

How to Remove “Stuck” Pigs

There are two types of "stuck" pigs that an operator will encounter when pigging. Once it is understood why a pig becomes "stuck", it is easier to avoid the problem rather than having to overcome it. Hopefully, the following will give an explanation of the reasons pigs become "stuck" and some helpful procedures for recovering these pigs, besides having to dig up the line being pigged.

The first type of "stuck" pig is when a pig loses seal. This can happen for a number of reasons, such as, excessive wear due to too long of a pig run, dual-diameter applications or abrasive conditions in the line, and torn pigs due to partially closed valves or other destructive debris. In this case, the pig has lost its seal and is allowing the propelling medium to bypass the pig instead of propelling it. Once encountered, the following options may recover the "stuck" pig:

- A. **Increase pigging volume:** By increasing the volume of propelling medium, the amount not being bypassed may be enough to propel the pig.
- B. **Remove pressure and volume (Allowing the pig to recover):** The materials of which most pipeline pigs are made have memory to their shape. By allowing some time (approximately 15 minutes) for the pig to rest, it may regain its original shape after encountering a partially closed valve for example.
- C. **Run a line-size swab:** Running a swab (2 pound density foam) in a line where a pig has lost seal will re-establish the lost seal by the first pig. The swab will try to bypass the pig as the propelling medium is doing, but instead will seal off this area of bypass, and the propelling medium will once again start to push the "stuck" pig.
- D. **Reverse flow direction:** By reversing the flow of the propelling medium, we can have the pig retreat a few feet and then reapply pressure behind the pig to try to send through pipe. Unless needed, it is not necessary to send pig back to launcher. Note: This will not work for unidirectional pigs (cup pigs and the like).

The second type of "stuck" pig is the pig that has encountered obstructions that it cannot negotiate. This will include excessive debris build-up in front of the pig, partially closed valves, and various obstructions, such as, lunch boxes, tools, etc. For removing this type, the following options may prove helpful:

- A. **Increase pigging pressure:** The increased pressure equates to increased force, which may be enough to allow the pig to push the obstruction.
- B. **Increase / decrease pigging pressure (Alternating fashion):** By increasing and decreasing the pressure in a quick on-and-off fashion, may give it the proverbial "kick in the rear" to help the pig to negotiate the obstruction. This option works very well in smaller internal diameter fittings and valves, as well as, tight-bend ells.
- C. **Remove pressure and volume (Allowing the pig to recover):** As with the lost-seal type, this procedure is useful for the same reasons, allowing the pig to recover its shape after encountering an obstruction.
- D. **Reverse flow direction:** Reversing flow direction is very effective for removing this type of "stuck" pig. In most cases, the pig cannot negotiate or push the obstruction and reversing the flow allows the pig to be retrieved from the line. Note: This will not work for unidirectional pigs (cup pigs and the like).

The above procedures are guidelines for helping in the aid of a "stuck" pig and should not be considered absolute. It is best to counsel with someone who is familiar with pigs and pigging in order to best ascertain the best and proper procedure for removing a "stuck" pig.

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