

Using “5 Why” Technique to identify incident causes

The “5 Why” investigation technique was used to identify **why** the 6-inch extension separated from the drill rod as reported in the Traction Report below. A lessons learned report relating to this incident is being prepared and will be distributed as well. This is a simple technique that can be used to identify underlying causes of near misses and minor incidents **before** something more severe occurs.

Traction Report: 2013-IR-4568582

Incident Date (DD/MM/YYYY)*: 06/11/2013

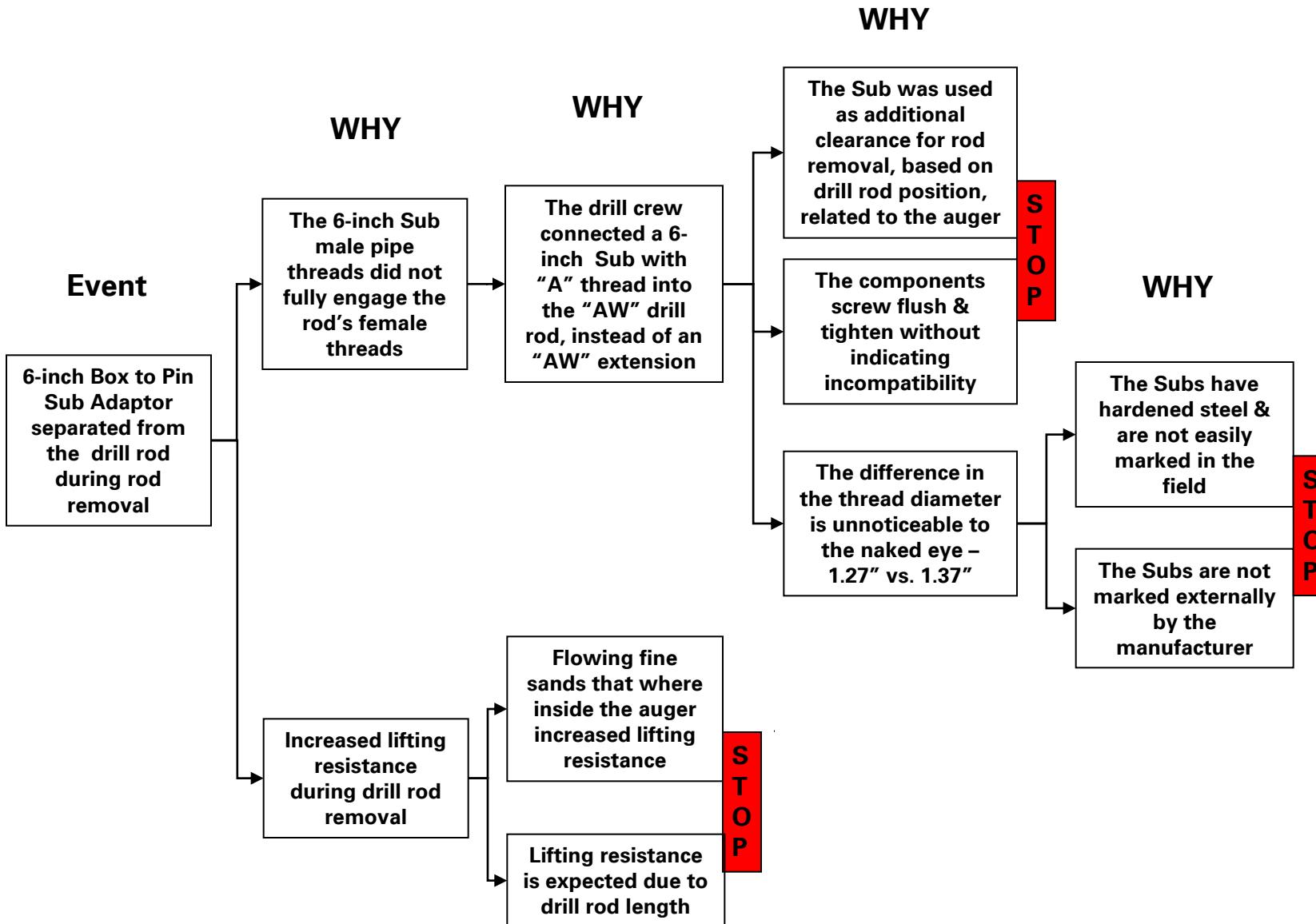
Near Miss Type: Safety

Short Description Unexpected Separation of Drill Equipment

Incident Description: Subcontractor was attempting to pull the center plug and drill rods from hollow stem augers with a winch and swivel bail. The drill rods were flush with the top of the augers and the driller determined a Pin Sub Adaptor was necessary. Upon pulling the rods upward, increased resistance was encountered due to heaving sands and the six-inch Pin Sub Adaptor unexpectedly separated from the drill rod. The result of the separation caused the swivel bail and extension rod to rise above the driller and helper from the tension on the wire rope. The swivel bail and Pin Sub Adaptor stayed connected to the winch hook and fell to the top of the auger (which was approximately 4 feet above ground).

It was determined that the separation occurred because the diameter of the male threaded portion of the 6-inch Pin Sub Adaptor had "A" threads that were one tenth of an inch (1/10") narrower than the "AW" threads on the drill rods. This difference in thread size still allowed the two thread types to thread together and was barely discernible by the naked eye when the two thread types were placed next to the eachother for comparison purposes. The "A" thread Pin Sub Adaptor was taken out of service and replaced with a "AW" thread Pin Sub Adaptor. It was later determined by the driller that the Pin Sub Adaptor was not required to safely retrieve the drill rods from the borehole.

5-Why Tree: Drill Rod Sub Adaptor Threaded Connection Failure



HOISTING SWIVEL - H.D. - BALL BEARING TYPE

	A	AW	AWJ	N4	N3	NW	NWJ
Part No.	32268	32269	32270	32272	32273	32274	32275
							

SUBS - ADAPTERS

BOX to PIN



Part No.	Description	Part No.	Description
30252	A - AW	30294	AWJ - N4
30253	A - AWJ	30295	AWJ - N3
30254	A - BW	30296	AWJ - NW
30256	A - N4	30297	AWJ - NWJ
30257	A - N3	30311	AWJ - 1.125 Hex
30258	A - NW	30312	AWJ - 1.625 Hex
30259	A - NWJ	30725	AWJ - 1.25-7 UNC
30265	AW - A	30314	BW - A
30266	AW - AWJ	30315	BW - AW
30267	AW - BW	30316	BW - AWJ
30269	AW - N4	30318	BW - N4
30270	AW - N3	30319	BW - N3
30271	AW - NW	30320	BW - NW
30272	AW - NWJ	30321	BW - NWJ
30286	AW - 1.125 Hex	30339	N4 - A
30287	AW - 1.625 Hex	30340	N4 - AW
30755	AW - 1.25-7 UNC	30341	N4 - AWJ
30290	AWJ - A	30342	N4 - BW
30291	AWJ - AW	30344	N4 - N3



DRILL ROD (DCDMA) W SERIES - COUPLED

AW		NW			
	Part No.	Weight		Part No.	Weight
1 Ft.	30009	5.4 lb / 2.4 KG	1 Ft.	30025	11.4 lb / 5.2 KG
2 Ft.	30010	9.4 lb / 4.3 KG	2 Ft.	30026	18.7 lb / 8.5 KG
5 Ft.	30011	21.6 lb / 9.8 KG	5 Ft.	30027	32.2 lb / 14.6 KG
10 Ft.	30012	41.9 lb / 19 KG	10 Ft.	30028	80.3 lb / 36.4 KG

