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Sewerage Transfer Operations

Presented by: Steven French



The History



BASS STRAIT

The first Melbourne homes were connected to the sewerage system in 1897.

The Transfer (bulk) System

MW's major sewerage system is made up of the following assets :

- Approximately ~400km of gravity main and trunk sewers.
- 4 major pumping stations
- 4 minor pumping stations
- 1 x chemical air treatment facility (ATF)
- 3 x large biological air treatment facilities
- 41 x Emergency Relief Structures
- Penstocks (remote and manually controlled)
- Powered and non-powered vents
- Hydrographic Stations
- Detention Tanks
- Control Centre







Sewerage System - Level of Service

- No dry weather spills
- Have sufficient capacity to transfer a 1 in 5 year flow event
- No offensive odour from any MW transfer asset
- Safe to operate and maintain
- Will not endanger public
- Asset meeting design life
- Comply with licence agreement for treatment plants
- No exfiltration of sewage



The Challenges

- Inflow & Infiltration during wet
 weather
- Achieving the Level of Service on an ageing system
- Odour and Corrosion
- Trade Waste
- Sustainability
- Safety



Wet Weather v's Daily Flow regime



Wet Weather Capacity

- The system has a limited hydraulic capacity
- Once this capacity is reached is spills to the environment
- Overflows to the environment occur via ERSs





Emergency Relief Structures (ERSs)



Credible failure scenarios

- Mechanical/Electrical failure of Pump Stations
- Structural Failure of pipes (conduits)
- Damage by others •

Revealed: (

Decaying city sewer system may collapse swap with it notes, I don't think me Or Managerol Stateline

people keep telling us it is. Pe





24 JANUARY 1993

The system fails as cracks show in Melbourne Water 16 NEWS THE SUNDAY AGE

Melbourne's private gardens. That objective has been realised with the construction of vast dom systems, but it has been achieved at

188814 + cost effectiv

Asset Condition



Age-material profile for Sewer Conduits

120.98m



Loss of Hydraulic performance

- Partial blockages due to :
 - Tree roots
 - Silt
 - Debris





MWTS REAR OF WEBB CRT

and the state

DCM035 -> DCM034 450

0.18m

Obstruction, 5 % height/diameter loss, from 04 to 08 of clock

Odour Management

- Ventilation needed to prevent asset corrosion
- LoS requires "no offensive odour from any MW transfer asset"
- Effectiveness of older ventilation systems can be compromised when the urban environment changes around them (new solutions needed)





Trade Waste Management

Balancing the needs to industry with:

- Protection of people
- Protection of assets
- Protection of treatment processes (biogas production and inhibition)
- Protection of the environment
- Facilitation of water recycling and biosolids reuse







Sustainability

Balancing the provision of our service with efficiently managing:

- Consumption of power (to pump)
- Water for mechanical protection
- Chemicals for odour treatment







Safety

We manage "legacy assets" that were made to old standards

- High risk equipment:
 - High Voltage
 - Low Voltage Equipment
 - Chemicals
 - Pressurised systems
- High Risk environments:
 - Confined Spaces
 - Fall from Heights
- Improving:
 - Standards
 - Regulations
 - Procedures
 - Cultures and behaviours
- Workplace hazard irradiation



Role of the Sewerage Transfer Team

Customer

- · Building and maintaining relationships with retail water businesses
- Monthly sewer billing
- Sewerage Quality Management System

Safety

- Implementing controls such as: Permit to work, (CSE) Sewerage Transfer Access Approvals
- Workplace/hazards management and improvement initiatives
- Strategic management of liquid-phase and headspace (gas-phase) hazards presented by sewerage system inputs

Service Delivery

- Operation of the system in the Field and Control Room (via IT system such as SCADA)
- Corrosion and odour management
- Emergency response and preparedness for wet weather events
- Management of Contingency Plans, Standard Operating Procedures and operational strategies.
- · System diagnosis and optimisation of hydraulic flows and system performance

Asset Management/Integration

- Operational input to strategic/asset planning and capital delivery projects.
- · Implementation of maintenance program and resolution of maintenance issues
- · Delivery of minor capital and operational projects and contracts





Questions?

