

SOP Category: Deep Foundations Document #: SOPDF

Category the document will be located on the Intranet under Best Practices

BP + Sequential Number = Category

Document Title: ACIP/DDP Line Break & Clearing Clogs

Owner: Chris Normand Effective Date: 12-16-2024 Revision #:

BUL of Originating Business Unit

- Business Unit Designation:**
- | | | |
|--|--|--|
| <input type="checkbox"/> BU 01 - Infrastructure | <input type="checkbox"/> BU 02 - BR Civil | <input type="checkbox"/> BU 04 - Houston Civil |
| <input checked="" type="checkbox"/> BU 15 - Deep Foundations | <input type="checkbox"/> BU 23 - Marine | <input type="checkbox"/> BU 29 - BR Mechanical |
| <input type="checkbox"/> BU 30 - Houston Mechanical | <input type="checkbox"/> Pipe Fab Facility | <input type="checkbox"/> Form Fab Facility |
| <input type="checkbox"/> Westport Operations | <input type="checkbox"/> Cajun Office Facilities | |

A check next to a Business Unit indicates this best practice is required by that business unit and therefore is a mandatory Standard Operating Procedure (SOP) for that business unit.

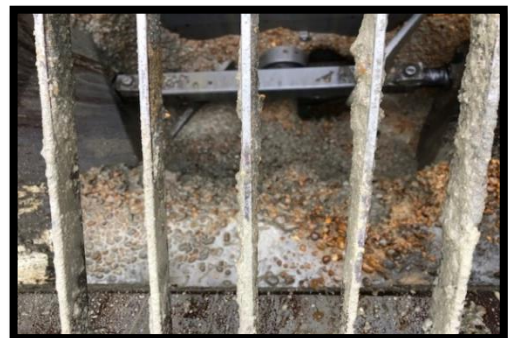
PURPOSE:

This Best Practice will serve as a guide for safely clearing clogs from concrete/grout systems during drilled pile installations.

PROCESS:

For Operations utilizing a Concrete Pump the following process should be followed:

1. Once a clog of any sort has been recognized, **IMMEDIATELY** cease pumping operations. (Continuing to attempt to pump can lead to injury by hoses whipping uncontrollably, hose bursting by over pressuring the system and or equipment damage.) Pump operator should notify Supervisor. At this time all work should **STOP**, and the entire crew review Pre-task for clearing clog and crew responsibilities shall be assigned.
2. Supervisor will identify where the clog appears to be located. (pump, hoses, or drill tooling)
 - If the clog is deemed to be in the pump:



BEFORE



AFTER

- a) The hopper drain shall be opened, and all materials washed out of the hopper.
- b) Once the hopper is cleaned of all materials, close the hopper drain, refill with concrete and resume operations.

- If the clog is deemed to be in the lines:



- a) Concrete pumps are equipped with a back stroke function; this allows the operator to reverse the flow of concrete through the system back into the hopper of the pump. By doing this it in turn reduces the amount of pressure that is in the concrete lines.
 - b) Backstroke the pump a minimum of 5-10 strokes. This will vary case by case depending on length of hoses in service. (Concrete can overflow out of the hopper during this process)
 - c) Once the pressure has been reduced in the concrete lines, ensure the immediate area is clear of any personnel; equipment should be utilized (track-hoe, skid steer) to open the flip clamp where daily washout procedure is performed.
 - d) Repeat step C at each subsequent hose connection until the clog has been located.
 - e) Once the clog is located utilize daily washout procedure to clear the clog from the blocked line.
 - f) After completing the washout procedure, the concrete lines can be reconnected so the system can be placed back in service.
- If the clog is deemed to be located inside the drill tooling:
 - a) Drill tooling should be extracted from the ground.
 - b) Once tooling has been extracted; utilizing a pressure washer or hose from a water truck, water should be sprayed into the discharge end of the tooling to attempt to dislodge the clog. (face shield **MUST** be used while performing this task)
 - c) If the clog cannot be dislodged, the drill tooling shall be separated section by section until the clog has been located. (Each section of tooling that is disconnected should be cleaned and inspected thoroughly for any concrete build up.)



- d) After clog has been cleared from the system, all sections of tooling that were disconnected can be re-installed to complete the system.
3. Once the clog has been cleared, the work area is to be cleaned and freed of any concrete spoils from the cleanout process.
4. Supervisor shall inspect all connections as the system is reassembled to ensure proper securement and verifying all components are free of clogs. (System should not be placed back in service until this step is performed.)
5. Crew shall re-group and review the Pre-Task noting any changes that have been made

For operations utilizing a Grout Pump the following process should be followed:

1. Once a clog of any sort has been recognized, **IMMEDIATELY** cease pumping operations. (Continuing to attempt to pump can lead to injury by hoses whipping uncontrollably, hose bursting by over pressuring the system and or equipment damage.) Pump operator should notify Supervisor. At this time all work should **STOP**, and the entire crew review Pre-task for clearing clog and crew responsibilities shall be assigned.
2. Supervisor will identify where the clog appears to be located. (pump, hoses, or drill tooling)
 - If the clog is deemed to be in the pump:
 - a) Carefully depressurize the grout system by eliminating people from the area and using equipment when possible.
 - b) Once the grout pressure in the lines has been released, the hose on the discharge end of the pump can be disconnected.
 - c) Open the Y ball valve clamps and swing open Y valve.
 - d) Wash all material out of the hopper of the pump, as well as flushing the material cylinders with water until no aggregate is present.

- e) At this point the valves and hose can be reconnected to complete the system.
- If the clog is deemed to be in the lines:
 - a) Slowly open the PRV (Pressure Relief Valve) this will gradually depressurize the grout system.
 - b) Once the grout pressure in the lines has been released, ensure the immediate area is clear of any personnel; equipment should be utilized (track-hoe, skid steer) to open flip clamps at each hose connection until the clog is located.
 - c) Utilize the hose from the water truck to flush all grout out of the lines until the clog has been cleared.
 - d) At this time the grout lines can be reconnected so the system can be placed back in service.
 - If the clog is deemed to be located inside the drill tooling:
 - a) Drill tooling should be extracted from the ground.
 - b) Once tooling has been extracted; utilizing a pressure washer or hose from a water truck, water should be sprayed into the discharge end of the tooling to attempt to dislodge the clog. (face shield **MUST** be used while performing this task)
 - c) If the clog cannot be dislodged, the drill tooling shall be separated section by section until the clog has been located. (each section of tooling that is disconnected should be cleaned and inspected thoroughly for any grout build up)
 - d) After clog has been cleared from the system, all sections of tooling that were disconnected can be re-installed to complete the system.
3. Once the clog has been cleared, the work area is to be cleaned and freed of any grout spoils from the cleanout process.
 4. Supervisor shall inspect all connections as the system is reassembled to ensure proper securement and verifying all components are free of clogs. (System should not be placed back in service until this step is performed.)
 5. Crew shall re-group and review the Pre-Task noting any changes that have been made.



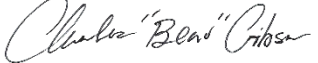
PAYOFF:

Following this best practice ensures a safer work environment by minimizing the potential of personnel being exposed to line of fire hazards while working with concrete / grout lines that are pressurized.

Crew Review:

Superintendent: Instruct the crew to use their phones to scan one of the QR codes below, which will direct them to a short review session. After personnel enter their information and submit it, training records will be generated and automatically saved for future reference. Utilize this time for open engagement with the crew. Each review will have different questions, which can be answered either as a team or individually.



Approvals		
<u>Title</u>	<u>Signature</u>	<u>Date</u>
BU 15 Vice President		12-16-24
BU 15 Senior Construction Manager		12-16-24
BU15 Manager of Safety		12-16-24

Revision History				
<u>Rev #</u>	<u>Date</u>	<u>Reason for Changes</u>	<u>Originator</u>	<u>Effective Date</u>
1	12-16-2024	Update to new format/ add QR training codes	Lance Bradley	12-16-24