

قطر للبتروول
Qatar Petroleum



**DEVELOPMENT PLANNING & ENGINEERING DEPARTMENT
TECHNICAL SUPPORT DIVISION**

**Guidelines for Submission of Hydrostatic Test Packages to
QP Industrial Cities**

QGDL-VI-018

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Notes:

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1.0 OBJECTIVES

The objective of this document is to establish and maintain documented guidelines for all End-Users / Contractors for preparing and submitting hydrostatic test packages to QP Industrial Cities (QP-VI) directorate for review and approval.

Approval from QP-VI is mandatory for hydrostatic test activities carried out in the off-plot areas by End-Users / Contractors, for proper coordination and safety of equipment and personnel and for subsequent initiation of permit application.

QP strongly recommends conducting all the tests hydrostatically due to inherent potential hazard of conducting pneumatic tests. Thus, hydrostatic pressure testing is the mandated and preferred testing method by QP.

2.0 SCOPE

This guideline covers the general requirements for preparing hydrostatic test packages by End-Users / Contractors for submission to QP-VI for the tests to be performed in off-plot areas in Dukhan Concession Area / Mesaieed Industrial City / Ras Laffan Industrial City.

3.0 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

Terms	Description
Approval	Agreement to proceed with specified activities.
Approve	To accept as satisfactory, permit or officially agree
Common area / off-plot area	Any area within Industrial Cities (RLC, MIC & DCA) but is outside the battery limits of End-User's plant.
Contractor	A party engaged by End-User to perform works / or services under a contract
End-User	A Company or firm that uses services, facilities and occupies QP Industrial Cities (QP-VI) land for the purpose of manufacturing a product or providing a service to QP-VI or other tenants within QP-VI.
Guidelines	A document, which contains general instructions / guidance to carry out a series of actions.
Hydrostatic test	A hydrostatic test is a way in which process vessels, piping and pipelines can be tested for strength and leaks. The testing involves pressurizing a process vessel, section of pipe or pipeline with water to a much higher level than the pipe is ever expected operate using gas or liquids, thereby validating the safe operating pressure of the tested facility.
Shall	A mandatory action
Should	A preferred course of action or activity
Technical Support Division	Technical Support division (IET(L)), a central function of the QP-VI, providing technical support (infrastructure planning, industrial planning and engineering services) to the departments of QP-VI in RLC, MIC and DCA.

3.2 Abbreviations

Abbreviation	Definition
DCA	Dukhan Concession Area
HSSE	Health, Safety, Security and Environment
IE(L)	Manager, Development Planning and Engineering (RLC)
IET(L)	Asst. Manager, Industrial Cities Technical Support
IM(D)	Manager, Dukhan Concession Area
IM(L)	Manager, Ras Laffan Industrial City
IM(M)	Manager, Mesaieed Industrial City
MIC	Mesaieed Industrial City
MSDS	Material Safety Data Sheet
NDT	Non-Destructive Tests
P&ID	Piping & Instrument Diagrams
QP	Qatar Petroleum
QP-VI	QP Industrial Cities directorate
RLC	Ras Laffan Industrial City
TIW	Treated Industrial Water
VI	Vice President, Industrial Cities

4.0 GUIDELINES

Before performing hydrostatic tests in any process vessel, piping, and pipeline or facility in the common areas of DCA / MIC / RLC, all End-Users / Contractors are required to submit necessary technical details of the proposed testing to QP-VI for review and approval.

The submission shall be done in accordance with the procedures given in the "QGDL-VI-008 Guidelines for End User Technical Submissions to QP Industrial Cities, Rev. 03 and other relevant guidelines.

End-Users / Contractors shall ensure submission of the test package and method statement well in advance of testing operation to allow the QP-VI discipline engineers to review the package and discuss with the relevant parties.

End-Users / Contractors shall review all test packages before submitting it to QP-VI for review and approval.

The approval letter from QP-VI is necessary for the End-User / Contractor to initiate a permit for the hydro-testing activities.

Any changes to the approved test packages shall be subject to prior approval of QP-VI.

The below sections describe the requirements for preparing the test packages.

4.1 Preparation of Hydrostatic Test Package

The End-User / Contractor shall prepare a test procedure which shall include but not limited to, a pressure test diagram, a mark-up of the Piping & Instrument Diagrams (P&IDs) / Process Flow Diagrams (PFDs) showing the extent of the pipe work/facilities to be included in the test.

4.1.1 Information to be included in Hydrostatic Test Package

The End-User / Contractor shall prepare the hydrostatic test package, which shall contain, as a minimum, the following information.

- a. A colour marked-up P&ID defining the pipeline segments for the hydro test.
- b. A colour marked-up plot plan showing the location of pipelines / facilities proposed for hydro test. It should be depicted on relevant QP-VI corridor drawing so that the exact location, battery limits and interfacing with other pipelines in the corridors can be easily identified.
- c. Exclusion zone considerations in a clear plot plan identifying the adjacent assets/facilities, access control requirements, safety signage etc.
- d. Approved line designation table containing all the lines included in the hydro test.
- e. Test medium to be used (potable water, TIW etc.)
- f. Details of any additives/chemicals added in the test medium and the concentration. Provide MSDS of the chemicals added.
- g. Source of test medium (QP-VI, Kahramaa etc.), mode of sourcing the test medium with details (temporary pipeline, trucks etc.) and estimated quantity of test medium required.
- h. Whether testing is done in full length or in segments and parallel filling of segments / system or re-use of water is envisaged. QP-VI recommends re-using water for various test segments to conserve water.
- i. Test procedure, test pressure, design pressure, holding time, schedule and duration of test (pressure test chart). The basis for test pressures shall be as per the requirements of applicable international codes.
- j. Procedure for detection, reporting and repair of leaks.
- k. Emergency plan for dealing with potential failures / leaks.
- l. Procedure for depressurization and water disposal or transfer / re-use.
- m. List and location of all equipment used for testing purposes.
- n. Location and type of pressure relief protection devices.

- o. Location of high point vents, low point drains, isolation blinds and temporary pipe supports.
- p. Location of discharge of hydro tested water and quality of the hydro tested water.
- q. End-User's certificate stating that all required NDT have been completed and cleared for hydro testing.
- r. Concurrence from asset owners who are impacted during the test.
- s. Method of statement and Job Safety Analysis.
- t. List of Safety measure to be taken while pressure testing.
- u. Risk assessment of the hydrostatic test.

4.2 Criteria for Disposing of Hydro-tested Water into QP-VI facilities

Hydro-tested water shall not be disposed in common areas of DCA, MIC and RLC without prior approval from the respective QP-VI HSSE department.

If the hydro-tested water is to be discharged into QP-VI storm water drains, then approval is required from the Environment division of HSSE department in the respective city for the quality of disposed water and from QP-VI Industrial City Operations department in the respective city, for the disposal methodology. A separate permit to work application shall be submitted for disposing the hydro tested water into QP-VI storm water drains.

The site visit / survey shall be carried out by the End-User / Contractor to identify the storm water drains and the route of the flow of water and shall follow the QP-VI regulations to utilize the same.

4.2.1 Quality of Hydro-tested Water for Disposal

Quality of discharge water shall comply with QP-VI HSSE Regulations.

The sample of the hydro tested water shall be tested at an authorized laboratory before it is discharged (if required by QP-VI).

If it is to be discharged to any other QP-VI facilities such as bunded areas (evaporation ponds), prior approval shall be obtained (as part of the package approval). For preparation of bunds, top soil in the area shall not be used.

4.2.2 Methodology for Disposal of Hydro-tested Water

The storm water drains proposed for discharge shall be marked on a storm water drawing and submitted to QP-VI along with a Method Statement for review and comments.

The storm water drains to be used shall be made suitable for the proper flow of water to avoid any ponding and the dewatering shall be closely monitored.

If settlement tanks are proposed for the disposal of hydro-tested water then location and details of the settlement tanks shall be submitted.

After the completion of usage, the storm water drains shall be cleared of any silt / soil, debris and clearance shall be obtained from the respective QP-VI Industrial City Operations department.

If the source of water for hydro-testing is potable water without use of any chemicals and if the quality of water is found to be suitable, the hydro-tested water after the tests, shall be reused for landscaping or in conservation area or buffer zone after approval from the respective Environment division of QP-VI HSSE department.

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5.0 RESPONSIBILITIES

5.1 End-Users

The following are the responsibilities of the End-Users:

- The preparation, review and submission of hydrostatic test packages as per QP-VI guidelines.
- Apply for permit after receiving final approval for the test package from QP-VI and get concurrence from asset owners who are affected during test.
- Perform hydro-test, dewatering and disposal of hydro-tested water as per approved QP-VI procedures and requirements.
- Remove all temporary facilities, testing equipment and re-instatement of the affected areas to the original condition.
- Adhere to these guidelines and any other stipulations, which may be imposed by a regulation, guideline or procedure from time to time by QP-VI.
- Ensure that the Exclusion zone is properly barricaded and no personnel other than those directly involved in the testing shall be allowed within the indicated exclusion area.

5.2 QP-VI departments

The following are the responsibilities of the QP-VI departments:

- Review hydrostatic test packages submitted by End-Users / Contractors and issue approval letter / comments.
- Perform site inspections prior to and during hydrostatic tests besides periodic inspection by inspectors from QP-VI HSSE departments in respective cities.
- Update information included in this document.
- Provide upon written request, up-to-date documents and drawings as referred to in Section 6.0.

6.0 REFERENCES

- QGDL-VI-008 : Guidelines for End-User Technical Submissions to QP Industrial Cities
- QRG-IML-001 : Health, Safety and Environment Regulations
- QP-PHL-S-001 : QP Corporate Philosophy for Fire & Safety
- QP-SPC-L-011 : QP Corporate Technical Specification for Hydrostatic Testing of New Pipelines
- QP-SPC-L-012 : QP Corporate Technical Specification for Pre-Commissioning and Commissioning of New Pipelines

It is incumbent on the End-Users/Contractors to confirm that the latest revision of the Document / Regulations / Guidelines / Drawing are employed.