



MEL & ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH

# Western Mining Safety and Health Training Resource Center

## 8-STEP EXERCISE DESIGN PROCESS

Adapted Mine Emergency Evacuation Drill Template  
Using Homeland Security Exercise and Evaluation  
Program (HSEEP)

This material was produced under grant number BS16-3BS NCE for FY2016 from the Mine Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

# Background

---

Exercise design is much like scripting a play to make sure that all of the players perform the correct actions and make the right decisions at the appropriate time. Tabletop, functional, and full-scale exercises are based on a design process that includes the following eight steps:

1. Assess needs.
2. Define scope.
3. Write a statement of purpose.
4. Define objectives.
5. Compose a narrative.
6. Write major and detailed events.
7. List expected actions.
8. Prepare messages.

The University of Arizona Mountain West Preparedness and Emergency Response Learning Center (MWPERLC) has adapted the mine evacuation template for the King II Coal Mine, operated by GCC Energy LLC located 10 miles southwest of Hesperus, CO.

## **I. Assess Needs**

Coal companies across the nation are seeing the impacts of federal coal reform in the shape of layoffs, revenue loss and bankruptcy. A shrinking labor pool necessitates an even more diligent approach to the required quarterly documented escape training for miners based on common typed of underground mine emergencies to include scenarios for fires, explosions, water and gas inundations. The King II Coal Mine employs approximately 100 people who live primarily in La Plata and Montezuma counties and supports hundreds of additional jobs with local vendors

throughout the region. The King II Coal mine takes great pride in making sure that safety is a core value.

The Mine Safety and Health Administration (MSHA), regulation on mine evacuation stipulates miners must travel both the primary and secondary escapeways, alternating between them during each training quarter.

## II. Define Scope

The King II Mine is located within the area known locally as Hay Gulch. Hay Gulch (and the Hesperus area) has been a historical coal mining area and currently is the only operating mine in Hay Gulch, and La Plata County, Colorado. The King II Coal Mine is a dry, underground mine supplying low-ash, low mercury super-compliant, bituminous coal to domestic and international customers predominantly for the purpose of manufacturing cement and concrete, but also to power the famous Durango & Silverton Narrow Gauge Railroad located in Durango, CO.

There are five key elements of scope:

**Type of emergency:** Conveyor belt fire.

**Location/Date:**

*Location:* King II Coal Mine [*insert specific mine map location here*]

*Date of Drill:* \_\_\_\_\_

**Functions:** Fire suppression, donning and doffing of PPE, use of lifelines.

**Participants:**

**Crew:** \_\_\_\_\_ **Shift:** \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

**Exercise type:** Evacuation Drill

### III. Statement of purpose

The purpose of the proposed mine evacuation drill is to improve the following emergency operations:

- a. Evacuation warning
- b. Use of fire suppression equipment
- c. Donning and doffing of SCSR's
- d. Travel of all miners using “primary/or secondary” escapeway

by involving the following *agencies*:

- a. Fire Department
- b. King II Cola mine miners

in a drill simulating a conveyor belt fire at cross cut [X] and [X] at the King Mine II on [insert date and time].

### IV. Objectives

- 1) For miners to physically locate and practice using the lifeline, tethers, or equivalent devices.
- 2) For miners to physically locate the stored 1 hour SCCR's.
- 3) For miners to locate and simulate the use of the fire equipment (if no trainer model used).
- 4) For miners to travel the entire primary escapeway.
- 5) For miners to travel the entire alternate escapeway.
- 6) For miners to don the SCSRs and transfer of Ocenoco SCCR's. M20 and SBA 6.5.

## V. Narrative

A miner is working on the conveyor belt when suddenly it catches fire. A secondary miner working nearby smells and sees smoke and walks over to investigate the source. One miner attempts to extinguish it using rock dust, while the other uses water. The fire is expanding and is now getting out of control. Recognizing they are not able to control the fire, they decide to gather the rest of their team nearby by to evacuate. They proceed en route to find the nearest phone to report the fire and decide which escapeway to use.

## Steps VI, VII, and VIII

(Major and detailed events/expected actions/Messages using a table format to document performance—**sample provided not complete**).

**Master Scenario Events List (MSEL)**

Event #	Event Time	Event Description	Responsible Controller	Inject Mode	Recipient Player	Expected Outcome of Player Action	Certification Procedures
	8:00 AM	Start of Exercise (StartEx)	Exercise Director	Radio/Phone	All	Begin exercise play	
1	8:01 AM	Miner is working at conveyor belt and notices fire	Area Controller	Verbal	Miner 1	Should turn off conveyor belt and attempt to distinguish fire	Fire suppression equipment
2	8:05 AM	Miner 2 smells and sees fire and goes to explore further	Area Controller	Paper	Miner 2	Ask Miner 1 what happened and attempt to assist in extinguishing fire	Fire suppression Equipment
3	8:10 AM	Fire is expanding	Area Controller	Verbal	Miner 1 and Miner 2	Miners should devise a plan to gather the rest of their crew and phone in the fire	
4	8:15 AM	Phone Call is received to topside responsible person	Simulation Cell Controller	Phone	Responsible Person	Responsible Person should ask for details of fire, location of miners, ask if there are any injuries, etc. (based on mine protocol). Provide miners with the best escape route	
5	8:25 AM	Mine crew has located lifeline to alternate escapeway route	Area Controller	Paper	Mine Crew	Mine crew physically locates and practice using the lifeline to evacuate. Identify a lead and determine the nearest location of the stored 1 hr SCSR's.	Physical location and practice of lifeline