

<b>Management System: Project Management</b>		
<b>Subject Area: Project Delivery</b>		
<b>Procedure: Risk Management</b>		
<b>Issue Date and Revision Number:</b> Rev. 0	<b>Lead Subject Matter Expert:</b> Jon Stickelman	<b>Management System Owner:</b> Terry Brennan

**1.0 Applicability**

This procedure applies to Office of Environmental Management (EM) Federal Project Directors (FPD), Integrated Project Team (IPT) Members, and Program Managers responsible for the execution of all projects subject to the mandatory project management requirements in U.S. Department of Energy (DOE) O 413.3, Program and Project Management for the Acquisition of Capital Assets. This procedure defines the process for assuring that the EM Consolidated Business Center (EMCBC) incorporates appropriate, efficient, and cost-effective methods to identify, manage, and mitigate the impact of project-related risks. It is based on the DOE G 413.3-7A, Risk Management Guide, and covers the process for initiating, planning, executing, monitoring and closeout of risks throughout the project life cycle. This procedure is also consistent with the EM Enterprise Management System (EMERS) risk management procedure under the Project Management Functional Area Description (FAD).

This procedure may be used by EMCBC Operations Activity Managers (OAM) at the Small Sites, who are responsible for the execution of operations activities in accordance with the EM Policy & Protocol for Operations Activities. As such, OAMs should follow the same risk management process steps outlined below (as appropriate) that an FPD would follow throughout the lifecycle of a capital asset project.

This procedure is structured to provide direction for the following risk management topics:

- Risk Planning and Identification
- Risk Assessment
- Risk Handling
- Contingency Analysis
- Risk Monitoring
- Risk Documentation and Communications

## 2.0 Required Procedure

<p><b>Step 1</b></p>	<p>The IPT is responsible for executing the risk planning process to develop the Federal Risk Register. This includes:</p> <ul style="list-style-type: none"> <li>• Preparation of initial Federal Risk Management Plan per DOE G 413-3.7A (Risk Management Guide).</li> <li>• Conduct of a Risk Summit for the initial identification and assessment of project Risks.</li> <li>• Development of initial project Risk Register.</li> </ul>
<p><b>Step 2</b></p>	<p>The IPT will use the following top-down and bottoms-up process to identify risks/opportunities and to develop the initial project Federal Risk Register:</p> <ul style="list-style-type: none"> <li>• Review the EM Contractor Risk Register to determine which risks are contractor risks and which risks are Federal risks.</li> <li>• Consider top-down risk that may include generic and strategic risks potentially affecting the entire EM Program.</li> <li>• Evaluate baseline assumptions that could present a risk or opportunity to the project.</li> <li>• Review list of potential project risks provided in the <b>Sample Project Risks</b> (see <b>Attachment A</b>).</li> <li>• Combine risks as needed to eliminate any duplicate risks.</li> <li>• Develop statement for both external and internal risks and opportunities that bound the risk and provides a clear definition for subsequent analysis.</li> <li>• Description should include the conditions or situation that causes the risk.</li> <li>• Perform at the subproject work breakdown structure (WBS) level, and consider potential impacts to other WBS elements.</li> </ul>
<p><b>Step 3</b></p>	<p>The IPT should document the following information in the initial Risk Register:</p> <ul style="list-style-type: none"> <li>• Risk Number</li> <li>• Risk Event description</li> <li>• Date Identified</li> <li>• Project Baseline Summary (PBS) Number</li> <li>• WBS(s) impacted</li> <li>• Federal Project Director and Risk Owner</li> <li>• Qualitative analysis of Likelihood, Impact and Risk Level</li> </ul>
<p><b>Step 4</b></p>	<p>The IPT is responsible for assessing risk events that could adversely impact the project including risk definition, probability/likelihood determination, and an evaluation of impacts/consequences. The risk assessment should be documented on the <b>Risk/Opportunity Form</b> (see <b>Form # FM-OCE&amp;PMS-413.3B-B-05-F1</b>).</p>
<p><b>Step 5</b></p>	<p>The IPT should base the risk Probability/Likelihood determination on the following ranges:</p> <ul style="list-style-type: none"> <li>• Very Unlikely – probability (0 - 10%)</li> <li>• Unlikely – probability (&gt;10 – 25%)</li> <li>• Moderate – probability (26 – 75%)</li> <li>• Likely – probability (76 – 90%)</li> <li>• Very Likely – probability (&gt;90 - 100%)</li> </ul>

**Step 6** The IPT should base the Impact or Consequences Determination for Risk Occurrence on the following criteria:

- Negligible – minimal or no consequences in project mission, cost, or schedule performance (impact <0.2%)
- Marginal – small reduction in project performance or moderate threat to project mission (impacts between 0.2% and 1%)
- Significant – significant degradation in project performance (impact >1% to 3%)
- Critical – project objectives cannot be achieved or excessive impact to project cost or schedule (impact >3% to 10%)
- Crisis – project objectives cannot be achieved or project mission failure is imminent (impact >10%)

**Step 7** The following Risk Level Matrix should be used to categorize each risk:

**Risk Level Matrix**

		Threats					Opportunities				
		Moderate	Moderate	High	High	High	High	High	High	Moderate	Moderate
Likelihood of Occurrence	Imminent >90%	Moderate	Moderate	High	High	High	High	High	High	Moderate	Moderate
	Very Likely 76% - 90%	Low	Moderate	Moderate	High	High	High	High	Moderate	Moderate	Low
	Likely 26% - 75%	Low	Low	Moderate	Moderate	High	High	Moderate	Moderate	Low	Low
	Unlikely 10% - 25%	Low	Low	Low	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
	Very Unlikely <10%	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
		<1.0%	1.0%-1.5%	1.5%-3.0%	3.0%-15.0%	>15.0%	>15.0%	3.0%-15.0%	1.5%-3.0%	1.0%-1.5%	<1.0%
		Negligible	Marginal	Significant	Critical	Crisis	Crisis	Critical	Significant	Marginal	Negligible
Negative Impact						Positive Impacts					

**Impact or Consequence of Occurrence**

**Step 8** The IPT should document the Basis for impact for each risk event on the **Cost Impact Basis Summary**, which provides impact assumptions, basis for estimate, and cost estimate backup (see **Form # FM-OCE&PMS-413.3B-B-05-F2**). These impact estimates can be conceptual in nature, but the basis of estimate should be clearly defined.

**Step 9** Each IPT, with assistance by the Risk Management subject matter expert (SME), should evaluate handling techniques based on feasibility, effectiveness, and cost and schedule implications.

**Step 10** The IPT should evaluate the following handling strategy techniques and the results should be summarized on the Risk/Opportunity Form:

- Accept – risk cannot be avoided or mitigated
- Mitigate – strategy can be developed to reduce likelihood/consequences
- Avoid - planning can result in an elimination of the risk

	<ul style="list-style-type: none"> <li>• Transfer – risk can be transferred to EM Contractor or to DOE Headquarters</li> </ul>
<b>Step 11</b>	If mitigation is the selected risk management strategy, then the IPT should develop a mitigation plan that identifies action items and responsible parties. The Risk Owner has primary responsibility for implementing the mitigation plan.
<b>Step 12</b>	If the scope, cost, and schedule are not included in the project Performance Baseline (PB), then the IPT should develop a Baseline Change Proposal (BCP) to revise the baseline.
<b>Step 13</b>	The IPT, with assistance by the Risk Management SME, is responsible for performing a contingency analysis at the 80% confidence level for both Lifecycle Baseline cost and schedule. The contingency analysis should be based on the identification and assessment of project risk as previously determined by the IPT.
<b>Step 14</b>	The cost contingency should be calculated using Crystal Ball Risk Analysis software, a Microsoft Excel add-on used for the quantitative examination of known DOE risks. The primary model inputs are probability of occurrence and a three-point cost estimate that was developed as part of the analysis of each risk (support for preparing such cost estimates is available through the EMCBC Office of Cost Estimating & Project Management Support).
<b>Step 15</b>	The schedule contingency should be calculated consistent with the assumptions defined in the cost contingency model. The project schedule, schedule uncertainty ranges, and DOE risk will be used as model inputs.
<b>Step 16</b>	The IPT should review and update all project risks and risk mitigation actions on a regular basis (e.g., during monthly IPT meeting).
<b>Step 17</b>	On a quarterly basis, the IPT (with assistance from the Risk Management SME) should review all project Risk/Opportunity Forms for revisions/closure, and should systematically review each projects for new risks. The basis for closure of risks should be documented on the Risk/Opportunity Form.
<b>Step 18</b>	The FPD and IPT are responsible for monitoring and reporting the effectiveness of the handling actions for all risks/opportunities, and should maintain a watch list of identified high priority risks.
<b>Step 19</b>	The IPT, with assistance from the risk Management SME, is responsible for: <ul style="list-style-type: none"> <li>• Updating the Federal Risk Management Plan on an annual basis.</li> <li>• Documenting changes to the program in In-depth Risk Review Reports at the PBS level.</li> <li>• Providing other reports requested by the FPD, EMCBC or DOE Headquarters officials for use in managing risks and risk planning.</li> </ul>

### 3.0 References – Forms/Attachments/Exhibits

#### 3.1 References

- 3.1.1 DOE Order 413.3.B, Program and Project Management for the Acquisition of Capital Assets
- 3.1.2 DOE Guide 413.3-7A, Risk Management Guide

### 3.2 Forms

3.2.1 Form FM-OCE&PMS-413.3B-B-05-F1: Risk/Opportunity Form

3.2.2 Form FM-OCE&PMS-413.3B-B-05-F2: Cost Impact Basis Summary Form

### 3.3 Attachments

3.3.1 Attachment A: Sample Project Risks

## 4.0 Records Generated

Records generated through implementation of this procedure are identified as follows and are maintained by the Office of Cost Estimating and Project Management Support (OCE&PMS) in accordance with the EMCBC Organizational File Plan:

<b>Records Category Code</b>	<b>Records Title</b>	<b>Responsible Organization</b>	<b>QA Classification (Lifetime or Non-Permanent)</b>
ENV 01-K-03-[CEA]	ENVIRONMENTAL RECORDS – ADMINISTRATION Environmental Record Case Files. Decontamination and Decommissioning Cleanup and Transitioning Case Files	Office of Cost Estimating and Project Management Support	Not Applicable

## 5.0 EMCBC Record of Revision

### EMCBC RECORD OF REVISION

DOCUMENT TITLE: Subject Area Procedure: Risk Management

If there are changes to the controlled document, the revision number increases by one. Indicate changes by one of the following:

- 1 Placing a vertical black line in the margin adjacent to sentence or paragraph that was revised.
- 1 Placing the words GENERAL REVISION at the beginning of the text.

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<b>Rev. No.</b>	<b>Description of Changes</b>	<b>Revision on Pages</b>	<b>Date</b>
0	Initial issue		

**ATTACHMENT A**

**SAMPLE PROJECT RISKS**

Possibility of delays due to hillside sloughing, abnormally dry conditions that pose fire hazards, and other abnormal events.	Accept	Unlikely	Negligible	Significant	Low	DOE	F. Smith	Open
Possibility that hazardous threshold levels may be exceeded requiring notification to regulators (e.g. soil levels requiring notification to DTSC), and corresponding oversight/regulatory requirements may slow the project.	Accept	Moderate	Significant	Critical	Medium	DOE	F. Smith	Open