

Recommended Practice for Pipeline Operator Qualification (OQ)

API RECOMMENDED PRACTICE 1161
SECOND EDITION, APRIL 2012



AMERICAN PETROLEUM INSTITUTE

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Downstream Segment

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Introduction

Background

The original purpose of API 1161 was to provide Liquid Pipeline Operators (“Operators”) with a guidance document to aid in the development of a written Operator Qualification (OQ) program to comply with the new OQ regulation (49 *CFR* Part 195 Subpart G) which became effective October 26, 1999. At that time, the preamble to the final regulation was the only guidance available to assist Operators with program development and program compliance. Since then, the regulation has been revised; Pipeline and Hazardous Materials Safety Administration (PHMSA) has issued advisories, white papers, frequently asked questions (FAQs), protocols and other guidance documents; industry groups have formed and some have issued OQ standards; and Operators have gained compliance experience as their programs have matured. Therefore, it is the goal of the OQ workgroup to revise API 1161 to reflect the relevant additional information that was not available in 2000.

Program Requirements

Each Operator is required to have and follow a written OQ program that includes provisions to address the nine required elements of the OQ regulation. While the Operator has the flexibility to exceed the requirements of the regulation, it is important to note that any and all requirements included in the written program become enforceable.

Recommended Practice for Pipeline Operator Qualification

1 Scope

The purpose of this recommended practice is to provide guidance for developing and maintaining a compliant Operator Qualification (OQ) program. Operators may choose to use all, part or none of this document. Additionally, many components of this recommended practice also apply to Gas Transmission Lines regulated under 49 *CFR* 192. Therefore, Operators may choose to utilize the recommended practice as applicable for these lines.

Operators should be aware that the OQ regulation is applicable only to United States Department of Transportation (DOT) jurisdictional pipelines. For purposes of this document, the word “pipeline” is used interchangeably with pipeline, pipeline facility and pipeline system and any and all jurisdictional pipeline components as defined in 49 *CFR* Part 195.

This document is written to provide guidance for achieving compliance with the regulation at the time of publication and is comprised of three individual components: the Guidance Document, the API Covered Task List (Annex A), and the Covered Task Standards (Annex B). A separate publication, the API Covered Task Standards, will contain guidance on the individual Covered Tasks. This guidance will include knowledge and skill components, span of control and abnormal operating conditions.

2 Abbreviations

For the purposes of this document, the following abbreviations apply.

| | |
|-------|--|
| AOC | abnormal operating conditions |
| API | American Petroleum Institute |
| CFR | <i>Code of Federal Regulations</i> |
| DOT | Department of Transportation |
| FAQ | frequently asked question |
| HQ | headquarters |
| NDT | nondestructive testing |
| OPID | Operator identification |
| OPS | Office of Pipeline Safety |
| OQ | Operator Qualification |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |

3 Guidance for Developing a Written Program

3.1 Roles and Responsibilities

Operators should define roles and responsibilities for the administration, management, and consistent implementation of the OQ program. Clear responsibilities for implementing the elements of the OQ program should be established and communicated to affected individuals. Responsibilities associated with the OQ program may include but are not limited to the following:

- central management and oversight of the OQ program;
- training, as appropriate;
- conducting and administering evaluations;

- recordkeeping;
- assigning covered tasks to individuals;
- verifying individuals' qualifications;
- managing contractors and other entities.

3.2 Participation in an Industry Group

The Operator may consider participating in an industry OQ group. These groups develop and update OQ guidance materials, share best practices and interact with regulatory agencies.

3.3 Language

The Operator's OQ program should include a policy on language to ensure effective communication when non-English speaking individuals perform covered tasks. Options may include but are not limited to the following:

- maintain a single-language policy, whereby all individuals performing covered tasks speak the same language (i.e. English);
- utilize bilingual individuals to interpret for non-English speaking individuals performing covered tasks;
- ensure availability of acceptable qualification methods in applicable language(s).

3.4 Program Improvement

3.4.1 General

While not specifically required by the regulation, an Operator may consider developing processes for periodic review of the written program and auditing program implementation. Operators should determine the process for incorporating program improvements based on the findings.

3.4.2 Written Program Review

The purpose of a periodic review of the written program is to insure that it meets current regulatory compliance and any additional needs of the Operator. The Operator has the flexibility to structure the review as formally or informally as deemed necessary and should document the results and identify appropriate modifications, if any.

3.4.3 Internal Audit

The purpose of an internal audit is to assure the program is being implemented as written. The Operator has the flexibility to structure the audit as formally or informally as deemed necessary and should document the results of the audit and identify appropriate modifications, if any.

4 Element 1: Identify Covered Tasks

4.1 General

The program shall identify and document covered tasks. A covered task is an activity, identified by the Operator that:

- is performed on a pipeline facility, and

- is an operations or maintenance task, and
- is performed as a requirement of 49 *CFR* Part 195, and
- affects the operations or integrity of the pipeline.

The four criteria listed above shall be referred to hereafter as the four-part test.

4.2 Guidance on Identifying Covered Tasks

4.2.1 General

In developing the covered task list, the Operator shall consider tasks performed on the pipeline facility, regardless of who performs them (employees, contractors, subcontractors, or other entities such as other pipeline Operators or those with access to the Operator's equipment). For example, if an Operator contracts out pipeline repair activities, those activities shall be considered in the identification of covered tasks.

The Operator has flexibility to determine how to accomplish covered task identification. The Operator should document the method and justification for selecting covered tasks. Options for establishing a covered task list may include but are not limited to the following two methods.

4.2.2 Adoption of an Industry-Developed Covered Task List

Industry and technical associations, qualification product providers, and others have developed covered task lists through subject matter expert consensus. The Covered Task List developed by API (in conjunction with the Operator Qualification workgroup under the Pipeline Committee) is attached to this document as Annex A. The Operator should take additional steps if adopting such a list and at a minimum, should compare the covered task list to its operations and maintenance activities in order to ensure completeness. The Operator has the flexibility to combine or separate covered tasks as suitable to its operations and, if gaps are identified should apply the four-part test to add or delete covered tasks as applicable.

4.2.3 Analysis of Operations and Maintenance Activities

An analysis of operations and maintenance activities may be used in the process of determining which activities should be included in an Operator's covered task list. Items to be considered when conducting activity identification and analysis may include, but are not limited to the following:

- *CFR* Part 195;
- state or local requirements;
- operations, maintenance and safety procedures;
- industry developed covered task list(s);
- applicable Pipeline and Hazardous Materials Safety Administration (PHMSA) Advisory Bulletins.

It may be helpful to record each applicable activity on a master list, and document the answers to the four-part test questions, adding justification notes as needed. This method of documentation will produce a list of covered and non-covered tasks and may assist in regulatory and internal reviews. Subject matter experts, regulatory compliance personnel, and others may be enlisted to assist in the identification and analysis of activities. Operators have the flexibility to include additional tasks that do not meet the four-part test.

4.3 Guidance on Interpreting the Four Part Test

4.3.1 Part 1—Is the Task Performed on a Pipeline Facility?

Operators should review the regulatory definitions of pipeline and pipeline facility. Components, piping, and equipment that are physically connected to the pipeline or pipeline system (i.e. by wires, tubing, pipe, or by the pipeline right of way) or that are connected by signals through the air are considered part of the pipeline facility.

A component, piping, or equipment disconnected and physically removed from the pipeline or pipeline system is not considered part of the pipeline facility. A component that is disconnected, but not physically removed from the pipeline facility, would meet the requirement of Part 1 of the four-part test.

4.3.2 Part 2—Is the Task an Operations or Maintenance Task?

Operations tasks may be defined as those activities associated with monitoring and controlling the transportation of hazardous materials within a pipeline system. Maintenance tasks may be defined as those activities performed to maintain, restore, replace, or relocate existing pipeline facilities.

4.3.3 Part 3—Is the Task Performed as a Requirement of 49 CFR Part 195?

The Operator should review all Subparts of 195, applicable PHMSA Advisory Bulletins, and state and local requirements to ensure completeness of all tasks. Operations and maintenance tasks are not limited to those tasks addressed in 195 Subpart F.

4.3.4 Part 4—Does the Task Affect the Operation or Integrity of the Pipeline?

Operators shall consider tasks that, if performed incorrectly, could adversely affect the operations or integrity of the pipeline, during or after the performance of the task. Operations include actions taken to facilitate storage or movement of product through a regulated pipeline. The integrity of the pipeline refers to the pipeline's ability to operate safely and to withstand the stresses imposed during operations.

5 Element 2: Ensure, Through Evaluation, that Individuals Performing Covered Tasks are Qualified

5.1 General

As defined in the regulation, qualified means that an individual has been evaluated and can: (a) perform assigned covered tasks and (b) recognize and react to abnormal operating conditions associated with those tasks.

5.2 Guidance on Establishing Criteria for Qualification through Evaluation

5.2.1 General

The terms qualification and evaluation are frequently used interchangeably throughout the industry; however, they are two distinct terms.

Qualification is the result of a process determined by the Operator that includes successful completion of task specific evaluation(s) with the associated AOCs, documentation and any other requirements as documented in the program whereas an evaluation is a step in the qualification process.

5.2.2 Qualification

5.2.2.1 General

The Operator has several decision points when developing a qualification process. At a minimum, consideration should be given to the covered task, the individual or groups of individuals to be qualified and the type of qualification. The resulting qualification process(es) should be documented.

5.2.2.2 Covered Task

The Operator should review the covered tasks to determine the appropriate evaluation method(s) and other qualification requirements. Items to be considered may include but are not limited to the following:

- scope and complexity of the covered task;
- level of knowledge and/or skill needed to perform the covered task;
- any other factors as determined by the Operator.

5.2.2.3 Individuals or Groups of Individuals

The Operator has flexibility to determine the evaluation methods and other qualification requirements for all individuals who perform covered tasks and may utilize the same evaluation methods and other qualification requirements for all groups of individuals (employees, contractors, subcontractors, or other entities such as other pipeline Operators or those with access to the Operator's equipment) or, may establish different requirements for different groups. The Operator may establish provisions in its Program to accept qualifications from other entities' internal OQ Programs.

5.2.2.4 Type of Qualification

Types of qualification should be considered when determining evaluation methods and other qualification requirements. Requirements may differ by type of qualification (e.g. initial qualifications, current qualifications prior to an expiration date, qualifications that have exceeded an expiration date or qualifications which may require additional actions as described in Element 4 and Element 5).

5.2.3 Evaluations

As stated in the regulation, evaluation is the process, established and documented by the Operator, to determine an individual's ability to perform a covered task by any of the following:

- written examination;
- oral examination;
- work performance history review (see note);
- observation during:
 - performance on the job (see note),
 - on the job training,
 - simulation;
- other forms of evaluation.

NOTE Neither work performance history review nor observation of performance on the job can be used as a sole evaluation method. These methods may be used in conjunction with other allowable methods of evaluation.

5.2.4 Evaluation Methods

Written and oral examinations consist of standard, pre-determined questions and should contain a sufficient number of questions to adequately measure the knowledge required to perform a covered task. A written examination is a knowledge test on paper or electronic format; whereas oral examination is a verbal knowledge test. Consideration should be made for the role of a proctor and/or evaluator to ensure tests are administered in a secure and controlled setting.

Work performance history review (WPHR) is a structured, documented review of an individual's task-related performance records. WPHR was originally established to aid Operators in transitioning their employees past work experience to meet the requirements of the regulation. If an Operator chooses to use WPHR as an evaluation method, the following steps should be completed and documented at a minimum:

- a search of existing records for documentation of an individual's past satisfactory performance of a covered task(s);
- verification that the individual's work performance history contains no indications of substandard work or involvement in an accident (Part 195) caused by an error in performing a covered task; and,
- verification that the individual has successfully performed the covered task on a regular basis.

Observation during performance on the job is a casual, unstructured observation.

Observation during on the job training is a performance evaluation conducted at the conclusion of training on a covered task. (See other forms of evaluation.)

Observation during simulation can be any of several evaluation methods described as follows:

- simulated scenario of a closed pipeline system such as those used in control centers;
- off the right of way using a mock up scenario to perform various covered tasks;
- demonstrating and communicating the intended performance of the covered task without physically touching the equipment.

Other forms of evaluation are as follows.

- Performance evaluations are formal, structured observations to measure skills and knowledge. An individual independently performs a covered task in a real-time or simulated environment while an evaluator assesses his/her skills based on a set of predetermined and documented criteria (such as a checklist).
- Professional certifications (e.g. NACE, ASNT, API, ANSI) that include evaluation.

5.2.5 Evaluation Material

Evaluations should assess an individual's knowledge and skills necessary to perform a task. An Operator has the option to develop internal evaluation materials or utilize material developed by third party organizations.

If developing internal evaluation material, the Operator may base the evaluations on Operations and Maintenance procedures. If using third party vendors, it is the responsibility of the Operator to assess the vendors' processes and materials to ensure that all requirements are met.

The Operator may consider periodically reviewing and updating evaluations to ensure they meet requirements.

5.2.6 Evaluation Process

Items to be considered when developing an evaluation process may include but are not limited to the following.

- Pass/fail criteria:
 - number of unsuccessful attempts allowed;
 - consequences of failure.
- Process for communicating evaluation results.
- Evaluator minimum requirements.
 - The Operator may consider providing formal training for the evaluator to ensure he/she understands the evaluation process and his/her role. The Operator may also consider if the evaluator should be qualified on the task he/she is evaluating when the evaluation is performed on live pipe and there are no other qualified individuals to direct and observe.
- Proctor minimum requirements.
- Rules to ensure integrity of evaluations:
 - fair and consistent administration;
 - security of test questions and answer banks.
- Documentation requirements.

5.2.7 Abnormal Operating Conditions (AOC)

As stated in the regulation, qualification shall include an evaluation of the individual's ability to recognize and react to AOCs associated with covered tasks.

The Operator has the flexibility to determine method(s) for ensuring individuals can recognize and react to AOCs. These methods may include but are not limited to the following:

- develop a stand-alone AOC evaluation;
- incorporate AOCs into task evaluation;
- review AOCs in pre-job meetings and document review;
- review AOCs in periodic meetings and document review;
- any combination of the above.

As defined in the regulation, an AOC means a condition identified by the Operator that may indicate a malfunction of a component or deviation from normal operations that may:

- indicate a condition exceeding design limits; or

- result in a hazard(s) to persons, property, or the environment.

Identifying AOCs for covered tasks includes but is not limited to the following.

- Analyzing the covered task procedures to identify any steps that, if performed incorrectly, could lead to a release, overpressure or other potentially hazardous condition. Upon identification of these steps, determine and document the abnormal operating condition and the recognition and appropriate corrective response.

5.3 Other Circumstances that Require Qualification Considerations

5.3.1 New Construction

The Operator's OQ program should address how the OQ regulation applies to new construction. As defined by PHMSA, new construction is the act of building a pipeline facility, or expanding an existing pipeline facility (as in looping a pipeline segment, which may also be construction to meet increased load requirements or to enhance reliability of the system) in order to provide new service to a customer(s) or in order to meet increased demand. New construction ends when the pipeline facility is being commissioned or during the act of connecting to an active pipeline (the tie-in).

5.3.2 Mergers and Acquisitions

The Operator's program should include provisions for mergers and acquisitions and in such event shall ensure qualified individuals perform covered tasks.

When individuals are included in the acquisition and will remain qualified under the acquired asset's OQ program, the Operator should make every effort to obtain that program prior to the acquisition and review it for completeness and acceptability. Sections to be reviewed may include but are not limited to the following:

- covered task list;
- abnormal operating conditions;
- span of control;
- requalification intervals;
- individuals' qualifications;
- contractor management;
- evaluation criteria.

Once the program has been reviewed, the Operator has several options which may include but are not limited to the following:

- accept all or part of the acquired program;
- reject the acquired program;
- temporarily accept all or part of the acquired program.

The Operator should document the process and OQ program actions taken during the merger or acquisition.

Even in the event no individuals are acquired with a merger or acquisition, the Operator should determine if revisions to the program or additional covered tasks or AOCs are necessary due to differences in product transported, technology, or equipment.

The Operator may also review the acquired program for best practices and determine which, if any, components should be incorporated.

6 Element 3: Allow Individuals that are Not Qualified Pursuant to the Regulation to Perform a Covered Task if Directed and Observed by an Individual that is Qualified

6.1 General

Operators may consider a mechanism to observe and direct performance of a covered task by non-qualified personnel.

6.2 Guidance on Allowing Non-qualified Individuals to Perform Covered Tasks

Each task should be assessed to determine how many non-qualified individuals, if any, can perform a task while being directed and observed by a qualified person. Criteria should be established for determining the ratio of qualified vs. non-qualified individuals who can safely perform the covered tasks (span of control). Operators should take into account the task's complexity, criticality and normal working conditions when determining the maximum span of control. Typical industry spans of control range from 1:0 through 1:5. It is recommended the Operator not exceed spans above 1:5. When establishing the maximum span of control, options to consider include, but are not limited to the following:

- develop span of control ratios internally;
- adopt span of control ratios as developed by an industry or technical association.

The Operator may consider reducing span of control when actual jobsite conditions (i.e., language barriers, weather conditions, excess noise), limit the qualified individual's ability to direct and observe nonqualified individuals. The Operator may consider the impact of training on span of control. If the Operator sets the span of control for tasks at 1:0, then the Operator may consider including a provision in the program to allow a non-qualified individual to perform covered tasks during on-the-job training.

In addition, the program should state that the qualified individual shall be in close proximity to the non-qualified individual so that he/she may intervene if the task is being performed incorrectly and can respond to an AOC if one should arise.

7 Element 4: Evaluate an Individual if the Operator has Reason to Believe that the Individual's Performance of a Covered Task Contributed to an Accident/Incident as Defined in the Regulation

7.1 General

Operators shall review an individual's qualification upon determination that the individual's performance of a covered task(s) contributed to an incident.

7.2 Guidance on Determination of Appropriate Action Following Individual's Involvement in an Incident or Accident

If the Operator determines that an individual's performance of a covered task contributed to a PHMSA defined accident, the Operator should determine if the covered task(s) was performed improperly. The Operator may consider, but is not limited to, the following reasons:

- lack of individual's knowledge, skill or ability;
- deficiency in procedure;
- human factors not related to OQ.

The Operator should determine and execute appropriate action(s) to ensure qualification and effectiveness. Appropriate actions to be taken may include, but are not limited to the following:

- restrict individual's performance of covered task;
- provide training for individual;
- conduct procedure review with individual;
- evaluate and/or qualify individual;
- revise the procedure(s);
- revise the OQ program;
- other actions as warranted;
- no action required.

Operators should document the results of the review including any actions taken.

8 Element 5: Evaluate an Individual if the Operator has Reason to Believe that the Individual is No Longer Qualified to Perform a Covered Task

8.1 General

Operators shall review an individual's performance of covered tasks if there is reason to believe the individual should no longer be qualified.

8.2 Guidance on Determining if an Individual Should No Longer be Qualified

Operators should develop a process to determine if and when an individual is no longer qualified to perform a covered task. Reasons an individual may no longer be qualified, other than an accident or incident as defined by DOT Part 195 may include but are not limited to the following:

- failure to properly perform a covered task;
- extended leave;

- prolonged period of non-performance of a covered task;
- loss of motor skills, vision, or impairments as determined by a medical professional.

The Operator has the flexibility to establish a policy that applies to all affected individuals, or may choose to determine qualification on an individual basis, or a combination of both. It may be helpful to consider the following.

- If covered tasks were performed improperly, does the individual lack knowledge, skill or ability?
- If extended leave was involved, consider the following.
 - Did the reason for leave affect the individual's ability to perform covered tasks?
 - Have procedures changed during leave of absence?
 - Have qualifications expired during leave of absence?
 - How much experience does the individual have at performing the covered tasks?
- How much time elapsed since the last performance of the covered tasks?
- Are there other contributing factors to consider?

In the event the individual is no longer qualified, the Operator may consider additional actions, which may include but are not limited to the following:

- restrict performance of covered task (such as performing task under span of control);
- training;
- re-evaluation;
- procedure review;
- no action required.

9 Element 6: Identify Those Covered Tasks and the Intervals at Which Evaluation of the Individual's Qualifications is Needed

9.1 General

Operators shall establish re-evaluation intervals for each covered task.

9.2 Guidance on Developing Re-evaluation Intervals

When developing intervals, the Operator has the option of utilizing evaluation intervals established by an industry association or other entity or developing Operator specific intervals. However, an evaluation interval of 36 months is recommended based on current practice. An Operator may choose to extend this timeframe as needed for scheduling flexibility. Any extension should be documented in the Operator's OQ Program. If the Operator chooses to adopt an industry developed interval, the Operator should review the interval to ensure the requirements of the Operator specific program are met.

When developing intervals internally, the Operator should develop and document the rationale used to determine the intervals and may consider the following:

- complexity of the task (how difficult is the task to perform?);
- criticality of the task (how does the task impact safety and integrity of the pipeline facility?);
- frequency of performance of the task (how often is the task performed?).

The Operator may consider establishing a method of notifying individuals prior to the expiration of the qualification.

10 Element 7: Communicate Changes that Affect Covered Tasks to Individuals Performing Those Covered Tasks

10.1 General

The Operator shall have a mechanism for communicating changes that affect covered tasks.

10.2 Guidance on Developing Processes to Communicate Changes that Affect Covered Tasks

Changes that affect covered tasks shall be communicated. The Operator should have processes in place for communicating the change to the affected individuals.

Examples of changes that affect covered tasks may include the following:

- task addition or deletion;
- revisions or additions to identified AOCs;
- policies, procedures, and standards;
- tools, equipment, or technology;
- evaluation methods, materials and criteria;
- suspension and disqualification processes;
- re-evaluation intervals;
- span of control.

Significant changes to covered tasks may necessitate additional evaluation to maintain qualification.

11 Element 8: Provide Training, as Appropriate, to Ensure that Individuals Performing Covered Tasks Have the Necessary Knowledge and Skills to Perform the Tasks in a Manner that Ensures the Safe Operation of Pipeline Facilities

11.1 General

The Operator should address the role of training in the qualification of individuals.

11.2 Guidance on Providing Training, as Appropriate

It is important to note that the term “training” is often used incorrectly in reference to evaluation and qualification. Training is the act of facilitating the learning, development and improvement of new and existing knowledge and skills and not the evaluation or qualification of those knowledge and skills.

There may be circumstances that require training to ensure individuals have the knowledge and skills required for qualification.

Examples of when training may be appropriate include but are not limited to the following:

- initial qualification;
- suspension or disqualification;
- revisions to policies and procedures;
- changes to tools, equipment or technology;
- failed evaluation.

Training delivery methods may include but are not limited to the following:

- on-the-job training (OJT) program;
- instructor led training;
- computer based training;
- self study.

12 Element 9: Notify the Administrator or a State Agency Participating Under 49 U.S.C. Chapter 601 if the Operator Significantly Modifies the Program After the Administrator or State Agency Has Verified that it Complies with the Regulation.

12.1 General

Operators are required to identify significant modifications that would require notification and submission to PHMSA and appropriate state regulatory agencies.

12.2 Guidance on Determining a Significant Change

Operators should determine what changes would be considered significant changes to the OQ Program. Examples of changes that may be considered significant include:

- modifications to covered task list;
- modifications to evaluation process;
- modifications to qualification process;
- revisions to span of control;

- wholesale changes made to the Operator's OQ program (e.g. consolidation of programs following a merger or acquisition, changes to roles and responsibilities or other changes the Operator deems significant).

12.3 Guidance on Transmitting OQ Program Revisions

Operators should send notifications of significant modification of an OQ Program to the Office of Pipeline Safety (OPS) Information Resource Manager by either e-mail or mail as follows.

EMAIL

InformationResourcesManager@phmsa.dot.gov

MAIL

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Office of Pipeline Safety
Information Resources Manager
1200 New Jersey Avenue, SE
East Building, 2nd Floor (PHP-10)
Room E22-321
Washington, DC 20590

The Operator should submit the complete OQ program accompanied by a revision/change log and the effective date of change(s). The OQ program should be notated such that changed areas of the program can be readily identified. Employee-specific information (i.e. social security numbers) and testing material do not need to be sent.

Additionally, each notification to PHMSA should include the following:

- 1) Operator identification [OPID(s)], Operator name(s), headquarters (HQ) address;
- 2) name of individual submitting notification;
- 3) data/email/phone number;
- 4) commodity (gas/liquid/both);
- 5) PHMSA Region(s) where pipeline(s) operates;
- 6) names of respective facilities or pipeline systems where changes apply.

NOTE Operators subject to pipeline safety regulations by state agencies are required to send OQ notifications directly to each affected state agency.

12.4 Recordkeeping

In addition to elements 1 through 9, the regulation requires that the Operator maintain the following records for all individuals performing covered tasks:

- identification of qualified individual(s);
- identification of the covered task(s) the individual is qualified to perform;

- date(s) of current qualification;
- qualification method(s).

Records supporting an individual's current qualification shall be maintained while the individual is performing the covered task(s). Records of prior qualification and records of individuals no longer performing covered task(s) shall be retained for a period of five years. It is important to note that the five years begins on the last date the qualification was valid.

12.5 Guidance On Developing Recordkeeping Criteria

Operators may consider developing and documenting a process that ensures individuals performing covered tasks have valid qualifications. Examples of validation methods may include but are not limited to:

- hard copy records;
- electronic records;
- ID cards.

Qualification records may be maintained by the Operator or a third party. It is important to note that different methods may be used to validate qualification for employees, contractors, subcontractors or other entities.

The Operator may consider maintaining additional records to demonstrate compliance with the program. While this list of records is not required by regulation, many are integral to the OQ Program:

- documented history of written program and all program revisions including covered task changes;
- communication of the written OQ Program;
- management of change, including the notification of applicable contractors;
- evaluation criteria;
- span of control;
- applicable training;
- re-evaluation records for cause;
- feedback from field personnel, accident and incident investigations, near miss programs or other sources that could enhance the OQ program, such as AOCs, evaluations and training;
- results of program review and/or auditing;
- history file of checklist used for performance verifications and written/oral exams;
- justification for selection of evaluators;
- log of revision.

Annex A (normative)

Covered Task List

The Covered Tasks listed below were identified by API and may be adopted by the Operator as described in 4.2.1 of this document.

The tasks in bold text are included in Annex B, the remaining tasks are in development.

| COVERED TASK NUMBER | Covered Task Name |
|---------------------------|---|
| 1.1 | Measurement of Structure-to-Soil Potentials |
| 1.2 | Conduct Close Interval Survey |
| 1.3 | Test to Detect Interference |
| 1.4 | Inspect and Perform Electrical Test of Bonds |
| 1.5 | Inspect and Test Electrical Isolation |
| 2.1 | Verify Test Lead Continuity |
| 2.2 | Repair Damaged Test Lead |
| 2.3 | Install Test Leads by Non-Exothermic Welding Methods |
| 2.4 | Install Test Leads by Exothermic Welding Methods |
| 3.0 | Obtain a Voltage and Current Output Reading from a Rectifier to Verify Proper Performance |
| 4.1 | Troubleshoot Rectifier |
| 4.2 | Repair or Replace Defective Rectifier Components |
| 4.3 | Adjustment of Rectifier |
| 5.1 | Examine for Mechanical Damage on Buried or Submerged Pipe |
| 5.2 | Examine for External Corrosion on Buried or Submerged Pipe |
| 5.3 | Inspect the Condition of External Coating on Buried or Submerged Pipe |
| 7.1 | Visual Inspection of Atmospheric Coatings |
| 7.2 | Prepare Surface for Coating Using Hand and Power Tools |
| 7.3 | Prepare Surface for Coating by Abrasive Water Blasting |
| 7.4 | Prepare Surface for Coating by Abrasive Blasting Methods Other Than Water |
| 7.5 | Apply Coating Using Hand Application Methods |
| 7.6 | Apply Coating Using Spray Applications |
| 7.7 | Perform Coating Inspection |
| 8.1 | Measure Pit Depth with Pit Gauge |
| 8.2 | Measure Wall Thickness with Ultrasonic Meter |
| 8.3 | Measure Corroded Area |
| 9.1 | Install Bonds |
| 9.2 | Install Galvanic Anodes |

| | |
|-------------|---|
| 9.3 | Install Rectifiers |
| 9.4 | Install Impressed Current Ground Beds |
| 9.5 | Repair Shorted Casings |
| 9.6 | Install Electrical Insulating Device |
| 10.1 | Insert and Remove Coupons |
| 10.2 | Monitor Probes (On-Line) |
| 11.0 | Monitoring and Controlling the Injection Rate of the Corrosion Inhibitor |
| 12.0 | Visual Inspection of the Internal Pipe Surface |
| 14.1 | Locate Line |
| 14.2 | Install, Inspect and Maintain Permanent Marker |
| 14.5 | Install, Inspect and Maintain Temporary Marker |
| 15.1 | Visual Inspection of the Surface Conditions of Right-of-Way |
| 16.1 | Inspect Navigable Waterway Crossing |
| 19.1 | Valve Body Winterization or Corrosion Inhibition |
| 19.2 | Valve Lubrication |
| 19.3 | Valve Seat Sealing |
| 19.4 | Valve Stem Packing Maintenance |
| 19.5 | Actuator/Operator Adjustment, Electric |
| 19.6 | Actuator/Operator Adjustment, Pneumatic |
| 19.7 | Actuator/Operator Adjustment, Hydraulic |
| 20.0 | Inspect Mainline Valves |
| 21.1 | Repair Valve Actuator/Operator, Pneumatic |
| 21.2 | Disassembly/Re-assembly of Valve |
| 21.3 | Internal Inspection of Valve |
| 21.4 | Repair Valve Actuator/Operator, Hydraulic |
| 21.5 | Repair Valve Actuator/Operator, Electric |
| 22.1 | Inspect Tank Pressure/Vacuum Breakers |
| 22.2 | Inspect, Test, and Calibrate HVL Tank Pressure Relief Valves |
| 23.1 | Maintain/Repair Relief Valves |
| 23.2 | Maintain/Repair Pressure Limiting Devices |
| 24.1 | Inspect, Test and Calibrate Pressure Limiting Devices |
| 24.2 | Inspect Test and Calibrate Relief Valves |
| 25.1 | Inspect, Test and Calibrate Pressure Switches |
| 25.2 | Inspect, Test and Calibrate Pressure Transmitters |
| 27.1 | Routine Inspection of Breakout Tanks (API 653 Monthly or DOT Annual) |
| 27.2 | API 653 Inspection of In-Service Breakout Tanks |
| 27.3 | API 510 Inspection of In-Service Breakout Tanks |
| 30.0 | Test Overfill Protective Devices |

| | |
|-------------|---|
| 31.0 | Inspect and Calibrate Overfill Protective Devices |
| 32.0 | Monitoring Excavation Activities |
| 38.1 | Visually Inspect Pipe and Pipe Components Prior to Installation |
| 38.3 | Visually Inspect that Welds Meet DOT Requirements |
| 38.4 | NDT - Radiographic Testing |
| 38.5 | NDT - Liquid Penetrate Testing |
| 38.6 | NDT - Magnetic Particle Testing |
| 38.7 | NDT - Ultrasonic Testing |
| 39.0 | Backfilling a Trench Following Maintenance |
| 40.1 | Fit Full Encirclement Welded Split Sleeve (Oversleeve, Tight Fitting Sleeve, etc.) |
| 40.3 | Apply Composite Material for Pipeline Repair |
| 40.4 | Install Mechanical Bolt on Repair Device |
| 40.5 | Install Weldable Compression Couplings |
| 40.6 | Install and Remove Plugging Machine |
| 40.7 | Hot Tapping a Hole 2 in. or Under |
| 40.8 | Hot Tapping a Hole Larger than 2 in. |
| 40.9 | Installation and Removal of a Completion Plug |
| 41.0 | Conduct Pressure Test |
| 42.7 | Welding |
| 43.1 | Start-up of a Liquid Pipeline (Control Center) |
| 43.2 | Shutdown of a Liquid Pipeline (Control Center) |
| 43.3 | Monitor Pressures, Flows, Communications and Maintain Them Within Allowable Limits on a Liquid Pipeline System (Control Center) |
| 43.4 | Remotely Operate Valves on a Liquid Pipeline System |
| 44.3 | Inspect, Test, and Calibrate Computational Pipeline Monitoring (CPM) Leak Detection System |
| 44.4 | Inspection, Testing, Corrective and Preventative Maintenance of Tank Gauging for Leak Detection |
| 44.5 | Prove Flow Meters for Hazardous Liquid Leak Detection |
| 44.6 | Maintain Flow Meters for Hazardous Liquid Leak Detection |
| 44.7 | Inspect, Test and Maintain Gravimeters/Densimeters for Hazardous Liquid Leak Detection |
| 44.8 | Inspect, Test and Maintain Temperature Transmitters |
| 63.1 | Start a Pipeline (Field) |
| 63.2 | Shutdown of a Liquid Pipeline (Field) |
| 63.3 | Monitor Pressures, Flows, Communications and Line Integrity and Maintain Them Within Allowable Limits on a Liquid Pipeline System (Field) |
| 63.4 | Locally Operate Valves on a Liquid Pipeline System |

Annex B (normative)

Covered Task Standards

Annex B is expected to include all of the updated Task Standards. As of the publication date of API 1161, 2nd Edition, this annex includes only those Task Standards approved by the governance group by ballot. This annex will continue to incorporate Task Standards as addenda as they are developed and approved by API. The Task Standards in this annex directly correlate to Annex A (Covered Task List), but will be published in no particular order.

The expected completion date for this annex is 18 months from publication of RP 1161 Rev. 2. At that time, this annex will be incorporated in full into the document.

As available, OQ Task Standards will be available at no cost on API's website and are accessible at:

<http://www.api.org/1161TaskLists>

Users of this document are directed to visit this website periodically to obtain the updated Task Standards as they are made available for publication.

OQ Task Name

27.1 – Routine Inspection of Breakout Tanks (API 653 Monthly or DOT Annual)

Table of Contents

| | | |
|-----|----------------------------|---|
| 1.0 | Task Description | 1 |
| 2.0 | Knowledge Component | 1 |
| 3.0 | Skill Component | 2 |
| 4.0 | Document Version Log | 3 |

1.0 Task Description

The scope of this task is performing routine tank inspections in accordance with the latest DOT approved edition of API 653. The interval of the inspection shall not exceed 1 month.

This task does not include the API 653 in-service inspections performed by an *authorized inspector* as defined by the latest DOT approved edition of API 653 (Task 27.2) or inspections required by environmental permits.

2.0 Knowledge Component

An individual performing this task must have knowledge of:

The purpose of this task is to evaluate the condition of a breakout tank by visually determining the condition of the tank and its components.

There are three primary types of atmospheric steel aboveground breakout tanks:

1. **External/opentop floating roof tanks** – An open topped cylindrical aboveground steel shell equipped with a roof that floats on the surface of the stored liquid. The roof rises and falls with the liquid level in the tank. There is a rim seal system between the tank shell and roof to reduce rim evaporation.

The roof has support legs hanging down into the liquid. At low liquid levels the roof eventually lands and a vapor space forms between the liquid surface and the roof, similar to a fixed roof tank. The support legs are usually retractable to increase the working volume of the tank.

2. **Fixed/Cone roof tank** – A closed top cylindrical aboveground steel shell with either a: supported cone roof supported principally either by rafters on girders and columns or by rafters on trusses with or without columns, a self-supporting cone roof that is supported only at its periphery, or a self-supporting dome roof formed to approximately a spherical surface that is supported only at its periphery.
 3. **Internal floating roof tanks** – These tanks are cone roof tanks with a floating roof inside which travels up and down along with the liquid level.
-

- **Chime Ring** - The outside edge of the tank bottom that extends past the weld of the tank shell. The chime ring should be visually inspected for signs of settlement, corrosion and evidence of leaks.
- **Secondary containment** – An impoundment, such as a dike, that could contain spilled product on site. The impoundment may be constructed of concrete, earth, steel, or solid masonry and is designed to be liquid tight. Dikes should not be compromised by erosion, excavations, or excessive vegetation.
- **Reinforcing Plate/Pad/Repad** – Steel reinforcement plates installed around shell openings to provide the shell with added strength required due to the installation of a shell appurtenance. Repads should be visually inspected for corrosion and coating condition.
- **Shell** – The vertical, cylindrical walls of a tank. The shell shall be visually inspected for distortions, signs of settlement, corrosion, and condition of coatings and insulation systems, if applicable,
- **Shell Appurtenances** - Manways, reinforcement plates, nozzles, sampling ports, temperature probes, mixers, and auto-gauge systems. Shell appurtenances shall be visually inspected for corrosion, coating condition and evidence of leaks.
- **Tank Foundation/Ring wall** - Perimeter concrete ring providing support for the tank shell. Foundations shall be inspected for signs of settlement and foundation condition.
- **Roof** – The top external surface of the tank. The roof shall be visually inspected for evidence of leaks and coating condition. External floating roof tanks should be inspected for excessive water or other material that may cause a condition that could affect the integrity of the tank.
- **Telltale/Weep Hole** – A threaded penetration of the reinforcing plate that is used to determine if the shell has developed a leak in the area where the reinforcing plate has covered the shell. Weep holes should be inspected for evidence of leaks.

Abnormal Operating Conditions (AOC’s): Conditions that are identified as part of the inspection are not considered AOC’s. No AOC’s have been identified for this covered task. Site specific AOC’s shall be identified by the operator as necessary.

3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

| Step | Action | Explanation |
|------|---|--|
| 1 | Visually inspect for evidence of leaks. <ul style="list-style-type: none"> • Mixer seals • Flanges • Manways/nozzles • Chime • Roof/pontoons • Welds/rivets • Telltales/weep holes on reinforcing pads | Leaks indicate an integrity issue and immediate response according to company policies is required. Response actions may include stopping operation and securing equipment, if safe to do so, immediately notifying the operator and executing applicable emergency procedures. |

| Step | Action | Explanation |
|------|---|---|
| | <ul style="list-style-type: none"> • Sheen on water in containment area | |
| 2 | Visually inspect the shell for defects: <ul style="list-style-type: none"> • External visual inspection for paint and corrosion defects. • Inspect the chime area for corrosion. • Reinforcement plate/padding around manways and/or valves. • Inspect for shell distortions. Look for deflection or deformation of the shell. • Insulation condition, if applicable | Visual inspection of the shell is performed to identify coating condition, pitting and corrosion, and distortions. |
| 3 | Visually inspect for settlement around the perimeter of the tank and the condition of the foundation: <ul style="list-style-type: none"> • Check that rainwater runoff from the shell drains away from tank. • Inspect for broken concrete and cracks. • Inspect for cavities under the foundation and vegetation against the bottom of the tank. | Visual inspection of the foundation is performed to identify conditions such as settlement, lack of support under the tank shell/floor. Surface water should be kept away from tank to prevent corrosion and erosion of the foundation. |
| 4 | Visually inspect the secondary containment system for impoundment integrity. | Tank dike wall must be maintained so that the containment area capacity remains as designed. |
| 5 | Visually inspect the tank roof for: <ul style="list-style-type: none"> • Coating condition, holes, pitting, and corrosion. • Standing or pooling water or product. • Floating roof out of level | Large standing water areas on a floating roof indicate inadequate drainage design or, if to one side, a non-level roof with possible leaking pontoons. Floating roofs can sink and possibly impact the integrity of the tank floor if excessive weight from water/product on top of the roof is not removed. Significant sagging of fixed-roof deck indicates potential rafter failure. |
| 6 | Document the findings of the inspection | Submit completed inspection form according to operator's procedures |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|----------------|--------------|----------------|----------------|--------------------------|
| | | | | |

OQ Task Name

Task 27.2 – API 653 Inspection of In-Service Breakout Tanks

Table of Contents

| | | |
|-----|----------------------------|---|
| 1.0 | Task Description | 1 |
| 2.0 | Knowledge Component | 1 |
| 3.0 | Skill Component | 1 |
| 4.0 | Document Version Log | 2 |

1.0 Task Description

The scope of this task is performing an internal or external inspection of an in-service breakout tank in accordance with the latest DOT approved edition of API 653. This inspection shall be performed by an *authorized inspector* as defined by API 653.

An in-service breakout tank is one that has been commissioned.

The scope of this task does not include the routine inspection of breakout tanks (Task #27.1).

2.0 Knowledge Component

An individual performing this task must have knowledge of:

Provide documentation of the American Petroleum Institute (API) Authorized Inspector Certification for API 653. For atmospheric and low-pressure steel aboveground tanks the inspector shall have certification as an authorized inspector for those tanks under API 653.

Abnormal Operating Conditions (AOC's): Conditions that are identified as part of the inspection are not considered AOC's. No AOC's have been identified for this covered task. Site specific AOC's shall be identified by the operator as necessary.

3.0 Skill Component

The certificate demonstrates task performance proficiency. No other steps are required for OQ qualification.

| Step | Action | Explanation |
|------|---|---|
| 1 | Inspect the physical integrity of aboveground steel breakout tanks in accordance with the latest DOT approved edition of API 653. | Authorized Inspector Certification required in accordance with the latest DOT approved edition of API 653. Conditions that are found to be unacceptable according to the latest DOT approved edition of API 653 shall be documented and provided to the operator. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|-----------------------|---------------------|-----------------------|-----------------------|---------------------------------|
| | | | | |

OQ Task Name

Task 27.3 – API 510 Inspection of In-Service Breakout Tanks

Table of Contents

| | | |
|-----|----------------------------|---|
| 1.0 | Task Description | 1 |
| 2.0 | Knowledge Component | 1 |
| 3.0 | Skill Component | 2 |
| 4.0 | Document Version Log | 2 |

1.0 Task Description

The scope of this task is performing an internal or external inspection of an in-service breakout tank in accordance with the latest DOT approved edition of API 510. This inspection shall be performed by an *authorized inspector* as defined by API 510.

An in-service breakout tank is one that has been commissioned.

The scope of this task does not include the routine inspection of breakout tanks (Task #27.1).

2.0 Knowledge Component

An individual performing this task must have knowledge of:

Provide documentation of the American Petroleum Institute (API) Authorized Inspector Certification for API 510. For steel aboveground breakout tanks built to API Standard 2510 the inspector shall have certification as an authorized pressure vessel inspector for API 510.

Abnormal Operating Conditions (AOC's): Conditions that are identified as part of the inspection are not considered AOC's. No AOC's have been identified for this covered task. Site specific AOC's shall be identified by the operator as necessary.

3.0 Skill Component

The certificate demonstrates task performance proficiency. No other steps are required for OQ qualification.

| Step | Action | Explanation |
|------|--|---|
| 1 | Inspect the physical integrity of aboveground steel breakout tanks in accordance with the latest DOT approved edition of API 510 | Authorized Inspector Certification required in accordance with the latest DOT approved edition of API 510. Conditions that are found to be unacceptable according to the latest DOT approved edition of API 510 shall be documented and provided to the operator. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|----------------|--------------|----------------|----------------|--------------------------|
| | | | | |

OQ Task Name

Task 38.1 – Visually Inspect Pipe and Pipe Components Prior to Installation

Table of Contents

| | | |
|-----|----------------------------|---|
| 1.0 | Task Description..... | 1 |
| 2.0 | Knowledge Component | 1 |
| 3.0 | Skill Component | 2 |
| 4.0 | Document Version Log | 2 |

1.0 Task Description

The scope of this task is the on site visual inspection of pipe and components that are to be installed in the pipeline system. The purpose of the inspection is to ensure that the pipe and components are not damaged in a manner that could impair their strength or reduce their serviceability and to ensure that the pipe and components are rated for intended service.

The task does not include an assessment of damage and any determination of the measures that should be taken to mitigate the damage found during an inspection.

2.0 Knowledge Component

An individual performing this task must have knowledge of:

- Component - means any part of a pipeline which may be subjected to pump pressure including, but not limited to, pipe, valves, elbows, tees, flanges, and closures.
- Maximum Operating Pressure (MOP) – The maximum pressure at which a pipeline or segment of a pipeline or a component may be normally operated. Inspection shall include assurance that the pipe and/or component is compatible with MOP for the system in which it is to be installed.
- Corrosion – Surface rust or pitting are examples of conditions that may be identified during a visual inspection.
- Mechanical defects - Buckles, dents, cracks, gouges, out of round pipe, or other defects that might reduce the strength of the pipe or pipe component. A crack is a surface flaw or defect characterized by break without complete separation; fissure. A gouge is a surface flaw characterized by the removal of steel from the pipe or component.
- Buckled or wrinkled bends – Bends must have a smooth contour. Buckles and wrinkles are physical defects that are characterized by a bulging or warping of the pipe.
- Coating damage – Coating defects that can be visually identified such as cuts, scratches, or other defects characterized by a visually determined loss of coating (holiday).
- Pipe marking - Each length of pipe with a nominal outside diameter of 4½ in (114.3 mm) or more must be marked on the pipe or pipe coating with the specification to which it was made, the specified minimum yield strength or grade, and the pipe size. The marking must be

applied in a manner that does not damage the pipe or pipe coating and must remain visible until the pipe is installed.

- Valve marking - Each valve must be marked on the body or the nameplate with at least the following:
 1. Manufacturer's name or trademark.
 2. Class designation or the maximum working pressure to which the valve may be subjected.
 3. Body material designation (the end connection material, if more than one type is used).
 4. Nominal valve size.
- Butt-welding type fittings must meet the marking and end preparation required by the operator's specification.

Abnormal Operating Conditions (AOC's): Conditions that are identified as part of the inspection are not considered AOC's. No AOC's have been identified for this covered task. Site specific AOC's shall be identified by the operator as necessary.

3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

| Step | Action | Explanation |
|------|---|--|
| 1 | Inspect pipe and components for: <ul style="list-style-type: none"> • Corrosion • Defects such as; cracks, grooves, gouges, dents, out of round pipe • Coating damage • For bends - inspect for buckles and/or wrinkles | The inspection of pipe and components prior to installation for pipeline maintenance does not include the assessment of the damage and a determination of the measures necessary to mitigate the damage. |
| 2 | Ensure component is rated for intended service. | Inspector must know the design MOP for the system and ensure through visual verification of the markings on pipe and components that the pipe or component is compatible. |
| 3 | Communicate the inspection results. | A satisfactory outcome of the inspection must be achieved. If not, the condition must be noted and resolved. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|----------------|--------------|----------------|----------------|--------------------------|
| | | | | |

OQ Task Name

Task 38.3 – Visually Inspect that Welds Meet DOT Requirements

Table of Contents

1.0 Task Description..... 1
 2.0 Knowledge Component 1
 3.0 Skill Component 2
 4.0 Document Version Log 2

1.0 Task Description

The scope of this task is to visually inspect welds to ensure they are in accordance with the latest DOT approved edition of API 1104 and the applicable qualified welding procedure and to identify any defects that may affect the integrity of a pipeline tie-in or component replacement.

The scope does not involve any visual inspection of non-destructive testing (NDT) techniques such as magnetic particle testing (Task 38.6) or radiography (Task 38.4).

2.0 Knowledge Component

An individual performing this task must have knowledge of:

This inspection of welds and identification of conditions, as defined by the latest DOT edition of API 1104 and the operator’s applicable written welding procedure, are limited to conditions that can be identified visually and include:

- Arc Burn – The gouging effect imparted to the surface of the pipe whenever an electric arc is inadvertently struck, typically adjacent to a weld, when starting to weld.
- External Undercut (EU) - A groove melted in parent material adjacent to the cover pass and left unfilled by weld material.
- Pin Hole or Porosity (POR) – A condition when the surface of the weld is in a semi-molten stage and gas produced by the welding process rises to the surface of the molten puddle and escapes. This condition leaves the appearance of pin holes on the surface of the weld. Acceptable porosity limits are determined by radiography.
- Slag – Slag is the residue left on a weld bead from the flux. It shields the hot metal from atmospheric contaminants that may weaken the weld point. Slag can also be globules of molten metal that are expelled from the joint and then re-solidify on the metal surface.
- Weld (Cap) Height - The distance the completed weld extends beyond the height of the parent material. The weld dimensions, including the weld height, are determined by the written welding procedure.

The Qualified Welding Procedure is a tested and proven detailed method by which sound welds with suitable mechanical properties can be produced. The procedure shall be written and records shall include the results of qualifying tests. An individual performing this task must be knowledgeable of the operator’s applicable written welding procedure.

Abnormal Operating Conditions (AOC's): Conditions that are identified as part of the inspection are not considered AOC's. No AOC's have been identified for this covered task. Site specific AOC's shall be identified by the operator as necessary.

3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

| | Action | Explanation |
|---|---|---|
| 1 | <p>Identify any conditions that do not meet the qualified welding procedure or the latest DOT approved edition of API Standard 1104. Conditions may include:</p> <ul style="list-style-type: none"> • Arc burn • External undercut (EU) • Pin hole/porosity • Slag • Weld (cap) height – inadequate or excessive | <ul style="list-style-type: none"> • Arc burns are not acceptable and must be repaired • The depth of EU adjacent to the final bead on the outside of the pipe shall not be more than 1/32 of an inch or 12.5% of the pipe wall thickness (whichever is smaller). There shall not be more than 2 inches of EU in any continuous 12 inch length of weld. • Surface pinholes are an indication of porosity • Slag and weld splatter can mask surface imperfections • Acceptable weld dimensions including the minimum and maximum weld height are determined by the applicable qualified welding procedure |
| 2 | Communicate the inspection results. | A satisfactory outcome must be achieved. If not, the condition must be noted and resolved. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|----------------|--------------|----------------|----------------|--------------------------|
| 1.0 | | | | |

OQ Task Name

Task 38.4 – NDT – Radiographic Testing

Table of Contents

1.0 Task Description..... 1
 2.0 Knowledge Component 1
 3.0 Skill Component 1
 4.0 Document Version Log 2

1.0 Task Description

The scope of this task is to verify that welds meet the specifications of the latest DOT approved edition of API Standard 1104 utilizing radiography and to identify any indications and imperfections that may affect the integrity of a pipeline tie-in, component installation/replacement, or pipeline repair.

This task does not include visual inspection and only involves Non-Destructive Testing (NDT) inspection of completed welds.

2.0 Knowledge Component

An individual performing this task must have knowledge of:

Provide documentation of American Society for Nondestructive Testing, Recommended Practice No. SNT-TC-1A, ACCP certification for radiography (RT) or any other recognized national certification program that shall be acceptable to the company for the test method used.

Abnormal Operating Conditions (AOC’s): Conditions that are identified as part of the inspection are not considered AOC’s. No AOC’s have been identified for this covered task. Site specific AOC’s shall be identified by the operator as necessary.

3.0 Skill Component

The certificate demonstrates task performance proficiency. No other steps are required for OQ qualification.

| Step | Action | Explanation |
|------|---|--|
| 1 | Evaluate completed welds utilizing radiography to ensure they meet the standards of the latest DOT approved edition of API 1104 | Certification required to Level II or III in accordance with the recommendations of American Society for Nondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A, ACCP for radiography (RT) or any other recognized national certification program that shall be acceptable to the company for the test method used. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|-----------------------|---------------------|-----------------------|-----------------------|---------------------------------|
| | | | | |

OQ Task Name

38.5 NDT - Liquid Penetrant Testing

Table of Contents

1.0 Task Description 1
 2.0 Knowledge Component 1
 3.0 Skill Component 1
 4.0 Document Version Log 2

1.0 Task Description

The scope of this task is to verify that welds meet the specifications of the latest DOT approved edition of API Standard 1104 utilizing liquid penetrant testing and to identify indications and imperfections that may affect the integrity of a pipeline tie-in, component installation/replacement, or pipeline repair.

This task does not include visual inspection and only involves Non-Destructive Testing (NDT) inspection of completed welds.

2.0 Knowledge Component

An individual performing this task must have knowledge of:

Provide documentation of American Society for Nondestructive Testing, Recommended Practice No. SNT-TC-1A, ACCP certification for Liquid Penetrant Testing (PT) or any other recognized national certification program that shall be acceptable to the company for the test method used.

Abnormal Operating Conditions (AOC's): Conditions that are identified as part of the inspection are not considered AOC's. No AOC's have been identified for this covered task. Site specific AOC's shall be identified by the operator as necessary.

3.0 Skill Component

The certificate demonstrates task performance proficiency. No other steps are required for OQ qualification.

| Step | Action | Explanation |
|------|--|---|
| 1 | Evaluate completed welds utilizing liquid penetrant testing to ensure they meet the standards of the latest DOT approved edition of API 1104 | Certification required to Level II or III in accordance with the recommendations of American Society for Nondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A, ACCP for Liquid Penetrant Testing (PT) or any other recognized national certification program that shall be acceptable to the company for the test method used. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|----------------|--------------|----------------|----------------|--------------------------|
| 1.0 | 00/00/06 | | | |

OQ Task Name

Task 38.6 – NDT – Magnetic Particle Testing

Table of Contents

1.0 Task Description 1
 2.0 Knowledge Component 1
 3.0 Skill Component 1
 4.0 Document Version Log 2

1.0 Task Description

The scope of this task is to verify that welds meet the specifications of the latest DOT approved edition of API Standard 1104 utilizing magnetic particle testing and to identify any indications or imperfections that may affect the integrity of a pipeline tie-in, component installation/replacement or pipeline repair.

This task does not include visual inspection and only involves Non-Destructive Testing (NDT) inspection of completed welds.

2.0 Knowledge Component

An individual performing this task must have knowledge of:

Provide documentation of American Society for Nondestructive Testing, Recommended Practice No. SNT-TC-1A, ACCP certification for magnetic particle testing (MP) or any other recognized national certification program that shall be acceptable to the company for the test method used.

Abnormal Operating Conditions (AOC’s): Conditions that are identified as part of the inspection are not considered AOC’s. No AOC’s have been identified for this covered task. Site specific AOC’s shall be identified by the operator as necessary.

3.0 Skill Component

The certificate demonstrates task performance proficiency. No other steps are required for OQ qualification.

| Step | Action | Explanation |
|------|---|--|
| 1 | Evaluate completed welds through magnetic particle testing to ensure they meet the standards of the latest DOT approved edition of API 1104 | Certification required to Level II or III in accordance with the recommendations of American Society for Nondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A, ACCP for magnetic particle testing (MP) or any other recognized national certification program that shall be acceptable to the company for the test method used. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|-----------------------|---------------------|-----------------------|-----------------------|---------------------------------|
| | | | | |

OQ Task Name

Task 38.7 – NDT – Ultrasonic Testing

Table of Contents

1.0 Task Description 1
 2.0 Knowledge Component 1
 3.0 Skill Component 1
 4.0 Document Version Log 2

1.0 Task Description

The scope of this task is to verify that welds meet the specifications of the latest DOT approved edition of API Standard 1104 utilizing ultrasonic testing and to identify any indications and imperfections that may affect the integrity of a pipeline tie-in, component installation/replacement, or pipeline repair.

This task does not include visual inspection and only involves Non-Destructive Testing (NDT) inspection of completed welds.

2.0 Knowledge Component

An individual performing this task must have knowledge of:

Provide documentation of American Society for Nondestructive Testing, Recommended Practice No. SNT-TC-1A, ACCP certification for ultrasonic testing (UT) or any other recognized national certification program that shall be acceptable to the company for the test method used.

Abnormal Operating Conditions (AOC's): Conditions that are identified as part of the inspection are not considered AOC's. No AOC's have been identified for this covered task. Site specific AOC's shall be identified by the operator as necessary.

3.0 Skill Component

The certificate demonstrates task performance proficiency. No other steps are required for OQ qualification.

| Step | Action | Explanation |
|------|--|---|
| 1 | Evaluate completed welds utilizing ultrasonic testing to ensure they meet the standards of the latest DOT approved edition of API 1104 | Certification required to Level II or III in accordance with the recommendations of American Society for Nondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A, ACCP for ultrasonic testing (UT) or any other recognized national certification program that shall be acceptable to the company for the test method used. |

4.0 Document Version Log

| Version Number | Version Date | Effective Date | Task Member(s) | Description of Change(s) |
|-----------------------|---------------------|-----------------------|-----------------------|---------------------------------|
| | | | | |



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