

STANDARD OPERATING PROCEDURE

Facility Construction

SOP No: 012-CPF

SOP Title: Underground Piping
Excavation

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SOP no.	Effective Date	Significant Changes	Revision #	Revision Date
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1. PURPOSE

- This procedure is a guideline for the proper way to perform civil work for underground piping in a facility. Employees at BBGCI will use this as a guide to help them perform their duty in a safe and productive manner.
- BBGCI will be in compliance with all government regulations as well as the regulations set forth by our clients.

2. INTRODUCTION

- BBGCI understands that all jobs are different. This SOP is set in place as a guideline to help employees understand the overall concept of excavation work and the necessary steps needed to be taken.

3. SCOPE

- This procedure has been set in place for BBGCI equipment operators and supporting employees who will be performing excavation work on pipelines.

4. DEFINITIONS

- Excavation Work- Cutting, digging, scooping or moving of dirt.
- Excavation/Trenching Competent Person- Person who is capable of identifying existing and predictable hazards and who has been trained accordingly and who is authorized to take prompt corrective measures.
- Buffer Zone- The area where operation occurs, that is deemed not safe for unauthorized personnel or equipment.
- Live Line- a line that could potentially contain hydro carbons.
- Sloping- method used by an excavation/trenching competent person to protect employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavations to prevent cave-ins.
- Benching- Excavating sides by a stepping method designed to incline away from the excavations. The method used will be based on soil type and depth, which will be determined by an excavation/trenching competent person.

5. RESPONSIBILITIESQualified Equipment Operator

- Ensure a One-Call is complete 48 hours prior to any excavation work.
- Ensure a line locating map is complete prior to any excavation work.
- Any BBGCI and/or client required ground disturbance permits or other permits shall be filled out prior to excavation work.
- Participate in a tailgate meeting and JSEA review prior to beginning work.
- BBGCI's excavation clearance form shall also be filled out prior to any digging.

- Fill out equipment inspection form on any piece of equipment prior to be used.
- Ensure the spotter is a safe working distance away, and he/she knows what their job task is.
- Safely perform excavation activities.

Qualified Spotter

- Attend/ participate in tailgate/JSEA meeting prior to beginning work.
- Establish clear communication with the equipment operator.
- Maintain a safe distance away from the buffer zone while excavation work is in progress.
- Keeping unauthorized personnel away from buffer zone.
- Make operator aware when equipment/vehicles or personnel are approaching buffer zone.
- Understanding the scope of work.

Supporting Personnel involved in Excavation activities

- Participate in tailgate meeting and JSEA.
- Understand the scope of work and the hazards involved in his/her specific job duty.
- Maintain good communication with all employees involved in Excavation activities.
- Ensure no entries are made into Excavation until an inspection has been completed by an excavation/trenching competent person and it is safe to enter.

Note: Competent person should monitor atmospheric Hazards and also stay aware of cave in hazards and have an appropriate escape route within 25 feet of work being done in the excavation. And should evaluate the condition of excavation frequently when personnel have to enter and perform atmospheric checks with a 4-gas monitor.

- Perform task according to the specific procedure in a safe and productive manner.

NOTE: If client requires, spotter will be equipped with a highly visible reflective vest.

6. SPECIFIC PROCEDURES

Trenching Operations

1. Before work can commence, ensure the One-Call, work permits, line locating map, excavation clearance form, equipment inspection, and JSEA's are filled out properly.

2. Make sure all involved employees have a clear understanding of the scope of work.
3. Establish good communication between operator and spotter.
4. Check work area for any unforeseen hazards not covered in the JSEA.
5. Begin trenching operations with spotter located a safe distance from the buffer zone monitoring the area for unauthorized personnel and obstructions.

NOTE:

1. Employees will not enter trench unless a trench is less than 4 feet or evaluated by competent person and engineering controls is set in place.
2. If trenching with the excavator, make sure the trench is the proper depth.
3. If employees are allowed into trench, an egress must be set every 25 feet.

Digging Bell Hole

1. Before work can commence, ensure the One-Call, work permits, line locating map, excavation clearance form, equipment inspection, and JSEA's are filled out properly.
2. Ensure an excavation/trenching competent person establishes the bell hole slope/benching of soil.
3. Make sure all involved employees have a clear understanding of the scope of work.
4. Establish good communication between operator and spotter.
5. Check work area for any unforeseen hazards not covered in the JSEA.
6. Excavator operator will commence work with the spotter standing a safe distance from the buffer zone.
7. Spotter will monitor the work area for unforeseen hazards and unauthorized personnel.
8. Excavation/trenching competent person will evaluate the slope/benching of the soil to ensure it is correct.

NOTE:

1. Before any employee can enter a bell hole, the atmosphere will be monitored and the employee who will be entering the bell hole must have a gas monitor on them.
2. If bell hole is left open while unattended, fencing will be put in place around bell hole with the proper signage.

Back-Filling

1. Before work can commence, ensure the One-Call, work permits, line locating map, excavation clearance form, equipment inspection, and JSEA's are filled out properly.
2. Make sure all involved employees have a clear understanding of the scope of work.
3. Establish good communication between operator and spotter.

4. Check work area for any unforeseen hazards not covered in the JSEA.
5. Commence work with equipment.
6. Spotter will monitor area for any hazards and unauthorized personnel.

NOTE:

1. Depending on the soil, a sifter may be required.
2. Depending on client, reflective tape may need to be utilized.

7. JOB RELATED HAZARDS

Slips, Trips, and Falls while:

- Climbing on and off of equipment
- Walking on uneven surfaces or surfaces with rock.
- Walking near open holes and trenches.

Pinch Point/ Line of Fire while:

- Moving equipment
- Struck by/Crushed by equipment, load, or object
- Walking in unauthorized work areas/ buffer zone
- Cave ins

Atmospheric Deficiencies while:

- Entering trench or bell hole

Line Strikes while:

- Digging with the excavator or pushing with dozer

Hitting Overhead Lines while:

- Utilizing heavy equipment.

8. REQUIRED PPE

- Hard Hat
- Steel Toes
- Safety Glasses
- Fire Resistant Clothing (FRC's)
- High Visibility Vest (Client Specific)
- H2S Monitor (If required)
- Gloves (If required)

9. FORMS/TEMPLATES TO BE USED

- JSEA's
- Work Permits
- One-Calls
- Line Locating Maps
- Operator Clearance Utility Forms
- Equipment Inspection Form
- Client Required Forms

10. INTERNAL AND EXTERNAL REFERENCES

TBD

10.1 Internal References

TBD

10.2 External References

TBD