

# SUBSEA LAUNCHING INTO LIVE GAS PIPELINES

## Challenges and Functional Requirements

Dr. Aidan O'Donoghue, November 2021

[aidan@pipeline-research.com](mailto:aidan@pipeline-research.com)

In association with  
IKM Testing AS  
and  
Pigging Products and Services Association



# Content

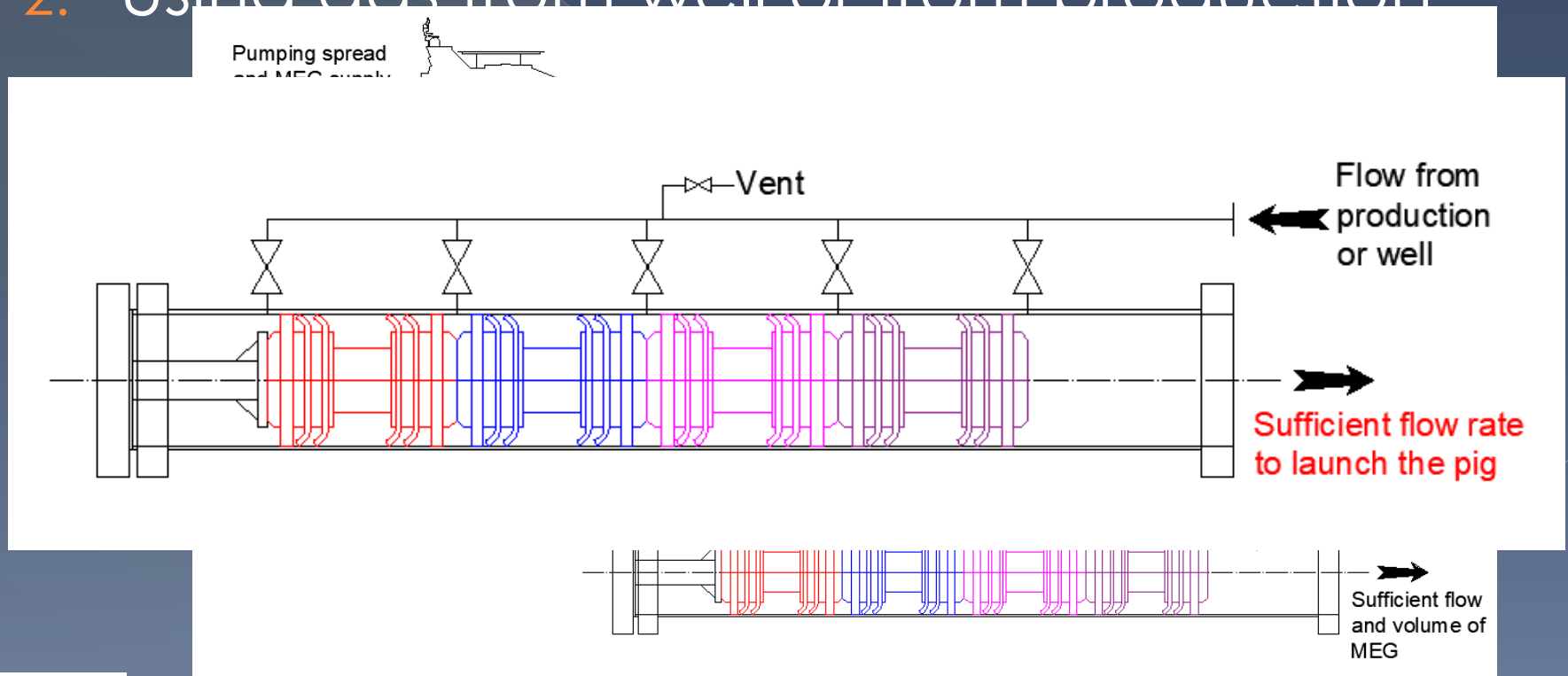
1. Launching methods
2. Launcher General Layout and Functional Requirements;
3. Dynamic pigging model for gas pipelines;
4. Case study 1: Pressure equalisation;
5. Case study 2: Dual diameter line;
6. Over to IKM...

# Methods of launching

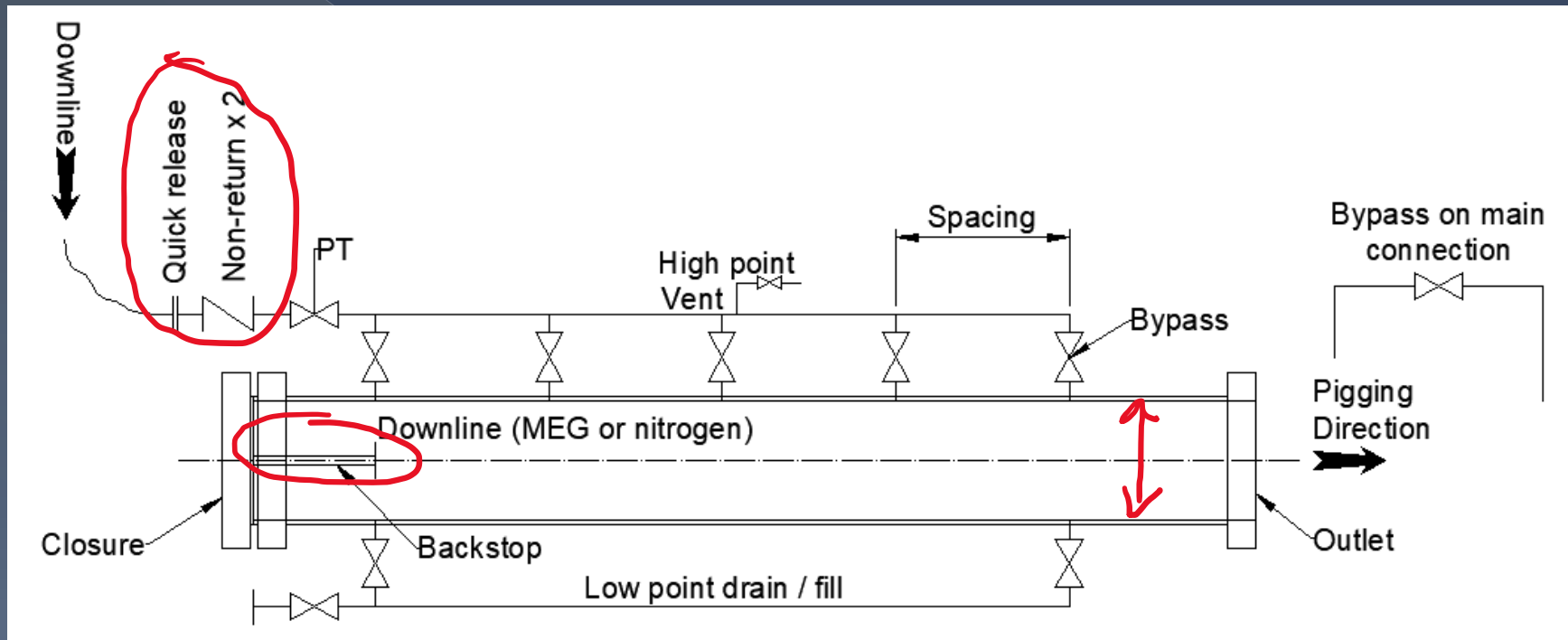
## 1. Downline...

Nitrogen or MEG downline;

## 2. Using gas from well or from production

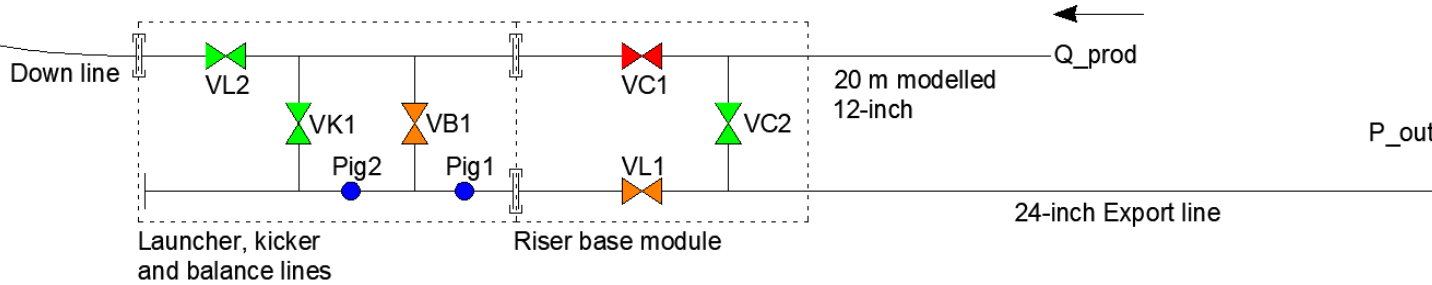


# Generalised Launcher Layout



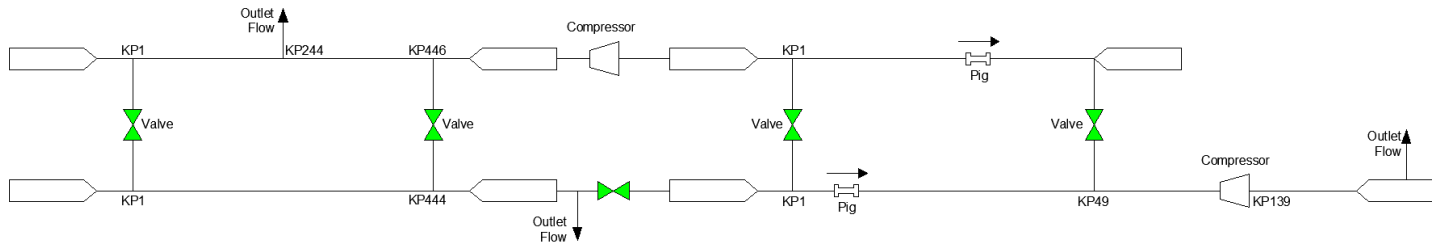
# Complex dynamic models

## Subsea Launcher



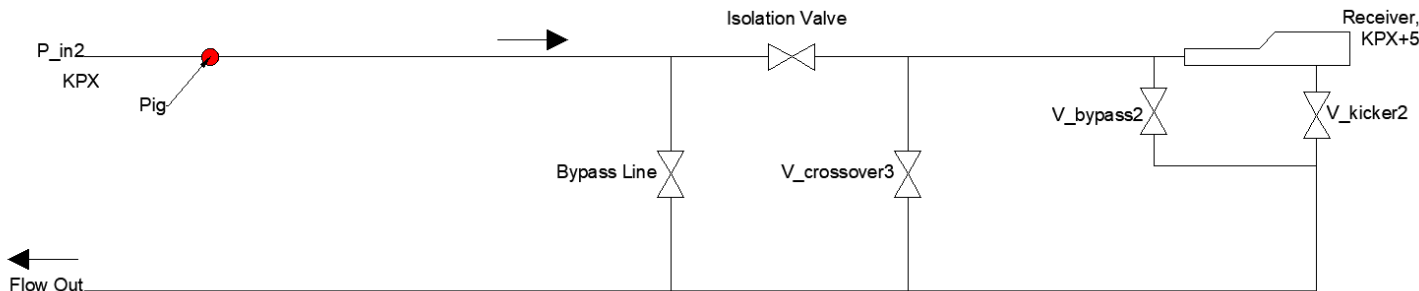
Subsea launcher design

## Large Pipeline Network



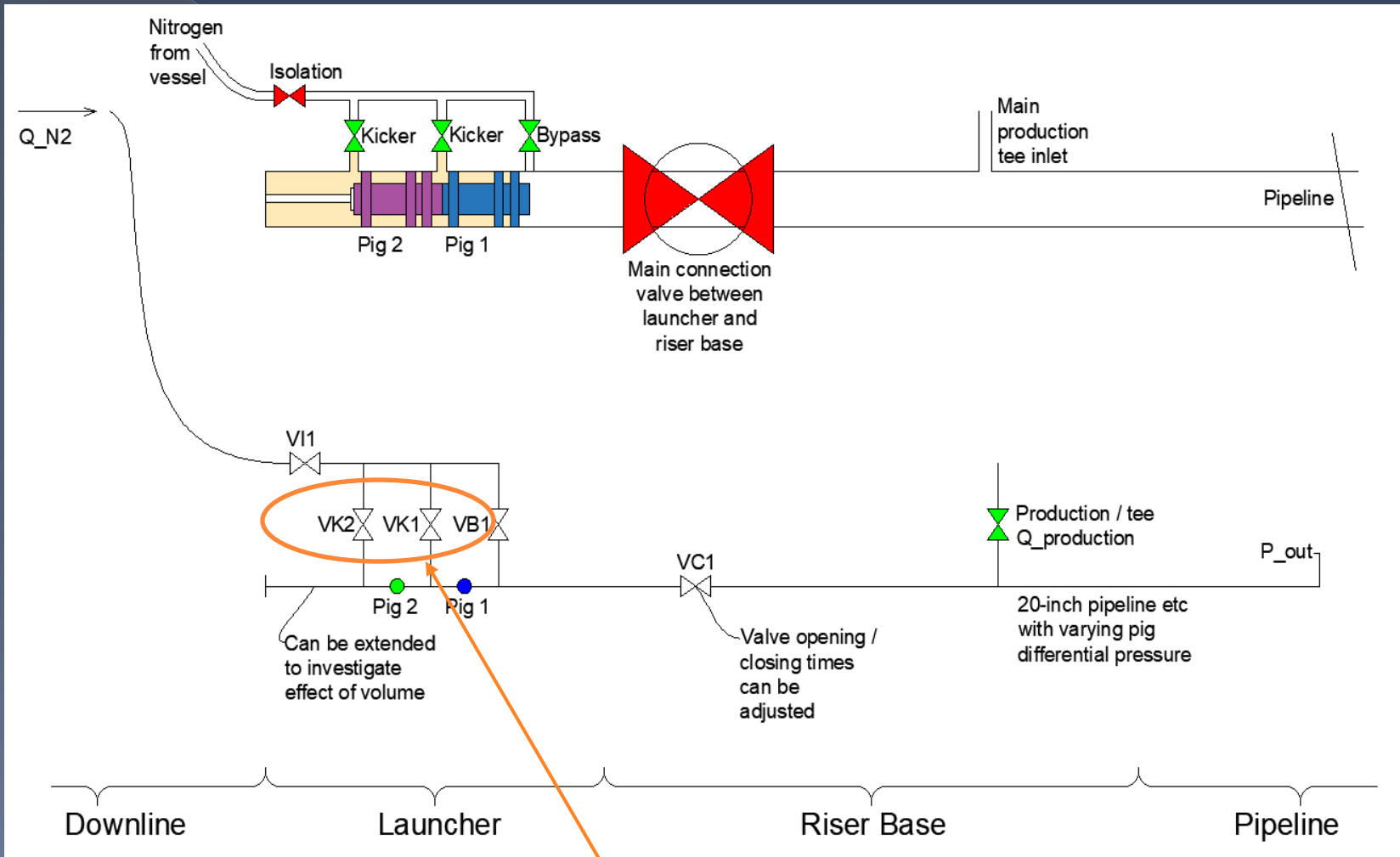
Scheduling, flow assurance

## Pig Receipt



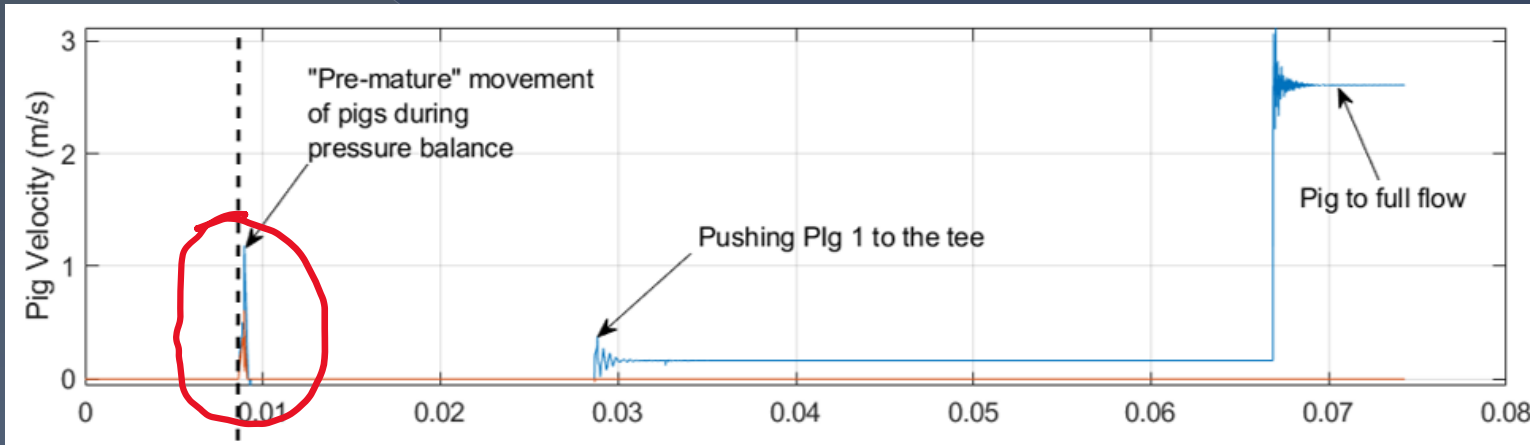
Training, verify procedures

# Case 1: Pressure Equalisation

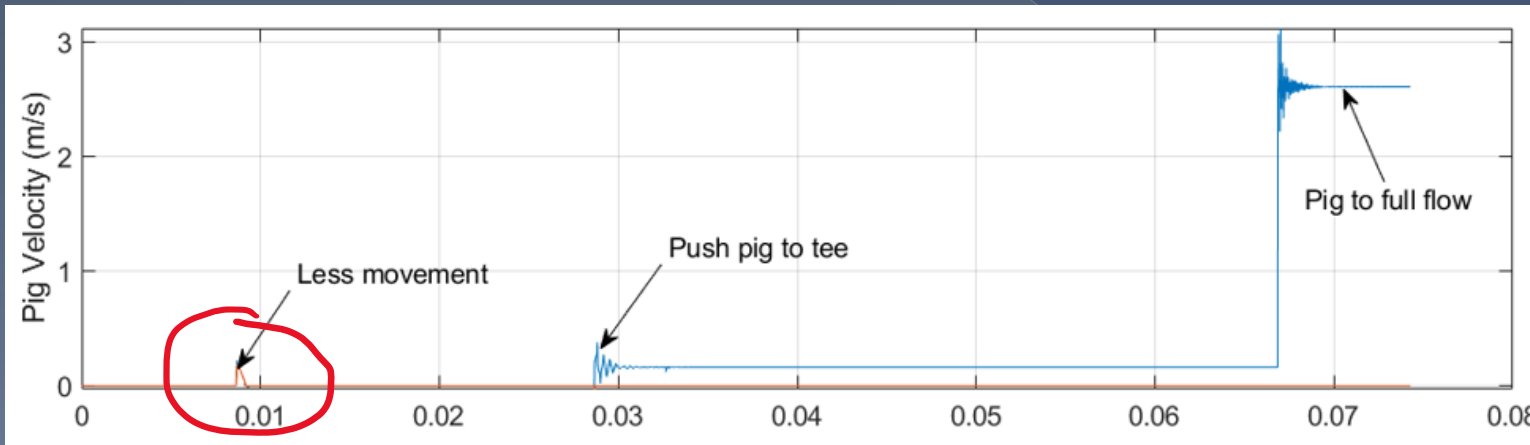


Should the kicker valves be open or closed during equalisation of pressure?

# Case 1: Simulation output



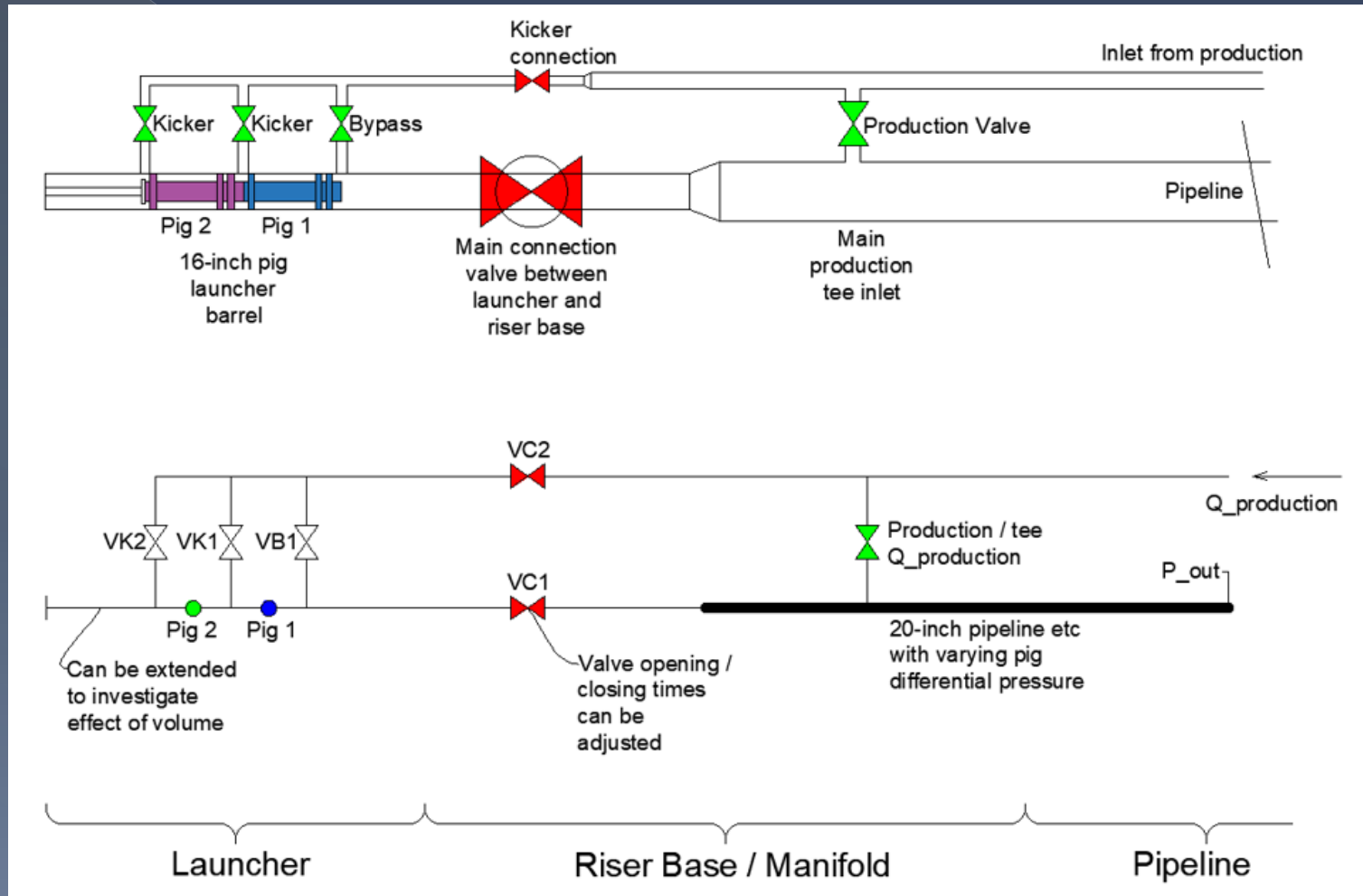
Kicker lines closed during equalisation



Kicker lines open during equalisation

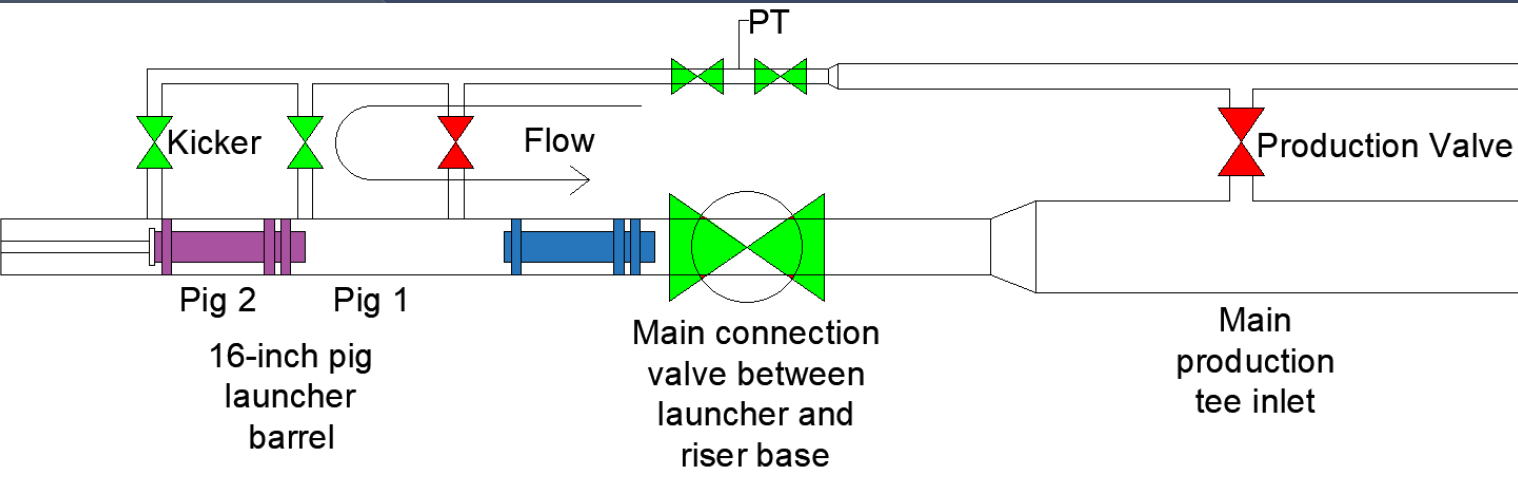
Time (hours)

# Case 2: Dual diameter line

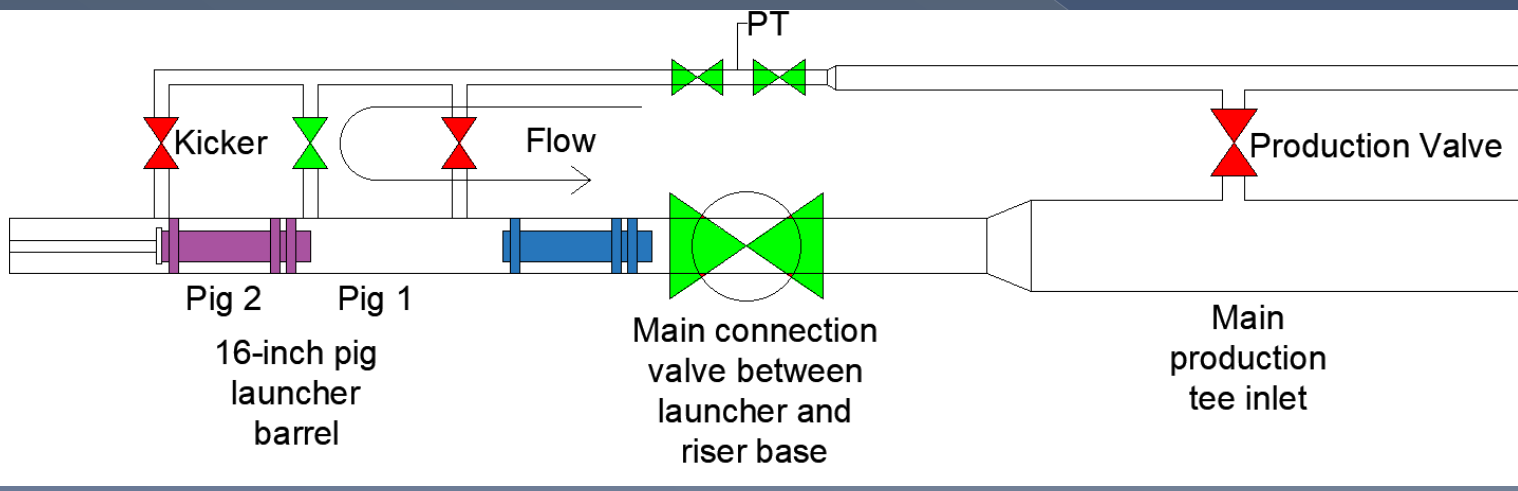




# Two ways of launching

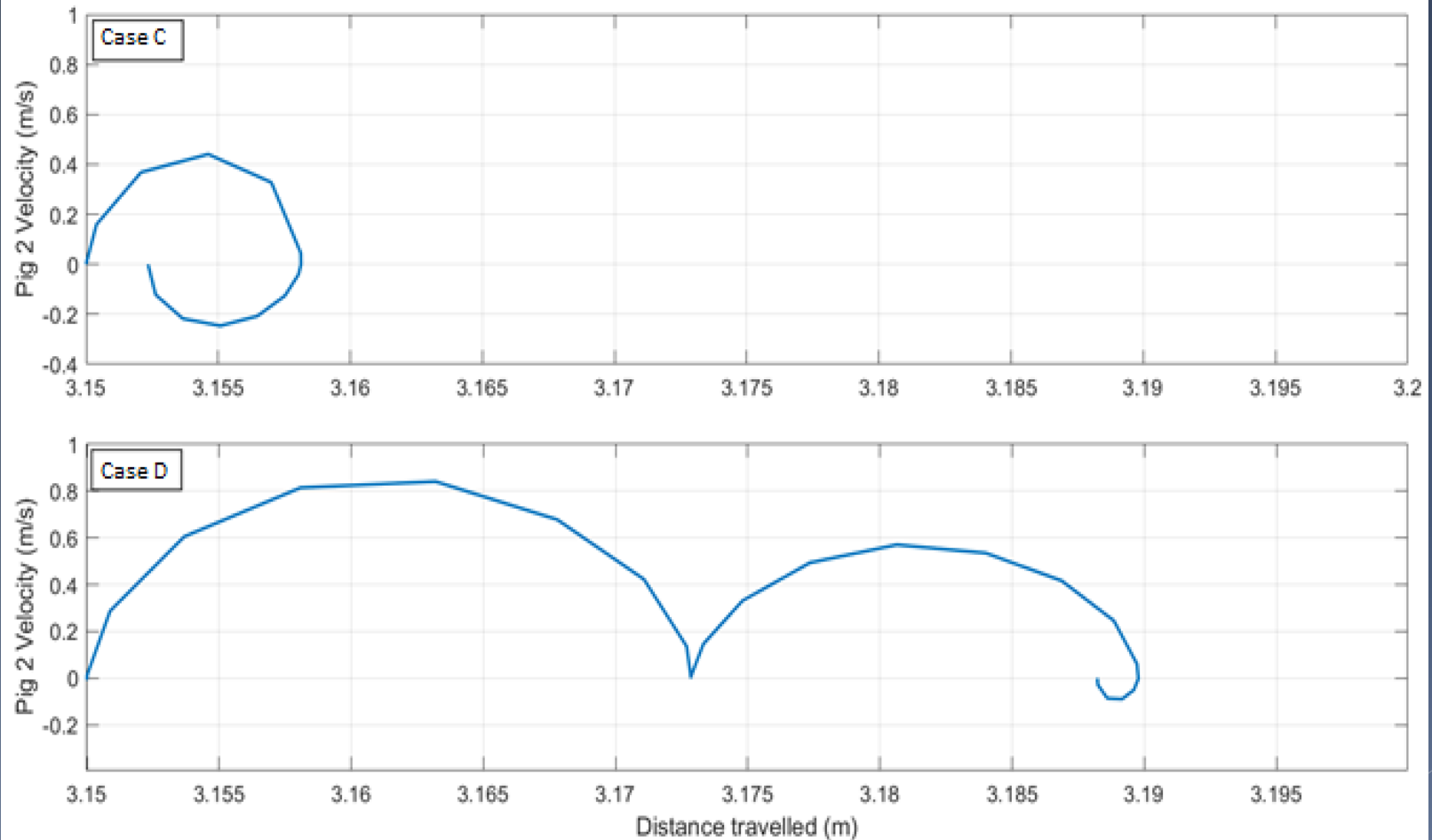


1. Keep kicker lines open



2. Open kicker behind each pig

# Case 2: Output



Motion of second pig - Better to keep the kicker lines open

# Thank you...



## And now for IKM Testing AS...