
Gas Transmission – Maintenance and Construction
QUALIFICATION EVALUATION FORMS

This document contains all the required forms and tools to properly qualify an employee in the given OQ task. The following instructions will guide you in how to complete this process.

This document contains the following documents:

Pages 1 and 2: Official DOT input forms. This document is to be completed by an approved OQ Evaluator for the given task. Field supervisors are not to sign and submit this document unless they are an approved evaluator.

Page 3 : This table contains the required training requirements for either initial or subsequent OQ Evaluation. It specifies the required formal training, OJT (via FTO's) and performance testing (JPM's) that must be completed prior to OQ Evaluation.

Pages 4 – end: These contain the actual Field Training Outlines necessary to complete any required OJT and Job Performance Measurements (JPM's) associated with this task.
These must be completed prior to OQ Evaluation.

To complete the **OQ Process** follow these steps:

1. Go to the T drive and find the desired OQ folder for the given OQ task
T:\TRAINING\OPERATOR QUALIFICATION\ New Initial and Subsequent Forms
2. Determine if the employee requires initial or subsequent evaluation.
3. See page 3 of the document which specifies the required training.
4. Schedule the employee to complete any required formal training.
5. Working with your district MP, schedule the employee to complete any required OJT or testing (see pages 4 to the end)
6. If formal training, Field Training Outlines and JPM's are complete, contact [REDACTED] to schedule an evaluation. The primary role of the Evaluator is to assess knowledge, skills and abilities. They are not there to provide training.
7. Upon completion of OQ Evaluation, page 1 of this document is sent to [REDACTED] for processing. Do not send in this form directly to HR Learning Services.
8. The original DOT Form (page 1) is forwarded to HRLS by [REDACTED]. This notification is then input into Training Server and will appear on the DOT Operator Qualification Report for the employee's district. Maintenance Planning is also notified so that PLM (report 70) can be updated with current information.

The employee can now be properly scheduled to perform OQ associated work.



DOT OPERATOR QUALIFICATION

QUALIFICATION EVALUATION

- Initial
- Subsequent

EMPLOYEE FULL NAME (PRINT)		Last four of SS#

Job Title _____ Area _____ Work Location _____

Subtask Name Inspect and Maintain Electronic Control and Data Systems (i.e., SCADA, Subtask #: 15-04.00
 RTU, PLC, HMI, MMI etc.)

SUBTASK OBJECTIVE: Using one or more of the below "Evaluation Methods", demonstrated the knowledge, skill and ability to perform this task following these qualification criteria.

	Qualified
1. Safety Requirements:	<input type="checkbox"/>
• Ability to identify and resolve abnormal operating condition(s)	
2. Access, understand and apply the following Company Standard(s):	<input type="checkbox"/>
• Gas Standard – CGT 4432	
3. Map Reading:	<input type="checkbox"/>
• Explain and interpret operating diagram or facility drawing symbols	
• Locate and identify system being monitored using operating diagrams or facility drawings	
4. Inspection:	<input type="checkbox"/>
• Conduct visual inspection of electronic control and data system and its components	
• Check analog values utilizing appropriate equipment	
• Check associated digital signals	
• Calibrate analog signals	
5. Operation Procedures:	<input type="checkbox"/>
• Understand CGT / Distribution system pipeline configuration	
• Recognize the normal operating range of system being monitored	
• Identify alarm conditions	
• Make appropriate clearance notifications	
• Conduct an end-to-end check (i.e., Gas Control in Brentwood can monitor and control remote device)	

EVALUATION METHODS (Check all that apply)

- Observation On-The-Job Performance Observation by Simulation Oral Test
 Observation by On-The-Job Training Written Base Test OTHER - Field Performance Audit

Comments / Actions:

EVALUATOR'S NAME AND CORP ID	EVALUATOR'S SIGNATURE	DATE
------------------------------	-----------------------	------

4/3/08 version
 OM&C/FSD - Mail completed **original** Qualification Evaluation form(s) to [REDACTED]
 ED M&C GT - Mail completed **original** Qualification Evaluation form(s) to [REDACTED]
 OM&C/FSD/CGT - Send copy to LGOQPC (Local Gas Operator Qualification Plan Coordinator)



Initial/Subsequent Evaluator Instructions

Subtask Name: Inspect and Maintain Electronic Control and Data Systems (i.e., SCADA, RTU, PLC, HMI, MMI etc.) Subtask#: 15-04.00

Evaluator must provide the following reference material(s):

- Abnormal Operating Condition (AOC) Job Aid
- Gas Standard

Note:

Using reference material(s) listed above, individuals must answer all questions correctly. If individual cannot provide the correct answer(s) or demonstrate performance after two additional attempts, the Evaluator should refer to the Operator Qualification Basic Plan Manual, Section 1.3.3.3 for further instructions.

Knowledge

Criteria #	Requirement
1.	Review Annual Operator Qualification Job Aid and Abnormal Operating Conditions (AOC) with individual(s).
2.	Provide individual with Inspect and Maintain Electronic Control and Data Systems (i.e., SCADA, RTU, PLC, HMI, MMI etc.) Test.

Performance

3. – 5.	<p>Individual must perform checks as required on the Qualification Evaluation for each of these following method(s):</p> <ul style="list-style-type: none"> • Map Reading • Inspection • Operation Procedures <p style="text-align: center;">Note:</p> <p>Skill must be demonstrated through simulation or actual field performance. Individual must verbalize each action step (bulleted items in Steps 3-5).</p>
---------	--

4/3/08 version
 OM&C/FSD - Mail completed **original** Qualification Evaluation form(s) to [REDACTED]
 ED M&C GT - Mail completed **original** Qualification Evaluation form(s) to [REDACTED]
 OM&C/FSD/CGT - Send copy to LGOQPC (Local Gas Operator Qualification Plan Coordinator)

Rev.2_2/14/06

GSMTS Operator Qualification Training Requirements

<u>Inspect and Maintain Electronic Control and Data Systems</u> <u>Task 15-04</u>	<u>Initial Qualification</u> ⁽¹⁾	<u>Initial Qualification</u> ⁽²⁾	<u>Subsequent Qualification</u> ⁽³⁾
<u>I. Recommended Training Or Equivalent</u> GAS_0083 Learning Srvc	Must follow the Company/Union Program ↓	Required	Optional
<u>II. Text and Reference Review</u>		Required: Text and References listed in Training Binder FTO that pertain to all of Vol. 3 TB 2-8 (RTU) or TB 2-3 (PLC)	Required: Review Standard S4432 and any applicable Job Aids listed in this FTO.
<u>III. On-The-Job Training</u> Job Performance Measure JPM		Required: JPM's (RTU) Vol. 3 TB 2- 8.1 thru TB 2-8.3 or (PLC) 2-3.1 thru 2-3.4	Required: JPM Vol. 3 TB 2-8.1 RTU or JPM Vol. 3 TB 2-3.1 PLC
<u>IV. Academic Requirements</u>		No further requirement (Testing completed with training)	Subsequent OQ Test
<u>V. Documentation</u>	Original OQ form kept in WC; Original JPM's kept in District's training file.		

⁽¹⁾ Employee new to PG&E (also pertains to an existing ED M&C GT Journeyman advancing to the next classification in the training program).

⁽²⁾ PG&E Journeyman with task in base classification but is not Operator Qualified to do the task.

⁽³⁾ PG&E Journeyman currently Operator Qualified in the task.

Objective	Trainee Name: [Click here and enter name]
The trainee will be able to correctly explain Programmable Logic Controller (PLC) logic, troubleshoot a PLC, restart a PLC, and make changes to PLC configuration and/or logic.	
OJT Instructions	OJT Hours Guideline: 10 hours
<p>Reviewer’s Role – A qualified reviewer (journey person or equivalent) will <u>guide</u> the trainee in completing the objectives for each sub task in this outline. Work with the trainee by discussing, explaining, or performing as necessary the concepts associated with each sub task.</p> <p>Trainee Role – Under direction of a qualified reviewer, the trainee will <u>perform</u> the sub tasks described below in preparation to completing a Job Performance Measure.</p>	<p>OJT Process Steps</p> <ol style="list-style-type: none"> 1. GMS reviews FTO requirements with SME. 2. GMS determines Sub tasks & OJT hours. 3. GMS schedules with WMS. 4. SME and Trainee complete OJT hours. 5. Completed –signed FTO is returned to GMS. 6. GMS verifies completed FTO. 7. GMS schedules JPM.
<p>Text and References:</p> <ul style="list-style-type: none"> • CGT Recommended Practice 4281 – Procedure for Revising, • Documenting and Filing Application Software for Microprocessor Based Controls Equipment • GE Series 90 Manuals <ul style="list-style-type: none"> • Operating Map and Diagrams • PLC Logic Printout • Station control philosophy • Station PLC Drawings • PLC Configuration Printout 	
<p>Trainee Materials:</p> <ul style="list-style-type: none"> • Computer with GE Fanuch Software • GE Hand held <ul style="list-style-type: none"> • Hand tools • Multimeter 	
<p>Major Sub Tasks:</p> <p>Vol 3 TB 2-3.1 PLC Overview</p>	

Sub Task Vol 3 TB 2-3.1 PLC Overview

Objective: The trainee will be able to:

- describe the key components of a PLC.
- explain how a PLC operates.

Demonstrate and/or explain:

- PLC layout
- PLC logic printout.
- how to restart a tripped / failed PLC.
- how to make changes to PLC logic and/or configuration.
- how to produce and interpret a configuration printout.
- station I/O architecture.
- how to interpret CPU alarm logs.
- how to interpret I/O alarm logs.
- hardware.
- control philosophy.

Hours Recommended	OJT Hours Received	Trainee	Reviewer	Date
10 Hours	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	[Initials]	[Initials]	[Date]

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-3.1 PLC Layout

Task Element	Evaluation Method P = Perform S = Simulate D = Describe	Results S = Satisfactory U = Unsatisfactory NA = Not Applicable	Evaluator Signoff
Explain the PLC layout and logic. Operate the PLC software.	Method <input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	Results <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Initials Date

Standard: The trainee can correctly:

- explain the PLC layout.
- explain the PLC logic based on the station design philosophy.
- operate the Logic Master software to view the PLC logic and interact with the PLC.

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-3.2 PLC Printout

Explain and use the PLC printout.	Method <input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	Results <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Initials Date
<p>Standard: The trainee can correctly:</p> <ul style="list-style-type: none"> • interpret and explain the PLC printout. • demonstrate how the subroutines implement the logic. • use the PLC printout for troubleshooting. 			

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-3.3 Restart PLC

Task Element	Evaluation Method P = Perform S = Simulate D = Describe	Results S = Satisfactory U = Unsatisfactory NA = Not Applicable	Evaluator Signoff
Restart a tripped / failed PLC.	Method <input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	Results <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Initials Date

Standard: The participant can correctly:

- respond to an alarm.
- interrogate the HMI to determine which PLC failed.
- cycle the power on / off to restart a PLC.
- verify that the restart and system are normal.
- describe the common causes of a fault.

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-3.4 PLC Logic and/or Configuration

Make logic and/or configuration changes to the PLC.	Method	Results	Initials
	<input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	<input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Date

Standard: The trainee can correctly:

- operate the Logic Master software to make updates and changes.
- explain the procedures for application changes.
- describe the proper notification and documentation required for any changes made.

Objective	Trainee Name: [Click here and enter name]
<p>The trainee will be able to correctly:</p> <ul style="list-style-type: none"> • calibrate and verify digital and analog signals. • reset the remote SCADA RTU. 	
OJT Instructions	OJT Hours Guideline: 6 hours
<p>Reviewer’s Role – A qualified reviewer (journey person or equivalent) will <u>guide</u> the trainee in completing the objectives for each sub task in this outline. Work with the trainee by discussing, explaining, or performing as necessary the concepts associated with each sub task.</p> <p>Trainee’s Role – Under direction of a qualified reviewer, the trainee will <u>perform</u> the sub tasks described below in preparation to completing a Job Performance Measure.</p>	<p>OJT Process Steps</p> <ol style="list-style-type: none"> 1. GMS reviews FTO requirements with SME. 2. GMS determines Sub tasks & OJT hours. 3. GMS schedules with WMS. 4. SME and Trainee complete OJT hours. 5. Completed –signed FTO is returned to GMS. 6. GMS verifies completed FTO. 7. GMS schedules JPM.
Text and References:	
•	
Trainee Materials:	
•	
Major Sub Tasks:	
Vol 3 TB 2-8.1 SCADA RTU Connection	
Vol 3 TB 2-8.2 Digital and Analog Calibration	
Vol 3 TB 2-8.3 SCADA Resets	

Supports OQ task: 15-04

Sub Task Vol 3 TB 2-8.1 SCADA RTU Connection

Objective: The trainee will be able to correctly:

- connect a laptop computer to a remote SCADA RTU device.
- use the laptop computer to:
 - access various system information.
 - communicate with the SCADA RTU device.

Demonstrate and/or explain how to:

- perform visual inspection of a RTU and its components.
- determine the normal operating range of the system being monitored.
- start the PROCOMM or TIRTU software program using a laptop computer or other emulation device.
- establish a communications link with a remote SCADA RTU.
- identify the end device and associated measured variable screen display.
- check analog values utilizing appropriate equipment.
- check associated digital signals.
- calibrate analog signals.
- monitor data stream from modem port and act as a polling host to the RTU.
- identify alarm conditions.
- make appropriate clearance notifications.
- troubleshoot a RTU and associated components to identify and correct abnormal condition(s).
- perform an end-to-end check (e.g., Gas Control in Brentwood can monitor and control device).

Hours Recommended	OJT Hours Received*	Trainee	Reviewer	Date
2 Hours	<input type="checkbox"/> <input type="checkbox"/>	[Initials]	[Initials]	[Date]

Supports OQ task: 15-04

Sub Task Vol 3 TB 2-8.2 Digital and Analog Calibration

Objective: The trainee will be able to correctly calibrate and verify:

- digital and analog inputs.
- digital input and outputs.

Demonstrate and/or explain how to:

- use various test calibration instruments to test inputs and outputs throughout operating or state changes.
- verify inputs and outputs:
 - voltage readings.
 - milliampere readings.
 - computer readings.
- read an end device (psig, % of range or scale, degrees).
- convert measured variables to various units of measure:
 - psig.
 - milliamperes.
 - volts.

Hours Recommended	OJT Hours Received*	Trainee	Reviewer	Date
3 Hours	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	[Initials]	[Initials]	[Date]

Sub Task Vol 3 TB 2-8.3 SCADA Resets

Objective: Reset remote SCADA RTU.

Demonstrate and/or explain:

- how to locate the reset switch and reinitialize the RTU.
- describe the attributes associated with LED readings.

Hours Recommended	OJT Hours Received*	Trainee	Reviewer	Date
1 Hour	<input type="checkbox"/>	[Initials]	[Initials]	[Date]

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-8.1 SCADA RTU Connections

Task Element	Evaluation Method P = Perform S = Simulate D = Describe	Results S = Satisfactory U = Unsatisfactory NA = Not Applicable	Evaluator Signoff
Inspect and test a remote SCADA RTU device.	Method <input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	Results <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Initials Date

Standard: The trainee can correctly:

- perform a visual inspection of a RTU and its components.
- determine the normal operating range of the system being monitored.
- start the PROCOMM or TIRTU software program using a laptop computer or other emulation device.
- establish a communications link with a remote SCADA RTU.
- identify the end device and associated measured variable screen display.
- check analog values using appropriate equipment and calibrate analog signals.
- check associated digital signals
- monitor data stream from modem port and act as a polling host to the RTU.
- identify alarm conditions.
- make appropriate clearance notifications
- troubleshoot RTU and associated components to identify and correct abnormal condition(s).
- perform an end-to-end check (e.g., Gas Control in Brentwood can monitor and control device).

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-8.2 Digital & Analog Connection

Task Element	Evaluation Method P = Perform S = Simulate D = Describe	Results S = Satisfactory U = Unsatisfactory NA = Not Applicable	Evaluator Signoff
Calibrate and verify: <ul style="list-style-type: none"> • a digital and analog input. • a digital input and output. 	Method <input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	Results <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Initials Date

Standard: The trainee can correctly:

- use the communications link with the SCADA RTU to use various test calibration instruments to test inputs and outputs throughout their operating range or state changes.
- convert a measured variable to various units of measure (psig, milliamperes, volts).

Operator Qualification – Job Performance Measure					
Trainee Name		Corp ID	SSN	Location	
Last	First	4 digits	Last 4 digits	Headquarters or District Name	

Directions: This form documents the Job Performance Measures of the named trainee. Upon completion, the results will be put into the Operator Qualification database. The Evaluator will:

- observe the tasks as they are performed or described and rate the results.
- stop a task if the participant’s actions will endanger life or equipment.

Safety Requirements:

- In performance of these tasks, be able to identify and resolve any abnormal operating conditions.
- Wear the appropriate clothing and use all personal safety equipment (PPE).
- Provide work protection.
- Code of Safe Practices Section 13.

Sub Task Vol 3 TB 2-8.3 SCADA Resets

Reset a remote SCADA RTU.	Method <input type="checkbox"/> P <input type="checkbox"/> S <input type="checkbox"/> D	Results <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> NA	Initials Date
---------------------------	--	--	------------------

Standard: The trainee can correctly:

- locate and operate the reset switch to re-initialize the RTU.
- describe the attributes associated with the LED readings.

Link to Gas Transmission Guidelines, G14281 “Procedure for Revising Application Software for Microprocessor-Based Controls”:

http://www.techlib/default.asp?body=manuals/uo_standards/g14281.htm

Link to UO Standard S4432, “CGT Station Inspection, Testing, and Maintenance Procedures”:

http://www.techlib/default.asp?body=manuals/uo_standards/cgt4432.htm