SAND2012-5058P

Course:

Biorisk Mitigation Strategies

Design Document

Sandia National Laboratories

International

BIOLOGICAL THREAT REDUCTION

CBEP

Cooperative Biological Engagement Program

Part I: Course Overview

Course Description

Overview

Biorisk Mitigation Strategies is intended as an intermediary course. Participants should have already completed *Orientation to BRM* and *Risk Assessment*. They should already be familiar with the AMP model and understand the importance of and basics of how to do risk assessments. While the concepts of mitigation are introduced in *Orientation to BRM*, this course further defines mitigation and examines the hierarchy of controls; introducing the five categories of mitigation control measures broadly. Specific mitigation activities are not discussed in detail. This course should be taken prior to any courses that discuss specific mitigation control measures such as *PPE, Waste Disposal and Decontamination, Writing SOPs*, etc.

Scope

This course will define mitigation and provide awareness of the five categories of control measures (hierarchy of controls) and discuss the advantages and disadvantages of each. This course will NOT provide details on specific mitigation control measures.

Learning Level
based on Bloom's taxonomy

- ✓ knowledge
- ✓ comprehension
- ✓ application
- synthesis
- evaluation

Length of Course

3 hours

Course Objectives

At the end of this course, students will be able to:

Organizational Objectives

- Understand the role of mitigation in the AMP model or biorisk management
- Be able to define mitigation

Instructional Objectives

- Define mitigation
- Mitigation must be based on a thorough risk assessment
- List the five categories of control measures
- Understand the advantages and limitations of each

Personal Objectives

Know

- What mitigation is and how it fits into the AMP model. Know the importance of doing a thorough risk assessment prior to implementing/evaluating mitigation control measures. Understand the

	various categories of control measures used to reduce risk and their advantages and limitations
Feel	• Prepared to learn more about specific kinds of mitigation.
Do	• Categorize various mitigation efforts into the hierarchy of controls
Key Messages	1. Definition of Mitigation and role in the AMP model. 2. Mitigation is most effective when based on a thorough risk assessment. 3. There are five generally recognized categories of control measures; each with various advantages and disadvantages 4. Elimination or substitution is the most effective means of mitigating risk; generally followed by engineering controls; administrative controls; practices and procedure; and finally PPE 5. It takes a combination of mitigation measures; in addition to the risk assessment, the effectiveness of mitigation also must be judged on your ability to implement them.

Evaluation Strategy

Level 1 (satisfaction):	Students will complete a satisfaction survey about their experience with the course
Level 2 (learning):	Students will complete a "learning contract" for the next steps needed to begin biorisk mitigation strategies implementation
Level 3 (behavior):	Desired behavior is for students to participate in additional learning opportunities on BRM – this behavior will be evaluated three to six months post-training and may encompass additional training courses
Level 4 (organizational change):	A repeat of the training needs assessment will be performed at least annually – this annual assessment can be compared to the baseline assessment to determine improvements in biorisk management performance

Student Description (for course design purposes)

Number of students:	10 to 25; small groups of 5 people each
Biorisk Management Role:	✓ Policy Makers ✓ Top Management ✓ Biorisk Management Advisors/Advocates ✓ Scientific/Lab Management ✓ Workforce

Audience Assumptions:

(assumed range is indicated by shaded cells)

		Novice		Practi-tioner		Expert
Education	Scientific	1	2	3	4	5
	BRM*	1	2	3	4	5
Expertise	Scientific	1	2	3	4	5
	BRM	1	2	3	4	5
Competence	Scientific	1	2	3	4	5
	BRM	1	2	3	4	5
BRM = "biorisk management". See definitions for terms in Resources section						

Language of instruction; translation or interpretation anticipated:

English (for design purposes)

Prerequisites

None

Pre- or post-work required for completion

None

Certificates or documents of completion:

Certificates of completion will be provided

Preparation for future coursework

This course is a pre-requisite for all other courses in the biorisk management curriculum

Anticipated next steps

Students will participate in either the management & leadership, advice & advocacy, or skills & competency biorisk management tracks, as defined by the local training needs assessment and other SME recommendations.

Instructional Environment

Number of Instructors/Staff required:	TBD depending on number of students – optimal ratio is 1 instructor per no more than 12 students
Instructor Qualifications:	Instructors must have completed BRM Curriculum Orientation, which includes this course, and be enrolled in the BRM training network.

Learning Environment

Media:	Instructor-led
Exercises & Activities	
Experience (Activists)	Activists will have several opportunities in plenary discussion to develop definitions for mitigation. Activist should also have fun with the video clip and the opportunity to identify and categorize various mitigation efforts.
Reflection (Reflectors)	Students will be asked to reflect on their own experiences to identify mitigation control measures in a scenario. They will also as individuals through reflection prioritize the various categories of mitigation measures.
Models (Theorists)	Students will be introduced, through their own experiences and reflections, to the five categories of mitigation controls. Mitigation will be studied as follow on activity to assessment as part of the AMP model.
Practice (Pragmatists)	Students will review the AMP model and several scenarios will be reviewed from real life experiences. A short video clip will allow participants to find and categorize various mitigation measures.

On-Site Specifics

Location	TBD
Room organization	Clusters of tables to facilitate small group (no more than 5 students per group
Dress code and/or important cultural considerations	TBD

Instructional Materials

Equipment & Supplies	
Student Handouts	Student notes Glossary

Resources

Dependencies	*Orientation to Biorisk Management; Risk Assessment*
Authorities	
References	CWA 15793 CEN WS 55, 53 WHO Laboratory Biosafety Manual Glossary of terms (in development)
Terms used in this document	• Knowledge • Comprehension • Application • Synthesis • Evaluation • Novice – a person who is new to the circumstances, work, etc. in which s/he is placed; beginner • Practitioner – a person engaged in the practice of a profession; a person who practices something specified • Expert – a person who has special skill or knowledge in some particular field; specialist; authority; trained by practice • Education – the act of acquiring particular knowledge or skills, as for a profession • Expertise – the process of personally observing, encountering or undergoing something; knowledge or practical wisdom gained from what one has observed, encountered, or undergone • Competence – Possession of a suitable or sufficient skill, knowledge, experience, etc. for some specified purpose; properly qualified

Part II: Course Outline/Schedule							
Day	**Segment time (min)**	**Time**	**Topic**	**Instructional Method**	**Slide #**	**KM #**	**T/F**
KM = key messages ; T/F = teaching versus facilitation (instructor-based versus student-based)							