

**Key Messages**  
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 In the current state a wellhead pressure decrease from 3800 psi

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 In the current state a wellhead pressure decrease from 3800 psi to 2270 psi (pressure seafloor) results in a flow rate increase ranging from 15% to 30%  
**Alternate Case:**  
 If fluid flow is only through the drill pipe – and then the drill pipe is unintentionally removed and flows into the sea (2270 psi):  
 • For flow up the annulus the rate doubles  
 • For flow inside production casing the rate triples  
**Note:**  
 If BOP and wellhead are removed and if we have incorrectly modeled the restrictions – the rate could be as high as ~ 100,000 barrels per day up the casing or 55,000 barrels per day up the annulus (low probability worst cases)

**Scenario:**  
 • 88' reservoir  
 • 300 mD  
 • 3800 to 2270 psi

	Hanger Failure (Annular Flow)		Shootrack Failure (Casing Flow)	
	Drill Pipe Only	No Drill Pipe	Drill Pipe Only	No Drill Pipe
Skin 0	1.13	1.16	1.13	1.16
Skin 10	1.14	1.19	1.14	1.18
Skin 25	1.15	1.20	1.15	1.23

**Ratios**

	Hanger Failure (Annular Flow)		Shootrack Failure (Casing Flow)	
	Drill Pipe only	No Drill Pipe	Drill Pipe Only	No Drill Pipe
Skin 0	1.15	1.19	1.15	1.22
Skin 10	1.18	1.25	1.18	1.26
Skin 25	1.22	1.28	1.21	1.31

*Flow increases by 13-31% when wellhead pressure drops from 3800 psi to 2270 psi*