CONTENT MAP –
ITF TRENCHING AND EXCAVATIONS SAFETY TRAINING
TRAINER GUIDE

SUMMARY

This document serves as an outline for content for the Instructor training guide that is part of the comprehensive experience for Trenching and Excavations Safety Training to be produced for the International Training Fund (ITF).

DEFINITIONS

To clarify communications, we offer the following definitions for terms to be used throughout this project:

Experience: The entire set of deliverables for this contract, which includes different *components* accessed through the LMS or Virtual Reality Library.

Component: A single deliverable type of the experience, which may be E-learning, Trainer Guide, VR Activity, or downloadable Reference app.

Course: A single e-learning course deliverable (the e-learning component described above).

Module: Part of an e-learning course (similar to a chapter in a book).

TRAINING OVERVIEW

The comprehensive Trenching and Excavations Safety Training experience incorporates multiple training modalities to deliver content targeted to specific audiences. There are three overall groups of learners (listed here in order of ascending expertise and

responsibility): Basic (average workers), Competent Persons, or CPs (workers designated as CPs), and Trainers (Instructors for the experience).

The overall objective of the training experience is to educate workers on a construction jobsite to practice decision-making skills surrounding trenching and excavations safety issues. The learning experience will inform and assess learners regarding best practices and OSHA policies for excavation and trenching safety, allow learners to encounter potentially life-threatening situations in the safety of a virtual environment, and provide a mobile Reference application (app) for job performance support. This experience will also train instructors in best practices for delivering the training effectively and consistently to ensure uniform impact across all ITF Training Centers.

By the end of this experience, the workers and CPs should have a greater understanding of the safety issues on a jobsite—including their responsibility to monitor themselves and others, what issues to be aware of, how to mitigate identified issues, and where to access additional information about jobsite safety and OSHA safety regulations. Trainers who undergo this experience will have a refresher of relevant safety issues and will understand the most effective means for leveraging the training materials for online and classroom use to produce positive outcomes over repeated trainings, including how to use Virtual Reality (VR) tools and the Student Reference app.

Components of this training experience have been mapped on a virtual whiteboard located at https://realtimeboard.com/app/board/o9J_kzj35Ss=/ to help visualize the interrelationship of the components of the comprehensive training experience.

<div style="background-color:orange">TARGET AUDIENCE</div>

The target audience for the Trainer Guide component includes Instructors who will guide the learning experience for trenching and excavation safety in a classroom at the local union training center, including online components (e-learning), VR training, and presentation of the Student Resource app, and follow-up.

TYPE OF TRAINING

This overall training experience will include classroom and online components, including e-learning, virtual reality learning, and a reference application. The UA has specified that a classroom approach be taken—in which an Instructor will lead a class at a local union training center in completing e-learning courses, completing the VR activity, and learning and using the Reference app.

Components of the comprehensive training will include:

- Online SCORM-compliant e-learning course(s) introducing content based on objectives approved by UA subject matter experts (SMEs), delivered through the existing UA learning management system (LMS).
- Online VR exploratory activity driven by content created by Mosaic Learning (ML) and delivered through the UA's Virtual Reality Library (VRL), intended to easily deploy any number of VR training modules to the local union training centers.
- A downloadable Student Reference Application (app), providing instant access to job-support tools such as OSHA regulations, Fact Sheets, and Checklists.
- A Trainer Guide used to present in the classroom, to include a brief Syllabus with suggested activities and boilerplate scripts for points to cover in guiding the learning experience, introducing and proctoring the e-learning, and reinforcing e-learning concepts through the VR activity (if available) and reference app.
- Brief PowerPoint (PPT) presentations for the trainer to use in facilitating the Competent Person and Basic training courses (max 20 slides per PPT).

All training will take place at the local union training centers. Learners will complete e-learning courses online within a designated timeframe as described in the course syllabus. Instructors will introduce and supervise the e-learning as needed. Instructors will then reinforce e-learning with the VR activity and app training.

To make use of the app, each learner will need his or her own smartphone with sufficient power and space to download and run the app. Training centers who wish to make use of the VR activity will provide the VR headset and controllers, as well as sufficient space, for each learner to participate in the VR component. Training facilitators will orient the learner and will launch the VR component after logging into the VRL. Learners will explore the virtual jobsite until they have encountered each hazard or until they (or their instructors) feel comfortable with their experience.

The focus of this Content Map is to outline the content of the Train the Trainer component of the training experience. Upon approval, the Trainer Guide will be delivered and storyboards will be created for the two PowerPoint presentations that will be used in the classroom (one each for the Basic and Competent Person course).

CONTENT REQUIREMENTS

Key content requirements of the Trainer's component are that:

- It will take from 5 to 7 hours to complete—depending on whether the Basic Level or Competent Person Level track is being presented, including at least one hour with the VR experience and one hour reviewing the Reference app.
- The Basic course may require up to 6 hours of classroom time to deliver; the Competent Person course may require up to 8 hours of classroom time to deliver.
- Training will be presented to cover best practices for ensuring safety during trenching and excavations as supported by OSHA regulations covered in Occupational Safety and Health Administration's (OSHA) Excavation standards, 29 Code of Federal Regulations (CFR) Part 1926, Subpart P. Complete regulations are available at: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10930

> **Commented [MMc2]:** Any other resources?

DELIVERABLE

ML will develop and deliver the Trainer Guide in PDF format with basic formatting in MS Word to layout the guide, including Table of Contents, headers, and page numbers.

ML will develop and deliver the Trainer Presentations in PPT format. There will be two total presentations: One for facilitating the Competent Person course and one for the Basic course.

OVERVIEW OF TRAINING DESIGN/INSTRUCTIONAL CONTENT

The following tables outline the content for this component of the learning experience, keyed to specific objectives outlined in the High Level Design Document. The alignment of objectives to content is intended to provide a one-to-one correlation between learning objectives and content, to inform design of the overall learning experience.

CONTENT	DESCRIPTION	OBJECTIVES	NOTES
TABLE OF CONTENTS:	Sections of guide, paginated		• Layout in Word with headers/footers, margins for hole punching • Deliver in PDF
Preface	Course Description: • Overview • Scope • Target Audience • Prerequisite knowledge • Length • Required Materials/Facilities • Assessments	01, 02	
	Training Package Overview: • Describe how components of the course work together. • Provide brief description of each component.	01, 02	
	Overview of Instructional Format: Describe the place of objectives and supporting activities or any particulars of the guide (icons used, etc.).	01, 02	
	Preparing for Course Delivery: Overall preparation steps for logistics of delivering the course, including what to review before class, setup walk-through, material prep, checklist		
	Teaching Tips: General tips for facilitating delivery of the course	02	
Training Schedule	Breakdown of schedule for 6-8 hour course (6 hour for Basic, 8 hour for Competent Person) with basic topic/activity overviews • Course Introduction • Class Introduction • E-learning	02	This info is Instructor Content Only

	○ Module 1 ○ Module 2 ○ Module 3 (CP only) • Reference App • VR Activity		
Training Components:	Identify each component	01-05	Complete for e-learning, VR activity, Reference app
About this Course	List objectives	02	
Class Introductions	Describe materials needed	02	
E-learning	Highlight setup needs (technical or facility type)	02	
Reference App	Introduce activity or section	01, 02	
VR Activity	Walk Learner through setup or login steps, best practices	02, 03, 04	
	Show / Do format: Show *this* PPT slide, say or do *this*	02	Table-based, side-by-side format with thumbnail from the PPT next to bulleted text describing what Trainer should do / say. Brief paraphrased descriptions of how to guide the activity.
			Include best practices for facilitating aspects of the training (e-learning vs. VR vs. app use)
	Facilitate Assessments: How to administer/facilitate online assessment for each component	05	Simple LMS-based assessments to evaluate the e-learning, VR activity, Reference app
Resources	List locations of all resources for the training (URLs) • OSHA Standards: Trenching and Excavation [https://www.osha.gov/SLTC/trenchingexcavation/standards.html] • OSHA Trenching and Excavation Safety Regulations (https://www.osha.gov/Publications/osha2226.pdf)	01, 02, 04	NOTE: This content may be useful for the Reference App

	- OSHA Fact Sheet: Trenching and Excavation Safety (https://www.osha.gov/OshDoc/data_Hurricane_Facts/trench_excavation_fs.pdf) - OSHA QuickCard™: Working Safely in Trenches English [https://www.osha.gov/Publications/trench/trench_safety_tips_card.pdf] | Spanish [https://www.osha.gov/Publications/trench/trench_safety_tips_card.pdf#page=2] - OSHA Poster: Do Not Enter an Unprotected Trench! English [https://www.osha.gov/Publications/trench/3215_trench_poster_eng.pdf] | Spanish [https://www.osha.gov/Publications/trench/3255_trench_poster_sp.pdf] - UA Standard for Safety (TBD) - UA Standard for Excellence (TBD) - ITF Virtual Reality Library Login Procedure (TBD) - Oculus Rift Technical Specifications (https://support.oculus.com/170128916778795/) - Others?		

CONTENT	OBJECTIVE	Objective Addressed
• Introduce OSHA regulations at the Basic level. • Relate to Basic students what their responsibilities are for recognizing safe/unsafe situations. • Relate to Basic students what they can expect, by law, from employers and competent persons regarding trench and excavation safety.	Relate content at an introductory level to general workers on a jobsite	01.0101
• Through statistics and stories, emphasize why it is critical for workers to be aware of safe practices and their rights.	Defend the critical need for safe practices when performing trenching and excavating work.	01.0102
• Explain where students may access OSHA information. • Point out more digestible version of the PSHA regs (Booklets written in plain talk, Fast Fact sheets, posters, Quick Cards)	Describe how to interpret the OSHA 1926 Subpart P standards to prevent trenching and excavation hazards on the jobsite.	01.0103
• Illustrate how to access the e-learning course through the UA LMS. • Troubleshoot with students any login issues with the LMS.	Restate how to access the course resources from the UA LMS.	01.0201
• Trainer guide describes "what to show" and "what to say." • Trainer can access and use the materials from the LMS.	Demonstrate how to use the Trainer Guide and Presentation to move the class through various components of the training experience.	01.0202
• Lead group discussions and activities • Ask open-ended questions • Conduct an icebreaker activity	Apply techniques to support consistent delivery of a multiple component training experience.	01.0203

Commented [MMc4]: Basic content to cover to meet the objectives – may be reorganized.

	Facilitate group discussions among participants at a level appropriate to the group in training.	01.0204
	Organize presentation of information and activities to match the level of understanding for the class participants.	01.0205
	Recall how to quickly access topics in the e-learning courses for reinforcement of concepts.	01.0206
	Demonstrate how to setup and test the VR equipment and supporting computer systems.	01.0301
	Infer how troubleshoot the VR equipment and supporting computer systems.	01.0302
	Support learners to using the VR equipment to navigate the hands-on experience.	01.0303
	Direct learners as they participate in the hands-on experience.	01.0304
	Support and direct the individual through the VR experience in Instructor View as a participant navigates the virtual jobsite.	01.0305
	Interpret the VR experience in Instructor View for the class as an individual participant navigates the virtual jobsite.	01.0306
	Show learners how to download and setup the Reference app.	01.0401

	Relate how to identify credentials and log in to the Reference app.	01.0402
	Summarize ways that learners may use the Reference app as a refresher for safety course content.	01.0403
	Translate, through guided group discussion, ways that learners may use the Reference app as a job performance support tool to ensure the safety of themselves and others.	01.0404
	Analyze e-learning course assessments to determine the level of learners' content mastery.	01.0501
	Interpret student understanding of ways to use the Reference app.	01.0502
	Identify difficulties with student use of the Reference app.	01.0503
	Identify difficulties with student use of the VR activity.	01.0504
	Infer areas for which learners need remediation from assessment data.	01.0505
	Analyze VR activity assessments to determine learners' comfort with using and learning from the hands-on experience.	01.0506
	Modify subsequent course activities and reinforcements to maximize accomplishing student course objectives and ensure	01.0507

	consistent delivery of safety message.	

TNT COMPETENT PERSON TRACK OBJECTIVES

TOPIC	CONTENT	Objective
	Relate content at an intermediate level to workers designated as the Competent Person on a jobsite.	02.0101
	Defend the critical need for safe practices when performing trenching and excavating work.	02.0102
	Describe how to interpret the OSHA 1926 Subpart P standards to prevent trenching and excavation hazards on the jobsite.	02.0103
	Restate how to access the course resources from the UA LMS.	02.0201
	Demonstrate how to use the Trainer Guide and Presentation to move the class through various components of the training experience.	02.0202
	Apply techniques to support consistent delivery of a multiple component training experience.	02.0203
	Facilitate group discussions among participants at a level appropriate to the group in training.	02.0204
	Organize presentation of information and activities to match the level of understanding for the class participants.	02.0205
	Recall how to quickly access topics in the e-learning courses for reinforcement of concepts.	02.0206
	Demonstrate how to setup and test the VR equipment and supporting computer systems.	02.0301
	Infer how troubleshoot the VR equipment and supporting computer systems.	02.0302
	Support learners to using the VR equipment to navigate the hands-on experience.	02.0303
	Direct learners as they participate in the hands-on experience.	02.0304
	Support and direct the individual through the VR experience in Instructor View as a participant navigates the virtual jobsite.	02.0305
	Interpret the VR experience in Instructor View for the class as an individual participant navigates the virtual jobsite.	02.0306
	Show learners how to download and setup the Reference app.	02.0401
	Relate how to identify credentials and log in to the Reference app.	02.0402

	Summarize ways that learners may use the Reference app as a refresher for safety course content.	02.0403
	Translate, through guided group discussion, ways that learners may use the Reference app as a job performance support tool to ensure the safety of themselves and others.	02.0404
	Analyze e-learning course assessments to determine the level of learners' content mastery.	02.0501
	Interpret student understanding of ways to use the Reference app.	02.0502
	Identify difficulties with student use of the Reference app.	02.0503
	Identify difficulties with student use of the VR activity.	02.0504
	Infer areas for which learners need remediation from assessment data.	02.0505
	Analyze VR activity assessments to determine learners' comfort with using and learning from the hands-on experience.	02.0506
	Modify subsequent course activities and reinforcements to maximize accomplishing student course objectives and ensure consistent delivery of safety message.	02.0507

ASSESSMENTS

No assessments of this training are still to be determined. One options is a survey-type evaluation of the trainer experience to gauge applicability and use of trainer materials.

PRIORITIES

1. The first critical priority is to inform content development by creating targeted objectives that enable learners to demonstrate mastery of content.
2. A second critical piece to this experience will be to design interactions and simulations (including group activities and debriefs) and presentation of information relevant to the objectives.
3. The third critical element is to assess learners on the knowledge to ensure that they have met enabling objectives.

SUMMARY

This content map outlines content for each objective. Careful consideration should be given to the objectives, as well as to how learners are to be assessed to show content mastery for each objective. It is recommended that this document be revisited and any "TBD" areas be further elaborated on prior to any development.
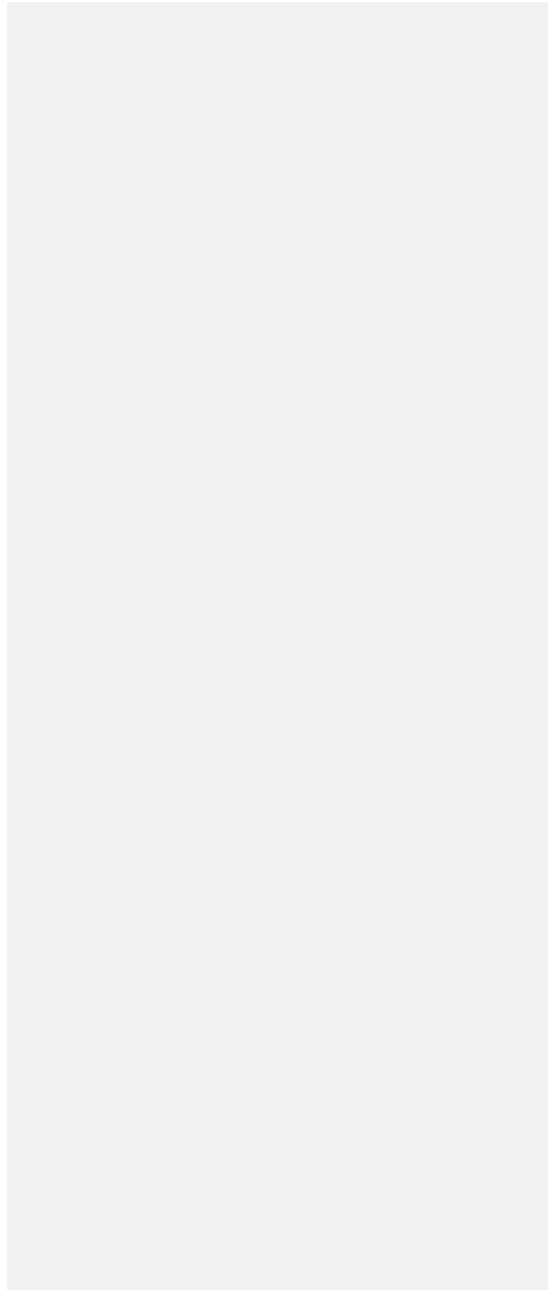
X
_____
Name
Title

X
_____
Name
Title

X
_____
Name
Title

X
_____
Name
Title

DOCUMENT MODIFICATIONS

The following table provides an overview of modifications to the document.

Description of Modification	Name	Date Implemented
Creation of Content Map	Mollie McCormick	????, 2018