

# DEWATERING AN UNPIGGABLE GAS GATHERING LINE WITH AN ELASTOMERIC PIG

PPSA Seminar, November 2017, Aberdeen  
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# INTRODUCTION



- BP in San Juan Basin, CO, USA
- April 2017
- Land gas gathering line 4" by 2,400 ft
- Follows contour into gorge and back out the other side
- DP across gorge



# INTRODUCTION (CONT.)



*“Dewatering an unpiggable gas gathering line with an elastomeric pig”*

- Dewatering:  
(The requirement)                      Restricted flow, corrosion threat
- Unpiggable:  
(The challenge)                              No launcher or receiver
- Gas Gathering line:  
(The asset)                                      One of many feeding into main trunk line
- Elastomeric pig:  
(The solution)                                  Aubin’s EVO-Pig



# DESCRIPTION OF CHALLENGE

- Water accumulation in low point

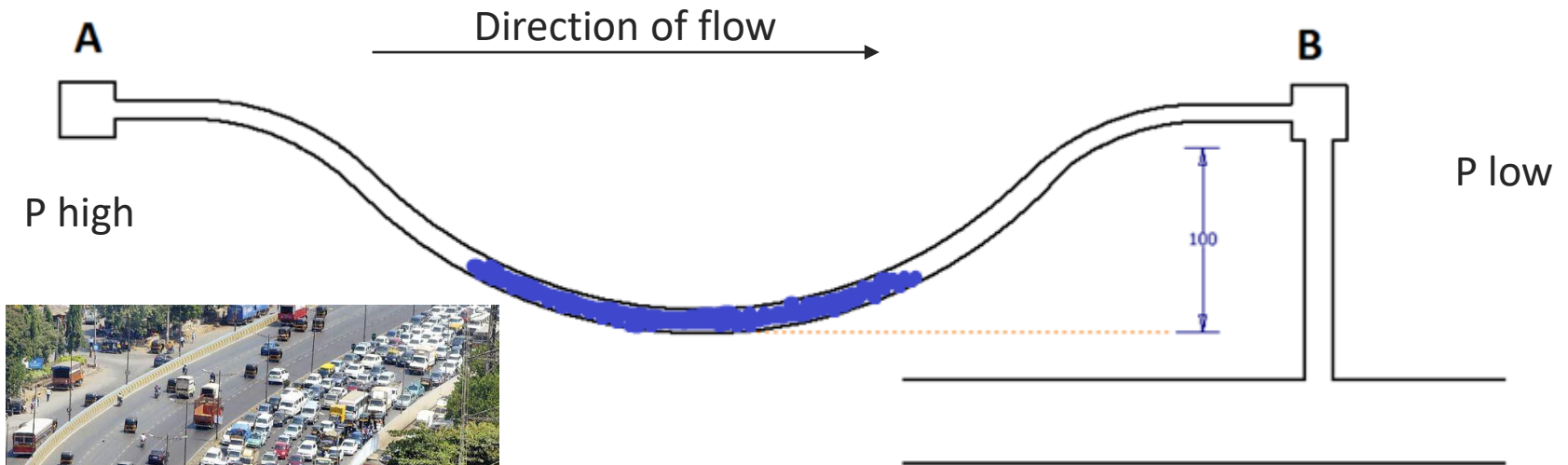


Photo credit: mid-day.com



# OPTIONS

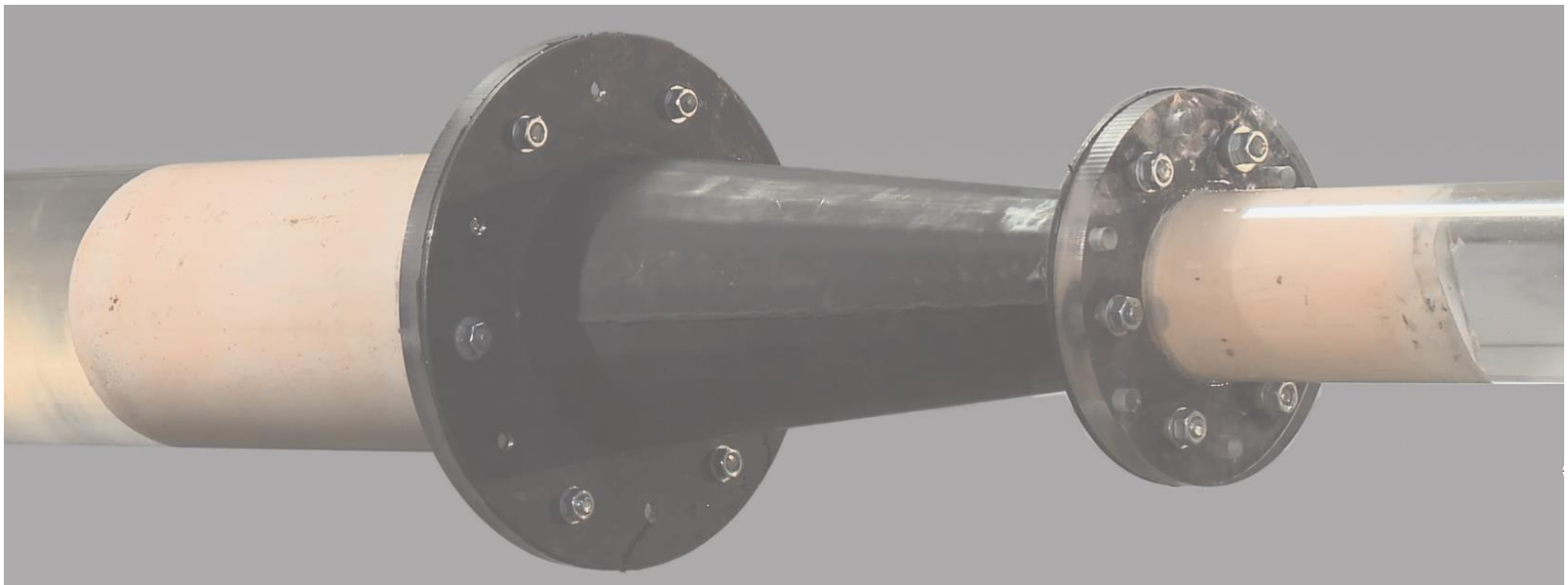
- Do nothing
- Install pig launcher and receiver
- Elastomeric pig

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# EVO-PIG

- Solid body like foam pig but not filled with air
- Deformable

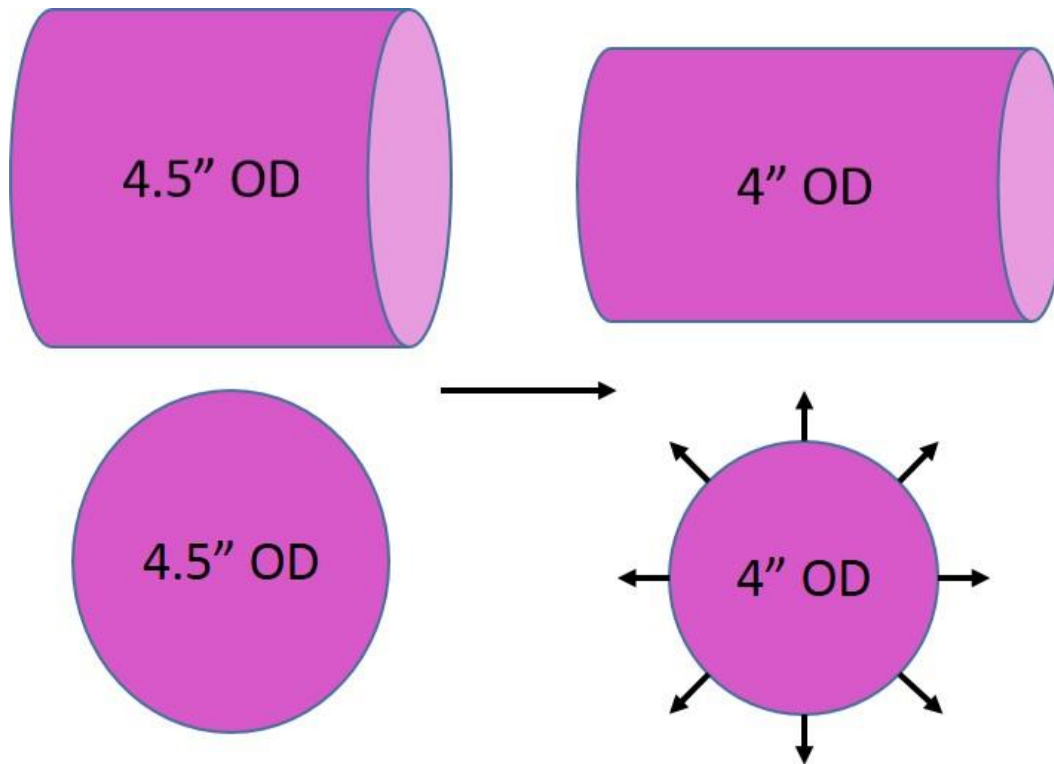


\*Previously L-Gel Pig



# EVO-PIG (CONT.)

- Cast from 2 liquids which cure and form a “memory”
- Designed to be over-sized
- Hugs contours of pipewall always providing hydraulic seal



\*Previously L-Gel Pig



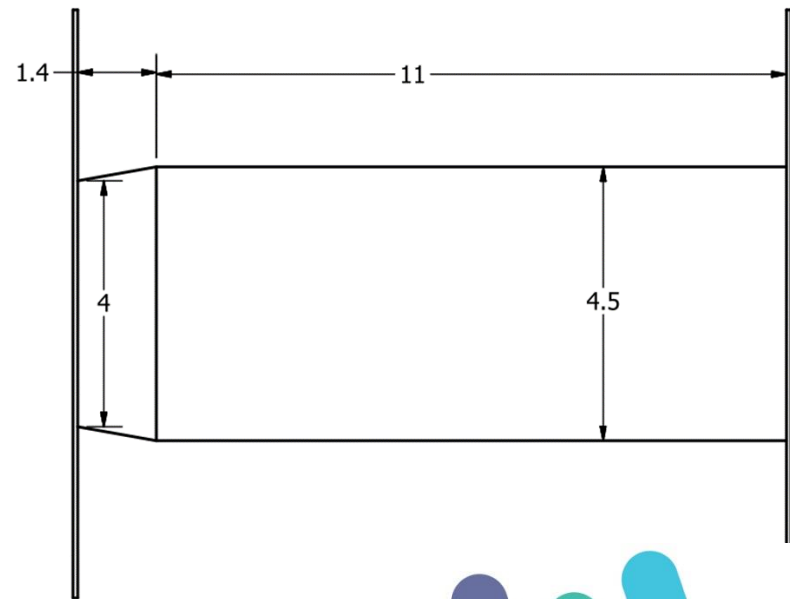
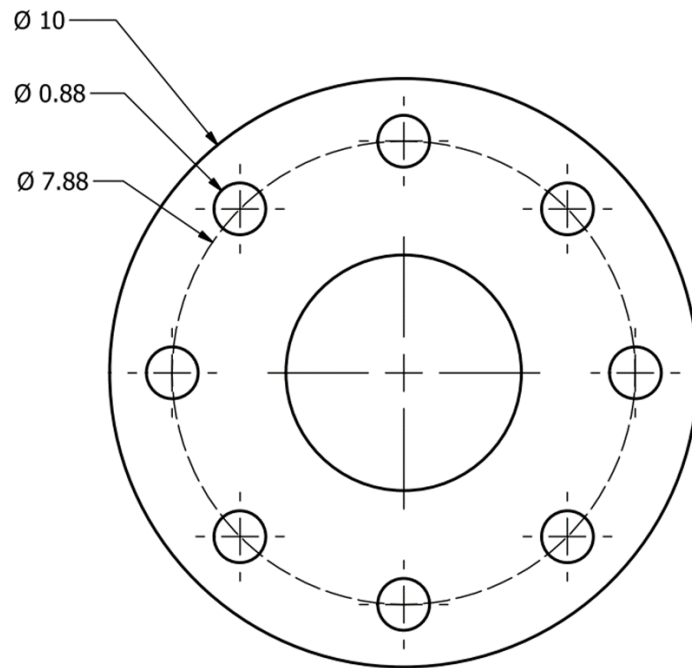
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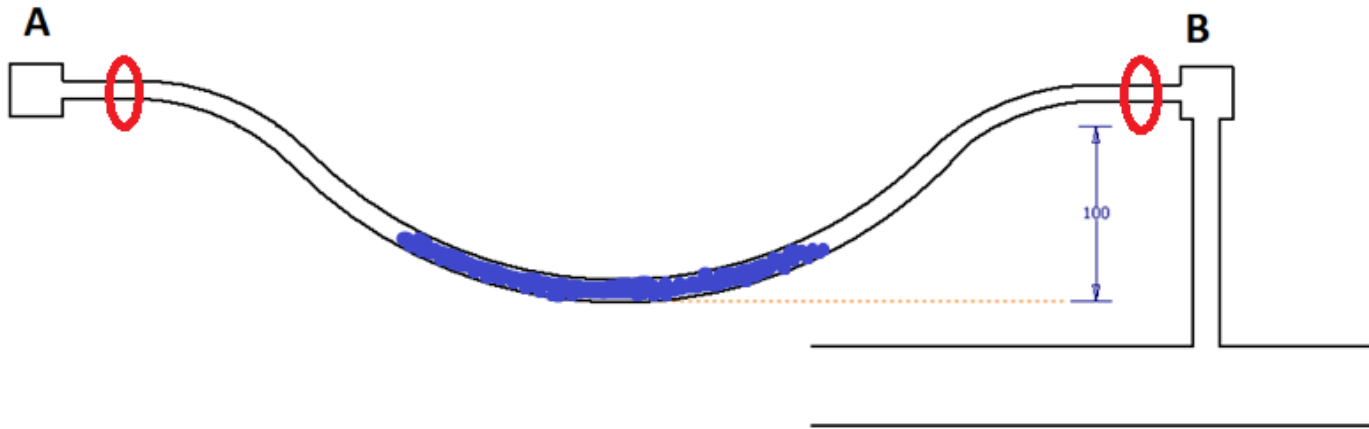


# CANISTER (CONT.)

1. Mould for casting EVO-Pig in – creating “memory”
2. Storage, transport to site
3. Launching mechanism



# PROPOSED SOLUTION



- Launch pig at dropped spool
  - EVO-Pig can be inserted from canister at flange
- Push with natural gas
  - EVO-Pig maintains a hydraulic seal to avoid losing drive or allowing bypass
- Receive through blowdown valve
  - EVO-Pig extrudes through complicated pipework



# OPERATION: LAUNCH

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Photo credit: [www.pigracing.com](http://www.pigracing.com)





# OPERATION: LAUNCH



# OPERATION: LAUNCH



- Isolated 2,400 ft section
- Vented gas
- Removed spool (crane truck)
- Attached canister
- Pushed EVO-Pig into line with plunger
- Removed canister
- Spool reinstalled
- Purged air





OPERATION: RUN

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# OPERATION: RUN



- Teams at launch and receive sites, communicating by radio
- Choke controlling gas flow
- Pig speed correlated with gas flow entirely – no bypass
- Planned 3 ft/s
- BUT operator accidentally watched the wrong gauge!
- EVO-Pig ran at 15 ft/s

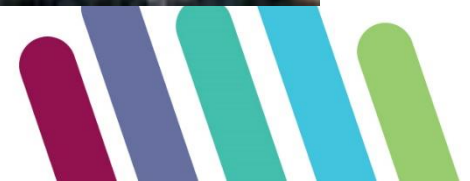


# OPERATION: RECEIVING

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Photo credit: Albion News Online





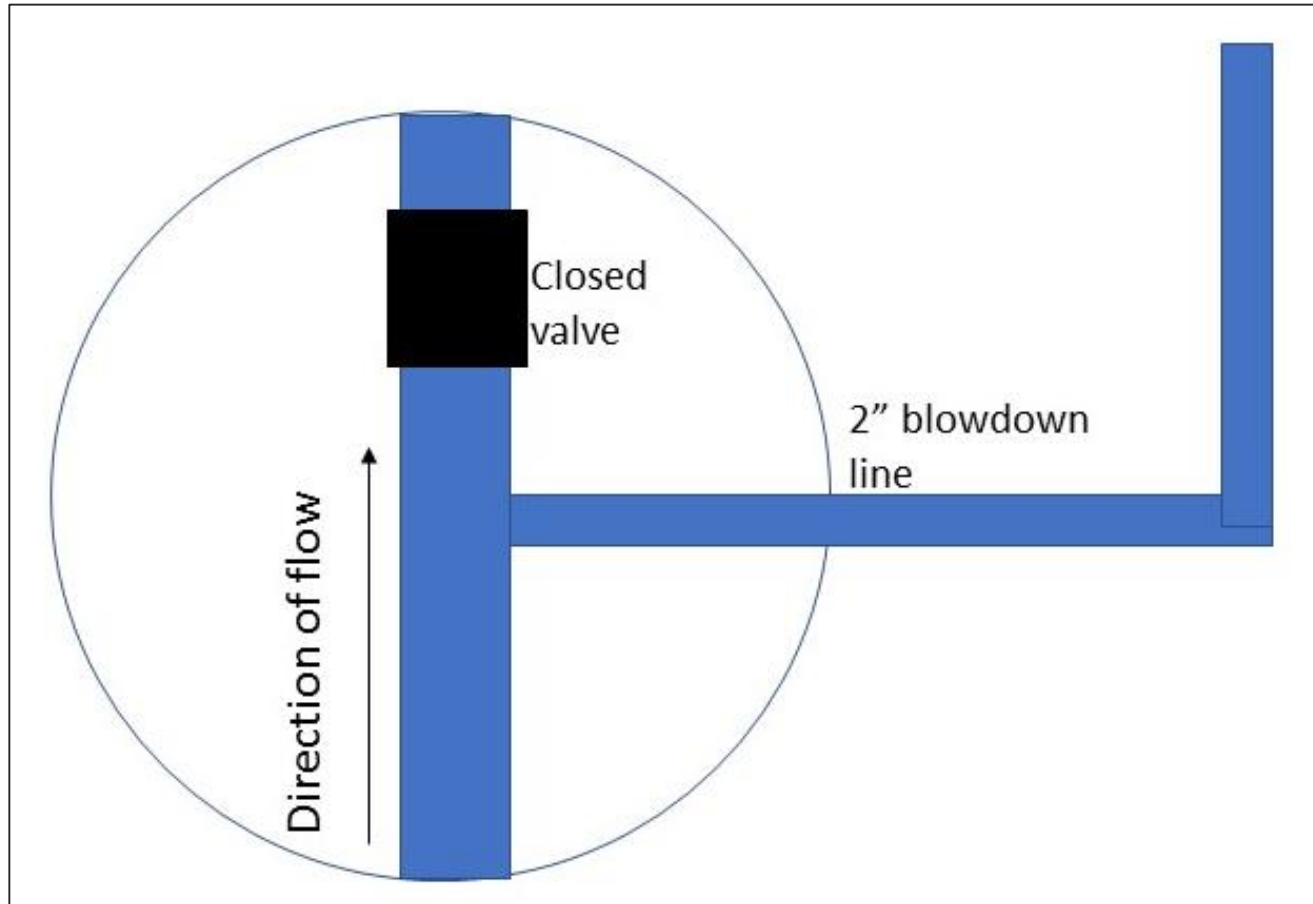
# OPERATION: RECEIVING



Temporary tank placed on wellpad and plumbed into blowdown line



# OPERATION: RECEIVING



# OUTCOMES

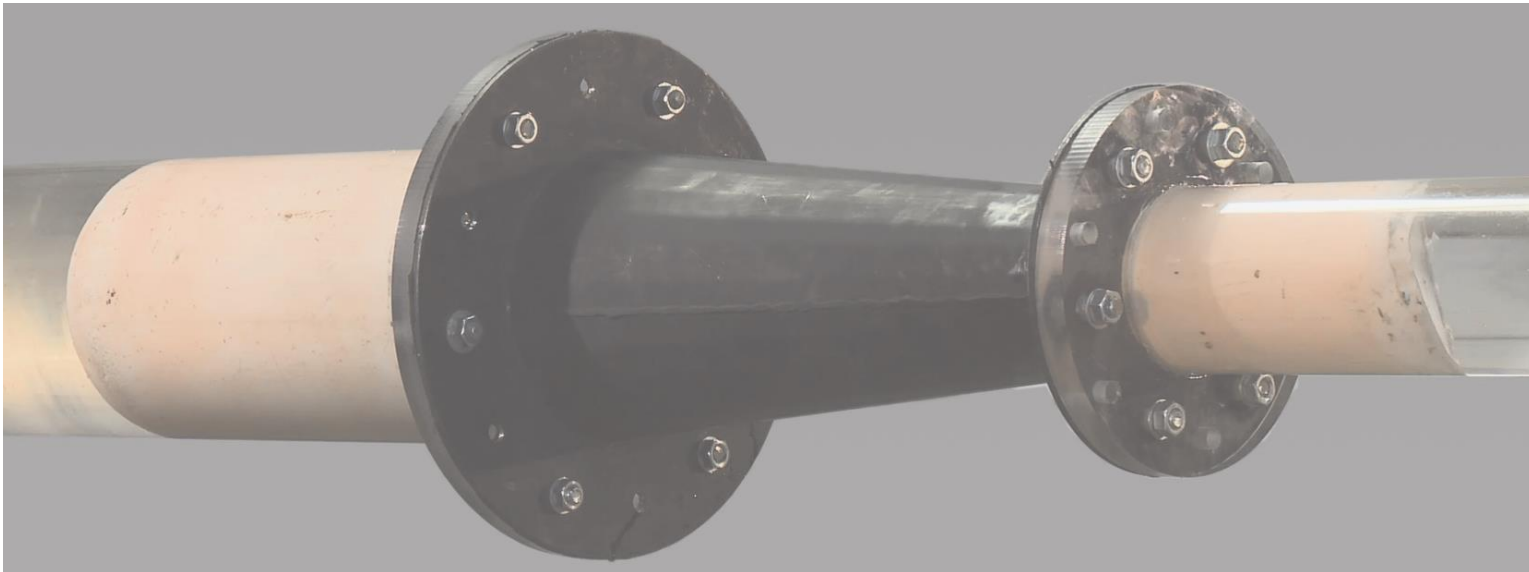
1. 2 bbl water received as expected
2. EVO-Pig retrieved through blowdown line as planned
3. Differential pressure reduced from 10 psi to 1.5 psi
4. Client regarded operation as a success



# SUMMARY

*“(Successfully) Dewatered an unpiggable gas gathering line with an elastomeric pig”*

- Dewatered: Received water matched predicted
- “Unpiggable”: Saved around \$70k on infrastructure modifications
- Gas gathering line: Needed an excellent hydraulic seal
- Elastomeric pig: No bypass, extruded through blowdown line





# ACKNOWLEDGEMENTS



Thanks to:

BP L48 San Juan, particularly David Preston

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PPSA



# THANK YOU

Questions welcomed

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