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WATER SUPPLIES DEPARTMENT

STANDARD SPECIFICATION EM-00-01

INSPECTION, TESTING AND REPORTING

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WATER SUPPLIES DEPARTMENT
STANDARD SPECIFICATION EM-00-01
INSPECTION, TESTING AND REPORTING

1. GENERAL

1.1 Scope

This specification covers the requirements for the inspection and testing of plant and equipment and the reporting thereon.

1.2 Independent Inspection Body (IIB)

Independent Inspection Body (IIB) shall be a company or firm nominated by the Contractor and approved by the Purchaser or appointed by the Purchaser for carrying out the inspection work and witnessing the tests.

1.3 Appointment of IIB

The Purchaser, at his own discretion, may appoint either the Contractor's nominee or a separate IIB to act on his behalf.

1.4 Declaration of Conflict of Interest

The IIB and their representatives shall not be any associated body of the Contractor, and shall declare that there is no perceived conflict of interest for them to carry out the independent inspection duties as required in the Specification.

The representative of the IIB who carries out the inspection or witnesses the test shall also be required to declare in the inspection report that he has no conflict of interest with the manufacturer of the equipment being inspected or tested.

2. CONTRACTOR'S RESPONSIBILITY

The Contractor shall be responsible for the following aspects of the inspection, testing and reporting on the equipment.

2.1 Nomination of IIB

If required under the Contract, the Contractor shall nominate a suitably qualified IIB for the inspection. The Contractor shall forward his nominee's curriculum vitae and a statement of his previous experience in a similar capacity to substantiate his suitability. The Purchaser reserves the right to appoint either the Contractor's nominee or a different IIB.

2.2 Place of Inspection

The Contractor shall state, in his tender, the place of inspection for each item of equipment. The preferred location is the manufacturer's works.

2.3 Notice to IIB

The Contractor shall give the IIB a minimum of 15 working days' notice in writing when the equipment is ready for inspection.

2.4 Facilities for Inspection

The Contractor shall provide access to the IIB for inspecting and testing of the equipment, during its production or when production is completed. He shall provide facilities for such inspection including all materials, testing equipment, appliances and labour required for such purpose.

2.5 Testing

The Contractor shall carry out all tests specified. Any item or component found to be defective, inferior in quality, or fails to achieve the specified performance criteria shall be rejected. The Contractor shall replace or make good any rejected item at his own expense. The Contractor shall record all test readings during the witnessed tests and obtain the IIB's signature on the result sheet. A copy of the result sheet shall be handed over to the IIB at the end of the test. Results of tests which are required to be carried out but not witnessed shall be made available to the IIB for reference.

2.6 Calibration of Testing Instruments

The accuracy of the testing instruments shall be higher than that required for the equipment being tested. Only instruments, which have been calibrated and certified for such accuracy, by a recognised testing authority within 12 months preceding the tests, shall be used. The calibration certificates for all instruments shall be made available to the IIB at the time of the inspection.

2.7 Approved Documents

The Contractor shall supply a copy of the Contract Conditions and Specification for the equipment and one complete set of documents approved by the Purchaser including drawings, technical schedules, components lists, and test data sheets to the IIB prior to the inspection.

2.8 Re-inspection

If the equipment fails the inspection the Contractor shall make arrangement with the IIB for a re-inspection after making good or replacing any defective/sub-standard items. No extension of time for the delivery of the equipment shall be given due to such re-inspection.

2.9 Safety

The Contractor shall take all necessary precautions and make available all necessary protective gears and facilities to ensure the safety of the personnel of the IIB during the inspection. The IIB shall not be required to sign any form of waiver or indemnity concerning his presence or actions at the place of inspection.

2.10 Reporting

The Contractor shall forward to the Purchaser and the IIB a complete set of test result sheets immediately after the tests and a complete test report within 1 week of the inspection. The test report shall include the following details:-

- (a) Test data and results for each test bearing the IIB's signature and the date of test.
- (b) Sample calculation for each derived (not directly read) quantity.
- (c) Test results verifying all declared functions and performance characteristics.
- (d) Results and calculations for other tests called for in the Specification, but not required to be witnessed by the IIB.

- (e) Type test results and certificates called for in the Specification.
- (f) Calibration certificates for all instruments used for the testing.

The Contractor shall not despatch the equipment for shipment until the IIB and the Purchaser have given their consent in writing. Such consent shall not relieve the Contractor from any of his liabilities under the Contract.

3. IIB's RESPONSIBILITY

The IIB shall be responsible for the following aspects of the inspection, testing and reporting on the equipment.

3.1 Physical Inspection

The IIB shall carry out physical inspection of the equipment to check for compliance with the Specification including but not limited to the following aspects: -

- (a) Dimensions - agreement with approved drawings and Specification.
- (b) Construction - materials, quality of materials, finish, workmanship and agreement with approved drawings and Specification.
- (c) Rating plates - agreement with technical schedules.
- (d) Components - agreement with the approved component list regarding manufacture, country of origin, rating and enclosure protection.

The IIB shall ensure that a complete set of approved drawings, technical schedules and approved component lists is available prior to the inspection. A copy of the Contract Conditions and Specification for the equipment shall be supplied to the IIB by the Contractor.

3.2 Witnessing Tests

The IIB shall check that the tests are carried out in accordance with the specified requirements and conditions, where applicable the IIB shall refer to relevant British Standards or other national standards. The IIB shall check the calibration certificates for the testing instruments and ensure that instruments with the appropriate accuracy are used. At the end of each test he should certify the test results and obtain a copy of the result sheet.

3.3 Inspection Report by IIB

Within one week of the completion of the inspection the IIB shall forward his report to the Purchaser. The inspection report shall include the following details: -

- (a) Observations during the inspection.

- (b) List of approved drawings (with revision reference and approval date) and technical schedules against which the equipment was checked.
- (c) Copy of approved component list.
- (d) Description of each witnessed test with reference to relevant clauses in the Specification, British Standards or other national standards, where applicable.
- (e) Test data and performance curves, compiled for each test and include any multiplication factors, where applicable.
- (f) List of measuring instruments with serial numbers.
- (g) List of items which fail the inspection and reasons for failure.
- (h) Declaration of no conflict of interest with the manufacturer of the equipment.
- (i) Other comments and recommendations.
- (j) Acceptance of the equipment for shipment or requirement of a re-inspection.

The IIB's inspection report shall be independent of the Contractor's test report. The IIB shall forward his report to the Purchaser instead of waiting for the availability of the Contractor's report.

3.4 Checking of Contractor's Report

The IIB shall scrutinise the Contractor's report to ensure that the results are in accordance with the actual tests and the equipment complies with the Specification. Special attention shall be paid to the following :-

- (a) Completeness.
- (b) Accuracy of test results.
- (c) Accuracy of calculations.
- (d) Verification that all declared performance & withstand characteristics are achieved.

If the IIB is not fully satisfied with the report or in his opinion the equipment does not fully comply with the Specification he shall inform the Purchaser immediately. Equipment shall not be released for shipment until the Contractor

remedies all defects and deficiencies.

3.5 Re-inspection

The IIB shall carry out re-inspection after the Contractor has made good or replaced the faulty equipment.

3.6 Release of Equipment for Shipment

When the IIB is satisfied that the inspected equipment complies fully with the Specification (except for any deviation accepted by the Purchaser in writing) he shall seek consent from the Purchaser prior to releasing the equipment for shipment.

He shall examine and certify the method of packing and protection for compliance with the Specification. The IIB shall forward the Contractor's test report immediately to the Purchaser with the following :-

- (a) Declare that the equipment complies with the Specification (except for any deviation accepted by the Purchaser in writing) and that the test report is complete and correct.
- (b) Declare that the method of packing complies with the Specification.

4 QUALIFICATIONS AND EXPERIENCE OF IIB

The respective representatives of the IIB for carrying out inspection or witnessing tests and for endorsing the report for inspection and witnessed tests shall possess the following qualifications and experience.

Equipment to be inspected / tested	Qualifications of IIB's representative for carrying out inspection / witnessing test	Qualifications of IIB's representative for endorsing the report for inspection / witnessing test
H.V. equipment (Including switchboard, motor, capacitor, transformer)	The person shall at least be a holder of higher certificate in electrical engineering and have at least 5 years of experience in the inspection of the equipment being inspected and tested.	The person shall be a member of the electrical discipline of a professional institution; and have at least 5 years of experience in the inspection of the equipment being inspected and tested.
L.V. equipment (Including switchboard, control panel, capacitor, battery, standby generator, motor, electrochlorinator)	The person shall at least be holder of higher certificate in electrical engineering and have at least 5 years of experience in the inspection of the equipment being inspected and tested.	The person shall be a member of the electrical discipline of a professional institution; and have at least 5 years of experience in the inspection of the equipment being inspected and tested.
Instrumentation equipment (Including flowmeter, SCADA, telemetry equipment)	The person shall at least be holder of higher certificate in electrical, electronic or telecommunication engineering and have at least 5 years of experience in the inspection of the equipment being inspected and tested.	The person shall be a member of the electrical, electronic or information discipline of a professional institution; and have at least 5 years of experience in the inspection of the equipment being inspected and tested.
Pressure / Surge Vessel (Hydraulic test and examination)	The person shall at least be a holder of diploma or certificate in mechanical or marine engineering or a relevant engineering discipline. He shall be an appointed examiner defined under the Boilers and Pressure Vessels Ordinance of the HKSAR or shall hold	The person shall at least be a holder of diploma or certificate in mechanical or marine engineering or a relevant engineering discipline. He shall be an appointed examiner defined under the Boilers and Pressure Vessels Ordinance of the HKSAR or shall hold the

Equipment to be inspected / tested	Qualifications of IIB's representative for carrying out inspection / witnessing test	Qualifications of IIB's representative for endorsing the report for inspection / witnessing test
	the equivalent qualification satisfying local statutory requirements. He shall have at least 5 years of inspection experience in the relevant field.	equivalent qualification satisfying local statutory requirements. He shall have at least 5 years of inspection experience in the relevant field.
Pressure / Surge Vessel and Pipe Fitting (Non-destructive testing of welded joints)	The person shall hold an appropriate certificate of competence (e.g. Personnel Certification in Non-destructive Testing (PCN) as specified in PD 5500:2000) which is recognised by the local Authority. He shall have at least 5 years of inspection experience in the relevant field.	The person shall hold an appropriate certificate of competence (e.g. Personnel Certification in Non-destructive Testing (PCN) as specified in PD 5500:2000) which is recognised by the local Authority. He shall have at least 5 years of inspection experience in the relevant field.
Valve and Pipe Fitting (Hydraulic test and examination)	The person shall at least be a holder of diploma or certificate in mechanical or marine engineering or a relevant engineering discipline. He shall have at least 5 years of inspection experience in the relevant field.	The person shall be a member of the mechanical or marine discipline, of a professional institution; and have at least 5 years of experience in inspection of waterworks equipment.
Pumpset (Performance test)	The person shall be a member of the mechanical or marine discipline, of a professional institution; and have at least 5 years of experience in the relevant field.	The person shall be a member of the mechanical or marine discipline, of a professional institution; and have at least 5 years of experience in inspection of waterworks equipment.
Chlorine Pipework	The person shall at least be a holder of diploma or certificate in mechanical or marine engineering or a relevant engineering	The person shall at least be a holder of diploma or certificate in mechanical or marine engineering or a relevant engineering

Equipment to be inspected / tested	Qualifications of IIB's representative for carrying out inspection / witnessing test	Qualifications of IIB's representative for endorsing the report for inspection / witnessing test
	discipline. He shall be a FSD authorised surveyor. He shall have at least 5 years of inspection experience in the relevant field.	discipline. He shall be a FSD authorised surveyor. He shall have at least 5 years of inspection experience in the relevant field.
Overhead Crane (Inspection)	The person shall at least be a holder of diploma or certificate in mechanical or marine engineering or a relevant engineering discipline. He shall have at least 5 years of inspection experience in the relevant field.	The person shall be a registered professional engineer; and be a competent examiner defined under the F&IU (Lifting Appliances and Lifting Gear) Regulations of the HKSAR or holding equivalent qualification satisfying local statutory requirements.
Overhead Crane (Load Test)	The person shall be a registered professional engineer; and be a competent examiner defined under the F&IU (Lifting Appliances and Lifting Gear) Regulations of the HKSAR or holding equivalent qualification satisfying local statutory requirements.	The person shall be a registered professional engineer; and be a competent examiner defined under the F&IU (Lifting Appliances and Lifting Gear) Regulations of the HKSAR or holding equivalent qualification satisfying local statutory requirements.

- End of this specification -