

# Using Real-Time Drilling Data for Improved Risk Management in HDD

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HDD risk events result  
in a **40% increase** in  
time on these  
projects on average.



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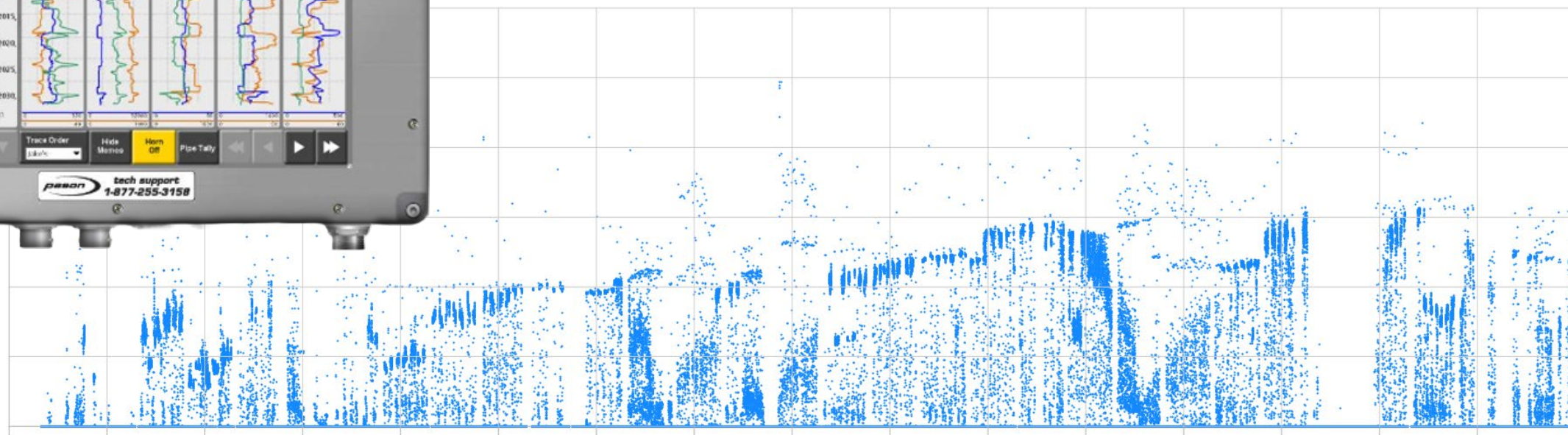




# EDR Time Series Drilling Data



TORQUE



DAYS

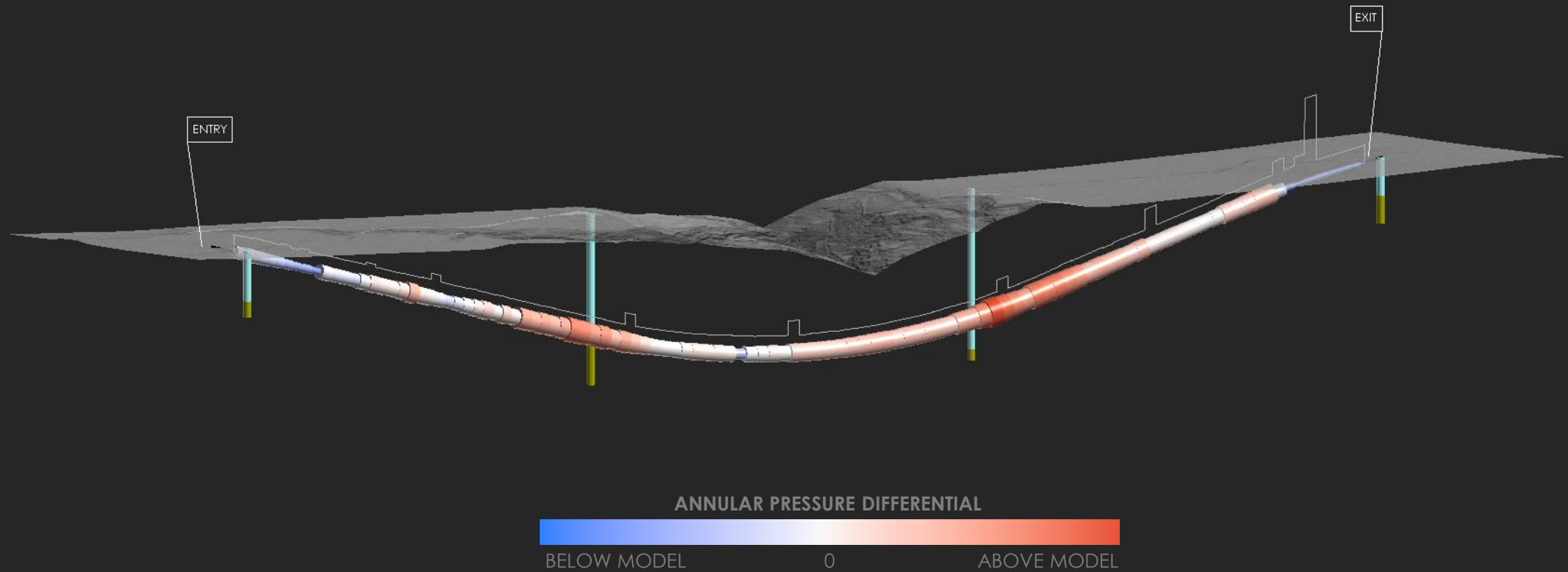


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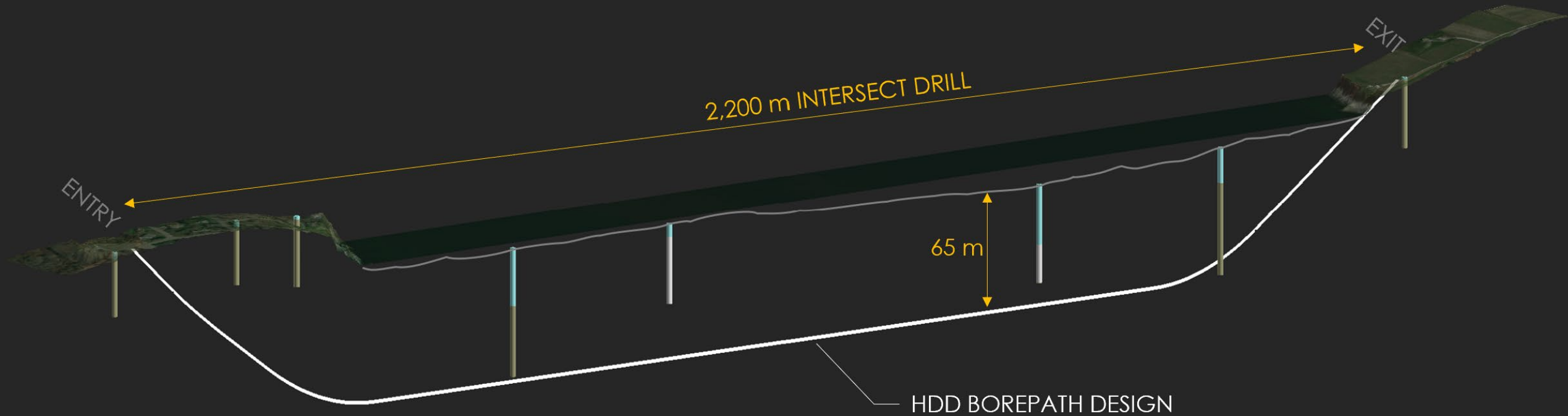
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# Case study

## HDD Design



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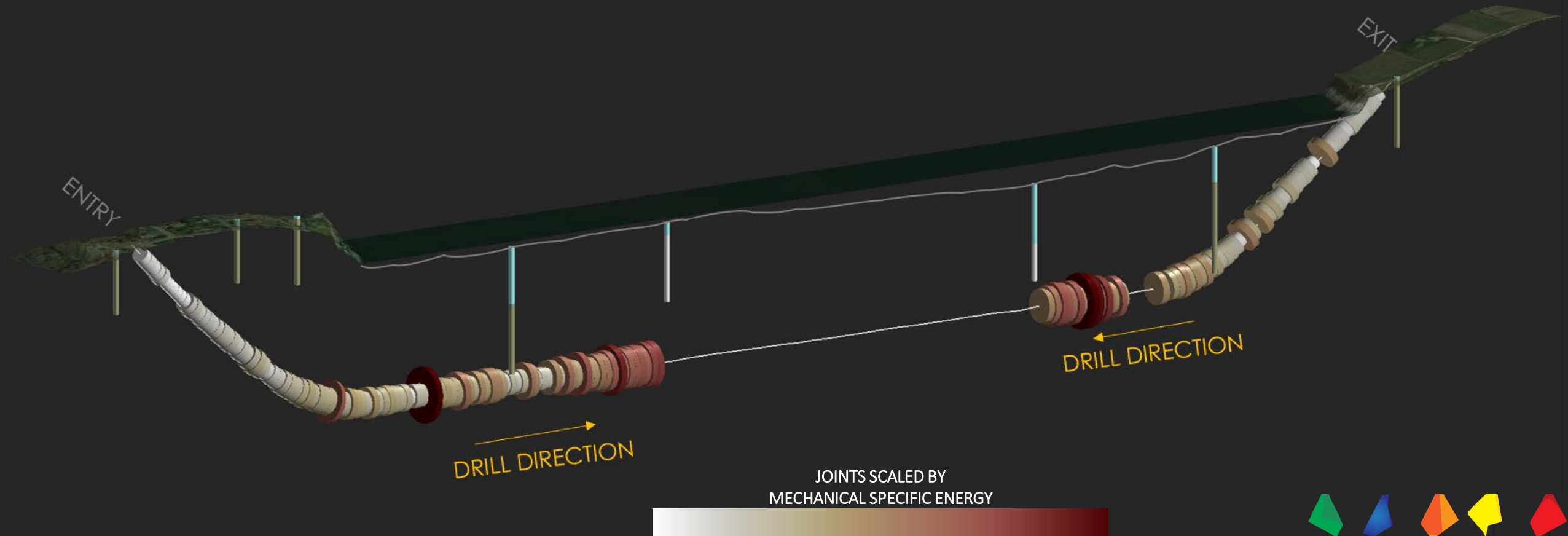
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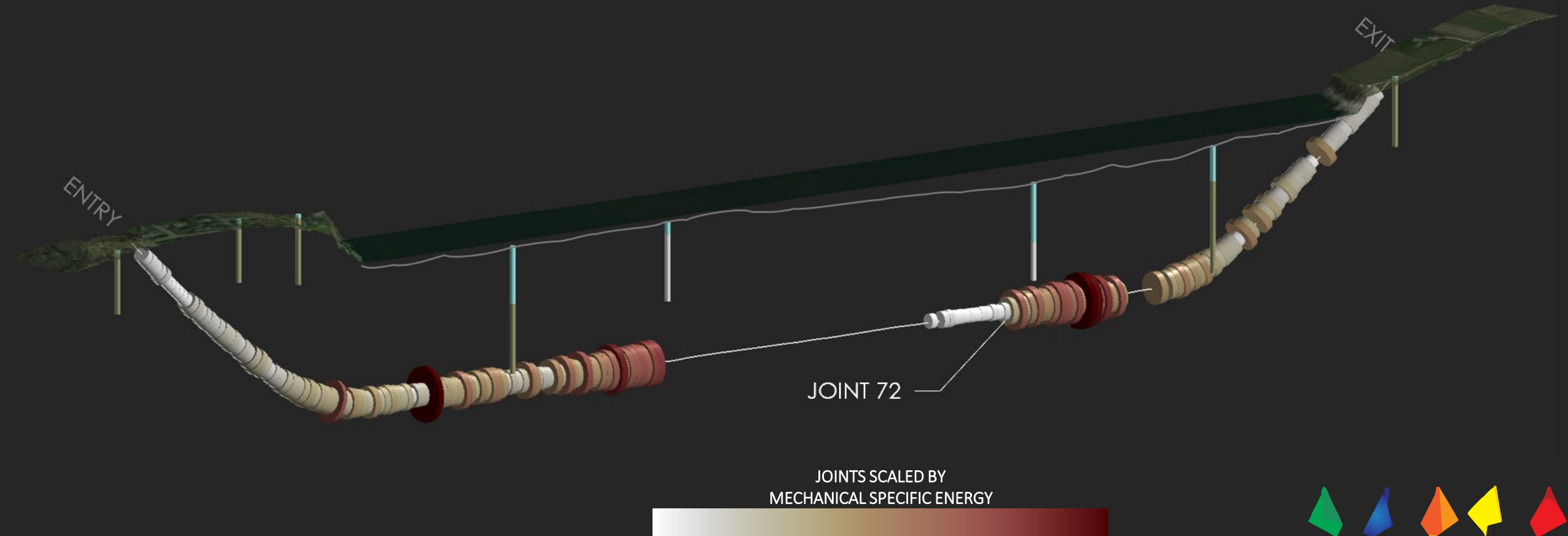
# Case study

## Pilot Mechanical Analytics Per Joint



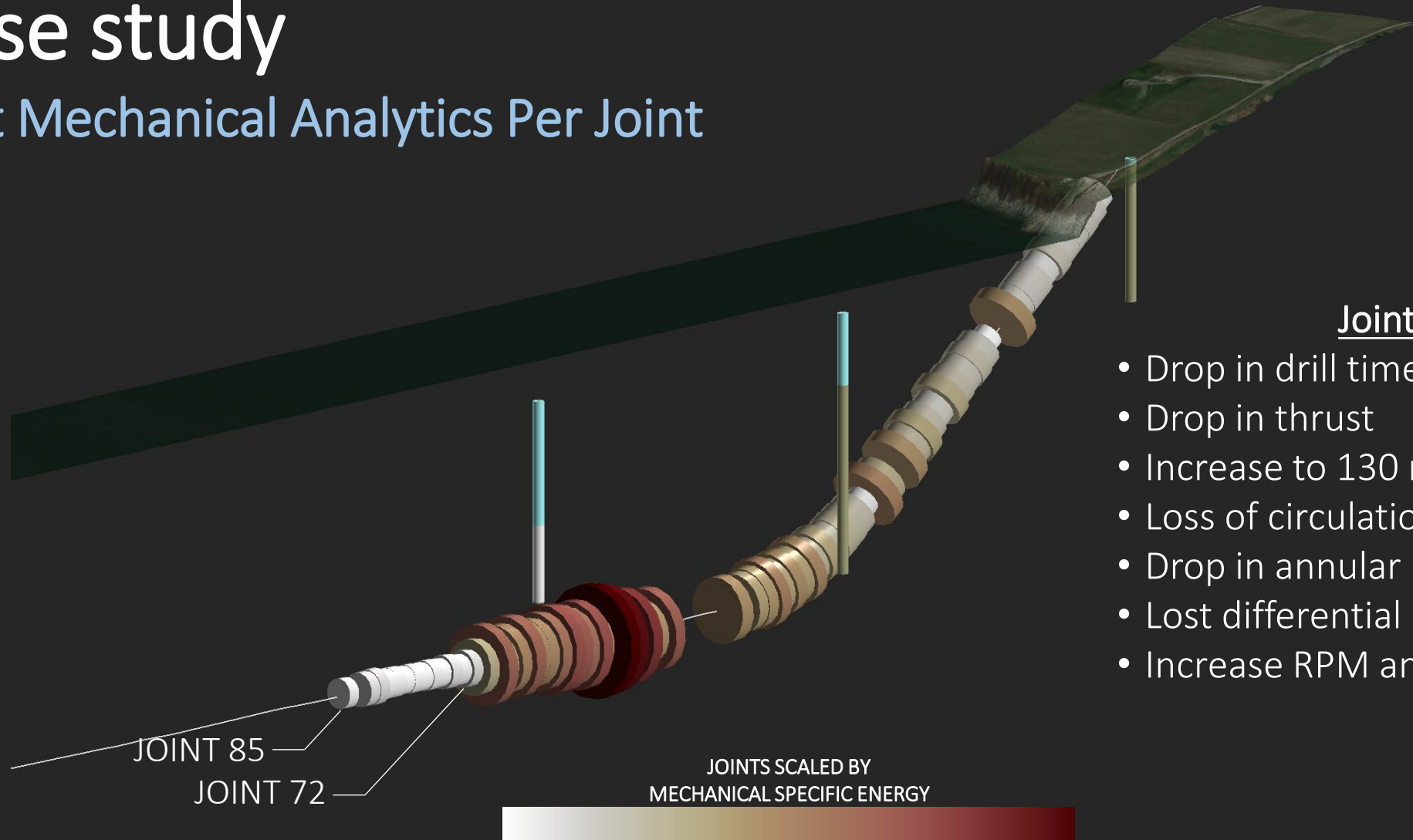
# Case study

## Pilot Mechanical Analytics Per Joint



# Case study

## Pilot Mechanical Analytics Per Joint



### Joints 72 to 85

- Drop in drill time to 5 min
- Drop in thrust
- Increase to 130 m/hr ROP
- Loss of circulation
- Drop in annular pressure
- Lost differential pressure (mud motor)
- Increase RPM and torque on rig

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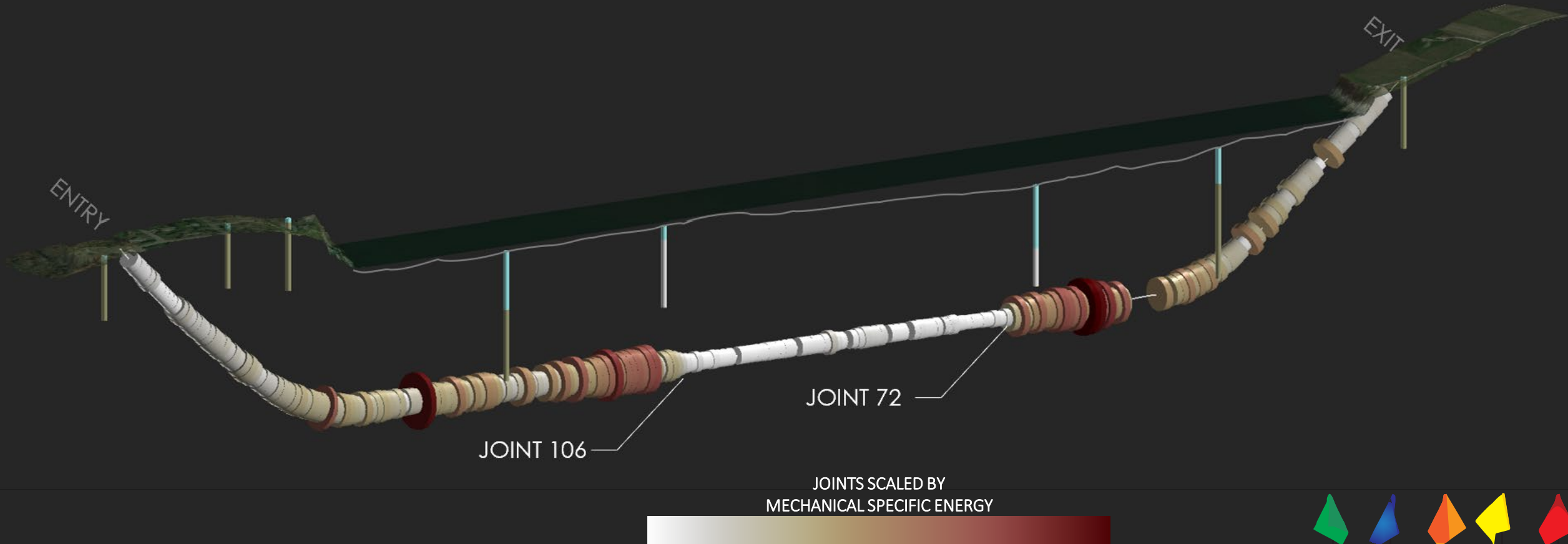
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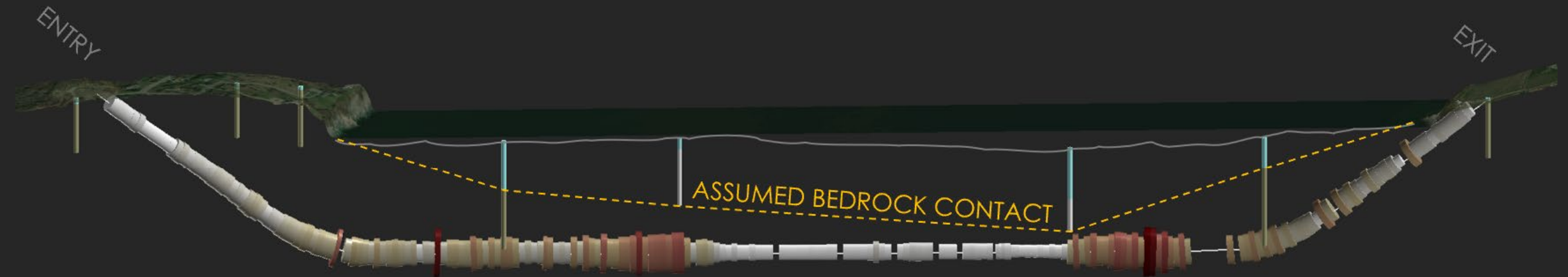
# Case study

## Pilot Mechanical Analytics Per Joint



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## Pilot Mechanical Analytics Per Joint



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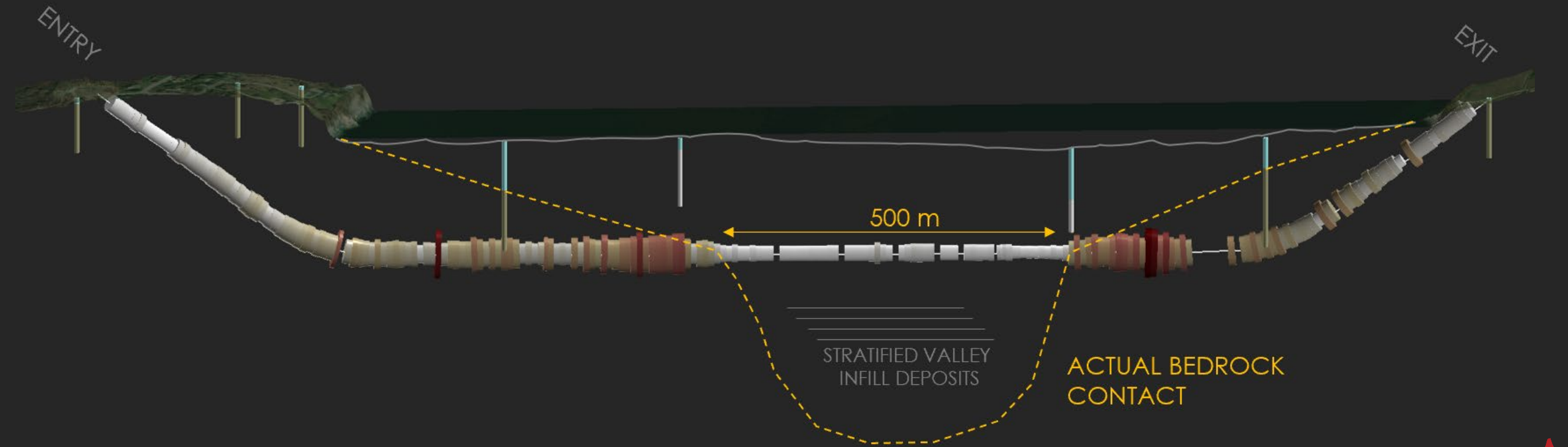
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## Pilot Mechanical Analytics Per Joint





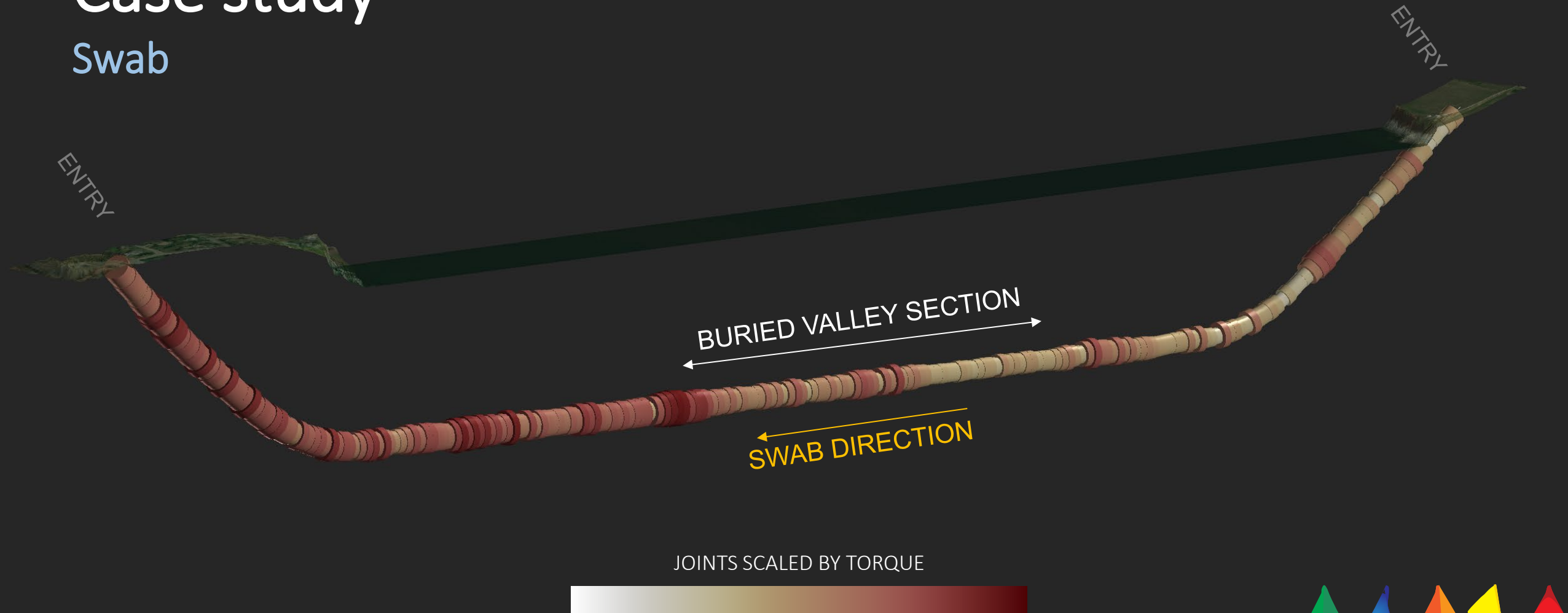
# Case study

Ream



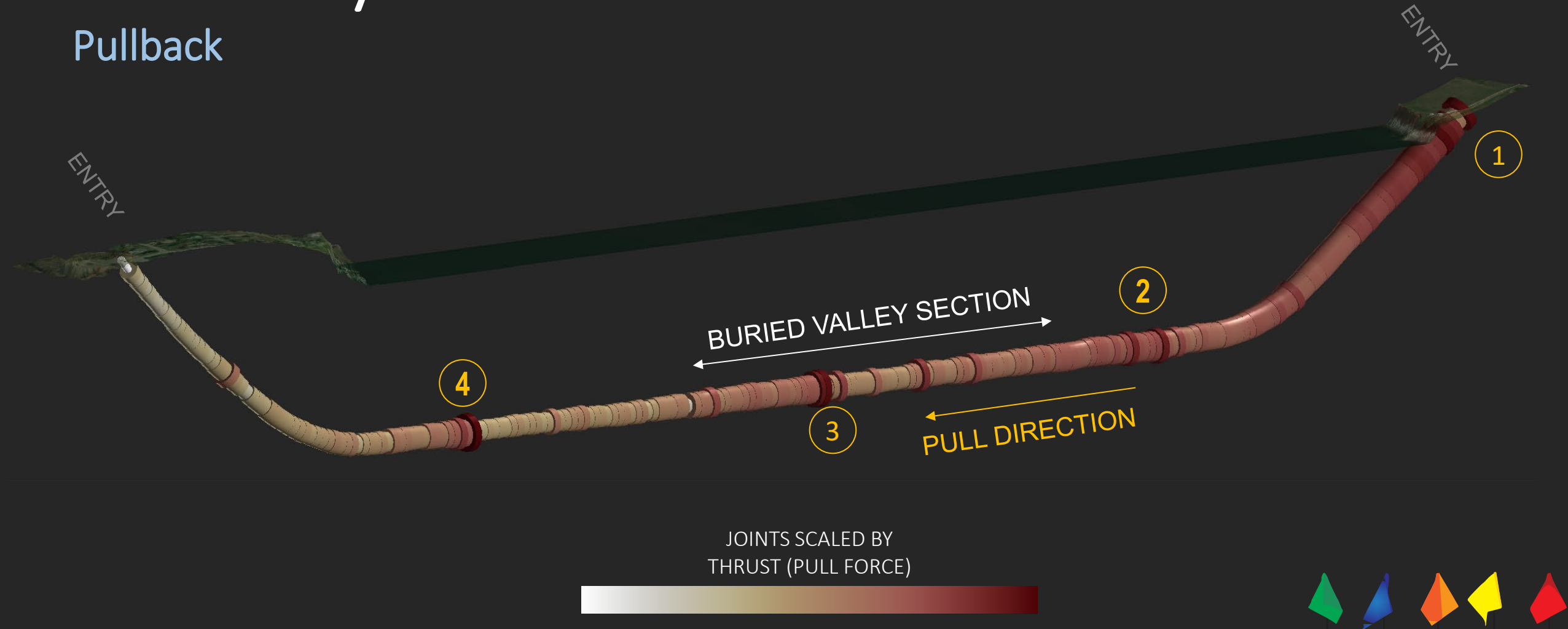
# Case study

## Swab



# Case study

## Pullback

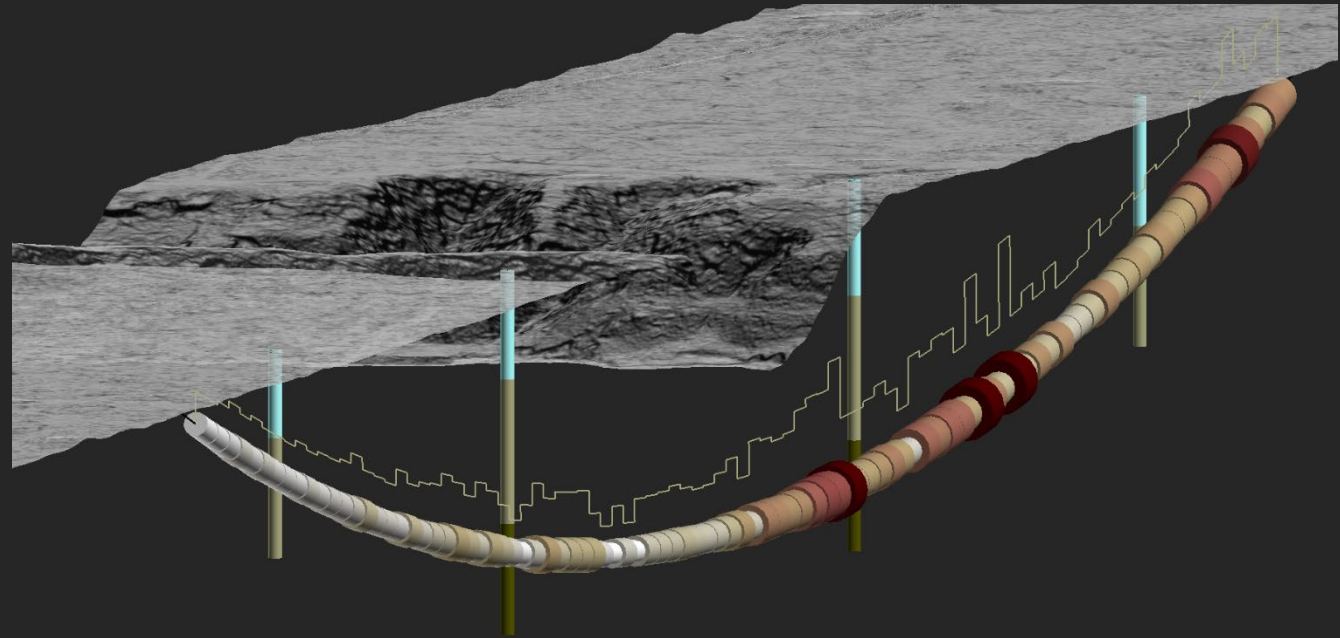




# Conclusions

## Applications and use-cases for leveraging real-time drilling data

- Comprehensive remote HDD monitoring
- In-depth drilling parameter insights
- Facilitates root-cause analysis
- Data-based decision-making during drilling
- Improves communication
- Boosts collaboration and transparency
- Automated documentation and record keeping
- Improves schedule and cost predictability
- Provides a basis for claims review and conflict resolutions
- Back-analysis and planning
- Horizontal investigation



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# Thank You

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