

LESSON 4

Guidance for Conducting HRA

Study Guide

Topic: Guidance for Conducting HRA

Purpose: This brief lessons describes two approaches for integrating HRAs into Risk Assessments.

Objectives: At the end of this lesson, learners will be able:

- Recall the names of both approaches for integrating HRAs into Risk Assessments
- Describe the general sequence of events and responsibilities of the various players for the SHARP approach

Resources: - Gertman and Blackman, Chapter 2; Reason, Chapter 8

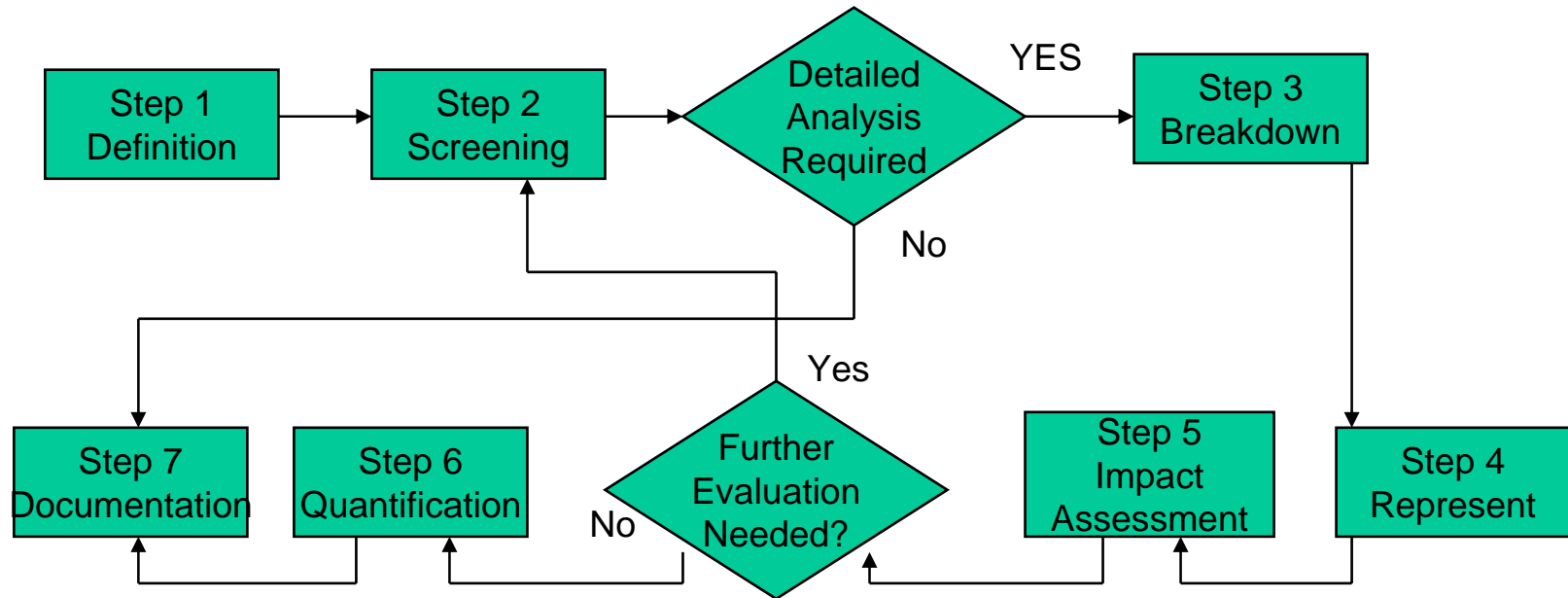
Integrating HRAs into Risk Assessments

- ***The goal of HRA is to characterize the risk contribution of human performance within the risk assessment model***
 - ***How are risk-significant human errors selected?***
 - ***How are they represented and integrated?***
- ***Major Approaches for Integrating HRAs into risk assessments***
 - ***SHARP***
 - ***IEEE 1082/D7***

SYSTEMATIC HUMAN ACTION RELIABILITY PROCEDURE (SHARP)

- *Developed by EPRI in mid-80s*
- *Foundation for other methods*
- *Involves 7 basic steps and 2 decision points*
 - *System analysts responsible for 2 steps*
 - *HRA analysts responsible for 2 steps*
 - *Shared responsibility for 3 steps*

The S.H.A.R.P. Process



Steps 1 and 2 = Systems Analyst

Steps 3 and 4 = Human Reliability Analyst

Steps 5, 6, and 7 = Both

IEEE STD 1082 (1997) – Guide for Incorporating Human Action Reliability Analysis for Nuclear Power Generating Stations

- ***Concise document***
- ***Provides general framework for integrating HRAs into Risk Assessments***
- ***Describes outputs and decisions entailed in the 8 steps***
- ***Emphasizes the importance of team training***

Additional Resources:

- ***ASME Standard for Probabilistic Risk Assessment for Nuclear Facilities (ASME 2002)***
- ***Probabilistic Risk Assessment Guide for NASA Managers (NASA 2002)***

#6 Class Exercise: HRA Approach

- ***Assemble into teams. You are faced with the following situation: You have been called in to conduct an HRA for shipping spent fuel from Idaho to Yucca Mountain. A Risk Assessment exists that looks at the potential for engine failures, break failures, sensor (radiation) alarm failures. They need information on failure modes and shaping factors. Hint: you are allowed to consider collisions, and poor driving ability/conditions. List the information sources you would use (procedures, interviews, near misses) and failures you would model.***
- ***Not due until tomorrow after lunch, use the steps from this lesson to help structure your team response.***

Lesson Summary

Key Points:

There are two main methods for integrating HRAs into Risk Assessments

- SHARP*
- IEEE-STD-1082*