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 Daily Washout & Hose Inspections**				
Owner:	**Chris Normand**	**Effective Date:**	**12-16-2024**	**Revision #:**	
	BUL of Originating Business Unit				

Business Unit Designation:	☐ BU 01 - Infrastructure	☐ BU 02 - BR Civil	☐ BU 04 - Houston Civil
☑ BU 15 - Deep Foundations	☐ BU 23 - Marine	☐ BU 29 - BR Mechanical	☐ BU 30 - Houston Mechanical
☐ Pipe Fab Facility	☐ Form Fab Facility	☐ Westport Operations	☐ 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:

Line pumps and hoses are essential for Cajuns drill pile installation projects. They must be properly maintained and cleaned according to manufacturer specifications to protect personnel, optimize performance and extend the lifespan of the pumps and hoses.

PROCESS:

Daily Washout:

Drilling operations utilizing 3-inch hoses shall wash out by pumping water only to clear all aggregate from the hoses and augers.

Drilling operations utilizing 5-inch hoses shall wash out by blowing a rabbit and water through the system to clear all aggregate from hoses and augers.

(Grout Pump)

- At the end of the shift, the pump operator must ensure the discharge end of the system is faced in a safe direction away from crew personnel.
- Once the area is clear all grouts should be pumped through the system into the washout pit until the hopper is free of grout.
- After clearing the hopper of grout, the pump must be flushed out with water until all material is cleaned out of the system. Water being pumped through the system must be clean and free of any aggregate or cement.

- The 90-degree reducer on the discharge end of the pump must be removed EVERY DAY after the pump is washed out. Water must be sprayed into the discharge end of the pump to flush out the material cylinders. The cylinders need to be in the pumping motion to properly clean them out. (**DO NOT** place anything inside the material cylinders while the pump is stroking, this can lead to injury, and or damage to the equipment.)
- The hopper, screen and material valves must be cleared of any grout buildup that can obstruct the flow of grout.

(Concrete Pump)

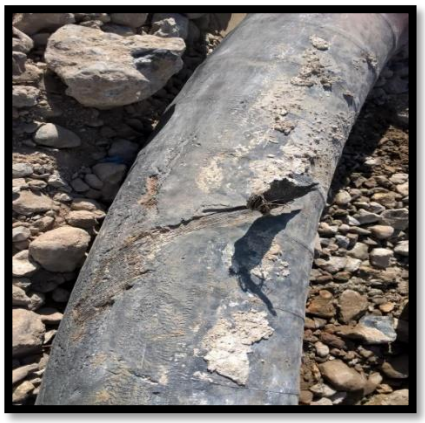
- At the end of the shift, the pump operator will back stroke the pump filling the hopper with concrete to reduce the pressure in the concrete lines.
- Once the pressure has been reduced the concrete line can be separated at the clamp on the ground closest to the drill before the line begins to go vertical.
- When the clamp has been removed ensure, the hose is directed away from any personnel and equipment, and then the operator can begin stroking the pump to empty the hopper of concrete.
- At this point the concrete hose can be disconnected from the discharge end of the pump. Place a wet rabbit in the end of the hose, clamp the blowout cap in place and utilize an air compressor to push the rabbit through the lines clearing out the concrete. (**DO NOT** open the valve of the air compressor all the way, this can lead to materials shooting rapidly out the opposite end of the hose.)
- After the rabbit has been pushed through this section of hose, reconnect the hose closest to the drill rig that was previously unhooked. Clamp the hose sections together and secure clamp with #9 wire.
- Begin filling the entire hose system with water until it is full.
- Place the rabbit in the end of the hose and clamp the blowout cap back onto the end of the hose.
- Ensure the area around the discharge end of the drill rig is clear of all personnel.
- Open the valve of the air compressor allowing the air pressure to push the rabbit through the entire system clearing any concrete out of the system. (Make sure that the rabbit went through the system and isn't lodged in the system.
- Repeat filling hose with water and pushing rabbit through system as many times as necessary to ensure no aggregate is left in the system.
- The 90-degree fitting on the discharge end of the pump must be removed EVERY DAY after the pump is washed out. Water must be sprayed into the discharge end of the pump to flush out the material cylinders. The cylinders need to be in the pumping motion to properly clean them

out. (**DO NOT** place anything inside the material cylinders while the pump is stroking, this can lead to injury, and or damage to the equipment.)

- The hopper, grating and material valves must be cleared of any concrete buildup that can obstruct the flow of concrete.
- The splash box must be drained, flushed and refilled until the level reaches halfway of the cylinder shaft. (DO NOT operate pump if splash box isn't filled to appropriate level, this will cause damage to the pump.)

Hose Inspections:

- Pump operator must be trained, and a practical evaluation performed before being issued a Cajun qualified operator card.
- A pump inspection shall be performed prior to use by the qualified operator and reviewed/signed by a supervisor onsite. This shall be performed on every pump placed in service on site.
- All hoses and clamps must be inspected before each use and washed clear of any aggregate at the end of the shift.
- Inspect hoses daily. Any frayed or worn hoses should be taken out of service immediately due to an increased danger of kinking or bursting. Kinks in hoses pose a risk, as it can rapidly cause the pump to reach its maximum pressure, leading to potential equipment failure or injury.



- Hoses should be connected with a rubber gasket and clamp. Grease should be placed around the gasket and clamp to help reduce concrete/grout build up that can result in damage.
- Clamps must be installed properly. Tensioning flip type clamps shall be installed as tight as possible, starting at refusal and backed off one whole turn until the clamp can be closed with a considerable amount of force. It shall be secured with a pin to lock the handle in the downward position.
- Any clamps that will be suspended in the air during the job should be the bolted type clamp and tightened to manufacturer's specified torque.

- The fluid level in the splash box should be filled until the level reaches halfway of the cylinder shaft.
- Grease points of the pumps shall be greased daily. The operator shall notify the supervisor if any grease points do not take grease.
- Pumps shall be setup in a manner to reduce the exposure of the tracks / jacks sitting in concrete/grout.
- A biodegradable form releasing agent (i.e., Duogard II or equivalent) must be sprayed on the pump to prevent any material from sticking or building up on the pump.
- Control panel of the pump must be labeled correctly and legible.

ON SITE MAINTENANCE:

Supervisors and pump operators will be held accountable for maintaining pump appearance and operation.

- All clamps and connections must be free of grout/concrete build up in order to identify stress cracks and fatigue in the metal.
- Pumps and hose connections shall be chipped with chipping gun/ needle gun as necessary to maintain appearance and proper operation.
- Adequate time must be allowed before demobilization to clean buildup of grout/concrete build up using a biodegradable solvent and water skid equipped with pressure washer.

PAYOFF:

By following this best practice for the proper inspection, washout, and maintenance of concrete / grout pumps and hoses, the potential of injury and equipment malfunctions can be reduced, this will also extend the lifespan of essential equipment to Cajuns drilled pile projects.

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		
Title	***Signature***	***Date***
BU 15 Vice President		12-16-24
BU 15 Senior Construction Manager		12-16-24
BU15 Manager of Safety		12-16-24

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