 0 | 0 | 0 | 0 | |
| 14 | 0 | 0 | 0 | 0 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| **Totals ($M)** | 0 | 0 | 0 | 0 | 0 |

# ISS Risk: 5184 Detail Report

| Open Date: 6/2/2004 | Status As Of: 8/21/2009 | ECD: 12/31/2012 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan Overview:** 12/23/2008 - Updated to reflect Contract Award to SpaceX and Orbital1/11/07 -- Continue to refine cargo transportation strategy based on the evolving FAWG, IP launch need dates, and Program transportation procurement decisions. 8/17/06 -- Identify USOS cargo transportation shortfalls as USOS transportation requirements and capabilities are refined by requirement reduction activities and procurement of additional services.6/19/06: Assess the Program content against the pending revised ISS Assembly Sequence and based on: vehicle availability and configuration, crew size, utilization requirements and maintenance plans. Based on content, obtain transportation services necessary to support transportation requirements.

**Fallback Plan Overview:**

| Task No. | Task Description | MO | Individual | MTSD | ECD | ACD | Resulting L x C | | | | | Success Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | L | C | S | T | Sa | |
| 1 | HOA meeting to determine content and schedule. | OM | W. Gerstenmaier | | 7/23/2004 | 7/23/2004 | 4 | 5 | 5 | 4 | | Approval to proceed. |
| 2 | Develop Assembly Sequence to reflect HOA decisions. | OM | N. Wilks | | 8/17/2004 | 8/17/2004 | 4 | 5 | 5 | 4 | | Assembly Sequence drafted. |
| 3 | Request PICB authorization to proceed with CR for revised Assembly Sequence. | OM | N. Wilks | | 9/29/2004 | 9/29/2004 | 4 | 5 | 5 | 4 | | PICB approval. |
| 4 | Transportation assessment at SSCB. | OM | V. Thorn | | 1/18/2005 | 1/18/2005 | 4 | 5 | 5 | 4 | | Concurrence to proceed to HOA. |
| 5 | HOA Review of proposed Transportation Plan. | OA | W. Gerstenmaier | | 1/26/2005 | 1/26/2005 | 4 | 5 | 5 | 4 | | HOA approval to proceed with agreements. |
| 6 | Multi-lateral Transportation TIM #2 | OM | V. Thorn | | 4/7/2005 | 4/7/2005 | 4 | 5 | 5 | 4 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Conduct annual review of the ISS strategic flight plan, cargo requirements & transportation service capabilities. Refine transportation vehicle requirements, manifest, shortfalls, and transportation risks. | OM | J. LaRochelle | | 2/15/2006 | 1/18/2006 | 4 | 5 | 4 | 4 | | SSCB approval of strategic flight plan, risks, and shortfalls. |
| 8 | Define cargo transportation requirements and capabilities for the resulting ISS configuration and cargo vehicle flight rates. | OM | N. Lemmons | | 2/22/2006 | 2/22/2006 | 4 | 5 | 4 | 3 | | Definition of ISS configuration, cargo transportation requirements, operations concepts, and cargo vehicle flight rates. |
| 9 | Assess cargo transporation strategies against the proposed Rev. H Assembly Sequence | OM | J. LaRochelle | | 5/17/2006 | 6/5/2006 | 4 | 5 | 5 | 4 | | Impact the CR, as needed |
| 10 | Internal OM Management Review of overall risk mitigation strategy. | OM | J. Arend, J. Dunn, J.LaRochel | | 8/17/2006 | 8/17/2006 | 4 | 5 | 5 | 4 | | Concurrence |
| 11 | Refine transportation service assumptions and requirements for alternate vehicles (CEV, COTS, Progress, HTV, ATV) | OM | J. LaRochelle | | 10/30/2006 | 10/30/2006 | 4 | 5 | 5 | 4 | | Refined assumptions & requirements in support of traffic model update. |
| 12 | Assess alternate vehicle capabilities and refine USOS cargo transportation strategy to meet mission objectives and minimize risk. | OM | J. LaRochelle | | 12/18/2006 | 12/18/2006 | 4 | 5 | 5 | 4 | | Revised Traffic Model |
| 13 | ISSP Manager review of cargo transportation shortfall and mitigation. | OM | J. LaRochelle | | 1/31/2007 | 1/31/2007 | 4 | 5 | 5 | 4 | | Program Manager concurrence |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | International Partner review of updated USOS cargo transportation strategy. | OM | J. LaRochelle | | 4/30/2007 | 5/10/2007 | 4 | 5 | 5 | 4 | | MPICB OSB (TIM) concurrence |
| 15 | Cargo Transportation Acquisition Plan developed. | OX | D. Jacobs, J. LaRochelle | | 6/29/2007 | 6/7/2007 | 4 | 5 | 4 | 3 | | Included in PMR 09 Submit |
| 16 | ISS Program Management concurrence with latest shortfall and cargo transportation strategy. | OM | J. LaRochelle | | 9/14/2007 | 9/7/2007 | 4 | 5 | 5 | 3 | | ISS PM concurrence. |
| 17 | NASA Headquarters Procurement Strategy Meeting on ISS commercial resupply acquisition. | OA | K. Lueders | | 11/30/2007 | 11/28/2007 | 4 | 5 | 5 | 3 | | ISS Resupply procurement strategy. |
| 18 | Annual review of USOS cargo transportation augmentation strategy. | OM | J. LaRochelle | | 2/15/2008 | 2/15/2008 | 4 | 5 | 5 | 2 | | SSCB approval of USOS cargo transportation strategy |
| 19 | Award another Space Act Agreement | HQ | | | 2/29/2008 | 2/22/2008 | 4 | 5 | 3 | 2 | | Space Act Agreement signed |
| 20 | Release transportation services procurement request for proposal. | HQ | | | 4/14/2008 | 4/14/2008 | 4 | 5 | 3 | 2 | | Transportation Services Procurement RFP released |
| 21 | Award transportation services contract. | HQ | | | 12/31/2008 | 12/23/2008 | 4 | 3 | 3 | 2 | | Transportation services contract awarded |

# ISS Risk: 5184 Detail Report

| Open Date: 6/2/2004 | Status As Of: 8/21/2009 | ECD: 12/31/2012 |
|---|---|---|

## Flight/Stage Summary

| Flight/Stage No. | Flight/Stage Acceptance Rationale |
|---|---|
| PROGRAMMATIC | |

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

| Title: Integrated Schedule Risk for ELC, FSE, ORU and External Payload Development Supporting Flights ULF3/4/5/6 | Status: OPEN | Escalation: TPR |
|---|---|---|

**Risk Statement:** Given aggressive hardware development schedules for ExPRESS Logistics Carriers (ELCs) 1-4, Orbital Replacement Units (ORUs), External Payloads and FSE to support ULF3 through ULF6 there is a possibility that schedule risks could impact manifesting and integration for these flights.

**Description/Context:** Multiple developments in parellel for the carriers, ORUs, external payloads and FSE that all have to meet the ULF-3/4/5/6 launch commit dates.

**Impact/Consequence:** Lack of certain critical spares to complete prepositioning on-orbit, and under-utilization of external payload sites if only part of the current manifest is available to be launched.

| Risk Owner (RO): Guerra, Alan | Phone No.: 281-244-7721 | Mgmt. Org. (MO): OM | Sub Org (SO): OM | Likelihood | X | Cost | Schedule | Technical | Safety |
|---|---|---|---|---|---|---|---|---|---|
| Flights/Stages Affected: ULF3, ULF4, ULF5, ULF6 | | Orgs Affected: KSC, OB, OC, OE, OH, OM, OZ | | 3 | | 4 | 4 | 4 | 0 |

**Child Records:** 5716, ExPRESS Logistics Carrier (ELC) Development Cost and Schedule (OB)5840, Forward Link Capability for Connect Payload (OZ)5841, ELC Avionics Readiness for ULF3 (OZ)5939, External Payloads - Lack of payloads to utilize NASA external sites (OZ)6027, Meeting ULF-3 Programmatic Milestones (KSC)

**Scoring Rationale:** Likelihood: 3 (Schedule uncertainty) Consequence: 4 (cost, schedule and technical)

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| Low: 4 | Most Likely: 1.45 | High: 11.25 | 0 | 0 |

**Cost Breakdown:** 6/08 Update: Added in ROM cost threat for ISS Vehicle Office CR 11057 (OZ is an affected org). Raised to Cost Level 1.The aggregate cost threat for Risk 5901 is a compilation of the open ""children"" risks in IRMA. Therefore, the cost threat for each FY is identified by CAM and active risk item. These numbers are evolving and will be updated as new costs are identified or decremented as CRs are approved or a mitigation budget is identified. (Note: The original ELC cost threat under Risk 5716 has been fully funded by the ISS Program.)

**Closure/Acceptance Criteria:** Development schedule risk is mitigated to the level of ""normal planned work.""

**Closure/Acceptance Rationale:**

**Risk Status:**

8/18/09 -- Program Manager provided GSFC FY09 additional funding of $4M with $2.2M of FY10 forward funding. Cost threat has been turned to ""No"" as all funding required has been provided. ELC 4 was received at KSC on 8/15/2009. Forward Link is being updated to provide wireless capability for Payloads.

8/3/09 -- Updated costs based on latest estimates from GSFC and OB. Vehicle office working with GSFC to understand cost requirements for FY09 and FY10. $3.3M funded from Program Reserves to cover known costs for FY09 through August. FY10 costs for ELC Forward Link and development over runs have been captured in OB STaR planning numbers. Zero'd out MLC and Low costs and reduced High to $3.75M.

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

6/10/09 -- For ULF3, all ELC2 Passive FRAM Adaptor Plates (PFAPs and electrical harnesses have been installed. The ELC2 28 Vdc and 120 Vdc harness testing is complete. Six out of thirteen ORUs are ready for ELC integration. For ULF5, FSE to fly the HRS Radiator spare has been initiated (ref. OM Concern 4423) and the SARJ race ring formally demanifested. (Update source: OM/R. Nabizadeh) For detailed updates re: ELC development/schedule, refer to OB Risk 5716.

4/16/09 -- Updated costs to reflect removal of KSC costs with approval from SSPCB on 3/31/09, and updated cost estimates from OB for ELC development threats and Forward Link Capability. CR 11057 SSPCB board schedule is still TBD, therefore reduced the FY09 amount to $500K.

Increased likelihood to 4 based on ELC avionics test failures, and compressed schedules for ULF5 and ULF6. ELC Power Module (PM) failed EMC testing and the ELC team is in the process of defining the potential cost and schedule impacts of this new failure. ULF5/6 team working actions from SSPCB to further define requirements for Orbiter power, modifications to ELC4, crew size and costs. Plan is to return to SSPCB on 4/28/09 for final direction / approval.

Updated schedule mitigations dates to reflect target dates for these tasks. Uncertainty with ULF5/6 manifests prevent baselining schedules. ULF4 schedule to be baselined at face to face IDR / TIM in July.

3/30/09 -- CR 11566 which adds Flight ULF6 is going to SSPCB on 3/31/09 for PPBE 11 submit.

2/19/09 -- Updated Child Risk list to delete OZ Watch Item 5576 based on Program Manager's decision to not link out year threats to this risk. Added KSC Risk 6027 to Child Risk List and have captured their cost.

2/10/09 -- Updated description to include ULF6 and ECD to expected Shuttle retirement date. Cost updated to roll up costs from all child risks.
ULF3: ELC Deck 2 delivered to KSC 12/17/08 with OPDB, PDA, UMA, Handrails, WIF and harnesses. Deck 2 integration continues with PFRAM/PFAP assembly complete, top side ELC match drilling complete and deck rotated, match drilling for underside of Deck2 started 2/12/09, and harness termination is underway. Program Manager decision to deliver and turnover Deck 1 on March 20th without avionics. Absolutely no margin remaining for ELC avionics development testing or integration at KSC. ExPCA delivery to KSC now scheduled for June 9th and June 26th.

Original KSC estimate was for $2.2M over their existing budget, but late deliveries and added work has increased that to $3.5M estimate. KSC working to refine estimate. CR 11509 has been released to add scope / budget to KSC for ELC processing.

ULF4 schedules still being worked with Astrium. ULF5 manifest still being finalized with SARJ decision pending completion of SARJ accelerated life testing expected to complete in June/July, and the addition of ULF6. Presentation to SSPCB on 2/17/09 ,for decision on 10 EVA planning and JSA (Jack Slider Assemblies) manifesting options.

OZ has closed Watch Item 5841 and zero'd cost and opened 3 new concerns to track internally. No costs included for the new concerns. Costs for OZ Watch Item 5840 captured with CR 11057 cost impacts. Phasing may need to be updated based on anticipated ATP date.

1/22/09 -- Updated dates for mitigation steps for ULF4/5 schedule baselining. Waiting for schedule from Astrium on need dates. ULF5 manifest still being worked. Will have updated draft schedules available at next PRAB. Working cost integration for child risks and will have updated for February PRAB.

12/17/2008 -- Updated mitigation steps based on manifest changes in work. Delays to baselining ULF5 manifest will delay schedule baselining.

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

11/4/08 -- Per 9/3/08 PRAB action, OM completed development of ULF3 Integrated Schedule to reflect ELC dates, ORU dates, FSE dates, KSC processing dates and top level analytical product deliveries. Draft schedules for ULF4 and ULF5 have been developed and are being coordinated with hardware providers. ULF3 Final Configuration approved at 10/28/08 SSPCB, adding the UTA FSE which adds risk to flight. SARJ XL was also officially manifested on ULF5. Program Manager decision to deliver the first ELC deck in December 2008 (without avionics) to help with KSC processing flow. ELC and KSC schedules being revised to reflect new dates and will be incorporated into new ULF3 Integrated Schedule. Per Program Manager direction at 11/4/08 SSPCB, all hardware dates are baselined and cannot to move without ISS management approval. Hardware providers are to first take schedule issues to CAM, and then if resolution cannot be reached, bring forward to SSPCB for final direciton. For OZ Watch Item #5939 Lack of External Payloads, OZ has initiated talks with JAXA for development of a high definition TV camera for ISS. Potential launch is 2010 thru 2011.

Zero'd out costs so no confusion on double booking. Need additional coordination with OB and OZ before rolling costs up to this risk. Will complete coordination prior to next PRAB.

9/30/08 -- At the last PRAB, the ISS Program Manager/M. Suffredini tasked the affected organizations to develop a more integrated schedule that includes not only the ELC schedules but adds ORU and payload schedules. Per the ISS Vehicle Office Manager/OB/D. Hartman, OB will provide best data to-date for ORUs. The ELC Flight Integration manager/R. Nabizahdeh will coordinate with the OB ORU and OZ payload focals to ensure the integrated schedule has the correct milestones. In addition, per Change Engineer/H. Feldman, Change Directive 11163 has been signed.

8/27/08 -- Working with the ISS Vehicle Office (OB) and ISS Payloads Office (OZ) to understand the challenges inherent in the children risk to this integrated schedule risk. Funding was approved for associated Risks 4071, Critical Spare FSE Copies (OM) and 5910, Build I/F cables for PRCU to ELC to support KSC testing (OZ) and both were closed in IRMA (about $1.27M cum risk buydown). CR 011057 will fund OB Risk 5716, ELC Development Cost and Schedule ($29M in FY09)) as well as Risk 5840, Fwd Link Capability for the CONNECT payload. Both risks remain open until funding approval. OZ has mitigated the cost threat for their Risk 5841, ELC Avionics Readiness for ULF3. For OZ Risk 5576, funding challenges in the out-years will be addressed during the next PPBE (POP) cycle. For the remaining OZ Risk 5939, Lack of P/Ls to utilize NASA external sites, NASA is actively investigating payload options for all three flights and recently added a new DOD payload to ULF5. With the addition of the OB cost estimate for CR11057, the cum cost threat is estimated at $33.5M (FY09 through FY16) as documented in the individual risks.

7/28/08 -- Change Engineer/Holly Feldman took CR 11163 to the 7/23 PICB. Board direction was to defer taking CR to SSPCB pending determination if there are any remaining costs associated with CR 11163 or if the CR is still even necessary given that the new approved MIM has accounted for these manifest changes. In addition, WI 5076 was removed as a Child Risk (was mitigated and closed via 6/11/08 PICB).

6/10/08 -- Per the ISS Vehicle Office (OB) and in conjunction with the ISS Payload Office (OZ), primary update to this parent risk is to add the cost for CR 11057 (for ELC Avionics). In addition, cost threat for OM Watch Item 5076 (FSE OAKs) is mitigated via CR 10969 and risk is closed. With associated (""children"") risks in the process of being updated and the ELC ULF3 Ground Ops Working Group meeting next week, key risk POCs for the affected orgs plan to meet next week to review and update the overall risk mitigation strategy.

4/14/08 --The Pump Module Assembly #4 (PMA4) schedule was reviewed at the 4/4 Systems Working Group (SWG). The vendor still shows a transducer schedule that does not support the planned delivery date, but Boeing is working to better define what is driving the vendor schedule. The SWG asked the team to return on 4/18 for an update and to begin evaluation of what data would be required to assess using qual transducers instead.

4/8/08 -- Team recommendation to PRAB on risk ranking would revise the score based on the children risk to: 4 x 4 (from 3 x 4). The aggregate cost minus exisiting mitigation budget (OM only) adds a cost consequence of ""3"".

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

4/7/08 – The 3/26/08 ISS Program Integration Control Board (PICB) today approved the revised ULF-3/4/5 Plan to proceed to the SSPCB. The SSPCB-approved plan will be added as an attachment to this risk. Key changes in the plan from manifests baselined in the Interim Rev. H Strategic Flight Plan include:
- Acceleration of CTC-1 from ULF5 (ELC4) to ULF3 (ELC2)
- Addition of SGANT #2 to ICC-VLD on ULF4
- Change of HPGT #2 from ULF4 (ICC-VLD) to ULF5 (ELC4)
- Addition of the BCDU #4, SASA #3, CTC #3, and SHOSS-ED (with coldplates) to ULF5 (ELC4).

The ULF3/4/5 manifest baseline is required at L-18 months to support template product development. The ULF3/4/5 external manifests are included in the Multi-Increment Manifest (MIM) Revision J (CR 10592B).

3/26/08 – Per the ISS Vehicle Office (OB), current planning for delivery of the ELCs and ORUs are on-track to meet ULF3 commit dates with the exception of one ORU - Pump Module Assembly #4. Per Systems Working Group (SWG) Chair/J. Dempsey, the ISS Vehicle Office is awaiting Boeing confirmation of acceptable lead time on a required pressure transducer. Status will be presented to the April 4 SWG to determine if there is sufficient schedule impact to begin risk mitigation planning. If so, a risk will be opened in IRMA at that time. All major testing of ELC Deck 1 (Proto-flight) will be completed by August 2008, which should mitigate ELC schedule risk. The ELC Deck 1 will be delivered 12/18/08. The ELC Deck 2 will be delivered 12/1/09. The Vehicle Office also is reviewing ULF5 ORU schedules to confirm that current planning meets commit dates. Therefore, at this time, the key challenges for the integrated ELC schedule risk: the availability of External Payloads based on low production of external payloads within the NASA community, meaning external payloads may not be available to launch on ULF3/4/5 and external sites will be under-utilized. Significant delays in turn could cause a challenge for the ISS Program Integration Office as the carrier integrater. Assuming external payloads are available, the ELC will be used to launch, transfer and operate the payloads. Therefore, the Payloads Office (OZ) has a cost threat for ELC payload integration and verification support.

3/12/08 – The primary ISS organizations affected by ELC planning (OB, OM, OZ and KSC) have the following open risks in the IRMA risk database (identified here as “children” risks to this integrated “parent” risk - TPR 5901):

ISS Vehicle Office (OB):
- Risk 5716, ELC Development Cost and Schedule (which also covers the Payload risk for ELC Avionics).
- Concern 5893, Potential Structural Failure of PCU FM03 on ELC (OB-internal item; maturity not to the level of a risk).

ISS Program Integration Office (OM):
- Risk 5071, Critical Spare FSE Copies (FHRC #3, SGANT; ATA);
- WI 5076, OAKs to externally stow CTC-compatible ORUs
- Note: OM also carries the Program’s top technical risk: #2810, “Russian Segment Capability to Provide Adequate MMOD Protection,” which addresses the possibility that the Russians will not complete Deployable Shields for the RS; the shields are manifested on ULF5. Because it is the top technical risk and relates to an International Partner’s commitment, Risk 2810 content and cost are not rolled into 5901.

ISS Payloads Office (OZ) – Currently the critical path for meeting the ULF3/4/5 manifest:
- WI 5939, External Payloads – Lack of payloads to utilize NASA external sites
- WI 5576, ELC Payload Integration
- WI 5840, Forward Link Capability for CoNNECT Payload
- WI 5841, ELC Avionics Readiness for ULF3 (may be closed to OB Risk 5716)

- WI 5910, Build I/F Cables for PRCU to ELC to support testing at KSC

KSC: Potential risk for test equipment is under review.

2/29/2008 -- Per Chair direction at the PRAB, the ISS Program Integration Office (OM) has taken ownership of this risk and will work closely with all affected Program organizations to maintain 5901 as a Parent risk and to properly identify all associated children risks.

Approved as a TPR at 2/20/08 PRAB.

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Amount Budgeted ($M) | Inaction Cost ($M) | Comments |
|---|---|---|---|---|---|---|
| 09 | 6 | 0 | 4 | 0 | 0 | 8/09Update: OZ Watch Item 5840 costs ($0.25M) captured in CR 11057 impacts; KSC cost threat realized and removed from IRMA (-$2.5M in FY09); OB Forward Link costs of $0.5M for CR 11057 and ELC development cost of $4.0M. Increased high cost in FY09 by $2.2M for GSFC costs |
| 10 | 3.75 | 0 | 0 | 0 | 0 | 8/09Update: OZ Watch Item 5840 costs ($1.25M) captured in CR 11057; KSC cost threat realized and deleted ($1.0M); OB has included costs for Forward Link and GSFC development over run in their STaR planning. Decreased high to $3.75M per email from A. Stencil and zero'd out MLC and low costs. |
| 11 | 0 | 0 | 0 | 0 | 0 | |
| 12 | 0 | 0 | 0 | 0 | 0 | |
| 13 | 0 | 0 | 0 | 0 | 0 | |
| 14 | 0 | 0 | 0 | 0 | 0 | |

| Totals ($M) | 9.75 | 0 | 4 | 0 | 0 |
|---|---|---|---|---|---|

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan Overview:** The ULF3/4/5/6 external manifests are included in the Multi-Increment Manifest (MIM). Based on these manifests, at the Parent risk level, the Program will aggressively manage and track development, integration, test, and delivery schedules for hardware and payloads manifested on ULF3/4/5/6. Detailed mitigation steps for ELCs, ORUs, Payloads and associated FSE are identified in the "children" risks.

**Fallback Plan Overview:**

| Task No. | Task Description | MO | Individual | MTSD | ECD | ACD | Resulting L x C | | | | | Success Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | L | C | S | T | Sa | |
| 1 | Freeze ULF3 Manifest. | OM | H. Feldman | | 3/27/2008 | 3/27/2008 | 3 | 3 | 4 | 4 | | SSPCB approval |
| 2 | ULF3/4/5 Plan to SSPCB | OM | H. Feldman | | 3/27/2008 | 3/27/2008 | 3 | | 4 | 4 | | Board approval |
| 3 | FSE CR initiation. | OM | A. Guerra | | 4/16/2008 | 4/16/2008 | 3 | | 4 | 4 | | Board approval to proceed |
| 4 | Determination of schedule risk for Pump Module Assembly #4. | OB | J. Dempsey | | 4/25/2008 | 4/25/2008 | 3 | | 4 | 4 | | SWG recommendation to ISS Vehicle Manager |
| 5 | Baseline ULF4 Manifest (CR 11163).. | OM | H. Feldman | | 9/30/2008 | 9/30/2008 | 3 | | 4 | 4 | | SSPCB approval and Directive signed. |
| 6 | Develop draft Integrated ULF3/4/5 schedules | OM | K. Kuehn | | 10/15/2008 | 10/15/2008 | 3 | | 4 | 4 | | Present to OM Management |
| 7 | Present Integrated ULF3 Schedule to PRAB for baselining | OM | A. Guerra | | 11/12/2008 | 11/12/2008 | 3 | | 4 | 4 | | Program Management approval |
| 8 | Integrate Costs into one Risk | OM | K. Kuehn | | 2/10/2009 | 2/10/2009 | 3 | 4 | 4 | 4 | | |
| 9 | Complete ULF4 schedule coordination for baselining | OM | K. Kuehn | | 8/15/2009 | 8/11/2009 | 3 | 4 | 4 | 4 | | OM Management approval to proceed to SSPCB |
| 10 | Freeze ULF6 Manifest | OM | H. Feldman | | 9/1/2009 | | 3 | 4 | 4 | 4 | | SSPCB approval |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | Develop draft ULF6 schedule | OM | K. Kuehn | | 9/15/2009 | | 3 | 4 | 4 | 4 | | Manifest Freeze |
| 12 | Develop draft ULF5 schedule | OM | K. Kuehn | | 9/15/2009 | | 3 | 4 | 4 | 4 | | Manifest Freeze |
| 13 | Freeze ULF5 Manifest. | OM | H. Feldman | | 9/15/2009 | | 3 | 4 | 4 | 4 | | SSPCB approval |
| 14 | Review ULF5/6 schedules with OM management | OM | K. Kuehn | | 9/15/2009 | | 3 | 4 | 4 | 4 | | Manifest Freeze |
| 15 | Baseline ULF5/6 schedules | OM | A. Guerra | | 9/30/2009 | | 3 | 4 | 4 | 4 | | Manifest Freeze |
| 16 | Present ULF4 Schedules for Baselining | OM | A. Guerra | | 10/15/2009 | | 3 | 4 | 4 | 4 | | Program Management approval |

# ISS Risk: 5901 Detail Report

| Open Date: 11/8/2007 | Status As Of: 8/21/2009 | ECD: 12/31/2010 |
|---|---|---|

## Flight/Stage Summary

| Flight/Stage No. | Flight/Stage Acceptance Rationale |
|---|---|
| ULF3 | |
| ULF4 | |
| ULF5 | |
| ULF6 | |

# ARM Risk: 1772 - Lack of Sufficient ISS Flight Resources for HRP Investigations
# Risk Detail Report

**Open Date:** 7/27/2006 **Status as of:** 8/19/2009 **ECD:** 9/30/2010

| | |
|---|---|
| **Risk Title:** Lack of Sufficient ISS Flight Resources for HRP Investigations | **Owning WBS Element:** Human Research |
| | **Risk Status:** Approved |
| **Escalation Level:** Top Directorate Risk | **Risk Owner:** Elizabeth Bauer |

**Risk Statement:** Given the ISS flight resources are very limited by available on orbit crew time, utilization upmass and downmass post-Shuttle retirement, types of sample return capability and the number of ISS crewmembers; there is a possibility that HRP cannot complete all critical flight investigations in all areas where there are gaps in current capability (at CRL 7-8/TRL 6) to meet both Agency standards and Constellation needs.

| **Likelihood: 4** | **Safety: 0** | **Performance: 4** | **Schedule: 0** | **Cost: 0** |
|---|---|---|---|---|

**Context:** There is a possibility that HRP cannot complete all critical flight investigations in all areas where there are gaps in current capability to meet both Agency standards and Constellation needs. The current HRP flight investigations baseline list exceeds the current per Increment ISS research resources through Increment 18. The ISS currently hosts crews of 3 persons, providing very limited numbers of long duration human research subjects/operators during its assembly phase. The available on orbit crew time per increment limits the number of investigations that can be completed every year. The ISS crew size is expected to increase to 6 persons in 2009. HRP is expecting an increase in on orbit crew time to enable the crew to conduct investigations. However, the Space Shuttle is expected to retire as a science launch/return vehicle in 2010. At that time the limitations will change to upmass and downmass and access to crews at the landing site for baseline data collection (BDC). Without a balanced and adequate set of crew time, subject availability, upmass and downmass, and BDC resources, the HRP cannot implement its flight program as a part of its integrated research. Without the ability to implement the HRP flight program, NASA will be left with significant and/or unknown residual risk to the exploration missions.

**Status:**

7/29/2009 4:08:43PM - 7/15/09:
The HRP is working closure of an action from the November APMC HRP Program Implementation Review debrief. A meeting was held between SOMD and HRP personnel to address the specific issues and develop proposed solutions for Action Item 3 related to ISS resources. This content is planned for presentation during the Aug 11 APMC.

# ARM Risk: 1772 - Lack of Sufficient ISS Flight Resources for HRP Investigations
# Risk Detail Report

**Open Date:** 7/27/2006 **Status as of:** 8/19/2009 **ECD:** 9/30/2010

7/29/2009 4:08:22PM - 4/15/09:
1) An informational briefing regarding impacts to HRP/ISS Medical Project (ISSMP) science due to upmass limitations was presented at the Flight Activities Control Board (FACB) Mar 4. A result of this presentation is further coordination within the Space Life Sciences Directorate, Medical Operations (systems) and ISSMP (utilization) teams. For example, the ISSMP was able to add some sub-kit contents of a blood collection kit and urine tubes within the ISS Medical Accessory Kit for launch on 19S.
2) The ISSMP is working on the assessment regarding the different manifesting routes: why is a certain route selected and what are the risks for each route? Once this data is obtained from the ISSMP and evaluated, it will be possible to determine the forward plan within the HRP as well as with the ISS Program.

6/2/2009 2:10:53PM - 6/2/09: •The HRP is working closure of an action from the November APMC HRP Program Implementation Review debrief. A meeting was held between SOMD and HRP personnel to address the specific issues and develop proposed solutions for Action Item 3 related to ISS resources. This content is planned for presentation during the July APMC.

2/16/2009 8:53:24AM - 2/6/09: Contacted K. Lueders regarding ISSP Commercial Resupply Contract (CRS) recently awarded. Flights are currently being folded back into program planning and documents.

2/9/2009 1:30:28PM - 1) Due to limited available upmass and the need to prioritize provisions for 6 person crew operations, manifesting the ESA-provided Portable Pulmonary Function System (PPFS) on 32Progress (32P) was unsuccessful through both ESA manifesting options, OZ/Payloads Office and directly with Russians. In addition, the Harness Station Development Test Objective (SDTO) equipment was not manifested as systems hardware through the OC/Mission Integration and Operations Office. The Expedition 19/20 Flight Engineer-1 was lost as a VO2 max and Harness SDTO subject due to this lack of upmass. If shuttle flights to ISS continue to slip and there is no upmass made available on Russian vehicles, additional subjects may be lost for HRP investigations. 2) Contacted K. Lueders regarding ISSP Commercial Resupply Contract (CRS) recently awarded. Flights are currently being folded back into program planning and documents

10/30/2008 10:00:17AM - 10/30/08 1) Confirmed Russian subject participation is not a negotiating point for all subjects. It will continue to be worked on a case by case basis when US and Russian scientists are conducting similar research, such as Bisphosphonates. 2) A revision to the Integration Research Plan is in progress, which will address the constraint of 3 crewmembers available per increment with only 2 crewmembers volunteering as subjects. 3) The ISSP Commercial Resupply (CRS) vehicle procurement is in a blackout period until at least Jan 09.

# ARM Risk: 1772 - Lack of Sufficient ISS Flight Resources for HRP Investigations
# Risk Detail Report

**Open Date:** 7/27/2006 **Status as of:** 8/19/2009 **ECD:** 9/30/2010

7/18/2008 2:45:12PM - Jul 15, 2008: Met with the ISS Medicial Project (ISSMP) lead on June 27 to discuss risk transfer to PIO. Content was updated to reflect this transfer and add new PIO mitigation tasks. Negotiations stalled regarding an agreement for Russian crewmembers to participate as subjects. Will work with the ISSPO to confirm. The ISSMP is currently reanalyzing the flight queue and Integrated Research Plan assuming no Russian subjects. Issue surfaced regarding CxP and baseline data collection (BDC) requirements. The CxP is not carrying BDC as a CARD requirement. The GS Project appears to be willing to add a requirement to the GS-SRD, but may decline if associated funding is not included.

5/28/2008 11:05:54AM - Escalated to a Top Directorate Risk during the ESMD Top Risk Review, 07May08

5/5/2008 11:10:49AM - Feb. 15, 2008: Inputs for Increments 18 and 19 are in the planning phases. HRP is expecting an increase in available crew time in the second part of Increment 19 with increased crew size. HRP is performing a resource assessment based on the baselined Integrated Research Plan to identify implementation risks. It is anticipated that flight crew time will no longer be the prime limitation on performance of flight activities. However, with retirement of the shuttle, severe limitations in downmass and sample return are expected between 2010 and 2014. In addition, crew rotations exclusively on the Soyuz limits critical pre and post flight access to crews for baseline data collection. ISS Program proposals for training schedules may extend development time for investigations, impacting HRP ability to more quickly turnaround flight investigations. HRP flyoff plan of investigations is based on the assumption that 4 of 6 ISS crewmembers will be available as subjects. This is dependant on an agreement to acc

12/8/2006 8:39:25AM - This risk was approved during the last Human Research Program Control Board.

**Handling Strategy:** Mitigate

**Mitigation Plan:** HRP works closely with the ISS Program to make best use of limited flight resources. HRP also utilizes ground analogs, including human bedrest, undersea, and polar conditions to ensure flight resources are used only as necessary.

**Fallback Plan:**

# ARM Risk: 1772 - Lack of Sufficient ISS Flight Resources for HRP Investigations
# Risk Detail Report

**Open Date:** 7/27/2006 **Status as of:** 8/19/2009 **ECD:** 9/30/2010

| Task ID | Task Description | Owner | Due Date | Comp. Date | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 9376 | The ISSMP will evaluate the current portfolio for those investigations with technical implementation issues and assess the constraints vs. the intended outcome of the investigation. | Cynthia Haven | 9/26/2007 | 9/18/2007 | 4 x 4 - Red | ISSMP will coordinate with the effected Program Elements and will provide a recommendation to the HRP Manager on investigations that are challenged by feasibility and/or resource constraints and receive a decision on whether or not to pursue. |
| 9377 | The HRP will develop, based on the Sample Return Decision Package, a proposal for a technology suite necessary to reduce the up/downmass required to perform Human Research. | Craig Kundrot | 9/26/2007 | 8/21/2007 | 4 x 4 - Red | A Technology Development Recommendation will be presented to the HRPCB. Risk reduction is accomplished by implementation of the recommendation. |
| 9375 | The HRP will baseline an Operationally Integrated Research Plan, including the use of bedrest studies, and other space analog environments. | Ned Penley | 12/13/2007 | 12/13/2007 | 4 x 4 - Red | Baselined HRP Integrated Research Plan. |
| 9382 | Based on the Baselined HRP Integrated Research Plan, the ISSMP will prepare an integrated requirements assessment for the ISS and communicate the results to the ISS Program. The plan will include operational efficiencies gained through synergy w/ Med Ops | Cynthia Haven | 5/22/2008 | 4/18/2008 | 4 x 4 - Red | Transmitted HRP ISS Requirements to the ISS Program |
| 14410 | Confirm CRS up/down mass capability | Elizabeth Bauer | 7/31/2009 | 7/28/2009 | 4 x 4 - Red | CRS planned capability meets HRP utilization requirements |

# ARM Risk: 1772 - Lack of Sufficient ISS Flight Resources for HRP Investigations
# Risk Detail Report

**Open Date:** 7/27/2006 **Status as of:** 8/19/2009 **ECD:** 9/30/2010

| | | | | | | |
|---|---|---|---|---|---|---|
| 17535 | Receive results of APMC PIR briefing Action 3 (SOMD/ESMD/CHMO). | --BLANK-- | 8/12/2009 | | 3 x 4 - Yellow | Solutions to constrained resources are identified and in progress. HRP and SOMD organizations to use processes in place to manage requirements and priorities. |

# SSP Risk : 2808 Detail Report

| Open Date: 7/31/2006 | Status as of: 8/17/2009 | ECD: 8/31/2009 |
|---|---|---|

| Title: SSP Cost Threat: Transition and Retirement | Status: Open | Escalation: TDR | Timeframe: Mid |
|---|---|---|---|

**Risk Statement:** Given the fact that the Space Shuttle Program phaseout activities for FY2011 and beyond have not been requested by Congress, and will not be addressed until the FY2010 President's budget request; there is a possibility that there will be an impact to the Shuttle Program's and centers' ability to execute these tasks in a timely manner. This represents a risk to follow-on programs, institutions, and the agency as a whole.

**Context:** The Space Shuttle Program's retirement consists of close-out and transfer actions. The Space Shuttle Program (SSP) phase out through FY 2010 is budgeted within the SSP budget. However, activities for FY 2011 and beyond have not been requested from Congress. This request will occur for the first time during the FY 2010 President's Budget Request.

| Risk Owner: csalkows | Phone Number: 281-483-3599 | Owning Team: MM_Bus_Office | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: SP_Transition, MM_Bus_Office | 2 | X | Safety: 0<br>Supportability: 0<br>Mission Success: 0<br>Schedule: 0<br>Cost: 5 |

**Risks Affected:** 2758

| Mitigation Cost ($M) | | | Cost in Scope ($M) | Recovery Cost ($M) | | |
|---|---|---|---|---|---|---|
| High: 0 | Most Likely: 1300 | Low: 0 | Total Mit. Budget: 0 | High: 0 | Most Likely: 0 | Low: 0 |

**Cost Breakdown:** Cost estimate was generated from a programmatic "grass-roots" estimate. Mitigation plans will likely result in alternative property disposition methods which are likely to refine the estimate/reduce the cost threat.

| Safety Risk: No | Safety Review Complete: Yes |
|---|---|

**Closure\Acceptance Criteria:** This risk may be closed when post-2010 SSP transition & retirement requirements have been formally addressed within the agency budget.

**Closure\Acceptance Rationale:**

**Current Status:**7/12/2009
With the approval of the President's FY2010 budget, the SSP Transition and Retirement has been fully funded to the level requested in PPBE 2010 Rev 1. Although there are still technical threats against T&R execution, the approved funding included sufficient reserves that the baselined program content should be achievable. ----------

11/4/2008
The integrated divestment plan and cost estimate for the most efficient and cost effective disposition of SSP assets post-2010 has been incorporated into the agency PPBE 2010 submission. This risk will move into a WATCH mode until 2010. ----------

7/9/2008

# SSP Risk : 2808 Detail Report

| Open Date: 7/31/2006 | Status as of: 8/17/2009 | ECD: 8/31/2009 |
|---|---|---|

SSP Program Manager's Recommend submitted to SOMD on 5/5/08. Revised T&R PPBE10 guidance has been issued. The fundamental strategy of the PPBE10 Rev1 exercise is to come up with the required work/resources and cost for the bare minimum effort on all fronts. Work continues to converge on the formal Program Manager's Recommend to be held on 7/23/08 with a formal submission to SOMD on 7/29/08.

---

4/24/2008

Detailed estimates have been received from Shuttle performing Elements and integrated at the Program level. A preliminary recommend was presented at the SSP Program Manager's Review on 4/11/08. Follow-on work continues to converge on the formal Program Manager's Recommend to be submitted to SOMD on 5/5/08. ----------

1/31/08

Draft Transition & Retirement guidance has been developed for PPBE 2010 in coordination with HQ SOMD and HQ Infrastructure & Administration Office.

The Shuttle Program has been challenged to develop a closeout and transition plan with a cost-constrained target for FY 2011 - FY 2015. The results will be submitted in May through the PPBE process. Any impacts to this risk will be identified at that time. ----------

12/11/2007

A series of meetings have been held with HQ Infrastructure & Administration Office and SOMD to develop an integrated plan for property disposition to be incorporated into the PPBE 2010 guidance. This guidance is in draft form and is currently under review at HQ. Official guidance will be issued to the Shuttle Program in January 2008. ----------

9/19/2007: Two SSP mitigation tasks were completed and submitted to SOMD as planned in August. The revised cost estimate was accepted by SOMD, but was not incorporated in the Agency's PPBE 2009 submit. This risk has been updated to reflect the revised cost estimate and new mitigation tasks have been identified to facilitate the development of a coordinated plan with the Space Shuttle Program, SOMD and Institutional Offices. This plan will be used to refine the activities as part of the PPBE 2010 planning process.

# SSP Risk : 2808 Detail Report

| Open Date: 7/31/2006 | Status as of: 8/17/2009 | ECD: 8/31/2009 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 565 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 394 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 222 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 1300 | 0 | 0 | 0 | 0 | 0 | |

# SSP Risk : 2808 Detail Report

| Open Date: 7/31/2006 | Status as of: 8/17/2009 | ECD: 8/31/2009 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan:** This risk is being mitigated through several coordinated actions to further refine the technical tasks required to execute transition and retirement of SSP assets following the completion of the Program, understand/partner turnover of key assets/facilities to follow-on programs, and minimize the overall impact to the agency.

**Fallback Plan:** If this risk is not completely mitigated through the PPBE 2010 process, any remaining risk will be identified and worked as a forward action.

| Task No. | Task Description | Team | Individual | ECD | ACD | Resulting Magnitude L x C | Success Criteria |
|---|---|---|---|---|---|---|---|
| 1 | Define "Minimum End-State" - define what is necessary to safe & deservice the Orbiters, SSMEs, ETs and RSRM segments and prepare for long-term storage (with no protection for future work or transportation of those assets). | SP_Transition | Charles Salkowski | 08/15/2007 | 08/15/2007 | Red | End product will be a comprehensive narrative description of the minimum end-state configuration for the Orbiters, SSMEs, and any residual ETs and SRB segments which may be used to define/bound the programmatic tasks required for closeout. |
| 2 | Re-estimate T&R closeout tasks. In coordination with SSP Project Elements, utilize the "minimum end-state" defined in task #2 to re-estimate the costs/workforce required to complete minimum programmatic closeout tasks. Resubmit to SOMD for consideration in agency budget planning. | Tran_Resources | Karen Lucht | 08/15/2007 | 08/15/2007 | Red | A revised set of tasks and resource estimates which reflect the minimum programmatic requirements associated with SSP closeout. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | Work with SOMD and HQ Infrastructure & Administration Office to develop an integrated plan to further refine property disposition tasks and identify alternative disposition methods. | Tran_Resources | Karen Lucht | 02/01/2008 | 01/31/2008 | Red | An integrated plan for property disposition developed by SOMD, HQ I&A and SSP to be issued as guidance for PPBE 2010. |
| 4 | In coordination with SOMD, HQ Infrastructure & Administration Office, and center institutional property offices; develop a divestment plan and associated cost estimate for the most efficient and cost effective disposition of SSP property post-2010. SSP will provide also technical data and engineering estimates in support of this task. | Tran_Resources | Karen Lucht | 08/31/2008 | 07/31/2008 | Yellow | End product will be an integrated divestment plan and cost estimate for the most efficient and cost effective disposition of SSP assets post-2010 for incorporation into the agency PPBE 2010 submission. |

| | SSP Risk : 2808 Detail Report | | | |
|---|---|---|---|---|
| | **Open Date:** 7/31/2006 | **Status as of:** 8/17/2009 | **ECD:** 8/31/2009 | |

## Safety Information

| | | | |
|---|---|---|---|
| **Safety Assessor:** JohnDolan | **S&MA Escalation:** None | **S&MA L x C:** | **Safety Review Complete:** Yes |
| **Safety Risk:** No | | | |
| **Rationale:** | | | |
| **Agree with Project Characterization?:** Yes | | | |
| **Project Characterization Rationale:** | | | |
| **Agree with Project Mitigation Plan?:** Yes | | | |
| **Project Mitigation Plan Rationale:** | | | |
| **Has Coordination with Project Started?:** Yes | | | |
| **Project Coordination Status:** | | | |

# SSP Risk : 2973 Detail Report

| Open Date: 8/7/2007 | Status as of: 8/17/2009 | ECD: |
|---|---|---|

| Title: Flight Rate Supportability - During Ares I-X Processing | Status: Open | Escalation: None | Timeframe: None |
|---|---|---|---|

**Risk Statement:** Given the requirement for a Vehicle Assembly Building (VAB) integration cell to support Ares I-X will limit High Bay availability for the Space Shuttle Program; there is a possibility that Shuttle processing schedules and flight rate may be impacted.

**Context:** The VAB integration cells will be required for processing Shuttles and the Ares I-X Flight Test Vehicle. The current plan is to use one integration cell from April 2009 through July 2009 for Ares I-X processing and return it to the SSP following the Ares I-X launch. The Space Shuttle Program will have access to only one integration cell for approximately 4 months. Processing schedules of 3 SSP flights could be affected (STS-127, STS-128 and STS-129).

| Risk Owner: rgwillco | Phone Number: 321-867-4343 | Owning Team: PH_LVP_Shuttle_Proc | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: PH_LVP_Shuttle_Proc, SP_Transition, CXP | 3 | X | Safety: 0<br>Supportability: 3<br>Mission Success: 0<br>Schedule: 3<br>Cost: 0 |

**Risks Affected:**

| Mitigation Cost ($M) | | | Cost in Scope ($M) | Recovery Cost ($M) | | |
|---|---|---|---|---|---|---|
| High: 0 | Most Likely: 0 | Low: 0 | Total Mit. Budget: 0 | High: 0 | Most Likely: 0 | Low: 0 |

**Cost Breakdown:**

| Safety Risk: No | Safety Review Complete: Yes |
|---|---|

**Closure\Acceptance Criteria:**

**Closure\Acceptance Rationale:**

**Current Status:**6/8/2009: Successful mission of STS-125/OV-104 released Pad B from LON support 6/1/09. Pad B has been released to ARES 1-X for modification activities. SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Ares I-X planners participate in weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. The Ares I-X launch may move to NET September 2009. ----------

5/1/2009: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Ares I-X planners participate in weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. Pad B in use by SSP the Ares I-X launch may move to NET August 2009. ----------

4/24/2009: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Ares I-X planners participate in weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. Pad B in use by SSP the Ares I-X launch may move to NET August 2009. ----------

# SSP Risk : 2973 Detail Report

| Open Date: 8/7/2007 | Status as of: 8/17/2009 | ECD: |
|---|---|---|

3/6/2009: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Integration cell use for ARES I-X under review, planned use NET April 2009. Ares I-X planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing which at this time is under assessment for changes including HST mission. Ares I-X schedule is also under review. ----------

2/20/2009: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Integration cell use for ARES I-X under review, planned use NET April 2009. Ares I-X planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing which at this time is under assessment for changes including HST mission. Ares I-X schedule is also under review. ----------

1/23/2009: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Integration cell use for ARES I-X under review, planned use NET April 2009. Ares I-X planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing which at this time is under assessment for changes including HST mission. Ares I-X schedule is also under review. ----------

12/12/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Integration cell use for ARES I-X under review, planned use NET April 2009. Ares I-X planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing which at this time is under assessment for changes including HST mission. Ares I-X schedule is also under review. Given current posture Shuttle Processing Top Risk Review changed escalation from TOR to no escalation. ----------

10/7/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Integration cell use for ARES I-X under review, planned use NET October 2008. Ares I-X planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing which at this time is under assessment for changes including HST mission delay. Ares I-X schedule is also under review. Given current posture Shuttle Processing Top Risk Review changed escalation from TOR to no escalation. ----------

9/25/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-X / Shuttle Processing schedules. Integration cell turnover for ARES I-X is planned for October 2008. Ares I-X planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. ----------

7/14/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-x / Shuttle Processing schedules. Integration cell turnover for ARES I-x is still planned for August 2008. Ares I-x planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. ----------

6/27/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-x / Shuttle Processing schedules. Integration cell turnover for ARES I-x is still planned for August 2008. Ares I-x planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. ----------

4/17/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-x / Shuttle Processing schedules. Integration cell turnover for ARES I-x is still planned for August 2008. Ares I-x planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. ----------

2/13/2008: SSP Manifest planning continues to actively work on integrating detailed Ares I-x / Shuttle Processing schedules. Integration cell turnover for ARES I-x is still planned for August 2008. Ares I-x planners part of weekly manifest meetings. If necessary Ares I-X schedule will be adjusted as required to not interfere with Shuttle processing. ----------

12/11/2007: DPM approval to de-escalate to TOR. 11/29/2007: SSP Manifest planning is actively working and integrating detailed Ares I-x / Shuttle Processing schedules. Integration cell turnover for ARES I-x is still planned for August 2008. Ares I-x planners part of weekly manifest meetings. ----------

# SSP Risk : 2973 Detail Report

| Open Date: 8/7/2007 | Status as of: 8/17/2009 | ECD: |
|---|---|---|

10/1/2007: Escalated to TDR per direction of Deputy Program Manager.
9/5/2007: SSP Manifest planning is actively working and integrating detailed Ares / Shuttle processing schedules. The Ares I-X team baselined their processing schedules in April of this year. We have incorporated Ares planners into our weekly manifest meetings. ----------

# SSP Risk : 2973 Detail Report

| Open Date: 8/7/2007 | Status as of: 8/17/2009 | ECD: |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| | SSP Risk : 2973 Detail Report | | | |
|---|---|---|---|---|
| | **Open Date:** 8/7/2007 | **Status as of:** 8/17/2009 | **ECD:** | |

## Mitigation Summary

| |
|---|
| **Mitigation Plan:** (a.) Continue to openly communicate schedule status to Program. (b.) Continue early impact identification and resolution of new technical/processing issues. |
| **Fallback Plan:** |

| Task No. | Task Description | Team | Individual | ECD | ACD | Resulting Magnitude L x C | Success Criteria |
|---|---|---|---|---|---|---|---|
| 1 | SSP and Ares I-X Integrated Team assessment of processing schedule | PH_LVP_Shuttle_Proc | Rita Willcoxon | | | | |

# SSP Risk : 2973 Detail Report

| Open Date: 8/7/2007 | Status as of: 8/17/2009 | ECD: |
|---|---|---|

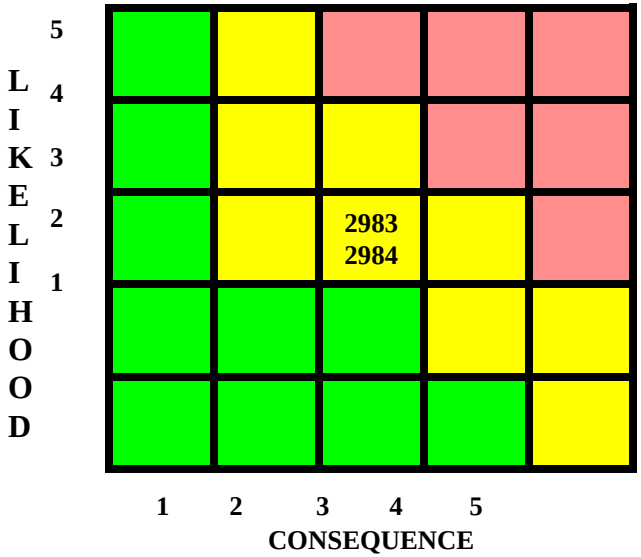
## Safety Information

| Safety Assessor: RandyHancock | S&MA Escalation: None | S&MA L x C: | Safety Review Complete: Yes |
|---|---|---|---|
| **Safety Risk:** No | | | |
| **Rationale:** Integrated scheduling planning efforts continue to be worked. The Ares I-X processing schedule will be adjusted to avoid interference with Shuttle milestones. SMA wil continue to monitor and reassess as needed. | | | |
| **Agree with Project Characterization?:** Yes | | | |
| **Project Characterization Rationale:** | | | |
| **Agree with Project Mitigation Plan?:** Yes | | | |
| **Project Mitigation Plan Rationale:** | | | |
| **Has Coordination with Project Started?:** Yes | | | |
| **Project Coordination Status:** | | | |

# SSP Risks – TDR/TPR – Business Management Office
## As of July 16, 2009

Keeping the risk of loss of critical contractor and CS skills at 3 x 3 based on:

- Retention plans developed and implemented by the Contractors—using communication, future work, and monetary incentives as appropriate.




- Contractor and CS communities are using a range of tools, e.g. shared work across programs to cross train and demonstrate a future path for employees
- Attrition rates for contractors are declining

# Changes to Shuttle Human Capital Risks

| SSP | (2983) Loss of Critical Personnel--Contractor | | | | (2984) Loss of Critical Personnel--Civil Service | | |
|---|---|---|---|---|---|---|---|
| ET | 2654 | | | | 2774 | | |
| FOI | 2782 | | | | 2781 | | |
| Mgmt Integ | 2789 | | | | 2788 | | |
| MOD | 2768 | | | | 3079 | | |
| Orbiter | 2763 (Vehicle Eng) | 2798 (GFE/FCE) | 2799 (Integrated Log) | 2824 (MDA) | 2762 | | |
| RSRB | 2693 (USA SRB) | 2830 (ATK RSRM) | 2741 (USA SRB Synergy) | | 2302 | | |
| S&MA | 2773 (Both MSFC) | 3060 (Both JSC) | 2817 (KSC) | | 2773 (Both MSFC) | 2816 (KSC) | 3060 (Both JSC) |
| SEI | 2765 | | | | 2764 | 2784 (PSE&I) | |
| Shuttle Proc | 2750 | | | | 2287 | | |
| SSME | 2822 | | | | 2660 | | |

**Summary**

| *Last TRR--April 09* | *This TRR--July 09* |
|---|---|
| 2 Risks dropped a level<br>Risk 2765 proposed for escalation to TDR<br>Risk 2918 de-escalated (SEA)<br>Risk 2938 combined into 2765 (SE&I)<br>The critical skills portion of Risk 2815 combined into Risk 2654 (ET) | No changes |

# *Human Capital Activities*

**Recent**

- **Contractor HC Meeting on Layoffs—4/28**
- **Contractor Briefings to Program Manager on HC Status**
- **2009 Employee Survey—opened Aug 20**
- **Charter for the OHCM Shuttle Transition Liaison Office was approved**

**Planned**

- **3rd Supervisory Confidence Survey—Sept**
- **Rollout of the OHCM Shuttle Transition Liaison Office**
  - Working to partner with and across local communities affected by Shuttle retirement
- **Developing tips and tools for CS supervisors on talking to the contactor workforce.**

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

| Title: Loss of Critical Contractor Personnel | Status: Open | Escalation: TPR | Timeframe: None |
|---|---|---|---|

**Risk Statement:** Given the expected attrition related to successful return to flight, acceleration of the Explorations programs and projects, and program end of life; there is a possibility that that the program will not be able to retain contractor personnel needed to continue shuttle operations.

**Context:** It is expected that following the successful return to flight, some program contractor personnel will migrate into new positions. Further, it is thought that additional program personnel will be attracted by the Exploration program and projects and leave shuttle within the following year. Lastly, with a guaranteed end of program life it is expected that contractor personnel will attempt to find longer-term employment prior to the last shuttle mission. Overall, these three factors could potentially result in continuous staffing pressure over the remaining program life.

| Risk Owner: sleibert | Phone Number: 281 483-3220 | Owning Team: MM_Bus_Office | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: CXP, SP_Transition | 3 | X | Safety: 2<br>Supportability: 3<br>Mission Success: 0<br>Schedule: 0<br>Cost: 0 |

**Risks Affected:** 2750, 2768, 2782, 2654, 2693, 2822, 2830, 2824, 2799, 2798, 2763, 2817, 2918, 2789, 2765, 2769

| Mitigation Cost ($M) | | | Cost in Scope ($M) | Recovery Cost ($M) | | |
|---|---|---|---|---|---|---|
| High: 0 | Most Likely: 0 | Low: 0 | Total Mit. Budget: 0 | High: 0 | Most Likely: 0 | Low: 0 |

**Cost Breakdown:**

| Safety Risk: Yes | Safety Review Complete: Yes |
|---|---|

**Closure\Acceptance Criteria:** Implementation of contractor workforce retention plans that address each of these factors

**Closure\Acceptance Rationale:**

**Current Status:**2/23/2009
Co-hosted joint Communications/Human Capital Tim 1/28-29/09. Attended by 40 participants from contractor and civil service and communications, human capital, and program communities. Good updates from HQs and good sharing of best practices across all orgs.
Second confidence survey is open...due to close 2/27/09.

---

11/24/2008
Completed the first Manager/Supervisor Confidence Survey of Civil Service Managers. For their contractor workforce, they said Shuttle is 76% green for next 6 months. And that, for the end of the Program, Shuttle is 43% green and 14% red for contractor workforce. (KSC 21%).

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

11/14/08--Conducted end of FY08 Contractor Assessments--consisting of briefings by the Prime Contractors to the Program Manager. All have implemented a range of retention strategies--including monetary incentives (as appropriate.) Attrition rates appear to be stabilizing.
11/24/08--Program Manager approved changing this risk from a 3 x 5 to 3x3
---
7/14/2008
The Contract Modification for PWR's Retention Plan has been signed and PWR is in the process of rolling out their plan.
GAO Closed out Shuttle Workforce Audit on June 20th with no findings or recommendations.
May 30, Prime contractors reported on attrition and retention metrics and general human capital status. ----------
5/6/2008
Contract modification to implement the External Tank Retention Plan signed last week of April. Lockheed Martin has started to roll out the plan to their employees. ----------
4/22/2008
Hosted Human Capital Council meeting with HR Directors from the contractor, HQs and Center communities. Focused on sharing best practices, discussing concerns on the release of the workforce strategy, and discussing the upcoming Technical Interchange Meeting. ----------
4/22/2008
Agency Workforce Strategy--•Participated with Headquarters on the Strategy delivered to Congress. Key messages:
--The numbers don't include (or aren't fully developed): Workforce for lunar activities and other contracts yet to be awarded Unallocated Reserves for Orion, Ares I, Ares V & Altair Commercial Orbital Transportation Services, CofF, or SSP T&R
--Other reasons: Shuttle work is well defined & predictable Low/Lean Shuttle budget reserves, Ares I, and Orion projects in early phases: production, assembly, and launch site work is still not fully defined, nor are contractor WYEs fully mapped to work locations
Most Centers/Contractors either sent out a letter to employees or hosted an all hands meeting. Anecdotal feedback indicates an increase in anxiety levels or desire for more specifics…particularly from USA, LM, and PWR. ----------
1/29/2008
Recommendation to change risk to 3 x 5 approved by Program Manager.
USA rolled out their retention incentive plan in Dec 07 Lockheed is expected to announce their plan in Jan/Feb 08 PWR is completing negotiations on their proposal ----------
12/10/2007
Recommendation: Change risk to 3 x 5 (red). The Program has approved 3 of 4 contractor retention plans and is working with the 4th contractor. USA and ATK have begun implementation of their plan, with Lockheed Martin to follow soon. The Program will continue to monitor implemention and effectiveness of the plans. Eight of ten Project/Element risks on loss of critical contractor personnel are yellow/green. ----------
10/4/2007 Per Program Management approval during the 10/4/07 SSP PRCB Top Risk Review, risk escalated to Top Program Risk.
9/28/2007 Risk escalated to TDR. Propose escalation to TPR.
8/22/2007 Opening this risk to focus on contractor personnel. It is based in risk 2505.
Second Human Capital Council held on Aug 3. Focus was on sharing best practices on communications. Visited MAF/Lockheed Martin to discuss retention challenges and strategies. Request to contractors to evaluate their Human Capital Plans sent out—due in September
7/31/2007 Recommendation: Split "Loss of Critical Personnel" into two risks—contractor personnel and civil service personnel

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

Rationale: --The make up of the workforce is different --Perception of job security is different --While many of the mitigation tools are similar, implementation strategies are/will be different. --As a result, risks are at different levels

---------- 7/16/2007

First HC Council Meeting held on May 8--focused on education and sharing best practices on "Stay Interviews" Second HC Council Meeting planned for Aug 3--focusing on communications. Looking at industry attrition information and rates--potential for benchmarking study Lead for Shuttle HC has met with PWR to receive overview of company, discuss attrition and retention, and tour facilities. Similar visit to Lockheed Martin planned. Kicking off effort to ask Contractors for evaluations of their HC Plans. First round of "reports" due in September.

3/28/2007--Planning HC Council to include HR Directors from KSC, JSC, MSFC, SSC, ATK, PWR, USA, LM, Boeing, and HQs. Forum for education, to share best practices, and communicate key messages. First meeting planned for October.

3/28/2007--Conducted HC Technical Interchange Meeting March 1 & 2. Included KSC, JSC, MSFC, SSC, PWR, USA, LM, ATK, Boeing, and HQs. 60 attendees from HC, Program, and Transition communities. Goals met: education, strengthening network, shared best practices, surfaced issues, and began action planning.

1/16/2007--Developing Technical Interchange Meeting for Human Capital Community at the 4 Human Space Flight Centers and HQs to educate folks on the issues and tools, develop additional tools, and share lessons learned across Centers.

10/06--With other members of MD, investigating the potential use of a workforce model (systems dynamics). Also investigating the potential to partner with KSC on similar efforts they have underway.

8/06--Contractor Human Capital Retention Plans were delivered and briefed at QPMR. PWR (SSME and Propulsion Testing) and ATK were given the go-ahead to proceed with their plans. Have subsequently asked Lockheed Martin to relook at their proposal due to the fact they won the CEV contract. In addition, USA (and critical subs) retention plan will be addressed as part of SPOC negotiations.

06/14/06--the Program Manager issued direction to Project Elements to work with their Prime Contractors to develop HC Plans. The Contractor Plans are due August 18

4/4/2006

The Human Capital Section of the Agency Transition Plan has been written. The Section has been reviewed and concurred on by the Office of Human Capital Management at HQs, Directors of Human Resources/Human Capital at the field centers, and representatives from the Station and Constellation Programs. The Transition Plan will be briefed to Senior Agency management at the SMC on April 13.

4/4/2006

The Space Shuttle Human Capital Plan has been written and will be submitted to Congress soon. The Plan has been reviewed and concurred on by the Office of Human Capital Management at HQs, Directors of Human Resources/Human Capital at the field centers, Center Directors (or designees) at the Space Operations Centers, the Space Shuttle Projects/Elements, and representatives from the Station and Constellation Programs. In addition, the Plan has been briefed to the Manager, Space Shuttle Program; Associate Administrator for Space Operations Mission Directorate; Associate Administrator for Exploration Mission Directorate and associated staff organizations.

11/15/05: Transition TIM held to discuss critical skill retention strategies and tools to assist elements in developing their own human capital management plan.

6/9/05: Concern changed to Risk Type and escalated to TPR status per PRCB direction. Ownership was transferred to the Strategic Planning Office.

SMA drafted this as a concern on June 3, in order ot propose that the program manager assign this to an appropriate owner for further definition and action.

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan:** Mitigation Plan Overview: Work with the Projects to develop and implement Project-level Plans for their Prime Contractors which would include retention tools and criteria, organizational design options, and alternative staffing methods. The Plans would also include workforce management and metrics.

1. Available retention Tools include:
• Retention Incentives-Individual & Groups • Awards Program • Temporary Promotions
2. As appropriate—use organizational design. • Matrix format in the line organization to enable easy transfer of skills between Programs • Direct support within Projects for unique skills
3. Use appropriate alternative staffing methods when critical losses occur • Re-employed annuitants • Experts and consultants • Part-time

**Fallback Plan:**

| Task No. | Task Description | Team | Individual | ECD | ACD | Resulting Magnitude L x C | Success Criteria |
|---|---|---|---|---|---|---|---|
| 1 | Transition TIM | SSP | Sue Leibert | | 11/03/2005 | Red | Dissemination of tools and strategies available to retain critical skills and manage entire workforce needs. |
| 2 | Identify project-level skills risks | SSP | Sue Leibert | | 07/14/2006 | Red | Documentation of skills risks for all projects within SIRMA. |
| 3 | Workforce Management Plans | SSP | Sue Leibert | | 09/27/2006 | Red | Documented critical skill and workforce management plans for each project. |
| 4 | HC TIM | SSP | Sue Leibert | | 03/02/2007 | Red | Education on HR and roles and responsibilities of the Centers and Contractors; strengthening the HR network; sharing best practices. Over 60 attendees from ATK, PWR, LM, USA, Boeing, HQs, JSC, KSC, MSFC, and SSC--from Transition, Program, and HR communities |
| 5 | HC Council | SSP | Sue Leibert | | 05/08/2007 | Red | Establish a Council of HR Directors from the Prime Contractors and the Centers. Goals: communication, share best practices, surface and address issues |
| 6 | Evaluation of Contractor HC Plans 07 | SSP | Sue Leibert | 10/30/2007 | 11/09/2007 | Red | documentation and assessment of current activities |

# SSP Risk : 2983 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7 | Skills Mapping | SSP | Sue Leibert | 02/28/2008 | 04/01/2008 | Red | Participating in Agency effort to map Shuttle employee skills to Station and Cx |
| 8 | Evaluation of Contractor HC Plans 08 | SSP | Sue Leibert | 10/30/2008 | 11/14/2008 | Yellow | documentation and assessment of progress in HC arena |
| 9 | Evaluation of Contractor HC Plans 09 | SSP | Sue Leibert | 10/30/2009 | | Yellow | documentation and assessment of progress in HC arena |

| | SSP Risk : 2983 Detail Report | | | |
|---|---|---|---|---|
| | **Open Date:** 8/22/2007 | **Status as of:** 8/17/2009 | **ECD:** 9/30/2010 | |

## Safety Information

| | | | |
|---|---|---|---|
| **Safety Assessor:** JohnDolan | **S&MA Escalation:** None | **S&MA L x C:** 3 x 2 | **Safety Review Complete:** Yes |
| **Safety Risk:** Yes | | | |
| **Rationale:** Concur with 3x2 safety risk designation assigned by risk owner. | | | |
| **Agree with Project Characterization?:** Yes | | | |
| **Project Characterization Rationale:** | | | |
| **Agree with Project Mitigation Plan?:** Yes | | | |
| **Project Mitigation Plan Rationale:** | | | |
| **Has Coordination with Project Started?:** Yes | | | |
| **Project Coordination Status:** | | | |

# SSP Risk : 2984 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

| Title: Loss of Critical Civil Service Personnel | Status: Open | Escalation: TPR | Timeframe: None |
|---|---|---|---|

**Risk Statement:** Given the expected attrition related to successful return to flight, acceleration of the Explorations programs and projects, and program end of life; there is a possibility that the program will not be able to retain civil service personnel needed to continue shuttle operations

**Context:** It is expected that following the successful return to flight, some program civil service personnel will migrate into new positions. Further, it is thought that additional program personnel will be attracted by the Exploration program and projects and leave shuttle within the following year. Lastly, with a guaranteed end of program life it is expected that civil service personnel will attempt to find longer-term employment prior to the last shuttle mission. Overall, these three factors could potentially result in continuous staffing pressure over the remaining program life.

| Risk Owner: sleibert | Phone Number: 281 483-3220 | Owning Team: MM_Bus_Office | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: SP_Transition, CXP | 3 | X | Safety: 2<br>Supportability: 3<br>Mission Success: 0<br>Schedule: 0<br>Cost: 0 |

**Risks Affected:** 2287, 2768, 2781, 2302, 2660, 2774, 2784, 2762, 2816, 2918, 2788, 2764, 3079, 2769

| Mitigation Cost ($M) | | | Cost in Scope ($M) | Recovery Cost ($M) | | |
|---|---|---|---|---|---|---|
| High: 0 | Most Likely: 0 | Low: 0 | Total Mit. Budget: 0 | High: 0 | Most Likely: 0 | Low: 0 |

**Cost Breakdown:**

| Safety Risk: Yes | Safety Review Complete: Yes |
|---|---|

**Closure\Acceptance Criteria:** Implementation of civil service personnel retention plans that address each of these factors

**Closure\Acceptance Rationale:**

**Current Status:**2/23/2009
Co-hosted joint Communications/Human Capital Tim 1/28-29/09. Attended by 40 participants from contractor and civil service and communications, human capital, and program communities. Good updates from HQs and good sharing of best practices across all orgs.
Second confidence survey is open...due to close 2/27/09. ----------

11/24/2008
Results of recent Civil Service Confidence Survey indicate that Civil Service Supervisors are more confident about next 6 months than end of Shuttle Program--Shuttle is 91% green for next 6 months for CS workforce. For theend of the Shuttle Program-- Shuttle is 64% green and 4% red for CS workforce.
August--results of the Employee Survey indicate over 70% of civil service employees working Shuttle intent to stay until the end of the Program.

# SSP Risk : 2984 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

---
7/14/2008
June 20, GAO hosted Exit Conference on Shuttle Workforce activities--no recommendations or findings.
Rolled out survey for Shuttle supervisors to assess their confidence to support the Program for next 6 months and through the end of the Program for both CS and contractor workforce. Also asking their assessment of the effectiveness workforce sharing.
Planning joint TIM between Communications and Human Capital communities to discuss Communication as a Change Management Tool.

---
4/22/2008
Agency Workforce Strategy--•Participated with Headquarters on the Strategy delivered to Congress. Key messages:
--The numbers don't include (or aren't fully developed): Workforce for lunar activities and other contracts yet to be awarded Unallocated Reserves for Orion, Ares I, Ares V & Altair Commercial Orbital Transportation Services, CofF, or SSP T&R
--Other reasons: Shuttle work is well defined & predictable Low/Lean Shuttle budget reserves, Ares I, and Orion projects in early phases: production, assembly, and launch site work is still not fully defined, nor are contractor WYEs fully mapped to work locations
Most Centers/Contractors either sent out a letter to employees or hosted an all hands meeting. Anecdotal feedback indicates an increase in anxiety levels or desire for more specifics…particularly from USA, LM, and PWR. ----------
4/22/2008 Preparing new metric to measure supervisors confidence in ability to support Program (from workforce point of view) for next 6 months and through end of program. Also will ask for feedback on effectiveness of workforce sharing.

---
4/22/2008
Hosted Human Capital Council meeting on 4/18--shared best practices, concerns due to release of workforce strategy, and upcoming Communication/Human Capital TIM ----------
1/29/2008
Recommendation to change risk to 3 x 3 approved by Program Manager. ----------
12/10/2007
Recommendation: Change risk to 3 x 3 (yellow). In 2006, the four Centers developed and submitted Human Capital Plans. They recently completed the first year assessment. All are continuing or have implemented a number of strategies to retain personnel and/or ensure adequate bench strength. These include: matrix structure, job sharing, and continuing to hire to support Shuttle. Seven of nine project/element risks related to civil service retention are yellow/green to maintain critical skills. Will continue to monitor their efforts. ----------
10/4/2007 Per Program Management approval during the 10/4/07 SSP PRCB Top Risk Review, risk escalated to Top Program Risk.
9/28/2007 Risk escalated to TDR. Propose escalation to TPR.
8/22/2007 Opening this risk to focus on civil service personnel. It is based in risk 2505.
Second Human Capital Council held on Aug 3. Focus was on sharing best practices on communications. Request to Centers to evaluate their Human Capital Plans will go out by September 1—due in October.
7/31/2007 Recommendation: Split "Loss of Critical Personnel" into two risks—contractor personnel and civil service personnel
Rationale: --The make up of the workforce is different --Perception of job security is different --While many of the mitigation tools are similar, implementation strategies are/will be

different. --As a result, risks are at different levels

---

7/16/2007 First HC Council Meeting held on May 8--focused on education and sharing best practices on "Stay Interviews" Second HC Council Meeting planned for Aug 3--focusing on communications. Looking at industry attrition information and rates--potential for benchmarking study Second Shuttle Employee Survey closed on July 13. Intent to stay with the Program has stayed the same. More detailed analysis and briefings to come. Kicking off effort to ask Centers for evaluations of their HC Plans. First round of "reports" due in September.

3/28/2007--Planning HC Council to include HR Directors from KSC, JSC, MSFC, SSC, ATK, PWR, USA, LM, Boeing, and HQs. Forum for education, to share best practices, and communicate key messages. First meeting planned for October.

3/28/2007--Conducted HC Technical Interchange Meeting March 1 & 2. Included KSC, JSC, MSFC, SSC, PWR, USA, LM, ATK, Boeing, and HQs. 60 attendees from HC, Program, and Transition communities. Goals met: education, strengthening network, shared best practices, surfaced issues, and began action planning. 1/16/2007--Developing Technical Interchange Meeting for Human Capital Community at the 4 Human Space Flight Centers and HQs to educate folks on the issues and tools, develop additional tools, and share lessons learned across Centers.

10/06--With other members of MD, investigating the potential use of a workforce model (systems dynamics). Also investigating the potential to partner with KSC on similar efforts they have underway.

9/06--Civil service plans were submitted from KSC, SSC, MSFC, and JSC. Civil service and contractor proposals have been briefed to the Program Manager and a number of HQs offices. Briefed ASAP on Shuttle Human Capital Planning and Survey results. 06/14/06--the Program Manager issued direction to Project Elements to work with their Centers on developing HC Plans for Civil Servants which are due September 15.

7/18/06--the Program Manager was briefed on the results of the Shuttle Employee Survey. Over 44% of the employees surveyed at KSC, JSC, MSFC, and SSC responded to the survey. The Center Directors, HR Directors, and other staff members at KSC, JSC, MSFC, SSC, and HQs will be briefed on the results 8/3/06

4/4/2006---The Human Capital Section of the Agency Transition Plan has been written. The Section has been reviewed and concurred on by the Office of Human Capital Management at HQs, Directors of Human Resources/Human Capital at the field centers, and representatives from the Station and Constellation Programs. The Transition Plan will be briefed to Senior Agency management at the SMC on April 13.

4/4/2006--The Space Shuttle Human Capital Plan has been written and will be submitted to Congress soon. The Plan has been reviewed and concurred on by the Office of Human Capital Management at HQs, Directors of Human Resources/Human Capital at the field centers, Center Directors (or designees) at the Space Operations Centers, the Space Shuttle Projects/Elements, and representatives from the Station and Constellation Programs. In addition, the Plan has been briefed to the Manager, Space Shuttle Program; Associate Administrator for Space Operations Mission Directorate; Associate Administrator for Exploration Mission Directorate and associated staff organizations.

2/5/2006--Collecting data and plans as part of the budget process. 11/15/05-- Transition TIM held to discuss critical skill retention strategies and tools to assist elements in developing their own human capital management plan. 6/9/05: Concern changed to Risk Type and escalated to TPR status per PRCB direction. Ownership was transferred to the Strategic Planning Office. SMA drafted this as a concern on June 3, in order ot propose that the program manager assign this to an appropriate owner for further definition and action.

---

# SSP Risk : 2984 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

# SSP Risk : 2984 Detail Report

| Open Date: 8/22/2007 | Status as of: 8/17/2009 | ECD: 9/30/2010 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan:** Work with the Centers to develop and implement Human Capital Plans which would include retention tools and criteria, organizational design options, and alternative staffing methods. The Plans would also include workforce management and metrics. 1. Available retention Tools include: • Retention Allowance-Individual & Groups • Retention Bonus • Critical Pay Authority • NASA Excepted Appointments • Awards Program • Qualifications Pay • Temporary Promotions • Relocation and Redesignation Bonuses

2. As appropriate—use organizational design. • Matrix format in the line organization to enable easy transfer of skills between Programs • Direct support within Projects for unique skills

3. Use appropriate alternative staffing methods when critical losses occur • Temporary Hires (< 1 year) • Term Hires (1 year <) • NASA Excepted • Emergency Appointments • Re-employed annuitants • Experts and consultants • Intergovernmental Personnel Agreements • Part-time • Telecommuting arrangements • Rotations/TDY

**Fallback Plan:**

| Task No. | Task Description | Team | Individual | ECD | ACD | Resulting Magnitude L x C | Success Criteria |
|---|---|---|---|---|---|---|---|
| 1 | Transition TIM | SSP | Sue Leibert | | 11/03/2005 | Red | Dissemination of tools and strategies available to retain critical skills and manage entire workforce needs. |
| 2 | Employee Survey 06 | SSP | Sue Leibert | | 06/15/2006 | Red | Survey SSP Employees on intent to stay with the Program and what would motivate them to stay |
| 3 | Identify project-level skills risks | SSP | Sue Leibert | | 07/14/2006 | Red | Documentation of skills risks for all projects within SIRMA |
| 4 | HC TIM | SSP | Sue Leibert | | 03/02/2007 | Yellow | Education on HR and roles and responsibilities of the Centers and Contractors; strengthening the HR network; sharing best practices. Over 60 attendees from ATK, PWR, LM, USA, Boeing, HQs, JSC, KSC, MSFC, and SSC--from Transition, Program, and HR communities |
| 5 | Employee Survey 07 | SSP | Sue Leibert | | 07/13/2007 | Yellow | Survey Shuttle employees on intent to stay with Program and what motivates them to stay |
| 6 | Employee Survey 08 | SSP | Sue Leibert | 07/30/2008 | 08/15/2008 | Yellow | Survey Shuttle employees on intent to stay with Program and what motivates them to stay |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7 | Evaluation of Center HC Plans 08 | SSP | Sue Leibert | 12/30/2008 | 12/30/2008 | Yellow | documentation and assessment of progress in HC arena |
| 8 | Shuttle Employee Survey 09 | SSP | Sue Leibert | 08/30/2009 | | Yellow | Survey Shuttle employees on intent to stay with Program and what motivates them to stay |
| 9 | Evaluation of Center HC Plans 09 | SSP | Sue Leibert | 10/30/2009 | | Yellow | documentation and assessment of progress in HC arena |

| | SSP Risk : 2984 Detail Report | | | |
|---|---|---|---|---|
| | **Open Date:** 8/22/2007 | **Status as of:** 8/17/2009 | **ECD:** 9/30/2010 | |

## Safety Information

| | | | |
|---|---|---|---|
| **Safety Assessor:** JohnDolan | **S&MA Escalation:** None | **S&MA L x C:** 3 x 2 | **Safety Review Complete:** Yes |
| **Safety Risk:** Yes | | | |
| **Rationale:** Concur with 3x2 safety risk designation assigned by risk owner. | | | |
| **Agree with Project Characterization?:** Yes | | | |
| **Project Characterization Rationale:** | | | |
| **Agree with Project Mitigation Plan?:** Yes | | | |
| **Project Mitigation Plan Rationale:** | | | |
| **Has Coordination with Project Started?:** Yes | | | |
| **Project Coordination Status:** | | | |

# SSP Risk : 3029 Detail Report

| Open Date: 3/19/2008 | Status as of: 8/17/2009 | ECD: 9/30/2009 |
|---|---|---|

| Title: SSFL Disposition | Status: Open | Escalation: TOR | Timeframe: Mid |
|---|---|---|---|

**Risk Statement:** Given the fact the nearly all real and personal property at SSFL is excess to NASA needs; there is a possibility that the return value of disposed assets will be less than the cost of the disposition activities.

**Context:**

| Risk Owner: mdallen | Phone Number: 256-544-5611 | Owning Team: Tran_MSFC | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: Transition, Tran-MSFC | 3 | X | Safety: 0<br>Supportability: 0<br>Mission Success: 0<br>Schedule: 0<br>Cost: 3 |

**Risks Affected:**

| Mitigation Cost ($M) | | | Cost in Scope ($M) | Recovery Cost ($M) | | |
|---|---|---|---|---|---|---|
| High: 0 | Most Likely: 0 | Low: 0 | Total Mit. Budget: 0 | High: 0 | Most Likely: 0 | Low: 0 |

**Cost Breakdown:**

| Safety Risk: No | Safety Review Complete: Yes |
|---|---|

**Closure\Acceptance Criteria:**

**Closure\Acceptance Rationale:**

**Current Status:**7/7/2009 Administrator has signed the consent order and it has been sent to Congress. The 30-day legislative review period has passed with no response back from Congress. Waiting to send consent order to GSA to proceed with property disposal.

---

3/4/2009

At this time, the SSFL declaration of excess to Congress is awaiting the Administrator's signature. Completing the declaration of excess process will allow for the General Services Administration (GSA) to conditionally accept the site to begin property divestment procedures. Also, decreased scrap value worldwide as reported by vendors has created additional concern and the threat of potential additional costs will be carried through the PPBE-11 process ----------

---

4/24/2008

The risk has been reduced to a 3x3 due to a better definition of requirements, a Memorandum of Agreement (between NASA, Boeing, and GSA), all prior property related actions being closed, and positive feedback from scrap vendors on value of assets to be disposed of.

# SSP Risk : 3029 Detail Report

| Open Date: 3/19/2008 | Status as of: 8/17/2009 | ECD: 9/30/2009 |
|---|---|---|

Despite the positive feedback, there still remains a possibility of owing money on demolition and disposition costs. ---------- 3/19/2008

This risk was just transferred to Mike Allen, the MSFC Transition Manager, from SSME. ----------

# SSP Risk : 3029 Detail Report

| Open Date: 3/19/2008 | Status as of: 8/17/2009 | ECD: 9/30/2009 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

# SSP Risk : 3029 Detail Report

| Open Date: 3/19/2008 | Status as of: 8/17/2009 | ECD: 9/30/2009 |
|---|---|---|

## Mitigation Summary

| |
|---|
| **Mitigation Plan:** Should the return value on disposed of assets be less than expected, contingency funding will be required from the Program. |
| **Fallback Plan:** |

| Task No. | Task Description | Team | Individual | ECD | ACD | Resulting Magnitude L x C | Success Criteria |
|---|---|---|---|---|---|---|---|
| 1 | Complete all outstanding contract actions for property | Tran_MSFC | James Moore | 04/30/2008 | 04/30/2008 | Red | |
| 2 | Better define roles and responsibilities | Transition | James Ellis | 04/30/2008 | 04/30/2008 | Red | |
| 3 | Seek input from scrap vendors for the potential return value of scrapped materials | Transition | James Ellis | 04/30/2008 | 04/30/2008 | | |
| 4 | Complete a Memorandum of Understanding between NASA and Boeing | Transition | James Ellis | 09/30/2009 | 09/30/2009 | | |

| | SSP Risk : 3029 Detail Report | | | |
|---|---|---|---|---|
| | **Open Date:** 3/19/2008 | **Status as of:** 8/17/2009 | **ECD:** 9/30/2009 | |

## Safety Information

| | | | |
|---|---|---|---|
| **Safety Assessor:** EthanChew | **S&MA Escalation:** None | **S&MA L x C:** | **Safety Review Complete:** Yes |
| **Safety Risk:** No | | | |
| **Rationale:** | | | |
| **Agree with Project Characterization?:** Yes | | | |
| **Project Characterization Rationale:** | | | |
| **Agree with Project Mitigation Plan?:** Yes | | | |
| **Project Mitigation Plan Rationale:** | | | |
| **Has Coordination with Project Started?:** Yes | | | |
| **Project Coordination Status:** | | | |

# KSC Risk #KSC-07-001 Information Sheet

John F. Kennedy Space Center

| | | | |
|---|---|---|---|
| **Risk ID:** KSC-07-001 | **Date Identified:** 10/01/2007 | **Status as of:** 05/22/2009 | **ECD:** Ongoing |
| **Risk Title:** Execution of Institutional responsibilities jeopardized by insufficient transition and retirement funding post-2010 | | | **Risk Owner: TA** |

**Risk Statement: (Condition; Consequence)**
Given the Space Shuttle Program and Space Station ground processing will end in 2010; the lack of adequate Program transition and retirement funding post-2010 will leave the Center and Agency incapable of properly dispositioning the facilities, personal property, records and software remaining after program retirement.

**Risk Context:** In the NASA FY2010 budget, SOMD received funding for SSP in FY11 and FY12 including transition and retirement (T&R) funding. The funding levels did not cover all content for KSC, as identified in the PAA and IIA in 2008. However, the PPBE2011 T&R guidance language and the maturation of Program requirements for personal property and real property resulted in decreased institutional budget requirements and thus more baseline content was covered within the cost target given to KSC. Records management input was considered higher confidence than in PPBE2010. In addition, the Program Manager Review recommended fully funding KSC for baseline content. The threats continue to be: the funding timeframe (FY11-FY12) which will introduce cost threats to the Agency institutional organizations if required activities are not accomplished (e.g., Orbiters remain at KSC); records mgt costs post-2012; and requirement for care and handling of personal property in facilities slated for abandonment post-Shuttle. In addition, although ISS is funded for property disposition related to Shuttle retirement, the level of disposition will increase post-2010 and the institutional processes may not be able to handle without additional resources.

**Risk Planning Approach:**
_**X**_ Mitigate __ Watch
__ Accept __ Research

**Timeframe:**
_X_ Near __ Mid __Far

**Likelihood: 3** **Consequence: 3** (Highest Score of Consequence Attributes)
**Safety: 2** **Mission Success: 2** **Supportability: 1** **Cost: 3** (if PMR recommend not approved) **Schedule:**

**Status:** Inter-Center working group has been established to identify and manage transition issues; Center has identified the threats and is participating in Agency efforts to address the transition and funding items; Center remains aggressive in identifying transition concerns that have not been funded. PPBE 2011 guidance and the maturation of Program requirements resulted in lower institutional budget requirements and, if the PMR recommend is accepted, most known institutional content is covered. However, the requirement for care and handling of personal property in those facilities that CxP does not need drives $9.8M threat for continued O&M and utilities. HQ Office of Infrastructure will not allow abandonment of personal property and recommended using GSA to conduct facility-specific sales or movement of property to alternate interim locations and those options (and others) will be studied as priorities are reviewed in summer 2009. Status and mitigation activities will be identified and tracked through the Transition Working Group and the Personal Property WG and Real Property WG will be used to develop solutions and schedules.

**Recommended Risk Disposition/Rationale:** Continue Tracking Mitigation / Maturation of program requirements increases confidence in budget requirements

# KSC Risk #KSC-07-001 Information Sheet

John F. Kennedy Space Center

| **Risk ID:** KSC-07-001 | **Risk Title:** Execution of Institutional responsibilities jeopardized by insufficient transition and retirement funding post 2010 |
|---|---|

**Top-Level Mitigation Strategy**

| |
|---|
| **Mitigation Plan:** Inter-Center working group has been established to identify and manage transition issues, Center has identified the threats and is participating in Agency efforts to address the transition and funding items |
| **Contingency Plan:** |

**Status of Detailed Mitigation Actions**

| Task No. | Task Description | Actionee | ECD | ACD | Resulting L x C | Success Criteria |
|---|---|---|---|---|---|---|
| 1 | Actively participate in Agency working groups working to resolving transition and retirement issues. | PH/TA/LX | On-going | | | KSC develops plan that expedites personal property disposal and gains HQ concurrence; Placement of Orbiters by the end of FY12; Agency funds Institutional cost threats |
| 2 | Submit KSC funding requirements for transition to PPBE 2010 and subsequent funding calls. | PH / AA-B | SSP: 07/23/2008 SOMD PAA 08/09/2008 IIA: 08/11/2008 | 05/07/2009 | 4x4 | Inclusion in SOMD PAA, Agency submit to OMB, OMB approval; inclusion in NASA Authorization |
| 3 | Continue KSC transition working group activities to provide concise budget information, quantify impacts, and propose contingency approaches to address Center issues associated with Shuttle program transition and retirement | All directorates | On-going | | | Open, on-going communication |
| 4 | Submit KSC funding requirements for transition to PPBE 2011 and subsequent funding calls. | PH / AA-B | SSP PMR: 05/05/2009 | | 3x3 | Inclusion in SOMD PAA, Agency submit to OMB, OMB approval |

# SSC Risk: 1327 Detail Report

| Open Date: 4/9/2009 | Status as of: August 24, 2009 | ECD: 10/31/2010 |
|---|---|---|

| Title: A2 Transition from SSME to Exploration | Status: Open | Escalation: HQs | Timeframe: Through October 2010 | Risk Source |
|---|---|---|---|---|

**Statement:** There is an A2 test stand ground testing gap between the completion of SSME Engine testing and the start of modifications to support J-2X testing. This gap involves significant risk in supporting any unplanned testing for SSME flight rationale and in meeting the schedule for J-2X testing on A2.

**Context:** Currently there is a twelve month gap between the completion of SSME Engine testing on A-2 by FY09 end and the start of modifications to support J-2X testing in October 2010. By FY09 end, the A-2 test stand and associated test operations crew will be in stand down mode with possible loss of contractor personnel and a secured A-2 test stand configuration. Any requirement to reactive A-2 test operations will require a significant investment and schedule impact. J-2X testing could be impacted due to the potential loss of a highly skilled work force in propulsion ground testing and flight hardware.

| Risk Owner (RO): Holland, Randy | Phone No. 82685 | Org: PA00 Project Directorate | Likelihood | X | Safety | Performance | Schedule | Cost |
|---|---|---|---|---|---|---|---|---|
| Flights Affected: | | Team Affected: Test | 5 | | 0 | 4 | 12 month | 12M |

| Mitigation Cost ($M) | | | Budget Committed ($M) | Recovery Cost ($M) |
|---|---|---|---|---|
| Low: 0 | Most Likely: 0 | High: 12 | 0 | 0 |

**Cost Breakdown:**

**Closure/Acceptance Criteria:**

**Closure/Acceptance Rationale:**

**Current Status:** 8/24/2009

The scope for J2X has increased and this work can be done with a small portion of the current SSME workforce.

---

8/12/2009

Through the RPT Level 2 Program Office, the proposed options to address the one year gap were presented to the HQ Transition Board. No funding has been currently identified to address this risk. SOMD has been previously notified of the potential loss of testing capability in supporting Shuttle flight rationales and the Constellation program on the potential risk of a technical personnel short fall. Stennis is still looking at ways to minimize the personnel loss through other project efforts.

---

6/18/2009

The Project Directorate is working with RPT Level 2 (Program Office) on scenarios for the eleven month gap analysis. Scenarios with associated costs/impacts are to be presented to

# SSC Risk: 1327 Detail Report

| | | |
|---|---|---|
| **Open Date:** 4/9/2009 | **Status as of:** August 24, 2009 | **ECD:** 10/31/2010 |

HQ for a “go forward” decision. SOMD has been notified of the potential loss of testing capability in supporting Shuttle flight rationales and the Constellation program on the potential risk of a technical personnel short fall.

---

4/9/2009

Decision packages are being presented to SOMD to keep active the A2 SSME testing capability to support Shuttle flight risk mitigations and the Constellation program has been informed of the potential short fall.

---

# SSC Risk: 1327 Detail Report

**Open Date:** 4/9/2009 | **Status as of:** August 24, 2009 | **ECD:** 10/31/2010

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Budget Committed ($M) | Most Like. Recovery ($M) | Comments |
|---|---|---|---|---|---|---|
| 02 | 0 | 0 | 0 | 0 | 0 | |
| 03 | 0 | 0 | 0 | 0 | 0 | |
| 04 | 0 | 0 | 0 | 0 | 0 | |
| 05 | 0 | 0 | 0 | 0 | 0 | |
| 06 | 0 | 0 | 0 | 0 | 0 | |
| 07 | 0 | 0 | 0 | 0 | 0 | |
| 08 | 0 | 0 | 0 | 0 | 0 | |
| 09 | 0 | 0 | 0 | 0 | 0 | |
| 10 | 12 | 0 | 0 | 0 | 0 | |
| 11 | 0 | 0 | 0 | 0 | 0 | |
| 12 | 0 | 0 | 0 | 0 | 0 | |
| 13 | 0 | 0 | 0 | 0 | 0 | |
| 14 | 0 | 0 | 0 | 0 | 0 | |
| 15 | 0 | 0 | 0 | 0 | 0 | |
| 16 | 0 | 0 | 0 | 0 | 0 | |
| 17 | 0 | 0 | 0 | 0 | 0 | |
| 18 | 0 | 0 | 0 | 0 | 0 | |
| 19 | 0 | 0 | 0 | 0 | 0 | |
| 20 | 0 | 0 | 0 | 0 | 0 | |

# SSC Risk: 1327 Detail Report

| Open Date: 4/9/2009 | Status as of: August 24, 2009 | ECD: 10/31/2010 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Totals ($M)** | 12 | 0 | 0 | 0 | 0 |

# SSC Risk: 1327 Detail Report

| Open Date: 4/9/2009 | Status as of: August 24, 2009 | ECD: 10/31/2010 |
|---|---|---|

## Mitigation Summary

| |
|---|
| **Mitigation Plan Overview:** Decision packages are being presented to SOMD to keep active the A2 SSME testing capability to support Shuttle flight risk mitigations and the Constellation program has been informed of the potential short fall. |
| **Fallback Plan Overview:** |

| Task No. | Task Description | Org | Individual | ECD | ACD | Resulting Magnitude L x C | Success Criteria |
|---|---|---|---|---|---|---|---|
| | SSC escalated risk to HQs Program Level | PA00 Project Directorate | rholland | | | 5 x 4 | |

# SSC Risk: 1327 Detail Report

| | | |
|---|---|---|
| **Open Date:** 4/9/2009 | **Status as of:** August 24, 2009 | **ECD:** 10/31/2010 |

## Safety Information

| | | | |
|---|---|---|---|
| **Safety Assessor:** None | **S&MA Escalation:** None | **S&MA Risk Score:** | **Ready for Review:** Yes |
| **Safety Risk?** | | | |
| **Rationale:** | | | |
| **Agree With Risk Characterization?** Yes | | | |
| **Risk Characterization Rationale: Given the** government oversight quality coverage is required for J-2X associated with required Government Mandatory Inspection Points. With SSME testing ending in July 2009 and CxP moving to the right there will be a critical skills loss from FY10 into the out years**; there is a possibility that** there will be an impact to engine build and testing due to the lack of qualified quality assurance personnel. | | | |
| **Agree With Risk Mitigation Plant?** Yes | | | |
| **Risk Mitigation Plan Rationale:** | | | |
| **Has Coordination with Risk Owner Started?** Yes | | | |
| **Risk Owner Coordination Status:** | | | |

Version 11 submitted on 8/3/2009

# Risk Information Sheet

## Center Ops-7

**H**

**Group Access:** Routine

***Planned Closure Date:***

***Likelihood***

4

***Risk Title***

**Santa Susanna Field Laboratory (SSFL) Remediation Cleanup Levels (Funded by HQ ECR)**

***Consequences***

***Cost*** 4

***Schedule*** 3

***Performance*** 3

***Safety*** 1

***Risk Statement***

Given that the California Department of Toxic Substance Control is now considering requiring NASA to clean up the SSFL facility to meet the more stringent rural residential standards, there is a risk that the cleanup cost will increase 200-300 percent and that NASA will fail to meet the consent order schedule.

| ***Team*** | ***Owner*** | ***Category*** |
|---|---|---|
| AS10 | James Elliott | IMSB/CMC |

***Timeframe*** *Near* ☐ *Mid* ☒ *Far* ☐

***Context***

***Approach*** *Research* ☐ *Mitigate* ☒ *Watch* ☐ *Accept* ☐

***Research Plan***

***Mitigation Plan***

1)Participate in reviews of Boeing proposals and negotiations with Calfornia DTSC (Department of Toxic Substance Control). Completed 09/30/08.
2)Await notification from DTSC the consent Order changes to incorporate State Bill 990 requirements. Estimated completion 01/31/09. Actual Completion 12/19/08.
2a)MSFC AS10, MSFC Legal, HQ EMD, and HQ Legal are currently reviewing the draft Order. On-going negotiations with DTSC, DOE, and Boeing. Estimated completion 12/31/09.
3)Continue consultations with MSFC and HQ Legal offices for development of NASAs response. Estimated completion 12/31/09.
4)If litigation is required, defer to Legal office. Estimated completion 12/31/09.

***Risk Realization Cost:*** $0 ***Risk Mitigation Cost:*** $0

***Detailed Mitigation Steps***

| ***Step*** | ***Resulting Likelihood x Consequences*** | ***Completion Date*** ***Planned*** | ***Actual*** | ***Cost*** |
|---|---|---|---|---|

***Watch Plan/Tracking Requirements***

1)Participate in reviews of Boeing proposals and negotiations with Calfornia DTSC (Department of Toxic Substance Control).
2)Await notification from DTSC the consent order changes to incorporate SB990 (State Bill 990) requirements.
3)Continue consultations with MSFC and HQ Legal offices for development of NASAs response.

***Acceptance Rationale***

***Report generated on by eport on 8/26/2009***

## *Management Comments*

## *Status Comment*

| | |
|---|---|
| 8/3/2009 | Extended estimated completion dates for steps 2a, 3, and 4. |
| 6/30/2009 | Extended estimated completion dates for steps 2a, 3, and 4. |
| 5/1/2009 | Extended estimated completion date for step 4. |
| 4/6/2009 | Extended estimated completion date for steps 2a, 3, and 4. |
| 3/2/2009 | Extended estimated completion dates for step 2a and 3. |
| 1/23/2009 | 01/21/09: Included actual completion date to step 2. Included step 2a. |
| 8/28/2008 | 1) Work with other responsible parties (DOE, Boeing) to develop an approach that minimizes the cost impacts while meeting intent of State's requirement.<br>2) Participate in negotiations with DTSC.<br>3) Request additional ECR funds through PPB&E process. |

# *Risk Information Sheet*

## *TPO-14*

**M** **Group Access:** Routine *Planned Closure Date:*

***Likelihood***

4

***Risk Title***

**Potential Loss of MSFC Shuttle Environmental Assurance Initiative Capability**

***Consequences***

***Cost*** 3
***Schedule*** 3
***Performance*** 3
***Safety*** 1

***Risk Statement***

Given the condition that the Constellation Program has not identified funding to support the transition of the Shuttle Environmental Assurance Initiative (SEA) capability to CxP; there is a possibility that MSFC will lose the engineering and scientific technical skills associated with this capability with a resulting impact on Ares, CxP, MSFC and Agency mission cost, schedule and performance.

| ***Team*** | ***Owner*** | ***Category*** |
|---|---|---|
| ALL | Glover, Steve | Internal |

***Timeframe*** *Near* ☐ *Mid* ☒ *Far* ☐

***Context***

The SEA team provides an integrated approach for the SSP to identify environmentally-driven materials obsolescence issues and to develop and implement mitigation plans. SEA is managed by the MSFC TPO. SEA represents a capability of critical skills and interfaces that should be transitioned to CxP and to other Programs as the SSP nears termination. CxP has identified the need for a Constellation Environmental Assurance Team (CEA) and has an open risk in IRMA (#1956). No resources have been identified to support a CEA. Unless funding is available prior to 2010, SEA will plan for retirement at the end of 2010, and will transfer lessons learned data and other dcumentation of SEA work to CxP. CxP representatives will continue to attend SEA meetings and receive SEA products, but no CxP specific issues will be worked by the SEA team.

***Approach*** *Research* ☐ *Mitigate* ☒ *Watch* ☐ *Accept* ☐

***Research Plan***

***Mitigation Plan***

The mitigation plan includes:
1) Elevate risk to MSFC management; brief CxP, HQ and MSFC management on the need for a CEA (complete and ongoing)
2) Invite CxP representatives to SEA meetings (complete and ongoing)
3) Provide SEA products to CxP (complete and ongoing)
4) Develop a transition and retirement plan for SEA (complete)
5) Document SEA information and data (initiated)
6) Secure funding for future program
7) Begin transition of team to CxP or other Programs

***Risk Realization Cost:*** $0 ***Risk Mitigation Cost:*** $0

| Step | Detailed Mitigation Steps / Resulting Likelihood x Consequences | | | | | Completion Date Planned | Actual | Cost |
|---|---|---|---|---|---|---|---|---|
| 1 | Elevate Risk - provided several and ongoing | | | | | 01/02/2008 | 7/7/2009 | 0 |
| | L(4) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |
| 2 | Invite CxP Rep to SEA meetings - in place and ongoing | | | | | 01/02/2008 | 7/7/2009 | 0 |
| | L(4) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |
| 3 | Provide SEA products to CxP - in place and ongoing | | | | | 01/02/2008 | 7/7/2009 | 0 |
| | L(4) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |
| 4 | Develop a SEA T&R Plan - competed | | | | | 03/30/2009 | 7/7/2009 | 0 |
| | L(4) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |
| 5 | Document SEA Data - in work | | | | | 07/31/2010 | | 0 |
| | L(4) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |
| 6 | Secure Funding -- TBD | | | | | 01/02/2011 | | 0 |
| | L(2) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |
| 7 | Begin transition of team to CxP or other Programs -- TBD | | | | | | | 0 |
| | L(1) | Cc(3) | Cs(3) | Cp(3) | Cq(1) | Actionee: Glover, Steve | | |

### *Watch Plan/Tracking Requirements*

### *Acceptance Rationale*

### *Management Comments*

## *Previous Status Comment*

| | |
|---|---|
| 8/21/2009 | 8/22/09 -- SEA continues to provide CxP access to SEA team meetings, SEA reports, the SEA website and other information. The SEA team has begun to collect data and to draft a report that will document SSP environmentally-driven replacement work and other SEA products and processes. CxP continues to carry a risk associated with the loss of the SEA team but still has no identified funding for a SEA like team. The last SEA face to face meeting is scheduled for Febryary 2010. |
| 7/7/2009 | CxP representatives participated in the SEA face to face meeting in Houston, TX in April 2009. SEA continues to provide CxP access to the SEA team meetings, reports and other information. CxP has identified a need for a SEA like team and carries an associated risk but has not a identified a funding source. SEA completed a Transition and Retirement Plan and is beginning a report that will document SSP environmentally-driven materials replacement work and other SEA products and processes. The last SEA face to face meeting is tentatively scheduled for February 2010. |
| 6/22/2009 | 6/22/09 CxP representatives participated in the SEA face to face meeting in Houston, TX in April 2009. SEA continues to provide access to the SEA team meetings, SEA reports and other information to CxP. CxP has identified a need for a SEA like team and carries an associated risk but has not identified funding. SEA has completed a Transition and Retirement Plan and is beginning a report that will document SSP environmentally-driven materials replacement work and other SEA products and processes. The last SEA face to face meeting is tentatively scheduled for February 2009. |
| 2/27/2009 | 2/27/09 SEA Transition and retirement plan is complete. SSP Level II risk describing the loss of the SEA capability will be closed and transferred to CxP CxP representatives continue to participate in SEA meetings and receive SEA products, but CxP specific issues and risks beyond 2010 are not worked by the SEA team. |

Version 32 submitted on 8/26/2009

# Risk Information Sheet

## MAFT-3

**L** **Group Access:** Routine **Planned Closure Date:** 09/20/2009

***Likelihood*** 2

***Risk Title***

**Lack of funding to implement the MAF time-phased Floor plan beyond Fy 2010**

***Consequences***

***Cost*** 2

***Schedule*** 2

***Performance*** 2

***Safety*** 1

***Risk Statement***

Given that the Shuttle program does not have adequate Transition and Retirement (T&R) budget to disposition their MAF tooling, equipment, and materials at the end of the ET project, there is the possibility that the budget may not be available when needed to clear the floor space at MAF to accomodate the Ares 5 project manufacturing.

| ***Team*** | ***Owner*** | ***Category*** |
|---|---|---|
| MAF-General | Malcolm Wood | Other |

***Timeframe*** *Near* [X] *Mid* [ ] *Far* [ ]

### *Context*

Since neither the Shuttle Program or the MAF Office plan to have budget for relocating, maintaining, or disposing of ET tooling and storage hardware, no plan has been defined for relocating hardware in areas that have been based lined by the MAF time phased floor plan that may impact CxP schedules. Currently, (11/20/08) tooling required by Ares V has not been identified.

Production floor areas at MAF have been identified and reserved for use by CxP projects and base lined by ECR. Floor areas are identified for Ares V (core, EDS), Ares I (Upper Stage, Orion) etc. out through 2013. Presently, many of these areas are inhabited by ET production tooling, hardware, and materials. In July 09, the Shuttle Transition Office agreed to move any tooling or hardware in areas required by projects located in dedicated project areas prior to 2010. After 2010, ET tooling would be abandoned in place and transferred to other users(CxP or MAF). Ares V is anticipating utilizing some of the ET production tools – that may require modification – but to date; these tools have not been identified. In addition, the recent proposal to extend Shuttle flights through 2015 has not been agreed to and will probably impact ET tooling requirements and last need dates that may also impact CxP schedule requirements and floor plans. Currently, no plan has been defined as to who will be responsible for relocating or disposition of ET production tooling and storage hardware prior to CxP project use. It Currently, that MAF will not have budget after 2010 to maintain or dispose of ET tooling, hardware, material if this cost is not provided by CxP projects or the Shuttle Program. A plan needs to be developed that will address how MAF will be prepared to handle this effort to ensure it can meet its mission objectives.

***Approach*** *Research* [ ] *Mitigate* [X] *Watch* [ ] *Accept* [ ]

### *Research Plan*

1. Gary Hudson will review with ET Transition Office what they intend to "abandon in place" and what funding will be used if tooling is required to be moved for other projects.
2. After ET Transition is fully understood, it's possible a task order could be submitted for LM to determine the cost to relocate tooling and crated hardware for excess.

### *Mitigation Plan*

The objective of the detailed mitigation plan is to determine the budget for excessing, transferring, or maintaining ET property and identify the office (i.e., ET Transition or MAF Office) that will carry the budget.

***Risk Realization Cost:*** $0 ***Risk Mitigation Cost:*** $0

***Detailed Mitigation Steps*** ***Completion Date***

***Report generated on by eport on 8/26/2009***

| Step | Resulting Likelihood x Consequences | Planned | Actual | Cost |
|---|---|---|---|---|
| 1 | Obtain data describing ET tooling, equipment, and materials with corresponding ET last need dates and location. Actionee: Roy Young/Len Bell | | 4/3/2009 | $ 0 |
| | L(3) Cc(3) Cs(3) Cp(3) Cq(1) | Actionee: Young, Roy | | |
| 2 | Resolve who will submit and/or carry the budget for handling ET assets located at MAF upon the conclusion of the Shuttle programmatic at MAF. Actionee: Gary Hudson | | 4/3/2009 | $ 0 |
| | L(3) Cc(3) Cs(3) Cp(3) Cq(1) | Actionee: Hudson, Gary | | |
| 3 | Develop scenarios for asset handling which: property management (e.g., NASA inventory management), safing, removal, excessing, and/or sustaining the ET assets after their last need date. Scenarios will include assumptions, groundrules, constraints, role | | 4/3/2009 | $ 0 |
| | L(3) Cc(3) Cs(3) Cp(3) Cq(1) | Actionee: Young, Roy | | |
| 4 | Obtain approval of the scenario to be costed and appropriate rate to be applied. Actionee: Roy Young/Ron Young | | 4/3/2009 | $ 0 |
| | L(2) Cc(3) Cs(3) Cp(3) Cq(1) | Actionee: Young, Roy | | |
| 5 | Develop consolidated estimate of hours required to handle the ET assets based upon the approved scenario(s) and a consolidated cost estimate based on the hours and cost rates. Actionee: Roy Young/Ron Young | 3/20/2009 | 4/3/2009 | $ 0 |
| | L(2) Cc(3) Cs(3) Cp(3) Cq(1) | Actionee: Young, Roy | | |
| 6 | Submit cost estimate to budget process. Actionee: Gary Hudson | 4/3/2009 | 4/3/2009 | $ 0 |
| | L(2) Cc(2) Cs(2) Cp(2) Cq(1) | Actionee: Hudson, Gary | | |
| 7 | Get with Ares V to present what LM has defined they (ARES V) should keep and maintain and associated cost to keep these tools. | 04/08/2009 | | $ 0 |
| | L(2) Cc(2) Cs(2) Cp(2) Cq(1) | Actionee: Young, Roy | | |

## *Watch Plan/Tracking Requirements*

Currently MAF Office is waiting to see how the Shuttle Office will handle the disposition at MAF. Discussions are on going to understand the legal definition of "abandon in place" and implications. John Kress has agreed to initiate a Quick Look for LM to define what tooling should be retained for Ares V for 33' and 27.5' diameter, what should be transferred to the MSFOC, and what can be excessed. For tools to be retained or stored, LM will define how the tool should be stored and the cost to safe and maintain. At this time, the MAF budget does not include the cost to store, safe, or move tooling. A mitigation plan will be implemented if the following triggers occur:

1. ET Shuttle Office identifies significant amount of hardware that will be abandoned with no budget for removal and excess.
2. CxP determines they have no need for the abandoned tooling and no budget for removal and excess.

## *Acceptance Rationale*

## *Management Comments*

## *Status Comment*

***Report generated on by eport on 8/26/2009***

8/26/2009 On August 27, Len Bell (ET Transition Manager), will present cost numbers to John Shannon (Space Shuttle Program Manager) for various scenarios to excess and/or maintain ET tooling that will be transferred to the Manufacturing Facility Operations Contractor (Jacobs Technology Inc.) at MAF.

7/24/2009 The following are notes taken July 15 during a telecon between ET Transition (Len Bell) and Renie Graham, Malcom Wood etc at MAF.

1. JACOBS (via Ernie, SF01) will estimate the cost to excess from "cradle to grave." ET tooling considered is the "EXCESS" in the blue area and "EXCESS" and "TRANSFER" in the white area. Need more that a ROM but less than a full out estimate. Will need this by August 7th.
2. Will use the list of tools in the previous "Quick Look."
3. The cost estimate will include the tooling that ARES V may identify as needed. Want know this until the end of July.
4. Ernie will be sent the following info: 1. Quick Look and 2. Monique's updated TPA list.
5. Ground Rules for estimate:
   a. JACOBS will use LM man hours
   b. Consider ET tooling only not plant equipment to final disposal
   c. ET tooling will not be reinstalled or set back up. Can remove with the understanding that the tooling will not be used again. Can "jerk out" rather than take precautions carefully remove.

7/17/2009 The following is e-mail that was imbedded in an e-mail from Emily Kendal sent on July 15, 09.

From: Kearns, Joel K. (HQ-CI000)
Sent: Friday, June 26, 2009 11:58 AM
To: May, Todd A. (MSFC-DA01)
Subject: Re: BPR last TA bullet
Thanks for the update, Todd.

The subject below is the one on "MAF" which I stated in yesterday's note is not resolved. I ask that if you want to show this as a Transition item at the BPR that you focus the description on this specifically (and SSFL?) and do not make the description as general as what was shown yesterday.

I also ask that you look at the details of the MAF issues. There are two issues which are "Shuttle Retirement", apart from the general issue of the source/annual size of MAF O&M and CoF, which is being worked separately.

The two Shuttle Retirement issues are:
a) There is ET personal property, already designated for excess, which is being transferred by ET to MSFOC at MAF office's request, but ET did not also transfer funding for MSFOC to perform the excess action (or to maintain it indefinitely at MAF until it can be excessed at low enough rate to fit under MAF O&M contract overhead thresholds).

Personally, I would prefer that ET not transfer that personal property to MSFOC, just excess it using Lockheed Martin. But I understand that SSP is evaluating which is the lower cost path.

And

b) there is ET production tooling at MAF not yet identified for excess, because it is "on hold" for Ares V to determine if they really want it or not; and if they want to keep it in barely keep alive state for years, even if they want it eventually. If Ares V doesn't want some of it, T&R will excess that part. We will not find out if Ares V wants it until the earliest in July 2009.

Neither of these personal property excess actions are funded in T&R by ET or SSP in the PPBE 2011 plan as of today. These two together are a ROM $20M excess action cost.

To me, that is the open issue still at MAF.

Joel

E-mail from Chip concerning disposition of ET tooling at MAF.

From: Jones, Clyde S. {Chip}(MAF-SF02)
Sent: Wednesday, July 15, 2009 1:04 PM
To: Whitley, Kenneth M. (MSFC-ES13)
Cc: Brunson, John W. (MSFC-SF01); Savoy, Keith G. (MAF-AS60); Wood, Malcolm W. (MAF-SF02)
Subject: RE: Tooling Property at MAF

Thanks Ken

Please work this issue with Keith Savoy.

In our meeting with Gerst and John Shannon on June 27, they agreed to have Jacobs disposition ET excess property. Shuttle also committed to defining their process to reduce the risk of disposing of property that was still needed by either SSP or Cx.

In order to get an estimate for this task, we need the requirements defined.

Chip

E-mails from Len Bell:

From: Bell, James L. (MSFC-MP11)
Sent: Wednesday, July 15, 2009 10:18 AM
To: Bell, James L. (MSFC-MP11); Whitley, Kenneth M. (MSFC-ES13)
Cc: Hudson, Gary A. (MSFC-SF01)
Subject: RE: Tooling Property at MAF

We have an action for the upcoming PPBE Rev 1 to get an estimate from SF01 to do the property disposition. What would be the quickest and easiest way to get this from you guys?

Len Bell

From: Bell, James L. (MSFC-MP11)
Sent: Wednesday, July 15, 2009 3:06 PM
To: Hudson, Gary A. (MSFC-SF01); Young, Roy M. (MSFC-ES11); Young, Ronald L. (MSFC-SF01)[LEE & ASSOCIATES LLC]; Whitley, Kenneth M. (MSFC-ES13); Jones, Clyde S. {Chip}(MAF-SF02); Henderson, Robin N. (MSFC-DE01)
Cc: Brooks, Stephen B. (MSFC-MP31)[DPA]; Caddy, Larry A. (MSFC-MP71)[GEOLOGICS CORPORATION]; Allen, Michael D. (MSFC-MP11); Vanhooser, Mike T. (MSFC-MP11); Chapman, John S. (MSFC-MP31)
Subject: SSPO T&R PPBE Rev 1

SF01/SF02 Friends,
I'm not sure to whom the formal request should go, so I am using the shotgun approach:
The Space Shuttle Program Office has requested a revision to the T&R PPBE submittal, and ET T&R has received some specific requests concerning property disposition. I have included the pertinent sections below.
The presentation is currently scheduled for August 18th at KSC, so the time to work this is very limited. Please let me know who should be the primary point of contact for your organization, as we would like to begin working this with you as soon as possible. Lockheed Martin previously provided your office a quick look which scoped, but did not price, the effort. This data should be the basis for the estimates.
I would like to set up a meeting for tomorrow if possible.
Thank you for your help,

Project Directed Requests

External Tank

1. Working with the Michoud Assembly Facility Directorate at MSFC, derive the costs for the MSFOC contractor to excess ET production personal property that the External Tank Project plans to transfer to MSFOC to be excessed.

2. Derive the costs for MSFOC and LM to excess External Tank production personal property currently designated for transfer or being held awaiting Ares V decisions. Provide a phasing plan to excess the property.

Len Bell

7/1/2009 Ares V is currently reviewing the tooling that they would like to keep. Preservation of the hardware is being discussed as an alternative keeping tooling in a ready to produce state to decrease cost.

5/18/2009 LM has provided a list of tooling for both 33" and 27.5" diameter options for Ares V. This included the cost of tools plus estimates on what it would cost to modify the tool for Ares V use. Ares V is evaluating and investigating the option of storage of these tools without maintenance. Entry by KW for Roy Young.

4/3/2009 Reduced the score to 2x2 to reflect the scoring of the completed 6th step of the mitigation plan.

4/3/2009 Inserted completion dates for mitigation steps 1-6. Currently, Roy is checking with Ares V to see if they agree with what LM has identified as tooling they will need to keep and maintain. Entry by Ken W.

3/23/2009 Chip approved 3/23/09 and added step #7. Entry by Ken W.

3/6/2009

Roy Young has received the spreadsheet of property that is intended to definitize the items and the ET Last Need dates. Roy sent a note to the ET project/Shuttle ET Transition project requesting addtional clification and information to enable development of the PPBE estmate.
Had a chance to review the Monique's 3 worksheets (see email below). I see us needing several things to figure out the PPBE inputs:

1. Sheet 1 – not part of the PPBE discussion and I think that is being addressed by Malcolm Wood, so I don't want to get involved with that, but it is something Sheila asked for.

2. Sheet 2 - LM will have to determine the man-hours for the maintenance of selected tools and the excess of all others for the colored areas on the MAF map. I assume that the "E" in the "E-T" column means that MSFOC should excess and the "T" means to do configuration control and maintenance from LM last need date to Constellation need date. I think this has already been done in the Quick Look reported on Dec. 15. If it is a "T" it would be helpful to identify what CxP project has a potential need for the hardware, most will be Ares V, but there are some US and maybe Orion tooling. SF01 will want to know that

3. Sheet 3 - LM will have to determine the man-hours for the maintenance of selected tools and the excess of all others for the white areas on the MAF map. Same assumptions as above on "E/T" column. This is currently being done by LM for ET PPBE 11 input. My understanding is that Sheila wants the excess job to be done by MSFOC so there is no duplication of effort between LM and MSFOC. Where to carry the budget needs clarification. Once again it would be nice to know the CxP project that has a potential need for the tooling.

4. On all three sheet the columns location will need to be added, but I understand that is coming after this week's festivities in NO. I would also like a spreadsheet column showing which of the 6 classes from small-simple to large-complex the tool fits in

5. We need to build a set of ground rules and assumptions charts (for example my notes say that the Quick Look for the colored areas does not include Plant Equipment – is that turned over during the initial handover to MSFOC), what about material storage areas , etc?"

Kathy Jones spoke to Keith Savoy about the implications to property management for the transfer in place of hardware to be excessed. "Keith Savoy has made an interesting point that if hardware for excess is turned over to MSFOC, then it will have to be tagged as NASA property so that it can be excessed. It might make more sense for excess property in both the white and colored areas for LM to identify the property, MSFOC to physically disconnect and move the property and then LM to work the excess paperwork with DCMA. This would avoid the extra cost to NASA of transferring ownership of hardware to NASA before excessing."

It was requested by John Brunson that Roy work with ET to develop options for handling the dispsition of the ET assets for Sheila to choose from. Sheila mantioned that Gerst would liek to see for options on dispsotioning the ET assets that is benficial to NASA as a whole.

1/23/2009 Changed "owner" to Kathy Jones.

1/23/2009 This risk was discussed druing the CB meeting on January 21st and the decision was made to incorporate words in MOU's that the "NASA user" would be responsibile for clearing areas inhabitited by ET tooling. As stated during the meeting, neither Shuttle Office or the Transition Office has the funding to safe, dispose, or maintain ET tooling. The risk scoring has been reduced to a 2x2 because the hours required to safe, dispose, and maintain the ET tooling has been provided to the MAF budget office who will develop a funding requirement which will be provided to Ares V in the upcoming budget cycle.

1/13/2009 1/13/2009 Roy Young – Lockheed-Martin provided a manpower estimate for both removal of tooling and maintenance of selected tooling on 12/18/2008. To determine the manpower, they took the ET funded Transition Property Assessment (TPA) #1 study and divided the tooling up into 6 categories: simple-small, simple-medium, simple-large, complex-small, complex-medium and complex-large. For each category they provided the number of tools and the estimated manpower to remove these tools after ET production is finished. LM also used the TPA #1 study to identify tooling that LM thinks would be useful to Ares V, and based on the 6 categories provided a quarterly manpower estimate to maintain that tooling in a RTF status until Ares V can determine if that tool is needed. This information was provided to Gary Hudson to carry as a budget threat to MAF, since the MSFOC is not contracted to do either of these tasks.

10/27/2008 Ron Young - 10/22/08 - A request has been made to Lockheed-Martin to provide manpower estimates of the additional maintenance that was scheduled during Return to Flight to maintain tools in an operational state (Reference LM OPERATIONS DIRECTIVE NO 04/OD/0037). This cost would need to be paid by Constellation for tooling they intend to keep for Ares V. A request to ET Office for additional data summarized in Transition and Retirement PPBE10 Rev 1 (July 2008). This information details the manpower estimates to remove ET hardware completely based on the complexity of the tool and the number of tools of that category.. Note that a discussion with ET on "abandon in place" philosophy seems to have shifted over the last few months. Initially it was ET would move everything that Constellation had not identified as required during the closeout of ET. Now it appears that LM has not budgeted any funds for disposal and plans to leave everything,

9/29/2008 This risk is still being watched since the mitigation triggers have not occurred.

9/15/2008 On Sept 10, 2008 received word from John Brunson that ET production may extend out through 2015. This will extend ET production beyound the orginal 2010. This may impact ET tooling requirements and dispostion.

8/25/2008 Reviewed status with Sheila and Gary. Sheila suggested we stay involved so that we can react once we understands ET and CxP position. Converted the risk form Research to Watch with triggers.

8/1/2008 Correction - The $19.3 M is the cost to rent space from MAF for the remaining ET tooling that will be abandoned in place. ET Transition has indicated that they will move any tooling that is needed by a project before 2011. No reference is made concerning the crated hardware left in storage areas at MAF. I'm assuming this will also be abondoned. It's possibe thta the cost to remove all tooling and crated hardware could be off set by the scrap value.

7/30/2008 Rescored based on Gary Hudson's input. Gary is going to talk to ET Transition to better understand their postion. ET has indicated that $19.3M can be used to relocate and excess tooling and hardware after 2010. Currently, we don't know the total cost for relocating/excessing tooling and hardware remaining for the MSFOC. The $19.3M may fall short of what is required.

# JSC Risk : 1445 Detail Report

| Open Date: 6/9/2008 | Status as of: 8/21/2009 | ECD: 9/30/2008 |
|---|---|---|

| Title: Insufficient CxP Program funding for Engineering test beds and laboratories | Status: Open | Escalation: TCR | Handling Strategy: Mitigate | Timeframe: Near |
|---|---|---|---|---|

**Risk Statement:** Given the lack of funding from the Constellation Program to maintain Engineering's test beds and laboratories,; there is a possibility that Engineering will not be able to provide design, development, test , and evaluation (DDT&E) services to the Constellation Program. Current DDT&E services at risk include the Arcjet facility and the Electronic Systems Test Lab (ESTL)

**Context:** Inability to provide development, test and analysis to CxP. In particular, Arc Jet and the Electronic Systems Test Lab (ESTL) have significant funding gaps totaling approximately $2.4-9M/year in fixed costs beginning in FY10-15.

| Risk Owner: bplante | Phone Number: 281-483-9206 | Owning Team: EA | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: EA | 4 | X | Supportability: 4<br>Schedule: 0<br>Cost: 3<br>Safety: 0<br>Goals/Miss. Success: 4 |

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| High: 0 | Most Likely: 45.926 | Low: 0 | Total Mit. Budget: 0 | Most Likely: 0 |

**Cost Breakdown:**

**Closure\Acceptance Criteria:** This item is not closed

**Closure\Acceptance Rationale:**

**Current Status:**8/11/2009
No firm Shuttle funding commitment for FY10. As a result the funding risk beginning in FY10 was updated. ----------

5/27/2009
Results from the annual Agency Management and Operations FY11 PPBE Program Review on April 8, 2009 resulted in the following but must be approved by the Facilities Review Board.
ESTL - Fund the fixed costs beginning in FY2010 Arject - Supported JSC arcjet funding but recommended that an MOU be developed with ESMD for risk sharing (HQ action). ----------

3/23/2009
FY09-10 funding shortfalls were secured for Arcjet, however ESTL still has a shortfall of approximately $2.3M in FY10.
Beginning in FY11, funding for fixed expenses has not been identified and may result in loss of ability to perform DDT&E services to meet programmatic requirements. ----------

10/23/2008
FY09 funding secured for Arcjet from SSP. Negotiations nearing completion for FY09 ESTL fixed cost funding. Outyear identification of facility utilization continues to be worked at the

# JSC Risk : 1445 Detail Report

| Open Date: 6/9/2008 | Status as of: 8/21/2009 | ECD: 9/30/2008 |
|---|---|---|

agency level and results will be rolled into FY10 PPBE activities.
---
6/9/2008
Conducting negotiations with CxP, SCAP and TCWG for funding as well as cost model discussions. ----------
---

# JSC Risk : 1445 Detail Report

| Open Date: 6/9/2008 | Status as of: 8/21/2009 | ECD: 9/30/2008 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | No shortfall. Arcjet - Shuttle funded CxP shortfall except for $126k which was provided by CxP |
| FY10 | 0 | 6.243 | 0 | 0 | 0 | 0 | 0 | Short fall is for ESTL and Arcjet Fixed costs beginning in FY10 |
| FY11 | 0 | 7.265 | 0 | 0 | 0 | 0 | 0 | Plan to fund with SCAP funding from FY11-15 |
| FY12 | 0 | 6.491 | 0 | 0 | 0 | 0 | 0 | Plan to fund with SCAP funding from FY11-15 |
| FY13 | 0 | 7.925 | 0 | 0 | 0 | 0 | 0 | Plan to fund with SCAP funding from FY11-15 |
| FY14 | 0 | 8.526 | 0 | 0 | 0 | 0 | 0 | Plan to fund with SCAP funding from FY11-15 |
| FY15 | 0 | 9.076 | 0 | 0 | 0 | 0 | 0 | Plan to fund with SCAP funding from FY11-15 |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 45.926 | 0 | 0 | 0 | 0 | 0 | |

# JSC Risk : 1445 Detail Report

| Open Date: 6/9/2008 | Status as of: 8/21/2009 | ECD: 9/30/2008 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan:** Continue negotiations with CxP and submit PPBE funding requests as part of the Agencies Strategic Capabilities Assurance Program (SCAP) to obtain funding to sustain these capabilities.

**Fallback Plan:** Obtain CxP funding to cover shortfall

| Task No. | Task Description | MO | Individual | ECD | ACD | Resulting L x C | | Success Criteria |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequences | |
| 1 | Negotiate FY09 funding with CxP and SCAP for Arc Jet | EA | Beth Fischer | 09/30/2008 | 09/30/2008 | 4 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 3<br>**Safety:** 0<br>**Goals/Miss. Success:** 3 | |
| 2 | Negotiate FY09 funding with CxP for ESTL fixed costs | EA | Beth Fischer | 10/30/2008 | 12/10/2008 | 4 | **Supportability:** 4<br>**Schedule:** 0<br>**Cost:** 3<br>**Safety:** 0<br>**Goals/Miss. Success:** 4 | |
| 3 | Submit PPBE SCAP proposals to fund the ESTL and Arcjet facility fixed costs beginning in FY10 | EA | Barry Plante | 03/15/2009 | 03/15/2009 | 0 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | Obtain SCAP funding for these facilities |
| 4 | Negotiate outyear funding with CxP for EA facilities | EA | Beth Fischer | 06/30/2009 | | 2 | **Supportability:** 4<br>**Schedule:** 0<br>**Cost:** 2<br>**Safety:** 0<br>**Goals/Miss. Success:** 4 | Facility utilization plan established and commensurate funding negotiated. |

# JSC Risk : 1446 Detail Report

| Open Date: 6/12/2008 | Status as of: 8/21/2009 | ECD: |
|---|---|---|

| Title: Potential loss of capability for hypergolic propulsion testing | Status: Open | Escalation: TCR | Handling Strategy: Mitigate | Timeframe: Near |
|---|---|---|---|---|

**Risk Statement:** Given the gap in full-time utilization of hypergolic testing and the desire to cut spending where possible; there is a possibility that the value of maintaining and therefore funding on-going testing at WSTF may not be communicated effectively, resulting in loss of certification and the Agency's ability to perform hypergolic engine testing.

**Context:** WSTF has a variety of environmental permits some of which require active testing to maintain. Most critically, grandfathered permits for hypergolic engine testing will be lost permanently if active testing is not performed. Eliminating the unique hypergolic propulsion system testing capability at WSTF leaves NASA totally reliant on a single vendor, or a DoD facility, to conduct critical-path propulsion system certification and sustaining engineering tests for current and future NASA programs and projects. Such a decision contradicts NASA I&A Study recommendation #11: "NASA should retain the capability to test hypergolic propellant engines and propulsion systems independent of the vendors.""

| Risk Owner: rcort | Phone Number: 575-524-5521 | Owning Team: RA | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: RA | 3 | X | Supportability: 4<br>Schedule: 0<br>Cost: 4<br>Safety: 0<br>Goals/Miss. Success: 5 |

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| High: 13 | Most Likely: 13 | Low: 10 | Total Mit. Budget: 0 | Most Likely: 0 |

**Cost Breakdown:** Distribution of the $10 - $13M Gap funding is still under investigation.

**Closure\Acceptance Criteria:** Publish decision about funding WSTF during the Gap.

**Closure\Acceptance Rationale:**

**Current Status:**8/14/2009
On August 25, 2009 WSTF\Roger Simpson is proposing a forward plan to the JSC Deputy Director to retain the Hypergolic testing capabilities, Stakeholder meeting will follow with Steve Cook and Bill Gerstenmeyer on September 3, 2009 to negotiate roles and responsibilities. ----------
7/11/2008
The Office of Chief Engineer's assessment estimates the cost to maintain the capability at WSTF is $10-$13M. This represents a Cost Consequence of 4. Additional planning is in-work to address the Gap. ----------
6/20/2008
This risk will be presented at the JMC June 20, 2008. ----------

# JSC Risk : 1446 Detail Report

| Open Date: 6/12/2008 | Status as of: 8/21/2009 | ECD: |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 13 | 13 | 10 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 13 | 13 | 10 | 0 | 0 | 0 | 0 | |

# JSC Risk : 1446 Detail Report

| Open Date: 6/12/2008 | Status as of: 8/21/2009 | ECD: |
|---|---|---|

## Mitigation Summary

| |
|---|
| **Mitigation Plan:** Secure adequate funding to retain certifications and preserve capability through seeking reimbursable work and presenting compelling arguement to fund the gap. |
| **Fallback Plan:** |

| Task No. | Task Description | MO | Individual | ECD | ACD | Resulting L x C | | Success Criteria |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequences | |
| 1 | Identify the magnitude of the Gap | RA | Robert Cort | 07/10/2008 | 07/11/2008 | 2 | **Supportability:** 4<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 5 | 90% confidence of the amount of funding required to sustain the facility operations budget, after discounting the contribution of reimbursable work. |

# JSC Risk : 1051 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 12/30/2009 |
|---|---|---|

| Title: WSTF Environmental Risks | Status: Open | Escalation: TCR | Handling Strategy: Mitigate | Timeframe: Near |
|---|---|---|---|---|

**Risk Statement:** Given the new requirements in the NMED draft permit; there is a possibility that WSTF Operations would be significantly impacted.

**Context:** Current draft permit proposes significant changes to Evaporation Tank Unit operations, schedule of compliance for remediation efforts, haz waste characterization process, etc which would result in increased cost and the ability to comply with the permit.

| Risk Owner: rbunker | Phone Number: 575-524-5733 | Owning Team: RA | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: RA | 3 | X | Supportability: 2<br>Schedule: 2<br>Cost: 3<br>Safety: 1<br>Goals/Miss. Success: 2 |

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| High: 14.5 | Most Likely: 7.2 | Low: 4.1 | Total Mit. Budget: 0 | Most Likely: 0 |

**Cost Breakdown:** The cost impact of the new permit.

**Closure\Acceptance Criteria:** Approved operating permit from NMED that is acceptable to WSTF.

**Closure\Acceptance Rationale:**

**Current Status:**8/21/2009
NMED recently placed the entire permit as well as a list of comments and responses on the permit on their web site for one last final review by NASA. Although this final review had been requested by JSC Legal, it was not clear until recently that NMED would honor that request. NMED stated that these documents would be on their web site for WSTF's review until August 26, 2009. WSTF is currently reviewing the documents and will prepare a list of comments to submit to NMED. ----------

7/10/2009
JSC Legal has received responses back from NMED on the two white papers. NMED did provide clarification that is in the process of being reviewed. It is anticipated that JSC Legal/WSTF will submit no further comments or objections to the draft permit. Note: The concerns that originally resulted in this risk item were either mitigated during the permit negotiations or sufficient language was placed in the new permit to allow future negotiations or hearing requests if required. ----------

5/14/2009
JSC Legal recently sent two Issues Papers generated by WSTF to NMED. The two issues described below are basically the only remaining issues to be resolved in the permit negotiations.
Cleanup levels for Non RCRA Chemicals - WSTF believes NMED is trying to regulate cleanup levels for non RCRA chemicals in the permit and that this is not within their authority.
Calculation of Cancer Risk Values - currently the permit specifically excludes language from the New Mexico Water Quality regulation that WSTF utilizes in cancer risk calculations.

# JSC Risk : 1051 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 12/30/2009 |
|---|---|---|

---

3/26/2009

WSTF personnel and JSC lawyers met with NMED personnel to continue negotiating the WSTF permit. Several actions were assigned to both NMED and WSTF (6 actions to WSTF). All WSTF actions (with one exception) are easily addressed and are in the process of being worked. The one action that will take additional time to resolve is the action regarding clean up levels and the potential to increase remediation liability to NASA. ----------

3/13/2009

NMED contacted JSC Legal to initiate additional discussions on the draft permit. This meeting is scheduled to occur on March 18-20, 2009. NMED requested additional discussions on treatment standards. ----------

12/9/2008

WSTF received the draft permit from NMED and has reviewed and documented respondes to their updates. WSTF also discussed various issues such as treatment standards with HQ environmental personnel and the assigned JSC lawyers. Based on these discussions, some changes to the draft permit are being recommended to NMED. WSTF's complete response will be sent to NMED by 12/12/2008. ----------

10/14/2008

Permit negotiations were conducted with NMED Sept 30, 2008 - Oct 2, 2008. All of NASA's comments to the draft permit and NMED corresponding responses were discussed. NMED is in the process of updating the draft permit and anticipates sending the draft to WSTF by the end of this week (Oct 17) or next week (Oct 24). WSTF will then have the chance to make any additional comments. Overall, NMED appears to have lightened the groundwater sampling requirements at WSTF which could be a cost savings of $100-200K/year. The final savings won't be known until NMED approves WSTF groundwater monitoring plan, which will be submitted after the permit is issued. NMED did not back away from several other requirements which will be a cost to WSTF such as the requirement to sample groundwater in off-site wells or the requirement to either install angled monitoring wells under the Evaporation Tank Unit or to close the unit. ----------

9/4/2008

September 4, 2008: Negotiations have now been scheduled to start on September 30, 2008. This first negotiation session will be a three day meeting. NMED stated that they anticipated each organization would leave with actions or questions that needed to be resolved and then another session of meetings would be established. ----------

7/29/2008

July 29, 2008

WSTF was notified that the NMED project leader was leaving for another job. It is anticipated that this will result in futher delays of the negotiations. ----------

June 27, 2008

NMED slipped negotiations and stated their ultimate goal is to issue the permit by the end of the 2008 calendar year. Negotiations will occur sometime before then but the NMED did not specifiy a time.

3/7/2008

March 7, 2008

NMED slipped negotiations until later this spring due to their current work schedule. WSTF is allowed to continue operating to the previously approved permit. WSTF is prepared for negotiations whenever they occur. ----------

# JSC Risk : 1051 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 12/30/2009 |
|---|---|---|

February 21, 2008 NMED slipped negotiations into the end of February 2008 due to their current work schedule.
November 19, 2007
JSC Legal and WSTF continue negotiation preparations. NMED originally stated that they expect negotiations to begin in August, but have since stated the negotiations would start in November. 18 white papers have been completed in regard to permit concerns to aid the negotiation process. Additionally, HQ Environmental Consultants will work with WSTF and JSC Legal to support the negotiation process.

# JSC Risk : 1051 Detail Report

**Open Date:** 6/22/2004 | **Status as of:** 8/21/2009 | **ECD:** 12/30/2009

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 2 | 1.2 | 1.1 | 0 | 0 | 0 | 0 | October 7th: FY05 actual costs are being closed out currently. |
| FY06 | 2.5 | 2 | 1 | 0 | 0 | 0 | 0 | Only if FY05 redevelopments efforts fail or efforts run into FY06. Startup costs are emerging as higher than anticipated. Current estimate is near $2M |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | New Regulatory requirements or changing risk assessments are uncertain. |
| FY09 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | A more detailed cost estimate will need to be performed, however, these values could potentially be realized during FY09 |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

# JSC Risk : 1051 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 12/30/2009 |
|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Totals ($M)** | 14.5 | 7.2 | 4.1 | 0 | 0 | 0 | 0 |

# JSC Risk : 1051 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 12/30/2009 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan:**12/09/2008: WSTF's responses to NMED's updated draft permit (based on the negotiations) will be sent to NMED no later than 12/12/2008. Oct 14, 2008: WSTF obtained several actions during the negotiation meetings and is currently working those actions. Several of these actions were providing NMED with information in a letter as well as updating our Part A of the draft permit. These actions have been assigned to individuals to accomplish. For the areas that NMED would not back away from the requirement, WSTF is in the processes of obtaining additional data that will be used to support future workplans. For example: for the offsite sampling requirement, WSTF is collecting data on the number of wells, the location, ownership, etc, to aid in determining which wells should be proposed for sampling.

September 4, 2008: Negotiations have now been scheduled to start on September 30, 2008. This first negotiation session will be a three day meeting. NMED stated that they anticipated each organization would leave with actions or questions that needed to be resolved and then another session of meetings would be established.
NMED has slipped the negotiations out to the end of January due to their current workload. Note: the assigned risk assessment numbers are based on not being able to negotiate an acceptable permit. Thus, the cost consequence of not successfully negotiating an acceptable permit could increase WSTF operating costs between $1M and $10M per year, so C was assigned a 3. The likelihood of not being able to negotiate an acceptable permit was given a 2 (L) due to NMED appearing to be more open to discussions (based on recent conversations). Additional work for WSTF and JSC Legal will be required to have a successful negotiation, thus supportability was given a 2. The time period for negotiations has continually been slipped by NMED. However, WSTF is allowed to continue to operate under the current permit, so schedule was rated as a 1 since the negotiation schedule slip is minor to the overall WSTF operations.

**Fallback Plan:** WSTF has maintained the ability to request a hearing if negotiations are unsuccessful.

| Task No. | Task Description | MO | Individual | ECD | ACD | Resulting L x C | | Success Criteria |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequences | |
| 1 | Prepare white papers on potential major issues to aid the negotiation process. | RA | Radel Bunker-Farrah | 08/15/2007 | 09/30/2007 | 3 | **Supportability:** 2<br>**Schedule:** 2<br>**Cost:** 3<br>**Safety:** 1<br>**Goals/Miss. Success:** 2 | |
| 2 | Meet with NMED to begin negotiation process | RA | Radel Bunker-Farrah | 09/30/2008 | 09/30/2008 | 1 | **Supportability:** 2<br>**Schedule:** 1<br>**Cost:** 3<br>**Safety:** 1<br>**Goals/Miss. Success:** 1 | Negotiate acceptable permit parameters |
| 3 | Prepare white paper describing cleanup | RA | Radel Bunker-Farrah | 04/20/2009 | 04/16/2009 | 3 | **Supportability:** 2<br>**Schedule:** 2 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | standards, regulatory review, and potential to increase cleanup liabilities | | | | | | **Cost:** 3<br>**Safety:** 1<br>**Goals/Miss. Success:** 2 | |

# JSC Risk : 1057 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 10/1/2012 |
|---|---|---|

| Title: Ensure proper workforce skills and competencies for current and future needs | Status: Open | Escalation: TCR | Handling Strategy: Watch | Timeframe: Near |
|---|---|---|---|---|

**Risk Statement:** Given the fact that a highly skilled workforce must be maintained to fly out the shuttle program safely, and related but slightly different skills must be developed and grown to support the Constellation program; there is a possibility that needed shuttle skills could be lost prior to the Program's end or required Constellation skills could be scarce or not available. Workforce skills must be identified and monitored during this critical period.

**Context:**There are two components of this risk: the high-level numbers component (as seen in IBOT and N2) and an individual-level component seen in organizations across the Center.

At a high level, the Shuttle program accounts for over 600 FTE. When the program ends, the FTE supported by that program will need to turn to other funding sources. While Constellation is expected to grow after 2010, it may not have the needed work (and funds) to absorb all of the Shuttle workers. In addition, skills needed by Constellation (Project-level SE) may be in short supply. So, at a high level, JSC needs to monitor both the FTE and the skill mix of both the Shuttle and Constellation programs.

On a more individual note, transitioning from the Shuttle era to the Constellation era will be done one person at a time. Individuals supported Shuttle and individuals will support Constellation. We must avoid a Shuttle "brain drain" which could be caused if people on the Shuttle program do not see a path to their future. Conversely, we must also equip the soon-to-be Constellation workforce with the skills it needs to help Constellation accomplish its mission. These goals are currently being accomplished through planning, communication, assessment, training, and placement assistance.

| Risk Owner: dsickore | Phone Number: 281-483-4724 | Owning Team: AH | Likelihood | | Consequences |
|---|---|---|---|---|---|
| Flights Affected: | | Orgs Affected: AH, JSC | 3 | X | Supportability: 3<br>Schedule: 2<br>Cost: 2<br>Safety: 3<br>Goals/Miss. Success: |

| Mitigation Cost ($M) | | | Total Mitigation Budget ($M) | Cost of Inaction ($M) |
|---|---|---|---|---|
| High: 0 | Most Likely: 0 | Low: 0 | Total Mit. Budget: 0 | Most Likely: 0 |

**Cost Breakdown:**

**Closure\Acceptance Criteria:** TBD

**Closure\Acceptance Rationale:**

**Current Status:**5/28/2009

Because of the current budget uncertainties and program shifts, there is a potential for changes to the AFNW profile for JSC. Through activities like the Career Pathfinder, the Workforce Impact Assessment and Plan, and the Shuttle Mapping exercise, JSC will monitor and mitigate the effects of program changes and skill mismatches.

Currently, we are analyzing and validating the results of the Workforce Impact Assessment (determining both organizational needs and individual needs). Based on the results of the assessment, we will create specific plans for each organization based on their employee need. In addition, we are drafting targeted communication messages, training/reference guides, and talking points. We are developing a robust communication plan and tools (website, briefings, brown bag, all-hands, etc) for JSC leaders, managers and employees. We are

conducting 1-1 meetings with employees significantly affected by Transition, and in the early stages of planning a job opportunity bank tool (a tool which will help employees find appropriate job opportunities at JSC). ----------

3/12/2009

Conducted Shuttle to ISS-and-Constellation Mapping activity for OHCM and presented results in December, 2008. Designed 36 competency categories by combining existing skill categories with Division-level descriptors. Found that SSP skills map well into Cx needs: 61% of those supporting shuttle also support Cx or ISS. Available for New Work FTE decreased 30% from the mapping exercise done one year ago. Over the period FY11 - FY15, AFNW is expected to decline, then disappear as Cx requirements become more defined. JSC identified two areas for continued emphasis: a surplus of Program/Project managers and a significant need for Project-level Systems Engineers during the Transition period.

---

4/15/2008

Updated CMS and WIMS and produced Snapshot 1 by March 28, 2008. Data indicated that any/all skill imbalances were very small, and in the 12-15 FTE range. The one skill category which rose above the others was a demand in 2011 for Systems Engineers. This demand will be met by personnel from other Programs and internal development programs, both at JSC and at the Agency. ----------

6/28/2007 - In preparation for the JSC-IRMA 6.4 upgrade, Record type changed from Watch Item to Risk. Handling Strategy of Watch.

3/26/2007 - Updated Center's competency needs though 2012 in the Agency Workforce Integrated Management System (WIMS).

1/04/2007 - Analyzing results of Agency CMS and WIMS data collection (completed November 2006). Examing data for Johnson Space Center overall, by directorate, and by program, focusing on competency gaps and changes over time.

11/16/2006 - Aggressively hired into the program offices and organizations that serve as pools for other orgs (Engineering and MOD), entered FY07 aggressively spending FTE with plans to rebalance through attrition. Collected employee competencies for all employees in CMS system, populated projected future competency needs in WIMS. Analysis of data is ongoing.

5/22/06 - Revised hiring authority to organizations in line with HQ guidance on overall FY06 and FY07 FTE. HR is working with the organizations to identify needs for recent graduates versus experienced hires.

2/10/06 - Assigned ceilings to organizations in line with HQ guidance on overall FTE. Workforce Planning and Systems office is working to understand the long term impacts of staffing levels on skill mix and future needs.

12/11/05 - Working with centers with unfunded capacity to conduct job fairs and fill 50 inter-center transfers to help meet our staffing needs and reduce their unfunded capacity.

10/11/05 - Working with the organizations to set organizational ceilings to meet headquarter's direction to stay under 3270. We are managing the challenge by working with the organizations to focus on critical needs. We are also working with the orgs to update current and future competency needs by program in the Workforce Integrated Management System (WIMS) to facilitate agency level planning and ensure continued authority to use enhanced flexibilities for JSC's critical skill gaps.

8/10/05 - Working with the orgs to extend job offers to graduating coops two months earlier than last year to improve our chances of getting our top candidates. Creating plan to make best use of new hiring flexibilities provided to the centers. Working with the orgs to update competency information in the Competency Management System (CMS) to facilitate agency level planning and gain approval for use of enhanced flexibilities for JSC's critical skill gaps.

7/15/05 - Working with each org to put hiring plan in place for remainder of year and beginning of next Fiscal Year. We have begun to staff the CEV project office and are partnering with Chief Engineer's office to explore long term needs and plans to meet those needs.

6/27/2005 - Revised mitigation plan to emphasize partnerships between the organizations, programs, and the center to better understand and meet current and future workforce needs.

5/23/05 - Based on preliminary budget expectations for FY06, we are making plans to increase our hiring plan by 100 engineers. JSC will continue recruiting from other centers while also pursuing external candidates where appropriate.

3/7/05 – Per Headquarters' guidelines, JSC participated in all 4 Job Fairs at other centers, recruiting for targeted positions and competencies; we are currently following up with candidates.

1/28/05 - Supporting agency transformation activities using available tools (WIMS and Competency Management System-CMS). The tools were used to create an initial list of competencies gaps (demand exceeds current workforce supply). The list was reviewed and revised by the competency team and will be integrated with other centers to help target

recruiting across the agency.
11/19/04---Draft mitigation plan complete.
10/30/04 Completed implementation of WIMS. We will semi-annually to annually use WIMS to collect expected future competency needs by project from the JSC organizations to support HQ needs.
9/30/04 Implementing Workforce Integrated Management System (WIMS), which will aid in the tracking of current competencies by project and prediction of future needs.
8/30/04---No significant changes. Mitigation plans are still in work and will be updated shortly.

# JSC Risk : 1057 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 10/1/2012 |
|---|---|---|

## Cost Summary

| FY | Hi Mit. ($M) | Most Like. Mit. ($M) | Lo Mit. ($M) | Cost in Scope ($M) | Hi Recovery ($M) | Most Like. Recovery ($M) | Lo Recovery ($M) | Comments |
|---|---|---|---|---|---|---|---|---|
| FY02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| FY20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Totals ($M)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

# JSC Risk : 1057 Detail Report

| Open Date: 6/22/2004 | Status as of: 8/21/2009 | ECD: 10/1/2012 |
|---|---|---|

## Mitigation Summary

**Mitigation Plan:** Collect competency information on JSC employees to assess skills gaps/overlaps. Create more collaborative workforce planning partnership with the organizations and programs to better understand and meet current and future needs.

**Fallback Plan:** Fill immediate staffing needs with term positions and transfers from other centers.

| Task No. | Task Description | MO | Individual | ECD | ACD | Resulting L x C | | Success Criteria |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequences | |
| 1 | Complete HQ activity to identify near term competency gaps and surpluses | JSC | Karl Schuler | 01/24/2005 | 01/21/2005 | 0 | **Supportability:** 0 **Schedule:** 0 **Cost:** 0 **Safety:** 0 **Goals/Miss. Success:** 0 | All known gaps for the next 6 to 12 months are identified and prioritized |
| 2 | Work with DLO's to validate expected surpluses and gaps | JSC | Karl Schuler | 03/30/2005 | 01/21/2005 | 0 | **Supportability:** 0 **Schedule:** 0 **Cost:** 0 **Safety:** 0 **Goals/Miss. Success:** 0 | 90% of skills identified match program needs and plans in place to eliminate gaps. |
| 3 | Human Resource Representatives will meet with the directorates and create initial hiring plan through the end of FY06 | JSC | Bradford Mudgett | 10/02/2005 | 10/06/2005 | 0 | **Supportability:** 0 **Schedule:** 0 **Cost:** 0 **Safety:** 0 **Goals/Miss. Success:** 0 | Hiring plan based on current POP numbers is created and resources are put into place to implement plan. |
| 4 | Identify/review JSC expected competency needs for FY07 thru FY10 based on POP guidance | JSC | Bradford Mudgett | 10/30/2005 | 10/28/2005 | 0 | **Supportability:** 0 **Schedule:** 0 **Cost:** 0 **Safety:** 0 **Goals/Miss. Success:** 0 | 90% of competencies necessary for JSC program support from FY07 thru FY10 are available and plans are in place to close any gaps. |
| 5 | Work with organizations and Chief Engineer's | JSC | Bradford Mudgett | 12/31/2005 | 11/30/2005 | 0 | **Supportability:** 0 **Schedule:** 0 | Centerwide methodology followed to set priorities. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Office to prioritize competency needs. These will feed into the agency workforce plan. | | | | | | **Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | |
| 6 | Work with directorates to identify their current workforce needs. | JSC | Bradford Mudgett | 12/31/2006 | 09/30/2006 | 0 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | 100% of JSC directorates participated resulting in a common understanding of directorate and center short term needs |
| 7 | Work with major programs at JSC to identify their current workforce needs. | JSC | Bradford Mudgett | 12/31/2006 | 09/30/2006 | 0 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | All major programs participated resulting in a common understanding of program and center short term needs |
| 8 | Collect employee competencies and future competency needs | JSC | Bradford Mudgett | 10/31/2006 | 10/30/2006 | 0 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | 95% of employees completing their competency profile in CMS |
| 9 | Integrate directorate and program information to create integrated workforce plan. | JSC | Bradford Mudgett | 03/31/2007 | 10/31/2006 | 0 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | An agreed to staffing plan is baselined for the Fiscal Year and is updated as needed for major funding or program changes. |
| 10 | Monitor Current competencies and future needs | JSC | Bradford Mudgett | 09/30/2007 | 10/01/2007 | 0 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | gaps identified and mitigations in place to manage risks. |
| 11 | Conduct Workforce snapshots; update CMS and WIMS systems; examine results for | AH | Donn Sickorez | 09/30/2008 | 09/30/2008 | 1 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0 | Skill surpluses/shortages are small (15-20 FTE) and/or manageable within existing programs. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | workforce imbalances | | | | | | **Goals/Miss. Success:** 1 | |
| 12 | Complete Shuttle Mapping Exercise | AH | Donn Sickorez | 12/30/2008 | 12/26/2008 | 2 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 1 | Gaps in workforce skills identified |
| 13 | Conduct Career Pathfinder with MA employees and supervisors. Identify employee areas of interest, current tasks, expertise and background. Communicate with employees via 1-1 interviews, brown bag seminars, all-hands meetings and retreats. | AH | Donn Sickorez | 06/26/2009 | 06/26/2009 | 3 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | Task complete, results and materials given to supervisors and HRRs |
| 14 | Conduct Workforce Impact Assessment with Center Supervisors. Identify and classify employees and Orgs affected by Shuttle retirement. Assess employee %time charged to Shuttle and skill set. Provide individual and org-level support based on the assessment. | AH | Donn Sickorez | 08/28/2009 | | 3 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | |
| 15 | Conduct Workforce Review (Snapshot 3) in concert with the CFO and PPBE11 | AH | Donn Sickorez | 09/26/2009 | | 3 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 1 | |
| 16 | Review current WIMS | AH | Donn Sickorez | 10/01/200 | | 0 | **Supportability:** 0 | WIMS Snapshot was postponed until |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | data, based on PAA input. Conduct Snapshot 1 (high-level workforce overview), if appropriate. | | | 9 | | | **Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 1 | early 2010 |
| 17 | Analyze and Conduct Training and Communication Activities. Build and launch JSC Workforce Transformation website by Aug, 2009; begin training on Supervisor Guidebook by Aug, 2009 | AH | Donn Sickorez | 09/24/2010 | | 3 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | |
| 18 | Conduct knowledge/skill gap analysis by Sept, 2009, build workforce training plan, execute workforce training plan Jan - Sept, 2010. | AH | Donn Sickorez | 10/01/2010 | | 3 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | |
| 19 | Develop Detailed Project Plan, address needs/issues of Red, Yellow and Green employees and Orgs. Pilot and roll out Job Opportunities database and web site. Place all employees seeking new work in known opportunities by June, 2010. | AH | Donn Sickorez | 10/01/2010 | | 3 | **Supportability:** 3<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 0 | |
| 20 | Conduct Internal Workforce Review, establish flyout and post-shuttle workforce requirements | AH | Donn Sickorez | 11/15/2010 | | 3 | **Supportability:** 0<br>**Schedule:** 0<br>**Cost:** 0<br>**Safety:** 0<br>**Goals/Miss. Success:** 3 | Will examine how Augustine findings impact workforce at JSC and recommend changes (if appropriate) to ceilings during 1st Qtr, 2010 |

# Transition Risk Independent Assessment

- Requested by ESMD risk manager in response to risk discussion during JICB of May 26, 2009
- Goals : improve transition risk mgmt practices
  : foster multi-program and multi-Center risk mgmt for emulation by other organizations
- Findings are advisory. Implementation is discretionary
- Results limited by information availability
- Scope of review not limited to risk record quality. Also assessed risk mgmt plans, tools, gaps & integration processes
- Numerous improvement opportunities identified ranging from simple to complex
- Detailed results will be disseminated by ESMD risk manager
- Further dialog is welcome