CRIDF
Support to ORASECOM
TTT Meeting

Project Progress
19th May 2016

Jonathan M Barnes

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Rehoboth Effluent Re-Use Progress Update

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Current Progress 2016

- Demand projections to 2030
- wwtw options
- Irrigation options
- Environmental assessment
- Financial and economic analysis
- Community irrigation approach

Feasibility Report Revision

CRIDF & Govt of Namibia Enabling Environment

CRIDF Rehoboth Effluent Re-Use Bankability Report Revised included :
oxidation ponds refurbishment costs
New Generation Trickling Filters costs
Economic analysis updated
Oxidation ponds to be investigated for Tertiary treatment using reed beds

- **SADC MoU with CRIDF Sept 2015**
- **Enables formal basis for Cooperation for CRIDF and MS**
- **Understand financial landscape, for CAPEX, OPEX for Council funding of service infrastructure**

Project Stakeholder engagement National and Local level

Agreement with Government of Namibia

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Maseru
Water Demand Management
Progress Update

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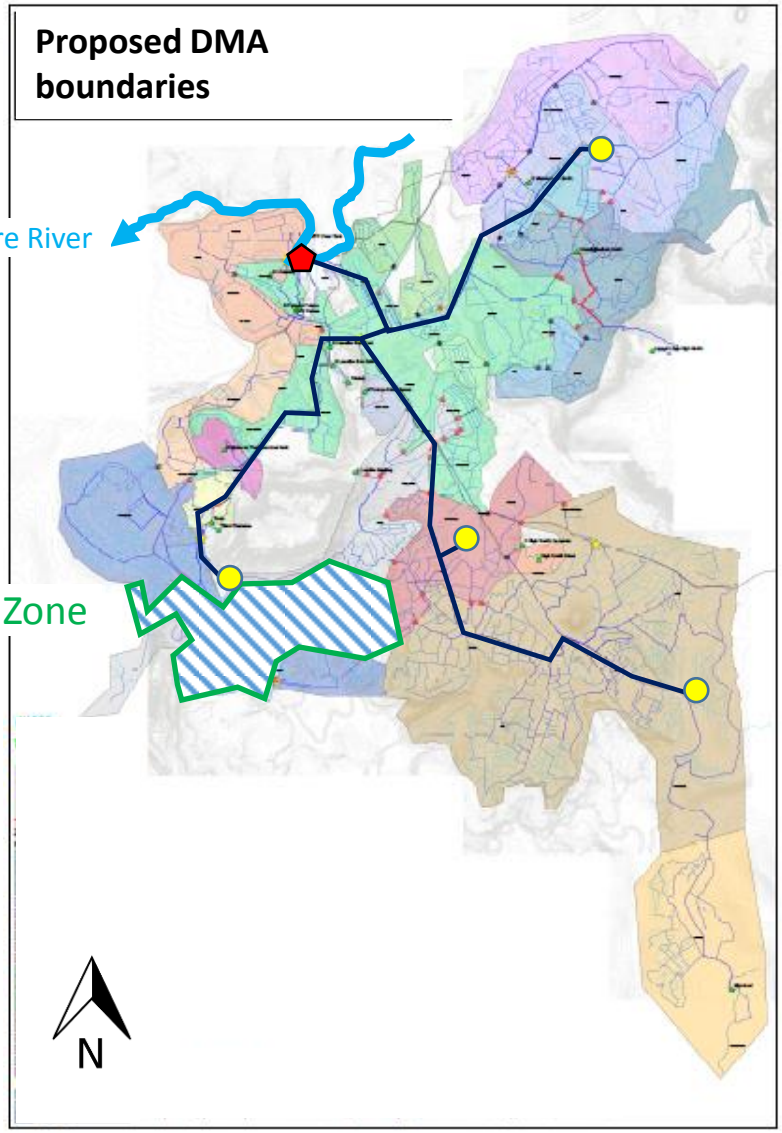
1: Background & Demand Management Areas (DMA)



Tikoe Zone

- 3500 Households (HH), population 16,500
- Mix of low to high income groups
- Access to water metered HH connections & pre-paid community standpipes
- No communal stand pipes in Tikoe zone;
- Residents installed tanks;
- Residents need to make arrangements to collect water from other areas.

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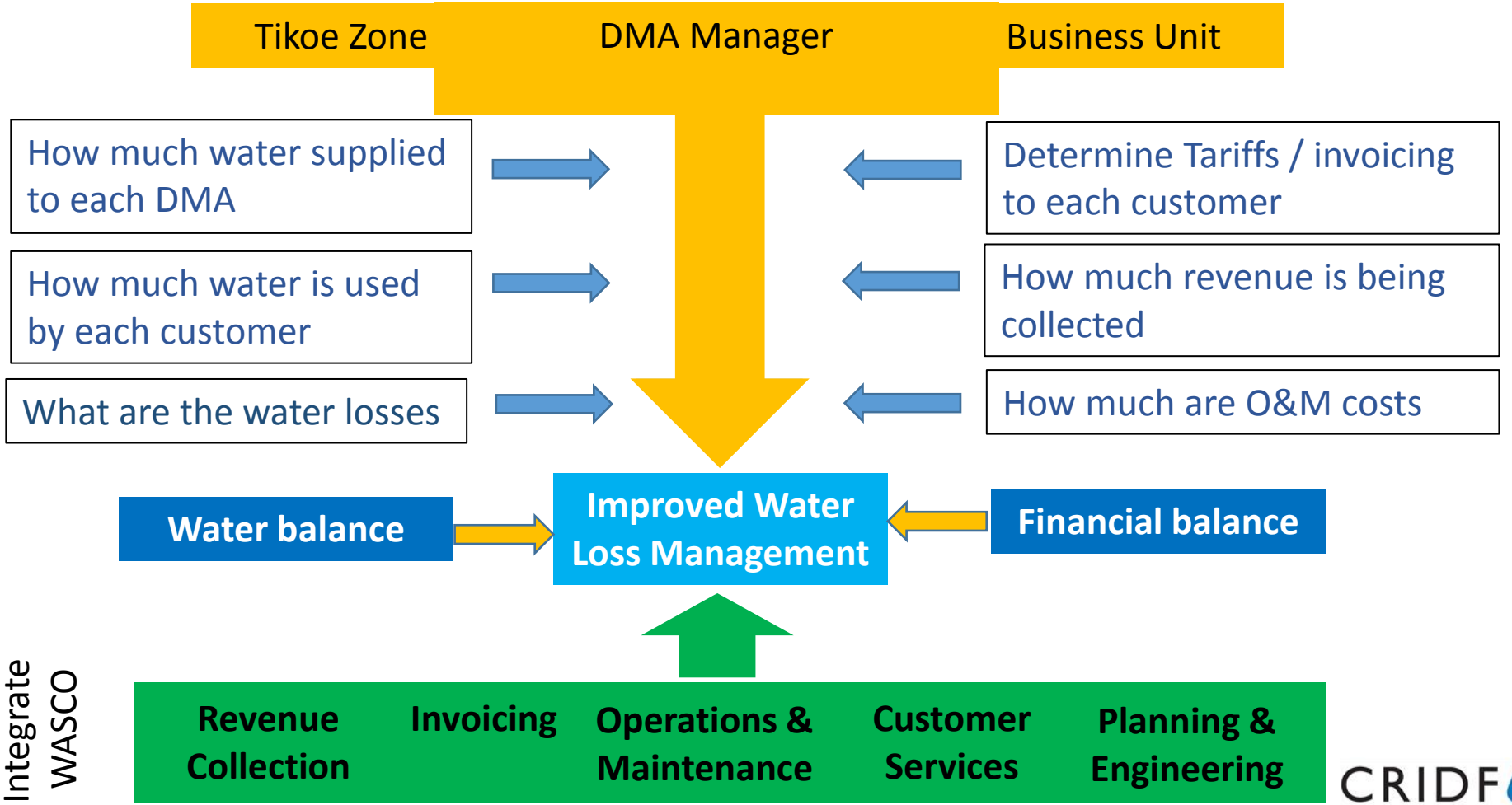
2 : Business Model Approach : DMAs

- Financial Sustainability : Well managed water utility companies (around the world) will ring fence each DMA as a separate business that is sustainable/ profitable.



3 : DMA Approach : Pilot Project

Key Steps for successful Water Loss Management

- **A** Integrate WASCO departments **Training Hydraulic Model** catalyst
- **B Hydraulic Modelling of Maseru** and detail of Tikoe Zone : i) understand how the distribution system works, ii) pressure management analysis, iii) distribution network improvements :

  Built 1000 kms modelled, plan books produced
- **C Procurement with WASCO** : Isolate the DMA, install boundary valves

  Procurement document drafted
- **D Pressure Flow Logging** : i) zone sectorisation, ii) hydraulic model calibration, iii) assist in isolating the zone
- **E Leakage Detection :** assist in locating burst pipes underground
- **Twinning** with **Tshwane Water and Sanitation :** sharing best practice
- **Institutional Change**

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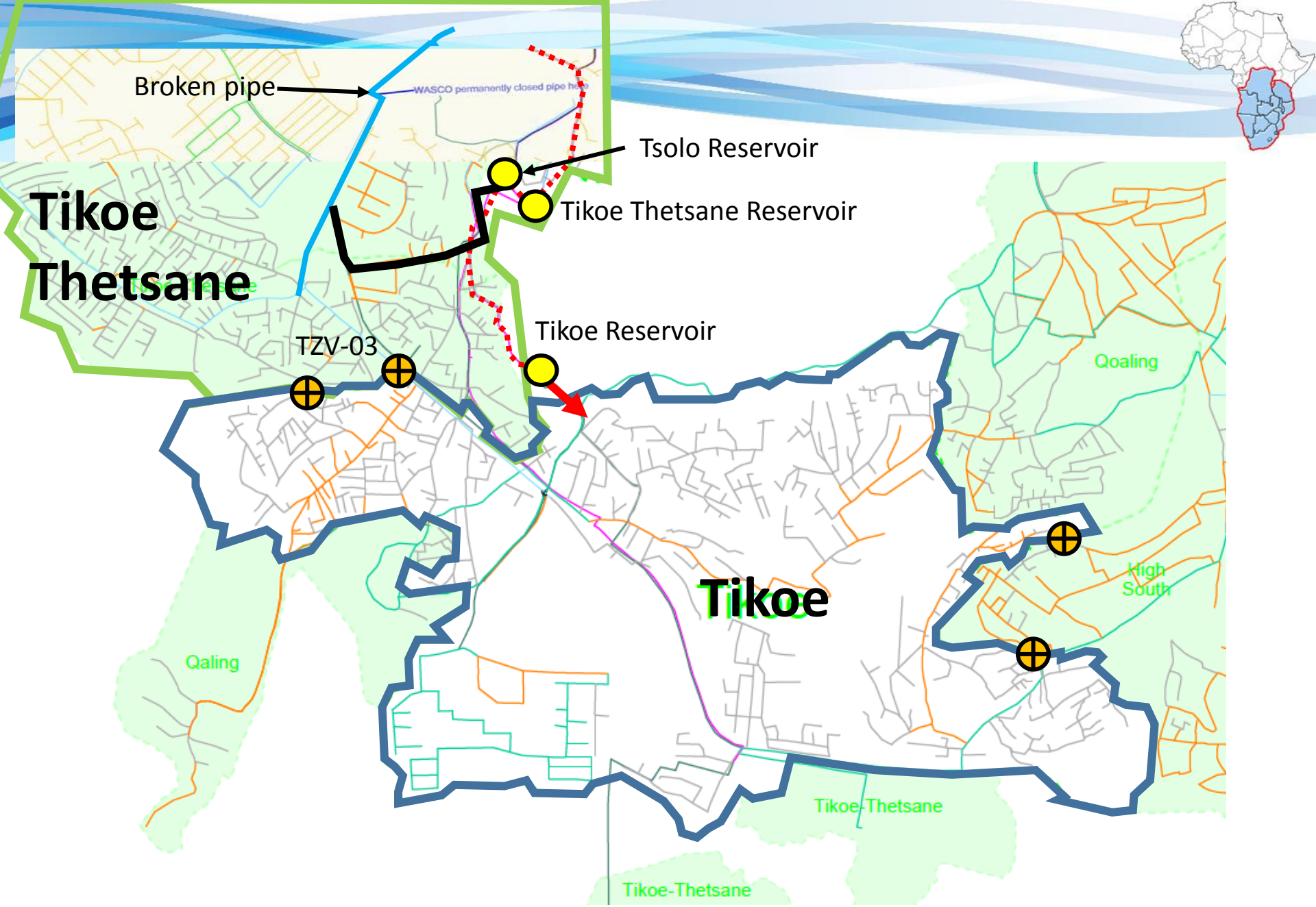
Broken pipe
WASCO permanently closed pipe hole
Tsolo Reservoir
Tikoe Thetsane Reservoir
Tikoe Thetsane
Tikoe Reservoir
TZV-03
Qoaling
Tikoe
High South
Qaling
Tikoe-Thetsane
Tikoe-Thetsane

4 : Progress Since October 2015

- **CRIDF Design Report with drawings completed : December 2015**
- **Contract documents and drawings completed January 2016 :** FIDIC Short Contract Green Book
- **Review by WASCO Planning Studies :** documents revised February 2016
- **Tendering of Construction work April 2016**
  - **Adverts in Newspapers 8th and 15th April**
  - **Compulsory Site Visit for contractors 21st April**
  - **Tender opening 9th May : 10 contractors bidding**
- **Tender Evaluation Report drafted 19th May :**
- **Aim to Commence Construction in June .. 10 week construction period**
- **Pressure flow logging, check zone isolated,**
- **Carry out model calibration, water loss analysis, recommendations**

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4 : Progress Since October 2015

WASCO

WATER AND SEWERAGE COMPANY

CONTRACT FOR INSTALLATION AND COMMISSIONING OF MAINLINE WATER VALVES WITHIN THE TIKOE ZONE, MASERU

INVITATION FOR BIDS

WASCO has received financing (hereinafter called "funds") from the United Kingdom Department for International Development (DFID) through the Climate Resilient Infrastructure Development Facility (CRIDF) toward the cost of the project named above. WASCO intends to apply a portion of the funds to eligible payments under the contract for which these bidding documents are issued.

WASCO herewith invites sealed bids for Maseru Water Demand Management for:
Contract for Installation and Commissioning of Mainline Water Valves within the Tikoe Zone in Maseru.
The invitation is open to regional and locally registered Contractors in categories A and B who are registered with Ministry of Public Works and Transport, Building and Design Services (BDS).

Bidding documents may be purchased from the address below at a cost of **M500.00 per setupon** request by email to nlakot@wasco.co.lsand copied to procurement@cridf.com from **1000hrs on Monday 18April 2016**.

Procurement Office
WASCO HQ
PO BOX 426
Off Moshoeshoe Road – Industrial Area
Maseru 100

All bidders are required to attend a site inspection of the works site. Bidders are invited to assemble at the WASCO Projects Office at Maseru West, Half Moon Street on the **21st April 2016at 0900hrs**before proceeding to the works site, and to obtain information necessary to enable preparation and submission of theirbids. The cost of the site visit will be to the account of the bidder.

All Bids must be sealed and marked "**Procurement No. MPPS/04.Contract for Installation and Commissioning of Mainline Water Valves within the Tikoe Zone in Maseru**", bearing the closing date and time of the tender, and bearingno identification of the Bidder and accompanied by a Bid Security in the form of a Bank Cheque in the amount of M 9 000.00.
Tenders must be deposited in the Tender Box marked TENDER BOX situatedin the Chief Executive Office on or before **Friday 6thMay2016 at 1400hrs**.Late bids will be returned unopened.

All bids shall be delivered by hand or courier to:

Chief Executive Office
WASCO HQ
PO Box 426
Off Moshoeshoe Rd – Industrial Area
Maseru, 100

Bid opening, in the presence of bidders who choose to attend, will be at the address above on the **6thMay2016 at1430hrs**

For further clarifications regarding the bid process and obtaining documents, the office of the Manager Projects Planning & Studies may be contacted:

MPPS
Water and Sewage Company
138 Half Moon Street, Maseru West
PO BOX 426
Maseru, 100
Lesotho

Tel. +266 22 26 166/2152
Fax. +266 22 31/000
Email nchaka@wasco.co.ls and/or nlakot@wasco.co.ls

Attention: Nkaka TL (Mr)

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Thank you

Any questions?

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Comparison advantages and disadvantages

CRITERIA	OXIDATION PONDS		NEW GENERATION TRICKLING FILTER WWTW	
	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES
CONSTRUCTION				
Footprint Area		Large Area Required	Small Footprint	
Ease of Construction	Simple cut and fill operation			Construction must be done by specialists
Construction Cost	Moderate Cost			High Cost
OPERATION AND MAINTENANCE				
Energy Consumption	No electricity required			Electricity is required, although the energy less than some wwtw
Need for de-sludging		De-sludging is required, difficult to maintain		De-sludging is required and drying beds are normally used
Operators	Skilled operators not required	Operators are required for regular maintenance		Skilled operators are required for regular maintenance
Operation Cost	Minimum costs			High operation costs
EFFLUENT QUALITY & RE-USE				
Quality		Effluent does not conform to General Standards Guidelines	Final effluent will conform to General Standards guidelines	
Re-use possibilities		Limited re-use possibilities	Effluent can be re-used for various applications	
Possibility for income generation	Low to moderate Income potentially can be generated		Potentially high Income can be generated	
Possibility for job creation		some job creation, depending on crop type	Jobs can be created from effluent re-use	

Comparison advantages and disadvantages

CRITERIA	OXIDATION PONDS		TRICKLING FILTER PLANT	
	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES
ENVIRONMENTAL IMPACT				
Footprint Area		Large area required.	Small footprint area	
Risk of ground water contamination	Within expansion and lining of the oxidation ponds pollution reduced		Low risk, due to treatment processes	If the wwtw fails and is not repaired untreated sewage will spill into the adjacent areas with high risk of contamination
Potential to discharge effluent into the environment		Effluent may not be discharged into the environment.	Effluent can be discharged into the environment	

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