SOP Number **#SWD- 013**

SOP Title **Pipe Assembly Process**

	NAME	TITLE	SIGNATURE	DATE
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SOP no.	Effective Date	Significant Changes	Revision #	Revision Date
013			**0**	

1. PURPOSE

- This procedure is a guideline on the proper way to bolt and torque equipment and binding fibreglass piping for SWD facility construction. 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 proper procedure to follow while bolting and Torqueing and binding fibreglass piping for SWD facility construction.

3. SCOPE

- This procedure has been set in place for BBGCI personnel who will be performing operations for bolting and torqueing for facility construction.

4. DEFINITIONS

- *Bolt(ing)* – to align flanges, insert bolts, gaskets, and tighten nuts using proper tools
- *Line of Fire-* The path of a moving object that can potentially injure or the potential path of an object that may move.
- *Torque/torqueing* – Using torque wrench to tighten flanges according to BBGCI Torque Chart.
- *BBGCI Torque Chart* – Standards for required force and sequence for torquing flanges according to size
- *Fibreglass Weld*- Using an epoxy/resin mixture to weld two joints of fibreglass pipe/material together.

5. RESPONSIBILITIES

BBGCI Personnel

1. Participate in tailgate meeting and JSEA.
2. Understand the scope of work prior to beginning task.
3. Maintain good communication with all employees involved in this process.
4. Properly inspect all tools before use.
5. Understand required torque.

6. SPECIFIC PROCEDURE

Bolting Flanges

(Personnel Involved: BBGCI Personnel)

1. Before work can commence, properly complete all JSEA's, work permits, safety tailgate meetings.

2. Properly inspect all tools to be used.
3. Establish the scope of work, and ensure everyone knows their specific job duty.
4. Lubricate bolts.
5. Use alignment tool to align bolt holes in flanges.
6. Insert bolt in bottom of flanges, partially tighten nuts.
7. After gasket is inserted between flanges and properly aligned, install remaining bolts, makings sure flanges are in line and bolts and nuts are properly tightened.

Torqueing Flanges

(Personnel Involved: BBGCI Personnel)

1. Before work can commence, properly complete all JSEA's, work permits, safety tailgate meetings.
2. Understand required torque needed for specific flanges.
3. Properly inspect all tools.
4. Inspect torque wrench calibration date, required to be within 12 months.
5. Torqueing larger flanges using larger torque wrench may require additional personnel to hold a back up wrench.
6. Use torque wrench to tighten flange bolts.
7. Tighten bolts using correct sequence displayed on BBGCI Torque chart.

Bolting and Flanging for Underground Piping

1. Before work can commence, properly complete all JSEA's, work permits, safety tailgate meetings.
2. Understand required torque needed for specific flanges.
3. Properly inspect all tools.
4. Inspect torque wrench calibration date, required to be within 12 months.
5. Set Piping on approved stands in order to access all areas of the pipe.
6. Use approve method of inspecting for deformities in the manufacturers underground coating.
7. Repair any breaks in coatings integrity with client approved method.
8. Bolt, torque and inspect flanges to client specifications.
9. Weather-proof joints per client specifications with approved coating.
10. Lay pipe in trench and backfill.

    Note: Refer to **Forklift loading/Offloading** SOP, **Underground Piping Excavation** SOP.

Fibreglass Pipe Welding

1. Before work can commence, properly complete all JSEA's, work permits, and conduct safety tailgate meetings.
2. Properly inspect all tools to be used.
3. Establish the scope of work, and ensure everyone knows their specific job duty.
4. Using proper cutting tool cut lengths of fibreglass piping to predetermined lengths.
5. Using the appropriate bevelling machinery, bevel the end of a joint of fibreglass pipe in order to attach next pipe joint or fitting.
6. Assure proper fit of joints by dry fitting the fibreglass pipes together or other approved method.
7. Using proper PPE (according to SDS on epoxy/resin) and in an adequately ventilated area, combine, mix, and apply the epoxy resin mixture per manufacture's recommendations.
8. Assemble the pipe, (monitor environmental ambient temperature) and allow curing per manufacture's specification. Use approved method of applying pressure to pipe joint during curing process. (straps, bands, clamps...ect)

Fabrication and Installing Treaded Pipe

1. Before work can commence, properly complete all JSEA's, work permits, safety tailgate meetings.
2. Properly inspect all tools and equipment. Ensure that electrical source for running power tools has appropriate grounding safety device and GFCI
3. Workers will cut pipe to length using appropriate cutting device and treaded using appropriate threading device.
4. Pipe will be joined with fittings per industry standard and client specification.

Dressing and Assembling Pipe

1. Before work can commence, properly complete all JSEA's, work permits, safety tailgate meetings.
2. Understand required torque needed for specific flanges.
3. Properly inspect all tools.
4. Preassemble piping to be lifted and set on support post or skids.
5. Install and torque gauges, valves, and fittings onto per client's blueprint specifications.
6. Lift, level, and secure pipe on support posts and skids.

Note: Refer to **Forklift loading/Offloading** SOP for use of forklift to lift equipment.

7. JOB RELATED HAZARDS

Slips, Trips and Fall Hazards:

- Working and walking around existing facility piping and supports
- Working and walking on uneven surfaces or rocks

Pinch Points and Line of Fire Hazards:

- Using hand tools
- Wrench slipping
- Between flanges
- Struck by/crushed by equipment or load
- Inadequate/improper rigging, drop
- Improper tools causing tool to slip
- Pinch points
- Unauthorized equipment operator
- Overhead/power line strike
- Working at heights

Chemical burn

Ventilation

Muscle Strain:

- Applying force to wrenches
- Bending/twisting

8. REQUIRED PPE

- Hard hat
- Safety Glasses
- Steel Toe Boots
- Gloves (chemical resistant
- Fire Resistant Clothing (Site Specific)
- Personal Gas Monitors (Site Specific)

9. FORMS/TEMPLATES TO BE USED

- JSEA
- Work Permits (If Required)
- Client Required Forms

10. INTERNAL AND EXTERNAL REFERENCES

10.1 Internal References

10.2 External References