

EXPRO National Manual for Projects Management

Volume 16, Chapter 2

Project Operations Training Procedure



Document No. EPM-KTC-PR-000003 Rev 003



Project Operations Training Procedure

Document Submittal History:

Revision:	Date:	Reason For Issue
000	2/11/2017	For Use
001	03/03/2018	For Use
002	10/12/2018	For Use
003	22/09/2021	For Use



Project Operations Training Procedure

THIS NOTICE MUST ACCOMPANY EVERY COPY OF THIS DOCUMENT

This document, ("Document") is the exclusive property of the Government Expenditure and Projects Efficiency Authority.

This Document should be read in its entirety including the terms of this Important Notice. The government entities may disclose this Document or extracts of this Document to their respective consultants and/or contractors, provided that such disclosure includes this Important Notice.

Any use or reliance on this Document, or extracts thereof, by any party, including government entities and their respective consultants and/or contractors, is at that third party's sole risk and responsibility. Government Expenditure and Projects Efficiency Authority, to the maximum extent permitted by law, disclaim all liability (including for losses or damages of whatsoever nature claimed on whatsoever basis including negligence or otherwise) to any third party howsoever arising with respect to or in connection with the use of this Document including any liability caused by negligent acts or omissions.

This Document and its contents are valid only for the conditions reported in it and as of the date of this Document



Project Operations Training Procedure

Table of Contents

1.0	PURPOSE.....	5
2.0	SCOPE.....	5
3.0	DEFINITIONS	5
4.0	REFERENCES.....	6
5.0	RESPONSIBILITIES.....	6
5.1	Entity Operations.....	6
5.2	Contractor Training Coordinator	6
5.3	Entity Training Coordinator	6
5.4	Project Management Team (PMT).....	6
6.0	PROCESS/INSTRUCTIONS	6
6.1	Define Training Requirements Pre-Bid	6
6.2	Required Types of Operations and Maintenance Training	7
6.2.1	Operations Training	7
6.2.2	Maintenance Training	7
6.3	Training Delivery Methods	8
6.4	Language of Training	8
6.5	Appointment of Training Coordinators	8
6.6	Develop Training Plan.....	8
6.7	Track and Monitor	9
6.7.1	Training Manuals	9
6.7.2	Training Courses	9
6.7.3	Training Reports	9
6.8	Prepare Training Manuals.....	10
6.9	Schedule Training Courses.....	10
6.10	Deliver Training Courses.....	10
6.11	Trainee Assessment and Course Feedback.....	10
6.12	Training Report	11
7.0	ATTACHMENTS.....	11
	Attachment 1 - EPM-KTC-TP-000005 - Project Training Program Matrix Template	12



Project Operations Training Procedure

1.0 PURPOSE

The purpose of this procedure is to outline the requirements for undertaking a Training Program for Entity Operations personnel and others in the operation and maintenance of a facility's equipment and systems/subsystems.

This procedure applies to works performed under all Government construction projects executed throughout the Kingdom of Saudi Arabia.

2.0 SCOPE

This procedure covers the development and delivery of the Training Program for Entity's personnel in the operation and maintenance of equipment/systems/subsystems constructed and installed by the Construction Contractor.

This procedure does not cover the associated testing and commissioning of this equipment and systems/subsystems. Refer to EPM-KT0-GL-000003 - Project Testing and Commissioning Guidelines.

3.0 DEFINITIONS

Definitions	Description
A/E Consultant	Architectural/Engineering Consultant appointed by the EPMO to undertake the design of the project.
Construction Contractor	The Main or Principal Contractor responsible for undertaking the construction works on the Project.
Contractor Training Coordinator	A person designated by the Construction Contractor to serve as single point of contact between Construction Contractor and Entity Operations with regard to the Training Program.
Custodial Contractor	A third party or parties contracted by the Entity to provide operations, maintenance, repairs, safety and/or security services for the physical asset turned over.
Enterprise Content Management System (ECMS)	Depository for all project documents.
Entity Project Management Organization (EPMO)	The project management department within the Entity responsible for delivering the project.
Entity Operations	The operations department within the Entity, designated to accept custody of completed construction work and to manage and operate it, as applicable. For the purposes of this procedure, Entity Operations responsibilities include maintenance also and may include a Custodial Contractor.
Entity Training Coordinator	A person designated by the Construction Contractor to serve as single point of contact between Construction Contractor and Entity Operations.
Project Management Team (PMT)	A team from the EPMO deployed to manage the Project on site.
Training Program	A series of trainings developed and delivered to Entity Operations personnel on the operations and maintenance of all equipment/systems/subsystems installed under a construction contract.
Training Plan	A plan for developing and delivering the Training Program.
Training Manual	A manual developed for a particular training course, as part of the overall Training Program.
HSSE	Health, Safety, Security and Environment
O&M	Operations & Maintenance



Project Operations Training Procedure

Definitions	Description
Training Report	A report on a completed training course, providing a complete dossier of events for that course.

4.0 REFERENCES

1. EPM-KT0-GL-000003 - Project Testing and Commissioning Guidelines
2. EPM-KTC-PR-000001 - Project Handover of Facility/Infrastructure Procedure
3. EPM-KTC-TP-000005 - Project Training Program Matrix Template

5.0 RESPONSIBILITIES

5.1 Entity Operations

Entity Operations shall provide qualified operations and maintenance personnel as trainees, ensuring their availability from pre-commissioning stage onwards.

5.2 Contractor Training Coordinator

The Contractor Training Coordinator shall be responsible for the delivery of the overall Training Program, including the development of the Training Plan.

5.3 Entity Training Coordinator

The Entity's Training Coordinator shall be responsible for providing the list of Entity Operations trainees for each course and ensuring their attendance.

5.4 Project Management Team (PMT)

The PMT is responsible for ensuring delivery of the Training Program as per the contract documents.

6.0 PROCESS/INSTRUCTIONS

6.1 Define Training Requirements Pre-Bid

The requirements related to operations and maintenance training to be provided by the Construction Contractor to Entity Operations personnel shall be established pre-bid, in order that appropriate requirements can be specified in the bid documents.

The Entity Project Management Organization (EPMO) shall coordinate with Entity Operations and the A/E Consultant, to ensure that these requirements are properly captured and reflected in the bid documents. A general training specification is typically used, with additional training requirements particular to a specific piece of equipment or system/subsystem specified in the particular specification concerned.

A successful Training Program typically includes the following process steps:

- Defining the types of training, types of instruction, and language requirement
- Preparing a Training Plan
- Establishing coordination and monitoring tools
- Preparing Training Manuals
- Scheduling training courses
- Delivering training courses
- Assessing course success and implementing improvements
- Reporting and turnover records



6.2 Required Types of Operations and Maintenance Training

The training requirements typically include both Operations and Maintenance aspects. The training shall be sufficient such that, after completion of the training, each participant is able to operate and maintain all elements of the equipment/system/subsystem. Operations & Maintenance (O&M) Manuals shall be prepared by Construction Contractor and approved prior to the start of the training for the equipment/system concerned.

6.2.1 Operations Training

Construction Contractor shall provide Entity Operations with a thorough training in all aspects of system/subsystem operation under both normal and abnormal conditions. This training shall include, but not be limited to:

- Orientation to provide overview of system/subsystem purpose, configuration, and operations
- Terminology
- Operations theory and interface
- Equipment appearance, functions, concepts and operation
- Operating modes, practices, and procedures under startup, normal and emergency/upset conditions
- Health, Safety, Security and Environment (HSSE) precautions
- On-the-job operating experience covering all system/subsystem operating functions, activities, and tasks including those associated with degraded operating modes, failure recognition, and recovery processes
- Familiarity with the content and use of Operations & Maintenance (O&M) Manuals and related reference publications

6.2.2 Maintenance Training

Construction Contractor shall provide maintenance training, which covers all on-site routine preventive and remedial maintenance of the equipment/system/subsystem. This training shall include, but not be limited to:

- Orientation to provide overview of system/subsystem purpose, configuration, and operations
- Terminology
- Operations theory and interfaces
- Equipment appearance, layout, functions, concepts and operations
- Operating modes, practices, and procedures under startup, normal and emergency/upset conditions
- Health, Safety, Security and Environment (HSSE) precautions
- Use of tools and test equipment
- Preventive maintenance
- Troubleshooting, diagnostics, and testing
- Assembly and disassembly
- Repair and parts replacement
- Parts ordering practices and storage
- Parts/equipment preservation
- Failure and recovery procedures
- System/subsystem cabling
- Familiarity with and use of O&M manuals and other reference materials



6.3 Training Delivery Methods

The Construction Contractor shall detail the split of training to be delivered into:

- Classroom training
- Hands-on training in the field
- Training at Vendor's facility (only with justification by Construction Contractor - requires Entity Training Coordinator pre-approval)

Classroom training shall consist of the elements of equipment/system operations and maintenance as outlined in Section 6.2 Required Types of Operations and Maintenance Training. This classroom training will then be followed by a hands-on training in the field demonstrating the operations and maintenance on the actual equipment/system. As far as possible training will be conducted in common sessions for engineers, supervisors, technicians and operators.

Hands-on training will be given following the classroom training. It is the intention that trainees will acquire proficiency through:

- Activities devised to familiarize the trainee to the systems and individual equipment.
- Active participation in pre-commissioning and commissioning activities.

The first part of the hands-on training shall take place prior to the beginning of the main pre-commissioning activities.

6.4 Language of Training

Careful consideration shall be given to which language(s), Arabic and/or English, the Training Program is to be delivered in. A prime consideration is the expected language abilities of the Entity Operations personnel (and/or Custodial Contractor) who are to perform the O&M work. This needs to be established as part of the determination of an overall O&M strategy for the facilities concerned. The required language(s) shall be clearly specified in the bid documents. The Construction Contractor shall ensure that these requirements are flowed down to vendors and subcontractors. Compliance with language requirements shall be confirmed by the Training Coordinators.

6.5 Appointment of Training Coordinators

The Construction Contractor shall appoint a Contractor Training Coordinator to plan, manage and coordinate the Contractor's overall Training Program. The Contractor Training Coordinator shall serve as the single point of contact between the Construction Contractor and Entity Operations on training matters.

Likewise, Entity Operations shall appoint an Entity Training Coordinator who shall coordinate and manage delivery of training to Entity Operations personnel. The Entity Training Coordinator shall serve as the single point of contact between Entity Operations and the Construction Contractor on training matters.

6.6 Develop Training Plan

Construction Contractor shall prepare and submit for review a Training Plan, which outlines the extent of the training proposed to be developed and delivered for the Training Program. This Training Plan shall include:

- Identification of all equipment, systems and subsystems for which training is to be provided, including cross-references to relevant specification sections.
- Proposed breakdown of courses, including sequence and interrelationships. This shall include a narrative and graphic (pictorial) explanation of each system's operational and maintenance schemes which will be covered in the Operations-related and Maintenance-related courses respectively. For small systems or simple equipment it is acceptable to combine the Operations and Maintenance trainings.



Project Operations Training Procedure

- For each course, provide a narrative description including its purpose, technical scope, proposed audience, location, estimated number of trainees, and duration of course.
- A Training Manual template showing proposed section divisions and typical contents of each section.
- A draft methodology that will be developed and implemented by Construction Contractor in order to assess the effectiveness of the course and level of achievement by each participant against an established standard. This shall include a Course Assessment template and sample.
- A Course Feedback template
- A template for the tool proposed to be used for the tracking and monitoring of the Training Program.

Contractor Training Coordinator shall work in with the Entity Training Coordinator to develop the Entity's training requirements and ensure that all training activities are in accordance with the Training Program.

6.7 Track and Monitor

Construction Contractor shall develop a Training Program tracker to be used to monitor progress on the preparation and approval of Training Manuals, the delivery of training courses, and the submission of Training Reports. A spreadsheet or database is commonly used. Refer to **Attachment 1** - EPM-KTC-TP-000005 - Project Training Program Matrix Template.

Construction Contractor shall ensure the following content for each section as a minimum:

6.7.1 Training Manuals

- Serial Number
- Document Number
- Revision Number
- Title
- Forecast Submission Date
- Actual Submission Date
- Document Status
- Submittal Responsibility
- Comments

6.7.2 Training Courses

- Serial Number
- Course Number (Code)
- Forecast Start Date
- Actual Start Date
- Actual Finish Date
- Training Duration
- Training Course Status
- Comments

6.7.3 Training Reports

- Serial Number
- Document Number
- Revision Number
- Training Report Description
- Forecast Submission Date
- Actual Submission Date
- Document Status
- Comments



6.8 Prepare Training Manuals

Following review of the overall Training Program, the preparation of Training Manuals for each course commences. The Training Manual shall cover the aforementioned required types of operations and maintenance training (see Section 6.2 above) for the equipment/system/sub-system concerned, following the Training Manual template approved in the Training Program.

Other requirements related to the preparation of Training Manuals includes:

- Materials for training sessions shall be clear and concise and understandable to the course trainees.
- Vendor commercial catalogues are not considered as training materials.
- Training Manuals submitted for review shall be in both soft (electronic) copy and hard copy (hard-cover ring binder as will be used in the final product).
- A descriptive listing of any training aids to be used during both classroom and on-the-job phases of training should be included.
- A bibliography containing a listing of reference publications to be used in conjunction with classroom and on-the-job training should be included.
- Current resumes of proposed training and technical personnel to deliver the classroom and/or on-the-job (hands-on) phases of training shall be included. Vendor representatives may be required to provide the training for specialty equipment.

6.9 Schedule Training Courses

The scheduling of training shall be coordinated between Construction Contractor and Entity Operations through the Contractor Training Coordinator and Entity Training Coordinator.

Training sessions shall be conducted before the pre-commissioning of any equipment/systems. All Training Manuals and O&Ms) shall be available and approved prior to the start of the training concerned.

The Entity Training Coordinator shall provide names, positions and contact details of all personnel to participate in each training course. Construction Contractor shall confirm each training course a minimum 30 days in advance - formal notification is recommended.

6.10 Deliver Training Courses

Construction Training Coordinator shall issue invitations to all course trainees 30 days in advance of the course, with reminders sent out at 14 days before the course.

Construction Contractor shall provide sign-in sheets to record name, position, company, telephone number, e-mail address and signature of course attendees. A fresh sign-in sheet shall be used each day for multi-day courses.

Construction Contractor shall provide an adequately-sized training room with appropriate facilities nearby, including toilets, ablution and prayer rooms. Functionality of audio-visual equipment to be used shall be verified prior to the start of the course. Hardcopies of the course Training Manual shall be provided to each attendee. Refreshments shall be provided for all courses and meals for courses extending through meal time.

6.11 Trainee Assessment and Course Feedback

All trainees shall complete an assessment test at the end of the course as a knowledge check. A certificate shall be produced upon passing the test to indicate successful completion of the training course.

All training course trainees shall be requested to complete "Feedback" forms.



Project Operations Training Procedure

The Contractor Training Coordinator and Entity Training Coordinator shall jointly review both the course assessment test results and the feedback form comments in order to measure the effectiveness of the training and to identify any improvements to be later incorporated on future courses.

6.12 Training Report

A Training Report shall be prepared by Construction Contractor for each course and submitted to Entity Operations within 7 days of course completion via the Enterprise Content Management System (ECMS).

The Training Report will provide a complete dossier of the training activities including but not limited to:

- Title and Training Course Code (if used)
- Description of Training Course
- Training Manual Document Reference
- Date of Session
- Duration
- Course Presenters (company, names of presenters, contact details)
- Register of Trainees, Job Title, Company and Contact Details (sign-in sheet)
- Listing of Trainees with Level of Achievement
- Example of Certificates
- Completed Participant Course Assessment Forms
- Completed Participant Course Feedback Forms

7.0 ATTACHMENTS

1. EPM-KTC-TP-000005 - Project Training Program Matrix Template

Attachment 1 - EPM-KTC-TP-000005 - Project Training Program Matrix Template

[illegible]