Integrated Safety Management

Five Steps of Integrated Safety Management

1. Define scope of work
2. Analyze hazards
3. Develop/ implement hazard controls
4. Perform work within controls
5. Feedback and improvement

Questions associated with each of the five steps:

1. What will the work/job/ experiment involve?
2. What are the hazards of this job?
3. What can be done to reduce the hazards?
4. Were all of the hazard reductions followed?
5. Was there anything that could have been changed to improve the quality and safety of the work?
### Integrated Safety Management

**Risk Assessment**

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Very Likely</td>
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Consequences:
- A: Negligible
- B: Minor
- C: Moderate
- D: Significant
- E: Severe
### Definitions for Risk Assessment

**Consequences**, in a worst case scenario if something goes wrong:
- **Negligible**: minor injury resulting in basic first aid treatment that can be provided on site.
- **Minor**: minor injury resulting in advanced first aid treatment administered by a physician.
- **Moderate**: injuries that require treatment above first aid but do not require hospitalization.
- **Significant**: severe injuries and hospitalization.
- **Severe**: death or permanent disability.

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### Risk Assessment Matrix

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Definitions for Risk Assessment

Likelihood, whichever is the greater risk (see graphic):
• **Very Unlikely**: less than once in a ten thousand times (<0.01%) and less frequently than once per 10 years.
• **Unlikely**: less than once in a thousand times (<0.1% of the time) and less frequently than once per year.
• **Possible**: less than once in a hundred times (<1% of the time) and less frequently than once per 3 months.
• **Likely**: less than once in ten times (<10% of the time) and less frequently than once per month.
• **Very likely**: more than once in ten times and more frequently than once per month.
Use residual risk categories **after all controls are in place** to decide how the work will proceed:

- **Low**: proceed using ISM
- **Low Medium**: proceed with caution using ISM. A second worker is in the vicinity.
- **Medium**: Seek guidance from safety department before proceeding. Two authorized workers must be in place before work can proceed. Limited number of authorized workers as maintained by the safety department.
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- **High**: Work will not be performed.
WHAT ARE THE HAZARDS OF THE JOB?
• Pre-job briefing
• Discuss the controls and error prevention tools
• Identify and strengthen engineering and administrative controls

WHAT WILL THE JOB INVOLVE?
• Identify Critical Steps
• Ponder the worst that could happen
• Address unexpected equipment conditions, etc

WHAT CAN BE DONE TO REDUCE THE HAZARDS?
• Self checking
• Peer checking
• Procedure use and adherence
• Questioning attitude

ARE THE CONTROLS BEING FOLLOWED?
• Continue self checking
• Continue peer checking
• Continue procedure use and adherence
• Effective communication
• Stop when unsure

WAS THERE ANYTHING THAT COULD HAVE BEEN CHANGED TO IMPROVE THE QUALITY & SAFETY OF WORK?
• Post Job Briefing
• Identify any errors (even minor ones)
• Understand reasons for errors and strengthen controls

Human Behavior in ISM:
## Sample ISM Template

<table>
<thead>
<tr>
<th>Scope of Work</th>
<th>Hazards</th>
<th>Likelihood</th>
<th>Consequences</th>
<th>Risk without Controls</th>
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