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Drill Pipe Under-Torque….
The Devil in Disguise

Proper Handling and Preventative Maintenance of Maxi-Rig Drill Pipe Threads

Brandon Chesnut, E&M Supply Group

E&M Supply Group

CAN'T BREAK OUT THE CONNECTIONS!!!

- ROSE BUD TO THE RESCUE!
- HOW DID THIS HAPPEN! MAYBE TOO MUCH TORQUE AT MAKE-UP??
- SHOULD WE USE LESS TORQUE NEXT TIME???
- IF SO, THEN NEXT TIME WILL BE WORSE
- THE ROSE BUD WILL BE USELESS
- ONLY SOLUTION WILL BE THE WELDERS TORCH

PROBLEMS

- DOWNTIME
- INCREASED OPERATING EXPENSES
- GALLED/STRIPPED/MANGLED THREADS
- GALLING PROCESS, ROSEBUD ARE BOTH INTENSE HEAT SOURCES
  - Heat + Threads = BAD
  - Heat causes threads to become brittle
- EVEN AFTER THREADS ARE REPAIRED, THEY WILL STILL BE BRITTLE
  - more susceptible to damage in the future

PROBABLE CAUSE: INSUFFICIENT MAKEUP TORQUE / AKA "UNDER-TORQUE"

- THREADS ARE HIGHLY ENGINEERED
- ADEQUATE MAKE-UP TORQUE:
  - Stabilizes the connection and restricts further torque downhole
  - Threads remain in tension, or fixed
- INADEQUATE MAKEUP TORQUE AKA "UNDER-TORQUE":
  - Threads continue to make up down hole
  - Rotary jackhammer effect
  - Cold welding

Connection Type	Box OD (in)	Pin ID (in)	Minimum Make-Up Torque	Maximum Make-Up Torque	Torsional Yield
DS55	6 7/8	3	47,900	57,480	95,800
		3 1/2	41,700	51,240	85,500
		3 3/4	39,700	47,640	79,400
		4	36,600	43,680	72,800
	7	3	51,700	62,040	103,400
		3 1/2	49,300	59,160	98,673
		3 3/4	43,500	52,200	87,168
		4	36,600	43,920	73,319
	7 ¼ (or larger)	3	59,600	71,520	119,300
		3 1/2	51,100	61,320	102,525
		3 3/4	44,200	53,040	88,455
		4	36,600	43,920	73,319

OTHER POTENTIAL CAUSES

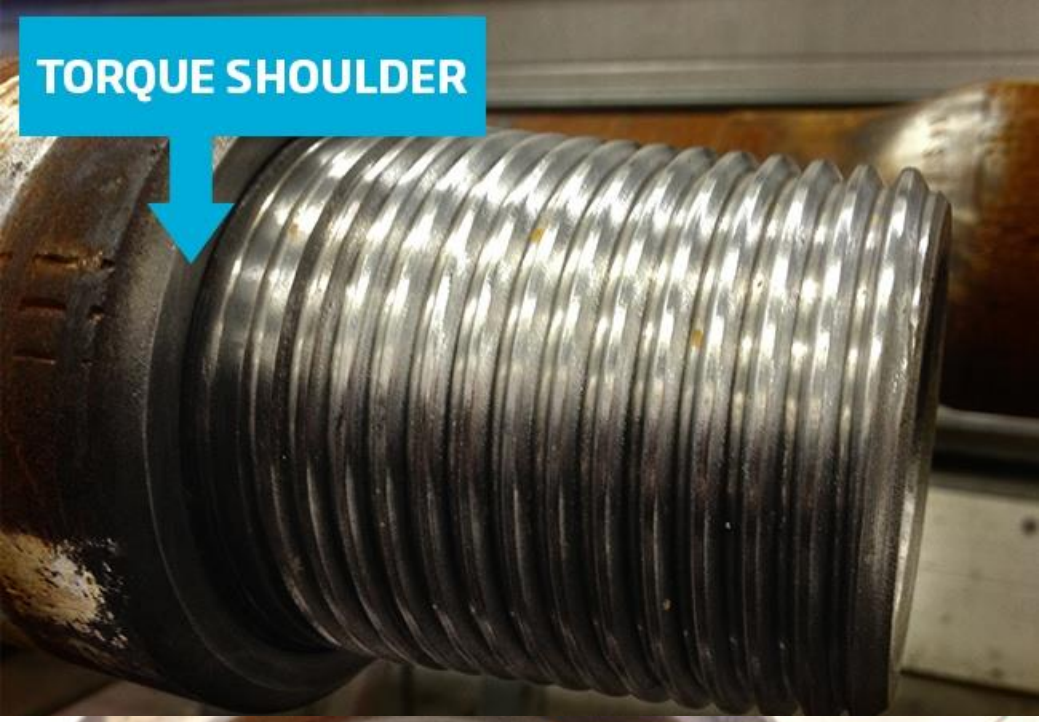
- OVER TORQUE
  - AKA too much rig for the pipe
- DIRTY THREADS DURING MAKEUP
  - Dirt, sand, debris, all cause friction
- LACK OF PIPE DOPE / INCORRECT PIPE DOPE
  - Always use copper based pipe dope
  - Apply fresh dope to every connection
- NO MAKE BREAK
  - Every new connection from the mill (and after threads are repaired) needs a make/break

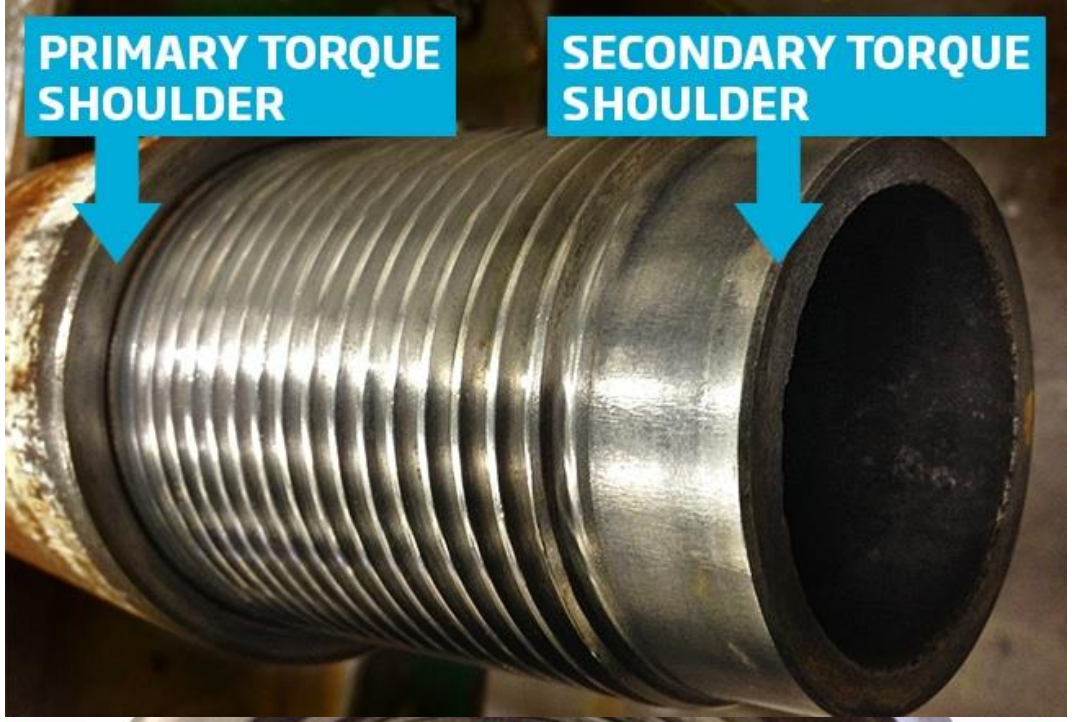
OTHER POTENTIAL CAUSES (CONT'D)

- BAD THREADS / NEED REPAIR
  - Threads were already damaged
- STABBING
  - Bumping the threads too hard at make-up
  - Crests of threads may "roll over" and peel off
- CROSS THREADING
- BAD SAVER SUB
  - Change save subs on a regular basis
  - Saver sub sees the most action and is screwed onto every joint

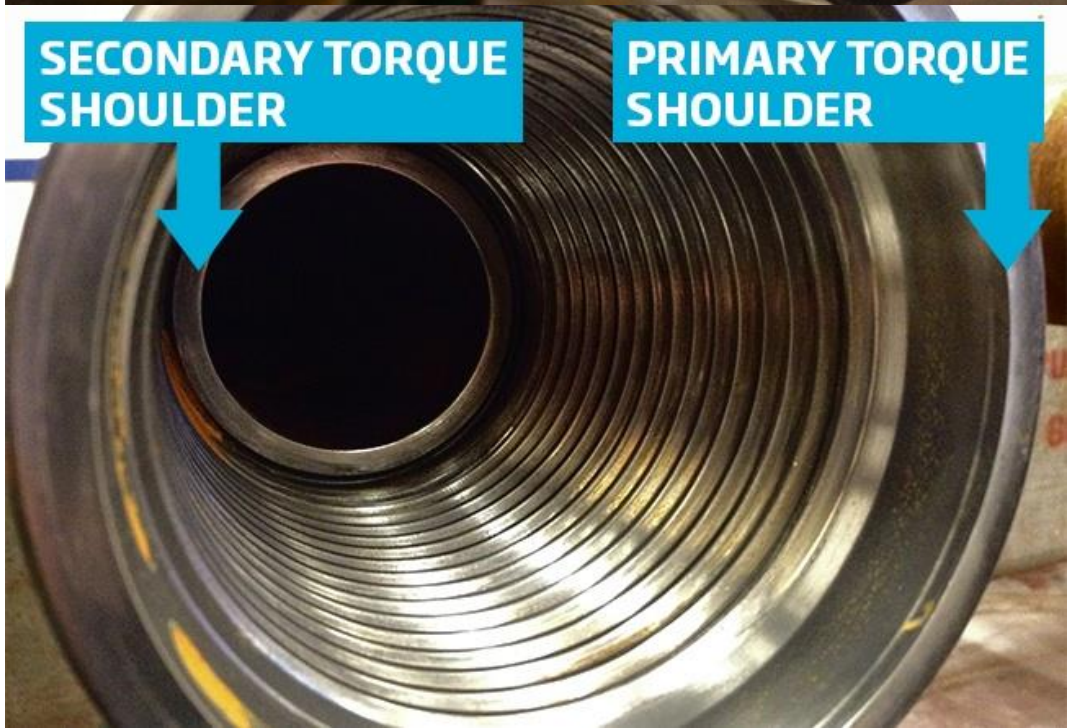
DOUBLE SHOULDER THREADS?

- SECONDARY TORQUE SHOULDER ADDS UP TO 50% MORE TORSIONAL STRENGTH
- ALSO INCREASES MINIMUM REQUIRED MAKE-UP TORQUE
- SAME BASIC RULES AS SINGLE SHOULDER THREADS
- TENDS TO BE MORE SUCCEPTABLE TO DAMAGE
- DON’T BUY D.S. UNLESS YOUR RIG HAS SUFFICIENT TORQUE FOR MAKEUP


TORQUE SHOULDER


PRIMARY TORQUE SHOULDER
SECONDARY TORQUE SHOULDER


TORQUE SHOULDER


SECONDARY TORQUE SHOULDER
PRIMARY TORQUE SHOULDER

CONCLUSION

- ALWAYS KNOW TORSIONAL SPECS FOR YOUR DRILL PIPE
- NEVER USE HEAT (ROSEBUD, ETC) TO BREAK OUT A CONNECTION
- CLEAN AND VISUAL YOUR THREADS BETWEEN EVERY JOB
- ALWAYS USE COPPER BASED PIPE DOPE
- ALWAYS BREAK IN (MAKE/BREAK) NEW THREADS
- DOUBLE SHOULDER THREADS CAN ADD 50% MORE TORQUE, BUT SAME TORQUE RULES MUST BE FOLLOWED
- CHANGE AND/OR REPAIR SAVER SUB REGULARLY
- COME SEE US AT BOOTH 825!

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