



2017 Review of Dropped Objects

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2017 Review

YE2016	
6%	7%
10%	5%
23%	33%
39%	45%

15%	7%
20%	24%
26%	24%
61%	55%

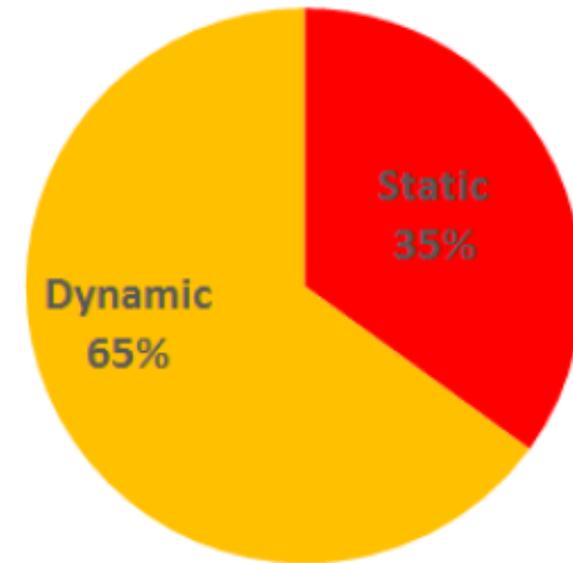
Static
Dropped
Object

YE 2017		
SOV Only		
Total	RAM4+	Category
6%	5%	Derrick Static Equipment <small>Objects that are part of the permanent derrick structure. Examples: Brackets, bolts, nuts, washer, clamps, cable tray.</small>
18%	15%	Working at Height <small>Tools that are used and/or left while working at height. Examples: Hand tools, rope, scaffolding clamp & boards, crates.</small>
21%	15%	Fixtures & Fittings (Not part of derrick) <small>Objects that are NOT part of the permanent derrick structure. Examples: shackles, retaining chains, padeyes, clamps.</small>
45%	35%	

Dynamic
Dropped
Object

Total	RAM4+	Category
10%	15%	Derrick Travelling Equipment <small>Top drive, Travelling Block, Pipe Racking Systems & Pipe Stabbing Systems.</small>
17%	15%	Running Pipe, Casing, & Tools (To/From RF) <small>Equipment for running of casing, tubing, DP, logging tools, BHAs to rig floor. Examples: SJ elevators, casing protectors, stabilisers, sheaves.</small>
29%	35%	Lifting & Transporting Objects w/ Crane & Trucks <small>Lifting with cranes in offshore location & onshore location. Transportation with trucks in onshore location. Examples: cranes, crates, containers, forklifts.</small>
55%	65%	

SOV RAM4+ DROPS





Areas of Concern

- Tubular Handling – Elevators
- Winches & Tuggers
- Drilling Equipment Collisions
- Drilling Equipment – Uncontrolled descent of travelling equipment
- Operational equipment clash or impact
- Lifting & Hoisting

Examples of Incidents - Elevators

Mud Motor dropped to rig floor – Lifting nubbin slipped through elevators

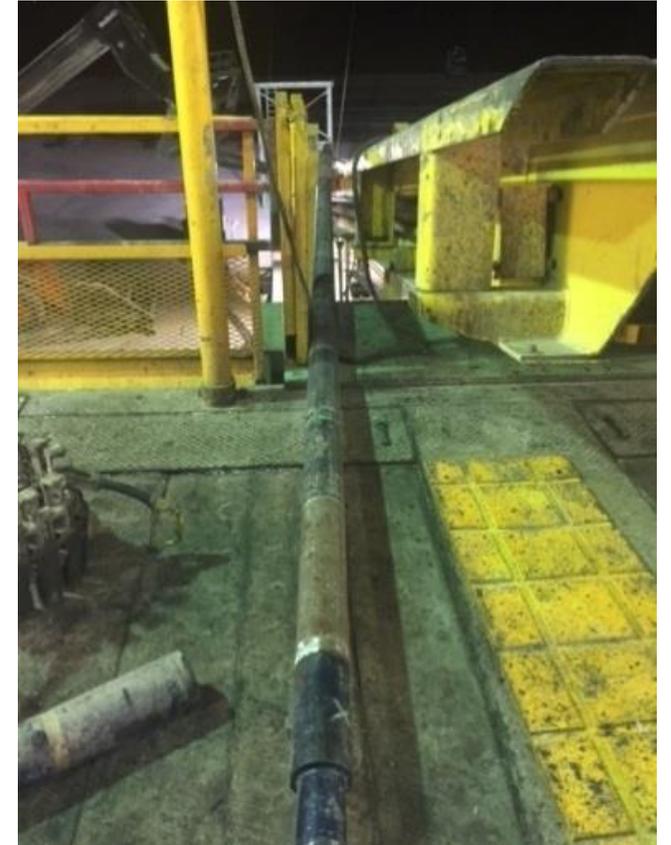
Why it Happened

- Incorrect elevator to lift nubbin compatibility. Lift nubbin had 3 1/2" body to 4 3/4" upset. Elevators had a 4 13/16" bore.

BHA Lifting Sub pass through elevator during lifting

Why it Happened

- Incorrect elevator to lifting sub compatibility
- Size engraved on elevators bushings mis-leading
- Weak work planning – procedure and instructions not including elevator compatibility checks



Example of Incident - Elevators

Double of 4" HWDP slides through elevators

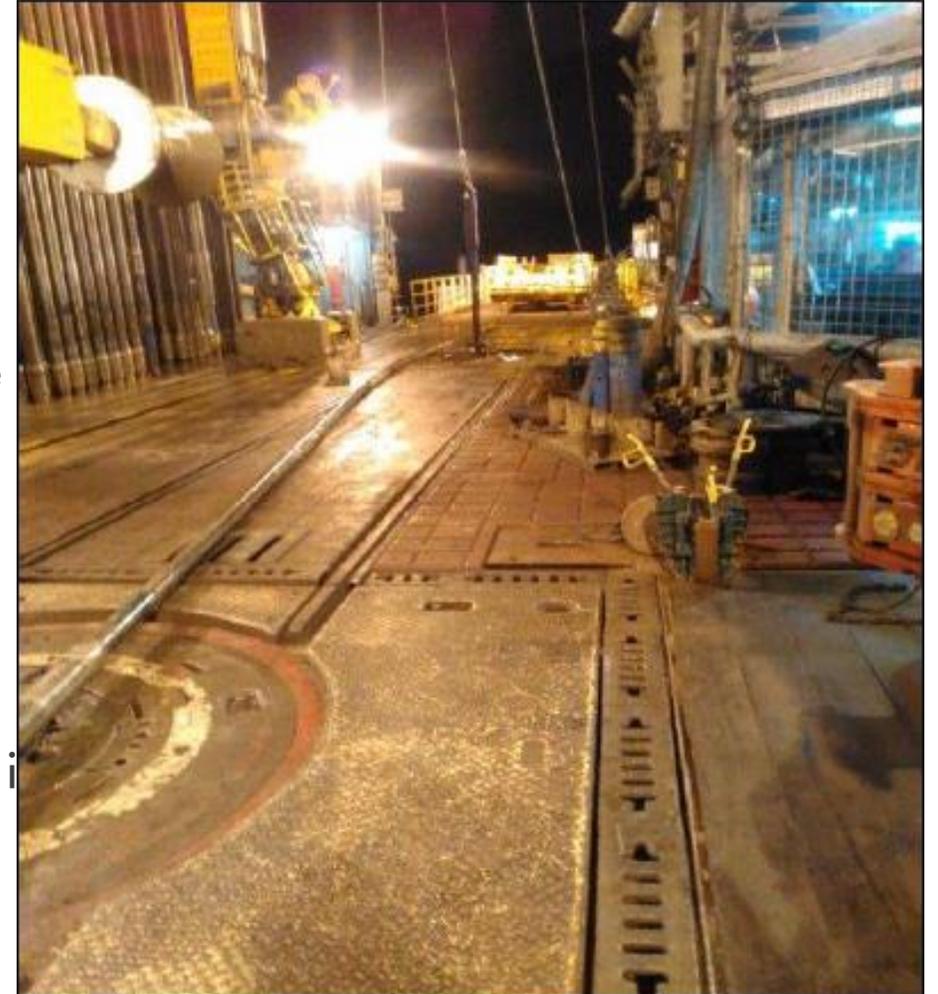
Why it Happened

- The 4" HWDP was picked up with 4.5" inserts; the incorrect elevator inserts allowed the drill pipe to slide through and fall to the deck once the double was hoisted into the vertical position.

Logging Collar Slips out of Elevator Contacting Worker

Why it Happened

- The logging collar did not have enough of an upset to remain seated in the elevators when lifted in the vertical position.
- A pick-up sub was not used to lift the LWT collar (density) from the carrier.



Action Item

ELEVATOR/PIPE MATCHING TOOL

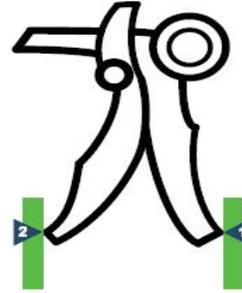
A high percentage of all dropped pipe incidents is related to selecting the wrong pipe size and/or elevator bore size.

To reduce this specific risk, NOV has developed a measuring tool that allows easy, fast and precise measurement of pipe body OD & the tool joint OD versus the elevator bore ID & the tool joint bore ID, up to 9" (229 mm).



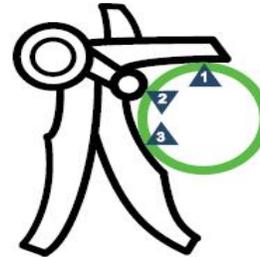
ID MEASUREMENT:

1. Insert "BoreMatch" tool into bore.
2. Spread the "BoreMatch" tool legs until the two outer tips with arrow marking make contact to bore.
3. Gently remove the "BoreMatch" tool from the bore and read the "ID".



OD MEASUREMENT:

1. Extend the "BoreMatch" tool around the pipe.
2. Push the "BoreMatch" tool against the pipe until the two legs and the center tip with arrow marking make contact with the pipe.
3. Gently remove the "BoreMatch" tool from the pipe and read the "OD".



FEATURES AND BENEFITS:

- Proper elevator selection with specific pipe, as a result reduced risk of dropped pipe incidents
- Not sensitive to dirt (i.e. mud)
- Wear indicator for reliable measurement
- Accuracy up to 1/16 inch or 1.5mm
- Light weight — plastic components eliminate the risk of down time when dropped in hole
- Graphics recessed and applied by laser to minimize risk contrast loss
- Contrasting surface roughness to ease dimension reading
- Part Number: 10710179-001

MATCHING PIPE example:



Measure elevator bore (ID) with 2-point measurement. Readout 6.1/8".



Measure pipe body (OD) with 3-point measurement. Readout 6".
The pipe matches with the bore.

MATCHING TOOL JOINT example:



Measure elevator TJ-Bore (ID) with 2-point measurement. Readout 8.1/4".



Measure pipe TJ-Diameter (OD) with 3-point measurement. Readout 8".
The tool joint matches with the bore.

