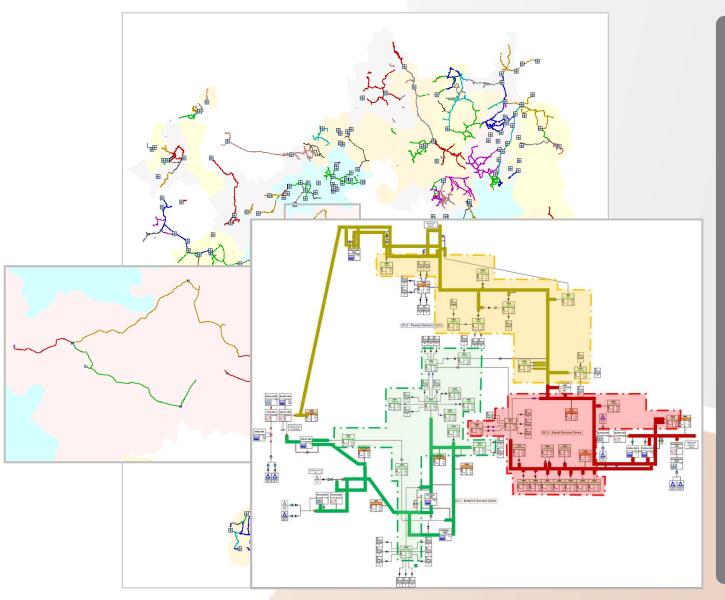
# Upstream leakage: What data validation is required and what are the challenges around data?

# What data validation is required and what are the challenges around data?

Dilraj Dhillon, Crowder Consulting
3<sup>rd</sup> December 2024



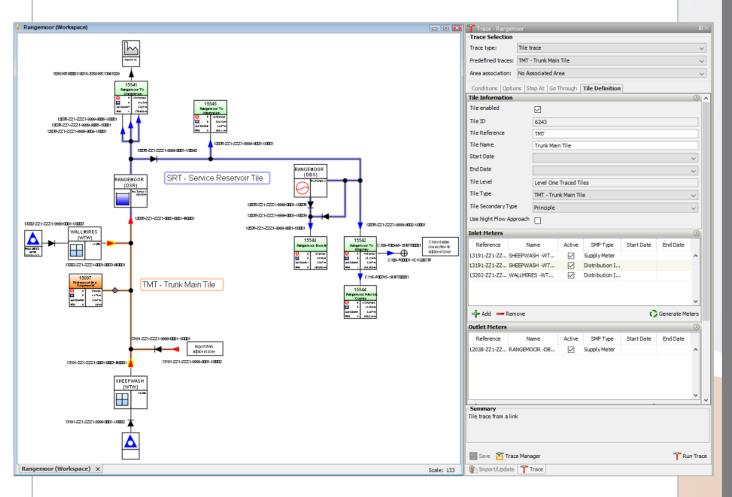
# Validating the Upstream Network's Assets, Connectivity and Demand

### **Process**

- To produce flow balances, the upstream network containing the trunk main and service reservoirs, needs defining and validating.
- GIS data can be analysed to create a schematic to act as a focal point for this.

# **Challenges**

- Missing assets such as cross connections, valves and meters
- The presence of 'ghost' assets
- The status fields on assets being incorrect
- Assets are shown in the wrong direction



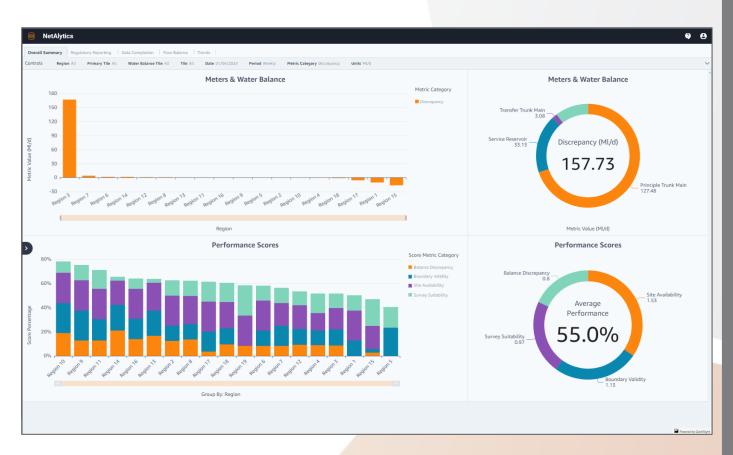
# Tile Definition

### Process

- With the schematics created, the tiles can be defined.
- Each one will include inlet supply meter(s), and a combination of the following:
  - outlet supply meter(s)
  - district metered offtakes
  - demand offtakes
  - service reservoirs
  - large metered users
  - closed valves

# Challenges

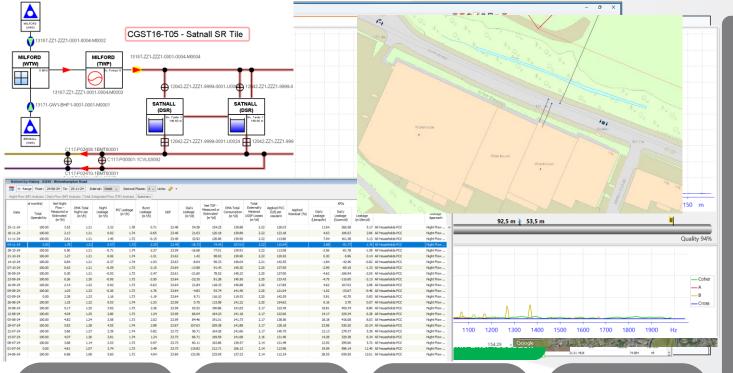
- Missing or anomalous telemetry data for meters and tanks
- Mismatches in referencing or naming between systems
- Operational changes to network to meet supply demand needs



# Tile Balances & Scores

### **Process**

- Using a flow balance approach, discrepancies can be produced between the supply flows and demand offtakes, also including any change in storage within service reservoirs that are part of the tile.
- An operable / non-operable status can be applied to the discrepancy by calculating key score metrics.
- A high score is representative of an operable status and indicates that the tile discrepancy can be targeted for detection and repair and put in the context for further analyses and regulatory reporting.



# **Discrepancy**

# Challenges

- Configuration
- Connectivity
- Demand allocation
- DMA operability
- Leakage

# Available & Reliable

# **Challenges**

- Missing data
- Monitoring inaccuracies
- Faulty telemetry instrumentation
- Incorrect meter installations

# **Boundary Integrity**

# Challenges

- Incorrect assets defined as boundary
- Locating boundary assets
- Operational status of boundary assets being incorrect

# **Survey Suitability**

# **Challenges**

- Insufficient assets
- Accessibility to and locating assets
- Poor condition assets hindering leakage surveys

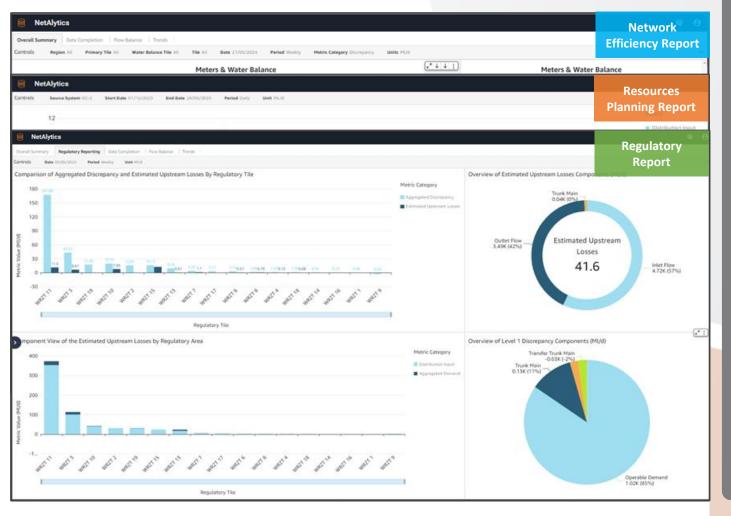
# Cyclical Validation of Tile Discrepancies

### **Process**

- Validate the discrepancies between the supply meters and the demand offtakes along with any storage change in the network.
- Validate monitored data availability and reliability, applying overrides where required and resolving issues.
- Validate the boundaries of each section of the trunk mains and resolve integrity issues.
- Validate suitability for leakage detection.

NetOps Upstream

# NetAlytics Dashboards



# Cyclical Validation of Tile Discrepancies

The cycle is a management approach applicable throughout the reporting year:

- Will be a long-term 'business as usual' commitment
- Will require improved data, technologies and processes, and competently trained people
- Will need operational and capital investment e.g. replace or install meters, resolve boundary issues and investigate anomalies

# The cycle of validation:

- Will incrementally improve the upstream data set
- Will improve the performance of the network
- Provides a better basis for estimating of trunk main and service reservoir A at the end of the reporting year.



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