

POLICY

E & B Oilfield Services Inc. has adopted this program for the safety of employees when working in or around trenches and excavations

REFERENCES

- 29 Code of Federal Regulations:
 - 1910.23—Ladders
 - 1910.134—Respiratory Protection
 - 1910.146—Permit-required Confined Spaces
 - 1910.178—Powered Industrial Truck
 - 1910 Subpart D—Walking-Working Surfaces
 - 1926 Subpart AA—Confined Spaces in Construction
 - 1926 Subpart O—Motor Vehicles, Mechanized Equipment and Marine Operations
 - 1926 Subpart P—Excavations
 - 1926 Subpart V—Electric Power Transmission and Distribution
 - 1926.28—Personal Protective Equipment
 - 1926.500—Fall Protection
 - 1926.651—Specific Excavation Requirements
 - 1926.652—Requirements for Protective Systems
 - 1926.1053—Ladders
 - 1926.650—Scope, applications, definitions, requirements for excavations
 - 1926 Subpart P App B—Sloping and Benching

DEFINITION

Excavation services refers to any operation in which earth, rock or other material in the ground is moved, removed or otherwise displaced by means of tools, equipment or explosives through any of the following methods: grading, trenching, digging, ditching, drilling, auguring, tunneling, scraping, cable or pipe plowing, driving or any other way.

RESPONSIBILITIES

E & B Oilfield Services Inc. will provide the resources necessary for the implementation of this program. E & B Oilfield Services Inc. will implement and enforce the engineering controls, procedures and work practices to ensure that no employee is exposed to hazards from excavations being performed or existing at the job site.

Kirk Duncan is designated as the Competent Person for E & B Oilfield Services Inc. in authority over all excavation operations. Kirk Duncan will ensure all safety measures and systems are in place and correctly installed, that all safety procedures are adhered to, and that the regular inspections of excavations, trenches and the general work site are conducted.

Competent Person Responsibilities

- Will maintain a copy of 29 CFR 1926 Subpart P and have a comprehensive knowledge of OSHA Excavations standard. In addition, competent persons will have a general knowledge of all applicable construction standards
- Conduct pre-job site review to develop a job plan that ensures a safe, efficient job process. A competent person will evaluate difficult sloping and shoring problems (e.g., manholes) before commencing the work
- Perform daily inspections of equipment and trench conditions at the start of each shift or as needed by changing conditions
- The competent person has the duty and responsibility to remove all employees from hazardous conditions and effect all changes necessary to ensure safety
- Categorize soil conditions and conduct visual and manual tests to determine the stability of soil and surrounding trench conditions.
NOTE: If visual and manual tests are not performed, soils will be classified as type “C”
- Maintain on-site records of protection systems
- Determine the appropriate protection system to be used and oversee installation
- Verify that a competent person designs ramps and walkways for employee use in accordance with OSHA standards
- Kirk Duncan will conduct daily inspections, examining for the possibility of cave-ins, failures, protective systems, etc. If problems are found, provisions will be made for immediate personnel removal
- The competent person will verify the proper design of structural equipment ramps and walkways or will contact a registered professional engineer (RPE) to design structural equipment ramps and walkways
- Hold tailgate safety meetings with all crew members before trenching and shoring operations. Subsequent meetings will be held as conditions warrant
- A competent person will be on-site at all times during excavation/trenching operations
- Assure that appropriate emergency rescue equipment is available to meet existing or potential conditions
- Monitor use of water removal equipment
- Test for oxygen presence and air quality in excavations, as necessary. Competent persons will be qualified in identifying confined/hazardous spaces due to the presence of flammable/combustible gases, toxics, oxygen deficiency and oxygen-enriched environments
- The competent person will consult with an RPE for trenches over 20 inches, specially designed shoring, bracing, underpinning or when excavation endangers nearby structures

NOTE: Competent persons will ensure that all trenches are properly classified, sloped or shored in accordance with the appendices of 29 CFR 1926 Subpart P or in accordance with manufactures' tabulated data. Furthermore, competent persons will consult with an RPE, obtaining written guidance whenever the work exceeds 20 ft. in depth or the work will require control measures not specified in the standard.

Supervisors

- Establishing and maintaining safe and healthful working conditions
- Being familiar with excavation safety and health hazards to which their employees are exposed, how to recognize them, the potential effects these hazards have on the employees and rules, procedures and work practices for controlling exposure to those hazards
- Setting good examples, instructing their employees and ensuring they fully understand and follow safe procedures

Employees

- No employee is expected to undertake a job until they have received instructions on how to do it properly and safely and are authorized to perform the job
- No employees will undertake a job that appears to be unsafe
- Mechanical safeguards will always be in place and kept in place
- Employees are to report all unsafe conditions encountered during work to a superior or designated individual
- Personal protective equipment (PPE) will be used when and where required and properly maintained

TRAINING

Employees who are involved in the excavation operation and exposed to excavation operation hazards will be trained in the excavator notification and excavation practices. When E & B Oilfield Services Inc. has reason to believe that an employee lacks the skill or understanding needed for safe work involving excavation practices, Kirk Duncan will retrain each employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not been previously trained
- Where inadequacies in an affected employee's work involving excavations indicate that the employee has not retained the requisite proficiency

E & B Oilfield Services Inc. will ensure training is conducted when employees are hired and provide at least an annual refresher training for employees involved in or exposed to excavation operation hazards. At a minimum, the training will include applicable local rules that relate to digging, including tolerance zones, ground markings or any other relevant elements of safe digging to prevent the striking of a pipe

E & B Oilfield Services Inc. will verify and document that each employee has received the proper tools and training to carry out their excavation responsibilities. This documentation will be verification that the employee has demonstrated proficiency in the work practices involved in their role and will be maintained for the duration of the employee's employment. The documentation will contain the content of the training, the employee's name and dates that the training took place.

DAMAGE PREVENTION

Incident Investigation

Before starting an investigation, ensure that the incident site is safe, then secure the site using cones, tape or guards. Securing the site will also help preserve any material evidence that may be useful in the investigation.

All incidents will be reported and investigated. The investigation will be thorough and seek to identify the events that contributed to causing the incident, the parties involved, the extent of the damage that occurred and any other relevant information. Reporting will include all necessary levels of management.

For incidents that result in any damage to any buried infrastructure, 911 and the utility company will be called immediately, and the proper individuals notified.

E & B Oilfield Services Inc. will establish a corrective action program based on the findings of the investigation in order to analyze incidents for common root causes.

Reporting

Any fatalities that were caused due to a work-related incident will be reported to OSHA within eight (8) hours of the occurrence. If one or more employees becomes hospitalized as a result of a work-related incident, E & B Oilfield Services Inc. will report the in-patient hospitalization to OSHA within twenty-four (24) hours. OSHA contact information: <https://www.osha.gov/contactus/bystate>

E & B Oilfield Services Inc. will report severe injuries and/or fatalities using one of the following methods:

- By telephone or in person to the OSHA area office that is nearest to the site of the incident
- By telephone to the OSHA central telephone number, 1-800-321-OSHA (1-800-321-6742)
- By using the [reporting application](#) located on OSHA website at www.osha.gov/report

Corrective Action Plan

A corrective action plan will be implemented for any incident that occurs – its purpose will be to identify solutions that will make future excavations safer after an incident occurs. Steps to be taken include but are not limited to:

- Performing a root cause analysis to find the cause of the incident
- Address any corrective actions that are determined from the root cause analysis

Corrective action programs will analyze incidents for root causes and will at least:

- Retain incident investigation findings for future hazard analysis or two (2) years, whichever is greater
- Determine and document responses to findings to ensure corrective action plans are completed
- Implement a system to distribute incident investigation findings to appropriate personnel and/or similar facilities throughout the organization

Stop Work Authority

All employees of E & B Oilfield Services Inc. have the authority to initiate a Stop Work Intervention anytime an unsafe action occurs. Stop Work Authority is exercised freely.

E & B Oilfield Services Inc. ensures that employees will not be reprimanded for issuing a Stop Work Intervention.

Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated by E & B Oilfield Services Inc..

To follow up on the cause of the stop work order, E & B Oilfield Services Inc. will utilize any existing procedures for an incident investigation and follow-up.

SAFE PRACTICES

E & B Oilfield Services Inc. will implement and enforce the following engineering controls, procedures and work practices to ensure that no employee is exposed to hazards from excavations being performed or existing at the jobsite:

- Kirk Duncan will ensure that all employees are trained in and familiar with required work practices and excavation procedures to safeguard personnel involved in trenching operations or who work in the vicinity of excavation operations
- Employees conducting trenching and excavation operations will be protected from cave-in hazards through benching, sloping, shoring, scaling loose material or trench shields/boxes
- Utility operators will be contacted at least 48 hours before work is to begin and underground installations located before the commencement of any excavation work. When excavations are approaching any located utility line, equipment operations will be stopped no closer than 3 ft. from the suspected location and the utility will be positively located by careful hand digging, before the resumption of machine operations
- Any utilities which are uncovered as a result of excavation operations will be protected and suitably supported during work progress, prominently marked for location and hazard and will be carefully backfilled as soon as possible
- Trench excavations will have access and egress ladders, ramps or stairs provided for employees on any excavation that is 4 ft. or more in depth. Ladders will be located within 25 ft. of the employees and will extend to a height of at least 3 ft. above the excavation. Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 ft.
- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be installed where walkways are elevated six (6) ft. or more above lower levels

- Employees are not permitted underneath loads handled by lifting or digging equipment. Personnel will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any equipment, spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with adequate overhead protection for the operator during loading and unloading operations
- Tests will be conducted for hazardous atmospheres and air contaminants (oxygen, flammable gases, etc.) and provide ventilation where necessary
- In excavations where a hazardous atmosphere, to include an oxygen deficient atmosphere, exists or will reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation will be tested before employees enter excavations greater than 4 ft. in depth
- Proper respiratory protection will be provided where necessary for personnel exposed to hazardous atmospheres above Permissible Exposure Limits (PEL). Where ventilation is used to control exposure to hazardous atmospheres, continued testing will be used to monitor levels of hazardous atmospheres
- Employees are not permitted to work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions such as special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water or use of a safety harness and lifeline have been taken to protect employees against the hazards posed by water accumulation
- An adequate system of shoring, benching or sloping in accordance with specifications in §1926.652 and appendices A and C of OSHA standards for excavation operations will be provided for any excavation over five (5) ft. in depth or any excavation which has been inspected and is believed unsafe to enter without a protective system. Inspections and determination of the type of protective system used will be done by Kirk Duncan and based on soil type, density, moisture content and other factors which might affect the performance of protective systems
- Protection of employees with regard to soil classifications includes:
 - The determination of soil types and special considerations will be done in specific measures
 - Shoring, sloping, shield and excavation will be installed as needed
 - Shoring equipment will not be subjected to excessive forces and be installed to protect employees from lateral loads
 - Timber shoring or aluminum hydraulic shoring will be determined according to appendices A and C of the OSHA standard
 - The devices used will be properly maintained and in good repair. If inspection reveals damage or defect, shoring equipment will be tagged and immediately removed from service
 - Employees will be protected from hazards of falling, rolling or sliding materials or equipment
 - Personnel are prohibited from being within the shield when installing or removing the shield.
 - All shields used will be designed to resist calculated trench forces

Inspections

- A competent person designated by Kirk Duncan will conduct an inspection of worksites daily, before any employee entering an excavation to ensure that safety measures are in place and proper procedures for safety are being observed. Inspections of the excavation site will be made daily before commencement of work, regularly during work operations, in the event an occurrence takes place (such as inclement weather) which might pose a hazard to commencing and at the cessation of work to ensure barricades and appropriate safety measures are in place before leaving the site
- In the event an inspection reveals the possibility of a cave-in, failure of a protective system, hazardous atmosphere or any threat to the safety of personnel, the excavation will immediately be evacuated until corrections are made to the satisfaction of Kirk Duncan

Locating Underground Utility Installations

- Before digging, call 811 to determine the location of any underground utilities
- E & B Oilfield Services Inc. will not excavate in a street, highway, public place, a private easement of a public utility or near the location of a public utility facility owned, maintained or installed on a customer's premises, without having first ascertained the location of all underground facilities of a public or private utility in the proposed area of excavation
- Upon receiving the information from the public utility, E & B Oilfield Services Inc. personnel will exercise reasonable care when working in close proximity to the underground utilities. If the utilities are or are likely to be exposed, only hand digging will be employed in such circumstances and any support reasonably necessary for protection of the utilities will be provided on the construction site.
- When any contact with or damage to any pipe, cable or any other underground utility occurs, E & B Oilfield Services Inc. will immediately notify the utility company. If an energized electrical cable is severed, an energized conductor is exposed or dangerous fluids or gases are escaping from a broken line, Kirk Duncan will evacuate personnel from the immediate area until the utility company representative arrives
- While an excavation is open, underground utilities will be protected, supported or removed as necessary to safeguard employees

Surface Encumbrances

- All surface encumbrances such as trees, boulders, rock fragments or other obstructions whose movement will cause injury to an employee will be removed or supported
- Excavations that personnel are required to enter will have spoil piles and other material stored and retained not less than two (2) ft. from the excavation edge
- When a shoring system is used, the system will be designed and used to resist the added pressure when heavy equipment, material handling equipment or material is located near an excavation
- When mobile equipment is utilized or permitted adjacent to an excavation where the operator's vision is restricted, stop logs, barricades or a signal person will be used

Access and Egress

- Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 ft.
- An excavation four (4) ft. or more in depth and occupied by an employee will be provided with either a ladder extending not less than three (3) ft. above the top as a means of access or with a ramp meeting the following requirements:
 - Structural ramps that are used solely by employees as a means of access or egress from excavations will be designed by a competent person. Structural ramps used for access or egress of equipment will be designed by a competent person qualified in structural design and will be constructed in accordance with the design
 - Ramps and runways constructed of two (2) or more structural members will have the members connected together to prevent displacement. Structural members used for ramps and runways will be of uniform thickness
 - Cleats or other appropriate means used to connect runway structural members will be attached to the bottom of the runway or will be attached in a manner to prevent tripping
 - Structural ramps used in lieu of steps will be provided with cleats or other surface treatments on the top surface to prevent slipping
- An earth ramp may be used in place of a ladder if:
 - The ramp material will be stable
 - The sides of the excavation above the ramp will be maintained to the maximum allowable slope or sheeted or shored along the means of egress
 - The degree of angle of the ramp will not be more than 45 degrees
 - Vertical height between the floor of the trench and the toe of the ramp will not exceed 30 inches

Exposure to Vehicle Traffic

- Employees exposed to public vehicular traffic will be provided with and be required to wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material
- A sidewalk will not be undermined unless it is shored to support a live load of at least 125 pounds per square foot
- Employees who are routed from a sidewalk or walkway into a roadway to detour excavations will be protected on all sides by regulation guardrails or barricades
- If an employee or equipment is required or permitted to cross a trench or ditch, a walkway, ramp or bridge will be provided and will have a designed capacity of not less than 3 times the imposed load. Regulation guardrails will be installed
- If equipment is routed across or onto a roadway, protection will be provided using regulation signals, signs or barricades
- An open cut into a roadway will be provided with a regulation barricade on all sides. Warning lights will be provided during hours of darkness

Walkways

- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be provided where walkways are six (6) ft. or more above lower levels
- A walkway or sidewalk will be kept clear of excavated material and other obstructions
- The walkways and sidewalks will be lighted if used during hours of darkness
- A walkway or sidewalk that is adjacent to an excavation will be separated from the excavation and protected by an appropriate guardrail

Exposure to Falling Loads

Personnel will not be permitted under loads handled by lifting or digging equipment. Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with regulation protection for the operator during loading and unloading operations.

Mobile Equipment Warning Systems

When mobile equipment is operated adjacent to an excavation or when such equipment is required to approach the edge of an excavation and the operator does not have a clear and direct view of the edge of the excavation, a warning system will be utilized such as barricades, hand or mechanical signals or stop logs. If possible, the grade will be away from the excavation.

Hazardous Atmospheres

To prevent exposure to hazardous atmospheres and to assure acceptable breathing conditions, all of the following requirements will apply:

- Where an oxygen deficiency or a hazardous atmosphere exists, the atmosphere will be tested before employees enter excavations that are more than 4 ft. deep
- Precautions will be taken to prevent employee exposure to atmospheres that contain less than 19.5% oxygen and any other hazardous atmosphere. These precautions include providing regulation respiratory protection or ventilation
- Precautions will be taken, such as providing ventilation, to prevent employee exposure to an atmosphere that contains a concentration of a flammable gas in excess of 20% of the lower flammable limit of the gas
- When using controls intending to reduce levels of atmospheric contaminants to acceptable PEL, testing will be conducted as often as necessary to ensure that breathing air remains safe
- Emergency rescue equipment will be readily available and attended where atmospheric conditions exist or will develop
- Employees entering bell-bottom pier holes or other similar deep and confined footing excavations, will wear a harness with a lifeline securely attached to it. The lifeline will be separate from any line used to handle materials and will be individually attended at all times while employee wearing it is in the excavation

Protection from Water Accumulation Hazards

- Employees will not work in excavations where water has or is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by such water accumulation including support and shield systems, water removal and safety harnesses and lifeline
- If water is controlled or prevented from accumulating by the use of water pumps, the pumping equipment and operations will be monitored by a competent person to ensure proper operation
- If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation
- Excavations subject to runoff from heavy rains will require an inspection by a competent person
- An ongoing inspection of an excavation or trench will be made by a qualified person. After every rainstorm or other hazard-producing occurrence, an inspection will be made by a competent person for evidence of possible slides or cave-ins. Where these conditions are found, all work will cease until additional precautions, such as additional shoring or reducing the slope, have been accomplished

Stability of Adjacent Structures

- Excavation below the level of the base or footing of any foundation or retaining wall that will be reasonably expected to pose a hazard to employees will not be permitted except when:
 - A support system, such as shoring, bracing or underpinning, is provided to ensure the safety of employees and the stability of the structure
 - The excavation is in stable rock
 - An RPE has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity or that such excavation work will not pose a hazard to employees
- Sidewalks, pavements and appurtenant structure will not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures
- The shoring, bracing and underpinning will be inspected daily or more often, as conditions warrant, by a competent person

Employee Protection from Loose Rock or Soils

- Adequate protection will be provided to protect employees from loose rock or soil that will pose a hazard by falling or rolling from an excavation face. Such protection will consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material or other means that provide equivalent protection
- Employees will be protected from excavated or other materials or equipment that will pose a hazard by falling or rolling into excavations. Protection will be provided by placing and keeping such materials or equipment at least two (2) ft. from the edge of excavations or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations or by a combination of both if necessary

- If different textured soils are encountered in the side of an excavation, each soil type of the excavation will be cut to the proper maximum allowable slope, except that the slope will not steepen between the toe of the slope and the ground level where soft clay or running soil is encountered in the lower cut
- If the excavation is a trench, a trench shoring system will be used or the sides will be properly benched or sloped to protect against a cave-in
- An excavation that is cut into a rock formation will be scaled to remove loose material
- When installed forms, walls or similar structures create a trench between the form, wall or structure and the side of the excavation, it will be treated as a trench

General Classification of Soil and Rock Deposits

- Soil classifications will be determined by testing and protective systems will be designed according to those classifications
- Each soil and rock deposit will be classified by a competent person as Stable Rock, Type A, Type B or Type C in accordance with OSHA definitions
- The classification of the deposits will be made based on the results of at least one visual and at least one manual analysis. Such analyses will be conducted by a competent person using approved methods of soil classification and testing
- The visual and manual analyses will be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors and conditions affecting the classification of the deposits
- Layered systems will be classified according to their weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer
- If after classifying a deposit, the properties, factors or conditions affecting its classification change in any way, the changes will be evaluated by a competent person. The deposit will be reclassified as necessary to reflect the changed circumstances

Protection of Employees in Excavations

- Employees in an excavation will be protected from cave-ins by an adequate protective system designed in accordance with OSHA requirements, except when: excavations are made entirely in stable rock; excavations are less than five (5) ft. deep and examination of the ground by a competent person provides no indication of a potential cave-in
- Protective systems will have the capacity to resist without failure all loads that are intended or will reasonably be expected to be applied or transmitted to the system
- The slopes and configurations of sloping and benching systems will be selected and constructed by E & B Oilfield Services Inc. and will be in accordance with OSHA requirements or the following alternative options

Option 1 - Allowable configurations and slopes.

- Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless E & B Oilfield Services Inc. uses one of the other options listed below
- Specified slopes will be excavated to form configurations that are in accordance with the slopes shown for Type C soil.

Option 2 - Maximum allowable slopes and allowable configurations for sloping and benching systems, will be determined in accordance with the conditions and requirements set forth in §1926 Subpart P – Appendices A and B.

Option 3 - Designs using other tabulated data.

- Designs of sloping or benching systems will be selected from and in accordance with tabulated data, such as tables and charts
- The tabulated data will be in written form and will include all of the following:
 - Identification of the parameters that affect the selection of a sloping or benching system drawn from such data
 - Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe
 - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data
 - At least one copy of the tabulated data which identifies the RPE who approved the data, will be maintained at the jobsite during construction of the protective system. After that time, the data may be stored off the jobsite, but a copy of the data will be made available to OSHA upon request

Option 4 - Design by an RPE

- Sloping and benching systems not utilizing previous Options 1, 2 or 3 will be approved by a RPE
- Designs will be in written form and will include at least the following:
 - The magnitude of the slopes that were determined to be safe for the particular project
 - The configurations that were determined to be safe for the particular project
 - The identity of the RPE approving the design
- At least one copy of the design will be maintained at the jobsite while the slope is being constructed. After that time, the design need not be at the jobsite, but a copy will be made available to OSHA upon request

Design of Support Systems

Designs of support systems, shield systems and other protective systems will be selected and constructed by E & B Oilfield Services Inc. and will be in accordance with OSHA requirements. or the following alternative options:

Option 1 - Designs for timber shoring in trenches will be determined in accordance with the conditions and requirements set forth in §1926 Subpart P – Appendices A and C. Designs for aluminum hydraulic shoring will be in accordance with Option 2 below, but if manufacturer's tabulated data cannot be utilized, designs will be in accordance with Appendix D.

Option 2 - Designs Using Manufacturer's Tabulated Data.

Design of support systems, shield systems or other protective systems that are drawn from manufacturer's tabulated data will be in accordance with all specifications, recommendations and limitations issued or made by the manufacturer.

Deviation from the specifications, recommendations and limitations issued or made by the manufacturer will only be allowed after the manufacturer issues specific written approval.

Manufacturer's specifications, recommendations and limitations and manufacturer's approval to deviate from the specifications, recommendations and limitations will be in written form at the jobsite during construction of the protective system. After that time, this data may be stored off the jobsite, but a copy will be made available to the Secretary upon request.

Option 3 - Designs using other tabulated data.

Designs of support systems, shield systems or other protective systems will be selected from and be in accordance with tabulated data, such as tables and charts.

The tabulated data will be in written form and include all of the following:

- Identification of the parameters that affect the selection of a protective system drawn from such data
- Identification of the limits of use of the data
- Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data
- At least one copy of the tabulated data, which identifies the RPE who approved the data, will be maintained at the jobsite during construction of the protective system. After that time, the data may be stored off the jobsite, but a copy of the data will be made available to OSHA upon request

Option 4 - Design by an RPE

Support systems, shield systems and other protective systems not utilizing previous Options 1, 2 or 3 will be approved by a RPE.

Designs will be in written form and will include the following:

- A plan indicating the sizes, types and configurations of the materials to be used in the protective system
- The identity of the RPE approving the design

At least one copy of the design will be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design will be made available to OSHA upon request.

Protective Systems Materials and Equipment.

- Materials and equipment used for protective systems will be free from damage or defects that might impair their proper function
- Manufactured materials and equipment used for protective systems will be used and maintained in a manner that is consistent with the recommendations of the manufacturer and in a manner that will prevent employee exposure to hazards
- When equipment used for protective systems is damaged, a competent person will examine the equipment and evaluate its suitability for continued use. If the competent person cannot assure the equipment is able to support the intended loads or is otherwise suitable for safe use, then equipment will be removed from service be evaluated and approved by a RPE before being returned to service
- General installation and removal of support systems:
 - Members of support systems will be securely connected together to prevent sliding, falling, kickouts or other predictable failure
 - Support systems will be installed and removed in a manner that protects employees from cave-ins, structural collapses or from being struck by members of the support system
 - Individual members of support systems will not be subjected to loads exceeding those which those members were designed to withstand
- Excavation of material to a level no greater than two (2) ft. below the bottom of the members of a support system will be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system
- Installation of a support system will be closely coordinated with the excavation of trenches
- Before temporary removal of individual members begins, additional precautions will be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system
- Loads will be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation
- Backfilling will progress together with the removal of support systems from excavations
- Employees will not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling or sliding material or equipment

- General shield systems requirements:
 - Shield systems will not be subjected to loads exceeding those which the system was designed to withstand
 - Shields will be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads
 - Employees will be protected from the hazard of cave-ins when entering or exiting the areas protected by shields
 - Employees will not be allowed in shields when shields are being installed, removed or moved vertically
 - Excavations of earth material to a level not greater than two (2) ft. below the bottom of a shield will be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield
- Regulation guardrails or barricades will be provided at all remotely located excavations. All wells, pits and shafts, temporary or otherwise, will be barricaded or covered. Temporary wells, pits and shafts will be backfilled when exploration and similar operations are completed.

REQUIREMENTS

Preventing and Reporting Underground Damage

All of the below organizations have guidelines on underground damage prevention and who to contact if damage occurs. Registration and account management are necessary for this information.

Reporting of any underground damage will be reported to the Utility as soon as possible. Also, 911 may need to be called. Other organizations that also have reporting requirements are CGA DIRT, AGA, API and INGAA, but all required parties will be notified as soon as possible.

8. The Common Ground Alliance (CGA) is a non-profit organization dedicated to promoting shared responsibilities in damage prevention. Representing individuals from 15 stakeholder groups and over 150 member organizations, the CGA works cooperatively with all interested stakeholders to identify and implement effective measures to protect the underground infrastructure during excavation activity.

The Common Ground Alliance (CGA) Damage Information Reporting Tool (DIRT) uses a one-call system to notify all stakeholders of any damage. You will be registered with DIRT to participate in this service. Get more information and [register here](#)

Depending on where the work is performed, CGA has Regional Partners throughout the USA: <https://commongroundalliance.com/map>

9. The American Gas Association (AGA) offers Emergency Planning and other services such as an Alert System, but you will have an account that you may [set up here](#)

10. The American Petroleum Institute (API) has damage reporting guidelines as well as process documentation and encourages all to call before you dig. See <https://call911.com> for information in your area and [API Call Before You Dig](#) for more information

11. The Interstate Natural Gas Association of America (INGAA) is a trade organization that advocates regulatory and legislative positions of importance to the natural gas pipeline industry in North America. See [INGAA](#) for more information. Their guidance on an emergency can be found [here](#) and the National Pipeline Mapping System is [available here](#)

Inspection of Trenches and Excavations Form

Project:			Weather:	Soil Type:	Date:
Type of Protective System:			Trench Depth:	Length	Width:
Project Supervisor:			Assigned Competent Person:		
Crew Members:					
Excavation Equipment Type(s):					
Equipment Operator(s):					
Yes	No	N/A	Excavation		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Excavations and Protective Systems inspected by Competent Person daily, before start of work		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Competent Person has authority to remove employees from excavation immediately		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Surface encumbrances supported or removed		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employees protected from loose rock or soil		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hard hats worn by all employees		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spoils materials and equipment set back a minimum of 2 inches from edge of excavation		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Barriers provided at all remote excavations, wells, pits, shafts, etc.		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ingress/egress within excavation provided at 25 inches intervals		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walkways and bridges over excavations 6 inches or more in depth equipped with guardrails		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning vests or other highly visible PPE provided and worn by all employees exposed traffic		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employees prohibited from working or walking under suspended loads		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employees prohibited from working on faces of sloped/benched excavations above co-employees		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning system established/used when mobile equipment is operating near edge of excavation		
Yes	No	N/A	Utilities		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utility companies contacted and/or utilities located		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Exact location of utilities marked when near excavation		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Underground installations protected, supported or removed when excavation is open		
Yes	No	N/A	Wet Conditions		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Precautions taken to protect employees from accumulation of water		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water removal equipment monitored by Competent Person		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Surface water controlled or diverted		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspection made after each rainstorm		
Yes	No	N/A	Hazardous Atmosphere		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Atmosphere tested when there is a possibility of oxygen deficiency or build-up of hazardous gases		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Oxygen content is between 19.5% and 21%		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation provided to prevent flammable gas build-up to 20% of lower explosive limit of the gas		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Testing conducted to ensure that atmosphere remains safe		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency Response Equipment readily available where a hazardous atmosphere will or does exist		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employees trained in the use of Personal Protective and Emergency Response Equipment		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety harness and lifeline individually attended when employees enter deep confined excavation		
Comments:					
Signature of Competent Person:					Date:

Safe Digging Commitment

The goal of E & B Oilfield Services Inc. is to ensure the safety of its employees and others while performing any excavation operations. E & B Oilfield Services Inc. is committed to safe digging practices and providing a safe working environment. E & B Oilfield Services Inc. will investigate all property damage that safe practices follow, call before digging and follow any applicable state and local laws related to excavations.

Executive Name:

Date:

Executive Signature:

Employee Acknowledgement and Accountability

By signing below, I acknowledge that I have received proper training to perform my role as an excavations operator and understand the roles and responsibilities to prevent incidents during excavations. I will report all unsafe conditions I encounter during work to the proper individual or superior. I will not undertake any job that I have not been trained to perform safely or that appears to be unsafe. Wherever PPE is required, I will ensure that the correct equipment is worn and that it is properly maintained afterward.

Employee Name:

Date:

Employee Signature:

