Critical Task Analysis Guidelines
October 12, 2012

1.0 Create a task list for every job position in the organization. This is done best in a workshop with representatives of the positions being evaluated in attendance.

2.0 Compile the individual task list into a master list of all tasks performed by the organization's employees.

3.0 Assemble a criticality evaluation team: this should consist of subject matter experts familiar with the tasks, such as supervisors and superintendents, as well as representatives from other groups, such as Worker Safety, IT, Maintenance, and others who may have a stake in the tasks.

4.0 Assign a numerical criticality ranking to each task, as per the steps below. We used a spreadsheet similar to the sample below to track the tasks and to sort by criticality.

  4.1 Criticality is the product of the likelihood that a task will go wrong and the consequences of that task going wrong. Therefore, Criticality score = Likelihood score x Consequences score.

  4.2 Likelihood is calculated base on two factors, the complexity of a task and the probability of failure. Refer to the charts on the next page for a sample. For a given task, assign a rating in both the complexity and probability columns. The higher score of the two becomes the Likelihood score.

  4.3 We calculated consequence based on four factors: risk to worker health and safety, risk to the public, risk to the environment, and economic risk, should the task be performed wrong. Refer to the charts on the next page. Evaluate the criteria used for each rating and determine if they are appropriate for you organization. For example, you may wish to set different limits on the economic consequences. Assign a rating in all four columns for a given task. The highest value becomes the Consequence score.

  4.4 Multiply the Likelihood score by the Consequence score to generate the Criticality Rating.

Task #	Task Name	Risk Evaluation						Criticality
		Likelihood (1-5)		Consequence (1-5)				
		Task Complexity	Probability of Screw Up	Health/ Safety	Public Disruption	Environmental	Economic	
1	Asset tagging	3	**5**	**4**	3	2	3	20
2	Alarm Testing - PM	**3**	2	3	**4**	3	3	12
3	Revising Civil Drawings	3	**5**	1	**3**	1	3	15

Figure 1: Sample Criticality Evaluation spreadsheet.

5.0 Sort the task list based on criticality ranking. We decided to generate formal, written procedures for any task with a criticality score of 15 of greater, starting with the highest ranked tasks. For tasks with criticality scores between 5 and 12, we would generate written procedures if required, as schedule and funding allowed. For tasks with criticality ratings below 5, written procedures were not required.

Rating	Likelihood Criteria	
	Task Complexity	Probability (use historical data if possible)
5	• Unfamiliar, highly complex • Immediate response • Troubleshooting and analysis required	Possibility of repeated incidents (once or more per year)
4	• Highly complex • Prompt response • Knowledge and analysis required	Possibility of isolated incidents (once every 5 years)
3	• Complex • Some time to respond • Knowledge required	Possibility of occurring sometimes (once every 10 years)
2	Less complex but has potential for human error	Not likely to occur (once every 25 years)
1	Common, familiar, and non-complex tasks	Practically impossible (once every 100 years)

Rating	Consequence Criteria (review criteria for applicability to your organization)			
	Health/Safety	Public Disruption	Environmental	Economic
5	Loss of life	Extensive service disruption: • Arterial road out • Major line break / out • Region-wide boil water advisory	• Extended incident: public notification required • Full-scale emergency response required • Ecosystem failure possible	Loss > $250,000
4	• Permanent disability • Loss of body part	Major service disruption: • Feeder road out • Minor line break / out • Localized boil water advisory	• Major incident: reporting required • Fines/citations probable • Emergency response required • Significant threat to ecosystem	Loss between $25,000 and $250,000
3	• Lost time injury • Illness without permanent disability	Significant service disruption: • Local road out • Localized turbidity, no boil water • Localized noise	• Moderate incident: reporting required • Minor response required • Minor threat to ecosystem	Loss between $5,000 and $25,000
2	• Minor injury • Illness without lost time	Minor service disruption: • Localized low pressure	• Minor incident: reporting required • No response required	Loss < $5,000
1	No injury or illness	No service disruption	Minor incident: no reporting required	No loss