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1. Purpose

University of Alaska Anchorage (UAA) personnel, student workers, faculty, staff, and outside contractors who perform trenching and excavation in the course of their work functions, potentially create hazards which could result in serious injury. The hazards associated with trenching and excavation can be substantially reduced by taking proper precautions. This program for Trenching and Excavation Safety is intended to ensure workers are knowledgeable in the hazards when trenching and excavating and the steps to be taken to protect themselves and others.

2. Objective

UAA, in its continuing effort to provide employees with safe, healthful working conditions, and to comply with the Occupational Safety and Health Act is implementing the following program for trenching and excavating to protect people working at the university, by helping employees, student workers, faculty, staff, and outside contractors better hazards introduced while performing trenching and excavation operations.

3. Scope

This program applies to UAA employees, student employees, faculty, staff, and outside contractors working on UAA trenching and excavation operations.

4. Definitions

Aluminum Hydraulic Shoring - a pre-engineered shoring system comprised of aluminum hydraulic cylinders (cross braces) used in conjunction with vertical rails (uprights) or horizontal rails (wales). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins

Benching - a method of protecting personnel from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels

Cave-in - the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person

Competent Person - one who is capable to identify existing and predictable hazards in the surroundings or working conditions that may affect personnel and the general public, and who has authority to take prompt corrective measures to eliminate them. The Competent Person(s):

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Outside Contractors

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8. Administrative Controls

Administrative controls are safe work practices and procedures designed to reduce the risks associated with working with trenching and excavation. Examples of administrative controls include the following:

- Train personnel who are required to work with trenching and excavating

- Routine inspections of equipment used for trenching and excavating to ensure they are in safe working condition

- Immediate removal of any equipment that are found to be damaged or defective

- Provide personnel with the authority to stop work when additional hazards are identified

9. Procedures

Underground Utility Locates

Prior to all work that will penetrate the ground greater than 6 in. the location of sewers, telephone, fuel, electric, water lines, or any other underground installations that may be encountered during excavation work must be determined and clearly marked on the surface

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* Contact EHS/RM for assistance in determining possible contaminants, TLV limits, and proper testing methods

Conditions that might warrant atmospheric testing would be if the excavation was made in a landfill area or if the excavation is adjacent to sources of contamination (e.g. sewage or fuel leaks).

Testing should be conducted before personnel enter the trench and should be done regularly to ensure that the trench remains safe. The frequency of testing should be increased if equipment is operating in or around the trench that could produce airborne contaminants.

Personnel required to wear respiratory protection must be trained, fit-tested, and enrolled in the UAA Respiratory Protection Program.

Trenches and excavations with hazardous concentrations of airborne contaminants or oxygen deficient atmospheres qualify as confined spaces. When this occurs, compliance with the UAA Confined Space Program is required.

Protective Systems Including Benching, Sloping, Shoring, and Shielding Requirements

All excavations or trenches 4 feet or greater in depth shall be appropriately benched, shored, or sloped. Excavations or trenches 20 feet deep or greater must have a protective system designed by a registered professional engineer. Sloping or benching are often the preferred methods of protection; however, shoring or shielding is used when the location or depth makes sloping to the

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Maximum allowable slopes for excavations less than 20 feet are shown below.

Soil Type	Height/Depth Ratio	Slope Angle
Stable Rock	Vertical	90°
Type A	.75:1	53°
Type B	1:1	45°

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