



# EXPRO National Manual for Projects Management

## Volume 7, Chapter 2

### Project Management of Change Procedure



Document No. EPM-KPC-PR-000008 Rev 002



## Project Management of Change Procedure

### Document Submittal History:

| Revision: | Date:      | Reason For Issue |
|-----------|------------|------------------|
| 000       | 29/01/2018 | For Use          |
| 001       | 24/12/2018 | For Use          |
| 002       | 23/08/2021 | For Use          |



## Project Management of Change Procedure

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# Project Management of Change Procedure

## Table of Contents

|            |                                                                      |          |
|------------|----------------------------------------------------------------------|----------|
| <b>1.0</b> | <b>PURPOSE</b>                                                       | <b>5</b> |
| <b>2.0</b> | <b>SCOPE</b>                                                         | <b>5</b> |
| <b>3.0</b> | <b>DEFINITIONS</b>                                                   | <b>5</b> |
| <b>4.0</b> | <b>REFERENCES</b>                                                    | <b>6</b> |
| <b>5.0</b> | <b>RESPONSIBILITIES</b>                                              | <b>6</b> |
| 5.1        | Contractor                                                           | 6        |
| 5.2        | Entity                                                               | 6        |
| <b>6.0</b> | <b>PROCESS</b>                                                       | <b>7</b> |
| 6.1        | Identification of Change                                             | 7        |
| 6.2        | Prepare Change Order Package                                         | 7        |
| 6.2.1      | Prepare Estimate Scope Definition Documentation                      | 7        |
| 6.2.2      | Estimate Pricing                                                     | 8        |
| 6.2.3      | Schedule Delay Cost                                                  | 8        |
| 6.3        | Change Order Log                                                     | 8        |
| 6.4        | Change Order review                                                  | 9        |
| 6.5        | Approved Change Order                                                | 9        |
| <b>7.0</b> | <b>ATTACHMENTS</b>                                                   | <b>9</b> |
|            | Attachment 1 – Change Order Flow Chart                               | 10       |
|            | Attachment 2 - EPM-KPC-TP-000030 – Project Change Order Log Template | 11       |



# Project Management of Change Procedure

## 1.0 PURPOSE

Establish a program for identification, notification, review, and processing of changes to the project cost and/or schedule; provide a method to control costs associated with changes; establish approval authority to execute changes and provide guidelines for the preparation of estimates and supporting documentation required for approval of changes to the contract value.

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

## 2.0 SCOPE

This procedure defines the requirements for the identification of Change Orders; preparation of Change Order notices; submittal of scope changes to Entity; approval to execute changes; and responsibilities and administration of the program.

## 3.0 DEFINITIONS

| Definitions        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BA</b>          | <b>Budget Adjustment/Transfers</b>                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Back Charge</b> | <b>A charge by either the Entity/Contractor as a means of recovering all the costs incurred by the Contractor/Entity to correct or repair and/or modify deficient work that is directly result of the Entity/Contractor.</b>                                                                                                                                                                                                                     |
| COA                | Code of Account                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CB                 | Current Budget                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CF                 | Current Forecast                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Change Order       | A contractual notice advising the Contractor of a potential compensable change                                                                                                                                                                                                                                                                                                                                                                   |
| Contractor         | One that agrees to furnish materials or perform services at a specified price, especially for construction work                                                                                                                                                                                                                                                                                                                                  |
| Contingency        | The amount of money, jobhours, and time that must be included in an estimate, forecast, and schedule to provide for uncertainties in quantity, pricing, productivity, activity duration, and timing that lie within the defined scope of the project. This funding is held separate from any specific direct or indirect accounts and should be released for use only by the Project Manager or Site Manager upon recognition of approved trends |
| EVMS               | Earned Value Management System                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Entity             | A Saudi Government organization which is responsible for the delivery of government funded infrastructure construction projects                                                                                                                                                                                                                                                                                                                  |
| OBS                | Organization Breakdown Structure                                                                                                                                                                                                                                                                                                                                                                                                                 |
| OOM                | Order of Magnitude (Estimate)                                                                                                                                                                                                                                                                                                                                                                                                                    |
| OB                 | Original Budget                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PM                 | Project Manager                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PCM                | Project Controls Manager                                                                                                                                                                                                                                                                                                                                                                                                                         |
| PCE                | Project Controls Engineer                                                                                                                                                                                                                                                                                                                                                                                                                        |
| PMS                | Proposal Management Schedule                                                                                                                                                                                                                                                                                                                                                                                                                     |
| PO                 | Purchase Order                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SM                 | Site Manager                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| WBS                | Work Breakdown Structure                                                                                                                                                                                                                                                                                                                                                                                                                         |



### 4.0 REFERENCES

1. EPM-KPC-PR-000001 - Project Coding Structures Procedure
2. EPM-KPC-PR-000007 - Project Trend Program Procedure
3. EPM-KPC-PR-000003 - Project Cost and Commitment Procedure
4. EPM-KPC-PR-000004 - Project Forecasting Procedure.
5. EPM-KPP-PR-000001 - Project Planning and Scheduling Definitions and Concepts Procedure
6. EPM-KPC-PR-000009 - Project Backcharges Procedure

### 5.0 RESPONSIBILITIES

All Project Team members are responsible for identifying and reviewing changes in scope, these changes should have initially been recorded as trends (Project Trend Program Procedure EPM-KPC-PR-000007).

The Entity instructs the Contractor of a deviation or change to their scope, this will be an Entity instruction letter, or instruction in a meeting. Contractor issues an early change notification to Entity identifying a perceived change to the current base scope. See **Attachment 1**

Detailed responsibilities are as follows:

#### 5.1 Contractor

- The Contractors Project Cost Engineer assigns Change Order numbers, maintains Change Order Log, prices Change Orders, and prepares Change Order packages.
- Discipline Engineers confirm the quantity take offs, provide engineering manhours, and list engineering documents affected by changes for respective disciplines.
- Project Controls Manager reviews all estimates before submittal to the Project Manager and Entity Management. Provides technical support for estimating and pricing of Change Orders.
- Site Manager Evaluates all field Change Orders for schedule impact and work operations.
- Project Engineering Manager makes assignments for scoping of Change Orders. Evaluates scope against bid documents. Reviews scope and inputs data for Home Office engineering. Evaluates Change Orders for engineering schedule impact.
- Project Manager reviews all Change Orders for scope content and pricing prior to submittal to Entity Reviews Change Orders with Entity for scope and monitors responses.

#### 5.2 Entity

- Project Manager receives the Change Order and distributes for review.
- Project Controls Manager / Cost Engineer records the Change Order in a Change Order Register. Reviews the Change Order for cost and schedule compliance with the current contract.
- Engineering reviews for the change in quantity to ensure it is correct, reviews any change in Engineering manhours and that they correctly reflect the changes to any documents identified in the change.
- Site Manage reviews the change package to ensure it correctly reflects the construction element of the change.
- Project Team reviews the entire package to fully understand what has been submitted, prior to responding to the request with, acceptance, rejection or modify the change.
- Project Manager responds to the Contractor regarding the submittal in a Change Order review meeting between the Contractor and the Entity.
- Project Manager when a change is approved will arrange for the changes value to be funded from contingency, or if the value exceeds the contingency or is new scope will arrange for additional funds to be made available from Entity.



### 6.0 PROCESS

#### 6.1 Identification of Change

The Entity issues correspondence instructing the Contractor to incorporate and execute a deviation to the Contract base scope which will result in Contractor initiating a Change Order.

- Contractor will issue to Entity an early notification of a perceived change in scope from the Contract as directed by the Entity. This will include a summary of the change and an OOM cost and schedule impact.
- Contractor will then follow up with a detailed notification containing a detailed estimate and supporting documentation to support the Change.

Both the early and detailed notifications will be aligned with the contract requirements.

Contractor will define the scope of the change and specify which of the following actions should be taken. The Project Teams for both Contractor and Entity will actively participate in the identification of all changes. Changes will be documented and recorded in the change order register, each change will be given a unique number.

When a Contractor identifies a Change Order because of Entity requests made during meetings or referenced in communiques or other circumstances which, in the opinion of the Contractor, constitutes a deviation to the contract scope of services, a Change Order Notice will be prepared and forwarded to Entity.

Regardless of any Entity request or any other circumstances, the Contractor shall proceed in accordance with the Contract with any work deemed a change and/or any addition by the Project Team, or process a cost estimate for same chargeable to Entity without written approval by Entity's Project Manager.

Upon acceptance of Approval in Principle by the Entity the Contractor shall proceed to implement the change and prepare a Definitive Estimate Package. See **Attachment 1** for Change Order Flow Chart)

#### 6.2 Prepare Change Order Package

##### 6.2.1 Prepare Estimate Scope Definition Documentation

The summary scope definition will be submitted and presented in an approved format. The detailed scope description will be used to further define the scope and quantities that are to be posted on the detail estimate work sheets.

When authorized and requested by the Entity, the Contractor will prepare a detailed estimate of the amount of the change. Estimates are based on defined scope of work and quantities. These estimates are expected to have an accuracy of  $\pm 5$  percent.

The following documents are required to be submitted by the Contractor in support of the detailed estimate which support the Change Order as a minimum:

- Change Order notice
- Clear definition of base case versus revised case
- Marked up mechanical flow diagrams
- Data sheets for equipment changes
- Marked up plot plans
- Bulk material quantities by discipline
- Detailed estimate of Home Office manhours by discipline
- Schedule impact on engineering, procurement, and construction

The Project Cost Engineer will review the scope definition to ensure required accuracy will be achieved. Change Order estimates will be submitted to Entity on the Change Order.



## Project Management of Change Procedure

### 6.2.2 Estimate Pricing

If the Contract has agreed rates for change included in it these will be used for all pricing.

Where no rates for change exist Contractor will estimate based on current vendor quotes for the Contract prices for major equipment and engineered bulks. Other materials will be priced using cost data from the project estimate/budget, current Purchase Order (P.O.) pricing from other projects, vendor quotes, if available, or pricing catalogs.

Labor will be estimated using Contractor standard unit rates or estimating manuals, such as Means or Richardson or other agreed with Entity.

Estimating/Design engineering manhours will be estimated by each discipline based on defined scope. The resulting manhours will be posted to the estimating/design engineering manhour summary and priced in accordance with contractual provisions. Construction equipment and markups will be estimated based on contractual provisions.

A design allowance is to be added to the Change Order pricing of all engineered equipment.

A line item for contingency is included on the estimate.

### 6.2.3 Schedule Delay Cost

Each Change Order will be reviewed by the Project Engineering Manager and Construction Manager. The purpose of this review will be to:

- Determine when the work will be accomplished
- Determine what deliverables are required
- Determine when the deliverables are available
- Assess how much rework is required
- Define discipline coordination and checking requirements
- Define staffing changes
- Define overtime requirements
- Assess impact on other work

Although each Change Order is reviewed individually, the cumulative effect of agreed changes must be recognized and input into a separate Change Order Notification.

Target dates shall be modified for the number of days impacted by the Change Order.

After each Change Order, has been reviewed and the schedule ramifications have been identified, the impact, if any, will be priced and included in the Change Order.

The net change to the overall project Mechanical Completion date will be shown the Change Notification Schedule costs can arise because of unrecoverable slippages of intermediate, or final milestones, or from extra effort involved in recovering or avoiding delays because of changes introduced.

Every effort is to be employed to mitigate or recovery all schedule slippage by Contractor.

## 6.3 Change Order Log

The Project Cost Engineer will maintain a log of all active, pending and cancelled Change Orders.

The Change Order Log will show current status of all Change Orders, including the value of the most current estimate and the dates submitted to Entity for approval (**Attachment 2**). The log will be updated on an ongoing basis. An updated copy of the Change Order Log will be distributed to Entity and all Lead Discipline Engineers at each weekly Change Order Meeting. A copy of the Change Order Log will be included in the monthly progress report.





### 6.4 Change Order review

Each Change Order will be reviewed in depth by the Entity project management team, they will determine the accuracy and completeness of the change. Where a change is submitted, and found to be lacking in detail/ content or accuracy this will be rejected and the Contractor will be advised that the change is incomplete. Or the change will be rejected outright. Once agreement is reached the change will be approved.

### 6.5 Approved Change Order

Upon agreement by both parties on an agreed Change Order this will be incorporated into the baseline scope for both cost and schedule.

The Project Manager will arrange for the Change Order value to be funded from Contingency, however if this agreed change exceeds the contingency or is out with the original entity scope then additional funding will be requested from the Entity.

## 7.0 ATTACHMENTS

1. Change Order Flow Chart
2. EPM-KPC-TP-000030 – Project Change Order Log Template



# Project Management of Change Procedure

## Attachment 1 – Change Order Flow Chart



