

Minimum Requirement on Standard Operability / Performance Indicator for Vacuum Sewer System

It is to be noted that all feedback on the following Performance Indicators should be based on typical household sewage discharge in the Malaysian context.

NO	PERFORMANCE INDICATOR	TARGETS	MEASUREMENT MECHANISM (performance result subject to audit at supplier cost)
1.0 Collection Chamber & Ancillaries			
1.1	Interface Valve a) Economic Life Span of Valve in Operation - Running cycle of valve in operation to the next replacement. b) Maintenance and Parts Replacement of Valve – Running cycle life of valve in operation to the next maintenance schedule or parts replacement.	500,000 or 10 years from the date of T&C (whichever comes first) i. Moveable parts : 250,000 cycles or 5 years from the date of T&C (whichever comes first) ii. Non Moveable parts : 25 years from the date of manufacturing	Interface valve with counter and must comply with EN 1091 / Australian Standard. Based on declaration by Qualified Person (QP) Interface valve with counter and must comply with EN 1091 / Australian Standard. Based on declaration by QP based on batch certificate
1.2	Piping, Breather Pipe a) Frequency of failure i.e. chokage, deformation, material failure etc.	Zero failure	failure to be automatically logged in the system
2.0 Vacuum Sewer Pipelines and Ancillaries			
2.1	Control Gate Valve, Check Valve, Air Intake Pipe / Valve a) Economic Life Span of Valve in Operation – Running cycle life of valve in operation to the next replacement b) Maintenance and Parts Replacement of Valve – Running cycle life of valve in operation to the next maintenance schedule or part replacement c) LoS of replacement of the wear and tear parts	Minimum 8 years life span from T&C of the system Minimum 8 years life span from T&C of the system Within 24 hours	based on declaration by QP based on declaration by QP based on reporting by the operator
2.2	Pressure Monitoring Facility, Pipeline Indicator a) Frequency of Failure e.g. device faulty, material / parts failure etc.	Zero failure during full operation	based on reporting by the operator

3.0 Vacuum Station			
3.1	Vacuum Pumps, Raw Sewage Pumps, Moisture Trap (if required) a) Frequency of failure i.e. chokage, material failure, mechanical failure etc.	Zero failure in the system. Max 3 times per equipment per year during full operation	failure to be automatically logged in the system
3.2	Odor Control System, Water Cooling System (if required) etc. a) Replacement cycle of odour control system / media b) Frequency of failure of water cooling system if applicable	a) every 5 years b) Zero failure in the system when in full operation	based on reporting by the operator failure to be automatically logged in the system
4.0 Control Panel, Signal Transducer / Telemetry / SCADA, Signals Sensor , Signal Cable			
4.0	a) Frequency of failure e.g. inaccurate / false signal, electrical components faulty etc.	i. SCADA for entire system : Zero failure ii. Interface Valve : less than 5% failure per year of total unit installed	failure to be automatically logged in the system
5.0 Sewage Forced Main Pipe to Receiving STP / Manhole etc			
5.0	a) Frequency of failure i.e. chokage, deformation, material / parts failure etc	Zero failure	based on reporting by the operator

6.0 System Performance		
<p>6.1 Occurrence of Chockage in the System</p> <p>a) Frequency of chockage / malfunction (could be due to parts failure etc.) to be anticipated in the vacuum sewer system under typical household sewage discharge condition in the Malaysian context.</p>	<p>Zero occurrences</p>	<p>based on reporting by the operator on SCADA records</p>
<p>6.2 Oil and Grease</p> <p>a) No accumulation of oil and grease should be found in any part / component in the system i.e. collection chamber (will have to depend on incoming sewage), vacuum mains, valve pit, sensor pipe, suction pipe and other associate parts.</p>	<p>100% Compliance</p>	<p>based on reporting by the operator</p>
<p>6.3 Structural Integrity</p> <p>a) All structural components i.e. prefabricated tank, manhole cover, reinforced concrete (RC) wall, vacuum vessel etc and piping should not encounter uplifting, differential settlement, dislocation of joint or failure of similar nature that render the system to be dysfunctional during its operating life span.</p>	<p>100% Compliance</p>	<p>based on QP endorsement and certification</p>

