

Risk Management Guidance

Risk Management (Alternative to Partnering Meeting)

A risk management meeting is an alternative to (or in addition to) a formal or informal partnering meeting. Risk management is not a requirement for all projects. This method of opening dialog with the Contractor and stakeholders should be reviewed and decided between the Construction Operations Engineer (COE) and the Project Engineer (PE). Since this process has been developed by WFLHD personnel from training and experience, it is recommended to use WFLHD personnel to facilitate the initial meeting. The COE is responsible to coordinate the facilitator.

This process creates no rights or responsibilities on the part of either party. Either may decline to participate in the process or terminate the process at any time. If, after Risk Response Planning, the parties mutually desire to create rights and responsibilities, any such rights and responsibilities will be created by a contract modification executed under the Changes clause.

What is Risk Management

Project risk is an uncertain event or condition that, if it occurs, has a positive or a negative effect on at least one project objective. A risk may have one or more causes and, if it occurs, one or more impacts.

Risk management is the systematic process of planning for, identifying, analyzing, responding to, and monitoring project risks. It involves processes, tools, and techniques that will help the project team maximize the probability and results of positive events and minimize the probability and consequences of adverse events as indicated and appropriate within the context of risk to the overall project objectives of cost, time, scope and quality.

Project risk management is most effective when first performed early in the life of the project and is a continuing benefit throughout the project's life cycle.

There are four steps in the risk management process: risk identification, qualitative risk analysis, risk response planning, and risk monitoring and control. The first three steps should be completed at the Risk Management Session (adjoining the preconstruction conference) using the WFLHD Risk Management Plan.

Risk Identification

Risk identification involves identifying potential project risks. Risk Identification produces a deliverable — the project Risk Register – where risks are identified that may affect the project's ability to achieve its objectives.

It is important to specify the risk correctly. For instance, a risk has a cause and, if it occurs, an impact on a project objective. The risk statement structure that should be followed in specifying identified risks is: Because of the (cause, condition that is true), a (risk) may occur, leading to an

impact (at this stage unanalyzed) on XX objective where XX is cost, time, scope and or quality. This structure helps specify the risk correctly.

For example: Because sediment laden water from the deep trench excavation will pour out of the outfall pipe, sediment laden water may flow into the river, resulting in possible harm to fish and their habitat, loss of trust with regulatory agencies, and damage to the Contractor's reputation.

When identifying risks, the team should consider both negative risks (threats) and positive risks (opportunities).

- Threats — a risk that will have a negative impact on a project objective if it occurs (what might happen to jeopardize the project's ability to achieve its objectives).
- Opportunities — a risk that will have a positive impact on a project objective if it occurs (what might happen to improve the project's ability to achieve its objectives).

At the Risk Management session, the recommended method for identifying risks is to use the silent generation of ideas and round-robin recording. The silent generation of ideas method enables the quick generation and recording of a large number of ideas that reflect creative thinking. Starting with a silent generation of ideas ensures that each person captures top of mind ideas before being influenced by others.

Ask the participants to silently think of two or three risks associated with the project, and to record their risk statements using the format shown above (cause, effect, impact) on the Risk Management Plan. Allow four to five minutes for silent idea generation.

When the silent idea generation is completed, circle the group asking each person to share one item on his/her list. Record each quickly on a flip chart or computer. Tell participants not to mention duplicates of any item already listed. Do not allow discussion or commentary as you are leading the round robin. You may choose to do one or two more rounds after this, depending on the number of participants.

Qualitative Risk Analysis

Qualitative Risk Analysis is a method for prioritizing the identified risks for further action. Qualitative Risk Analysis assesses the priority of identified risks using their probability of occurring and the corresponding impact on project objectives if the risks do occur.

Use the following matrices to rank the probability and impact of each identified risk.

Risk <u>Probability</u> Ranking <i>What is the probability the risk (cause and effect) will occur?</i>	
Ranking	Probability
Very Low	Remote (10%)
Low	Unlikely (30%)
Medium	Likely (50%)
High	Highly Likely (70%)
Very High	Near Certainty (90%)

Risk <u>Impact</u> Ranking <i>If the risk occurs, what is the value of the impact?</i>				
Ranking	Cost	Time	Scope	Quality
Very Low	No significant cost increase	Minimal schedule impact	Minimal scope change	Quality degradation barely noticeable
Low	<5% cost increase	2 - 4 week delay	Changes in project limits or features with <5% cost increase	No deficiencies apparent
Medium	5 - 7% cost increase	1 - 2 month delay	Changes in project limits or features with 5 - 10% cost increase	Minimal deficiencies in constructability, operability, and safety
High	7 -10% cost increase	3 - 6 month delay	Major changes in project limits and features with >10% cost increase	Major deficiencies in the technical adequacy of the final product
Very High	>10% cost increase	> 6 month delay	Scope does not meet original purpose and need	Final product not acceptable due to deficiencies

The output from the probability and impact ranking is combined to determine whether the activity is high risk (RED), moderate risk (YELLOW), or low risk (GREEN). The numbers in the high risk zone below denote the priority order within the high risk zone. Usually, risks in the red zone are advanced to the risk response planning step.

Probability	V H			6	3	1
	H			9	5	2
	M				8	4
	L				11	7
	V L					10
	V L	L	M	H	V H	
	Impact					

Risk Response Planning

Risk Response Planning is the process of developing options, and identifying actions to enhance opportunities and reduce threats to the project’s objectives. It focuses on the high-risk items evaluated in the qualitative risk analysis. In Risk Response Planning, parties are identified and proposed to take responsibility for each risk response. This process ensures that each risk requiring a response has a potential owner monitoring the responses, although a different party may become responsible for implementing the risk handling action itself.

Strategies for negative risks (threats) include:

- **Avoid.** Risk avoidance involves changing the project plan to eliminate the risk or to protect the project objectives (time, cost, scope, quality) from its impact. The team might propose achieving this by changing scope, adding time, or adding resources (thus relaxing the so-called “triple constraint”).
- **Transfer.** Risk transference requires shifting the negative impact of a threat, along with ownership of the response, to a third party. An example would be the team proposes transferring the financial impact of risk by contracting out some aspect of the work. Transference reduces the risk only if the contractor is more capable of taking steps to reduce the risk and does so. Risk transference nearly always involves payment of a risk premium to the party taking on the risk. Transference tools can be quite diverse and include, but are not limited to the use of: insurance, performance bonds, warranties, guarantees, incentive/disincentive clauses, A+B contracts, etc. Some of these transference tools may have legal or policy impediments to their ultimate adoption. Accordingly, this is likely the strategy of last resort.
- **Mitigate.** Risk mitigation implies a reduction in the probability and/or impact of an adverse risk event to an acceptable threshold. Taking early action to reduce the probability and/or impact of a risk is often more effective than trying to repair the damage after the risk has occurred. Risk mitigation may take resources or time and hence may represent a tradeoff of one objective for another. However, it may still be preferable

to going forward with an unmitigated risk. Monitoring the deliverables closely, increasing the number of parallel activities in the schedule, **early involvement of regulatory agencies in the project, early and continuous outreach to communities/advocacy groups**, implementing value engineering, performing corridor studies, adopting less complex processes, conducting more tests, or choosing a more stable supplier are examples of mitigation actions.

Strategies for positive risks (opportunities) include:

- **Exploit.** The organization wishes to ensure that the opportunity is realized. This strategy seeks to eliminate the uncertainty associated with a particular upside risk by making the opportunity definitely happen. Examples include securing talented resources that may become available for the project.
- **Share.** Allocating ownership to a third party who is best able to capture the opportunity for the benefit of the project. Examples include: forming risk-sharing partnerships, teams, special-purpose companies, joint ventures, etc.
- **Enhance.** This strategy modifies the size of an opportunity by increasing probability and/or positive impacts, and by identifying and maximizing key drivers of these positive-impact risks. Seeking to facilitate or strengthen the cause of the opportunity, and proactively targeting and reinforcing its trigger conditions, might increase probability. Impact drivers can also be targeted, seeking to increase the project's susceptibility to the opportunity.

Strategy for both threats and opportunities:

- **Acceptance.** A strategy that is adopted because it is either not possible to eliminate that risk from a project or the cost in time or money of the response is not warranted by the importance of the risk. When the project manager and the project team decide to accept a certain risk(s), they do not need to change the project plan to deal with that certain risk, or identify any response strategy other than agreeing to address the risk if and when it occurs. A workaround plan may be developed for that eventuality.

The implementation of any strategy, except for the Acceptance strategy, that would impose enforceable obligations on either party must be accomplished by a contract modification.

Risk Monitoring and Control

Risk monitoring and control keeps track of the identified risks, residual risks, and new risks. It also monitors the execution of planned strategies on the identified risks and evaluates their effectiveness.

Risk monitoring and control should continue for the life of the project. The list of project risks changes as the project matures, new risks develop, or anticipated risks disappear. The Project Engineer will be the owner and maintainer of the risk register and schedule follow-up meetings.

Typically during project construction there should be regularly held risk meetings during which all or a part of the Risk Register is reviewed for effective implementation and at which new risks are discussed and owners are proposed. Periodic project risk reviews repeat the process of identification, analysis, and response planning. Risk ratings and prioritization commonly change during the project lifecycle.

Risk Register

WFLHD Risk Management Plan for _____													
Risk Identification				Qualitative Risk Assessment				Risk Response Plan			Monitoring and Control		
#	Cause	Effect	Impact (Threat or Opportunity)	Primary Objective (Cost, time, quality, scope)	Probability	Impact	Risk Matrix	Priority	Response Strategy	Response Actions	Responsible Entity	Interval or Milestone Check	Status; Date and Review Comments
1													
2													
3													
4													
5													
6													
7													
8													