ANNEX 1: Criteria to be included in membrane integrity proposals, including comments that can be taken as guidance.

	TOPIC	CRITERIA	INFORMATION REQUIRED	COMMENTS (RECOMMENDED GUIDELINES)
1	**Site Details**	Responsibility Membrane operation Integrity testing Water quality and Data management, Maintenance and Service Arrangements	Site organisation structure, identifying responsibilities	Detail specific responsibilities for site and data management
		Site name Plant size Location of Control Room	Plant details and control structure	Detail specific site information
		Source Risk information	Source description and specific site risks	Detail specific causes of significant risk and consider management systems
2	**Water Treatment Process**	O&M manual for the site	Existence and location of O&M Manual	Located on site
		Whole treatment process diagrams	P&I diagrams	Included in O&M manual
		By-pass	Details and management of by-pass.	No by-pass if possible
3	**Monitoring**	On line instrumentation Parameters monitored Data logging	State any online monitoring additional to the MIT. (i.e. auxiliary monitoring) Include alarm and any shut down/trip settings. e.g. turbidity, particle counting	Other continuous parameter(s) logged (e.g. Turbidity) on raw water feed for intake protection and or supporting information
4	**Membrane Process**	Membrane flow diagrams	P&I diagrams	Included in O&M manual
		System supplier Membrane type	System supplier Membrane type	Full details required
		Regulatory Approvals	Details of regulatory approvals/consent	Membrane system to have CPP approval. Membrane element/module

			s (DWI CPP approvals, Cryptosporidium approval list and, where appropriate, Environment Agency Discharge consent)	approved for Cryptosporidium removal (DWI Information Letter 16/99)	
5	**Membrane Integrity System**	Membrane Element Type	Description required, e.g.Hollow fibre, Spiral Wound or Tubular and UF, MF, NF or RO	**<u>Hollow Fibre (MF & UF)</u>**	**<u>Spiral Wound (NF & RO)</u>** Source dependent
		Name of Test and Description	Name and describe MIT	Pressure Based Tests (e.g. PDT and DAF)	Conductivity Based Tests
		Basis of Test to meet *Cryptosporidium* regulations	Describe basis of test to meet regulations	Aim to test for 1µm defect. Statement required on what defect size is detectable with test. Set-points to be specified for each train	The settings should be based on sound empirical evidence
		Test Initiation (manual/automatic)	Description required	Automatic required with manual override facility	Automatic with manual override facility
		Test settings	Description required	Based on empirical evidence. Specific for each type, manufacturer and configuration of membrane	Specific for each type, manufacture , configuration of membrane and feed water quality
		Alarm and Shut down/isolation settings/procedures	Description required	Should include an alarm/warning point	The settings should be based on sound empirical

					evidence
		Frequency and Justification	Description required	To be agreed with DWI	Online and continuous
		Automatic/Manually shut down/isolation	Description required	Automatic required with manual override facility	
		Identification of breach/failure, isolation, repair/replacement, spares and re-commissioning procedures.	Description required	All these procedures to be fully described and easily executed by operating personnel	
6	**Telemetry**	Arrangements for onsite/remote monitoring	Description required to explain continuous monitoring	Unmanned sites must utilise telemetry	
7	**Data & Information**	Data Management and Information Reporting	Description of data management, recording, storage duration and information reporting	MIT process parameters stored for 5 to 7 years or as long as the membrane element warranty. Parameters to include start test pressure, relevant measured variable over the test period.	MIT process parameters stored for 5 to 7 years or as long as the membrane element warranty. Minimum guideline is storage of daily averages.
8	**Other**	Additional relevant information, e.g Training comments	Additional relevant information	Additional relevant information, e.g. Operational training in place.	

This guidance will be reviewed and, if necessary, re-issued in the light of new developments.