

# Risk Code Tutorial

## First, a Review

- *A task hazard analysis:*
  - Uncovers and identifies workplace hazards for a task or project.
  - Identifies mitigations
- Then what? How do you relate this to risk and determine how to apply resources?
  - Assess the severity
  - Determine the likelihood of bad outcomes
- If *risk* is not sufficiently low, then additional controls or alternate methods must be applied.

# When you're done with the THA:

- *Risk assessment* is actually something we all do all the time. In some instances the process takes place at a sub-conscious (or even instinctual) level
  - What if your car stalls in the middle of that railroad crossing and you hear a train whistle in the distance.
- We need a method to go from *task hazard analysis* (in more subtle and complex situations encountered at Jefferson Lab) to obtain guidance on where the "acceptable" level of *risk* lies.

# Risk Assessment

- Workers and supervisors must do this!
- The most critical step for each person involved is to **STOP and THINK**.
  - Evaluate the consequences of each possible accident (what is the severity?)
  - Estimate the probability of each possible accident (how often might it happen?)
- Risk = severity x probability

# What consequences?

- Serious injury or death?
- Environmental contamination?
- Personnel exposure to toxins?
- Occupationally derived illness?
- Significant property loss?
- Minor injuries?

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<b>Consequence levels</b>	<b>Severity</b>	<b>Personal injury</b>	<b>Property loss</b>
<b>IV</b>	<b>High</b> (serious to fatal injury; major property damage)	<b>Death or permanent disability</b>	<b>&gt; \$100,000</b>
<b>III</b>	<b>Medium</b> (moderate to serious injury; serious property damage)	<b>Hospitalization required or <math>\geq 5</math> lost workdays</b>	<b>&gt; \$10,000</b>
<b>II</b>	<b>Low</b> (minor to moderate injury; minor property damage)	<b>First aid, medical treatment required, &lt; 5 lost workdays</b>	<b>&gt; \$500</b>
<b>I</b>	<b>Extremely low</b> (little or no injury; insignificant damage)	<b>First aid not required</b>	<b>&lt; \$500</b>

# Evaluate Likelihood

<b>Likelihood code</b>	<b>Estimated likelihood of accident</b>	<b>Rough time scale of likelihood*</b>
A	Very unlikely	> 500 years
B	Possible, given time	> 10 years ≤ 500 years
C	Likely, given sufficient time	> 10 days ≤ 10 years
D	Highly likely; could happen soon	≤ 10 days

\* Assume 2000 hour work year

# Choose Risk Code

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III	1	2	3	4
II	0	1	2	3
I	0	0	1	1
	A	B	C	D

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## What Does Risk Code Do?

- The assignment of this risk code serves three functions at Jefferson Lab:
  - Helps you decide level of formality for review and documentation of hazards and mitigations.
  - Helps you decide whether observed activity is creating serious risk: stop work or not?
  - Provides a common “language” to communicate risk for wide range of tasks and across organizations.

# Risk Code, Level of Task Review

<b>Mitigated Risk Code</b>		<b>Level of Task Review</b>
4	High	<b>Formal written, approved twd, DSO may want more</b>
3	Medium	<b>Formal written, approved twd</b>
2	Low	<b>Workers, supervisors explicitly review the hazards, mitigating measures.</b>
1	Minor	<b>Level of risk common for appropriate trained personnel.</b>
0	Negligible	<b>level of risk is common, general education of the public.</b>

# **Risk Code and Abatement Actions for a Task Underway (EH&S Manual Table 5)**

## **(4) High**

- **Assigned to a task as it is currently being accomplished.** A situation posing imminent danger to life, property, or environment. **This is a mandatory Stop-Work situation.**

## **(3) Medium**

- Abatement action is required as soon as possible, normally within one working day. Extra supervisory attention is required in the interim. **Stop-work may be applied at the discretion of responsible line staff, EH&S staff, or the area safety warden.**

## **(2) Low**

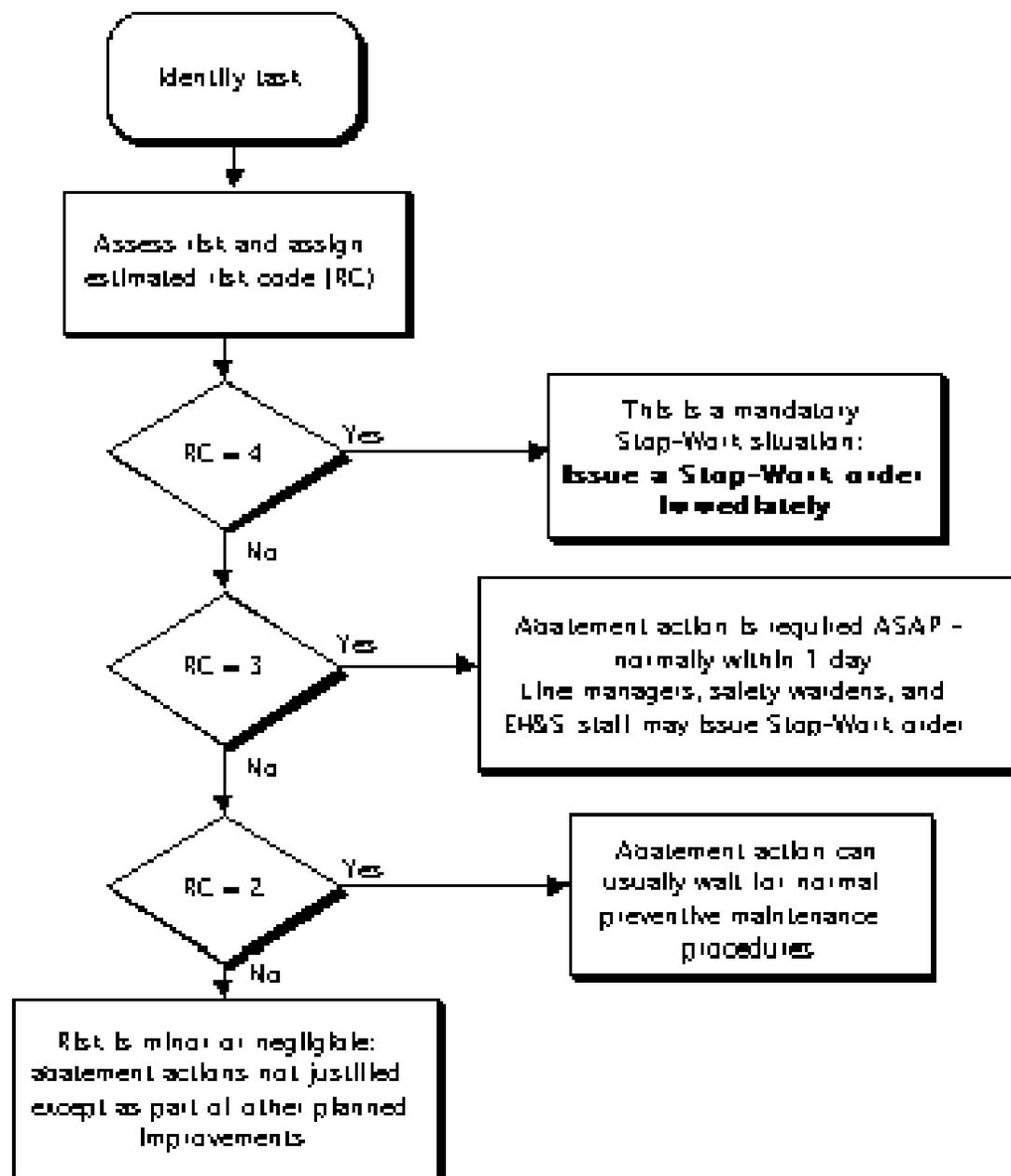
- Abatement actions can usually await normal preventive maintenance and can be managed with customary supervisory efforts and administrative procedures.

## **(1) Minor**

- Situation does not justify abatement action except as part of other planned improvements. Action is not specifically required.

# Risk Code Assignment and Take Home Messages

- We handle Risk Code 3 and above activities well most of the time.
- Most of our problems stem from activities with Risk Code 2 and below. We hurt ourselves on sharp objects and when we move stuff. To meet safety performance goals, we must:
  - Not lose good focus on Risk Code 3+ activities
  - Apply new focus on evaluating, mitigating hazards associated with Risk Code 2 and below – find a better way, PPE,
  - Keep the focus by regular reinforcement (daily briefings), direct feedback during “mbwo”



**Figure 3:** Using estimated risk to determine urgency of risk abatement actions for work in progress

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Mitigated Risk Code		Level of Task Review
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1?	Minor	Level of risk common for appropriate trained personnel.
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