

Performance Factor of Task Force through Engineering Job Analysis

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A certificate does not make you certified. Attitude, performance, commitment to self and team - these and a certificate make you certified.

Performance can only be judged with some analysis. An Engineering Job Analysis (EJA) provides a mechanism platform by which the project engineering manager provides a detailed look at how an individual task is performed and its inherent risks and preventive measures.

In an EJA, each step of the job is examined to identify potential risk and to determine the way to do the job.

An engineering job analysis includes four steps:

1. Select a job.
2. Break the job down into a sequence of steps (like productivity analysis, performance analysis, material trending, cash flow etc.)
3. Identify the performance against each of these steps (based on availability of forecast, bench marking and experience) ,and
4. Determine the preventive measures to overcome the risks.

It is essential that resources agreed as per the contract are reviewed at mobilization stage for ensuring compliance from the day one and thorough effective supervision and also ensuring that the monitoring systems are at place.

This activity also helps in taking timely action in case of unsatisfactory performance to correct the situation and ensure productive work during engineering period.

The periodicity of such performance review will depend upon size/type/complexity of contract. However, the performance should be reviewed at least at mobilisation stage and at the end of the contract. If you go by my recommendation monthly review is a must.

The Engineering Job Analysis set-up list given below is only a guide to project engineering managers. Generally depending on audiences engineering managers keep all 17 or trims the list. From the EJA we will discuss some of the performance indicators.

The *Scheduled Performance Index (SPI)* is a measure of schedule efficiency on a project. This is the ratio of earned value (EV) to planned value (PV).

SPI = EV divided by PV.

An SPI equal to or greater than one indicates a favourable condition and a value of less than one indicate an unfavourable condition.

ENGINEERING JOB ANALYSIS									
Project:	Contract Type	<input type="checkbox"/> International	Customer/PM:	Start Date	Plan 90% Date	Month: ___ of ___ (till 90% Plan)	PEM (Name)		
Job No:	<input type="checkbox"/> LS	<input type="checkbox"/> Overhead	Client/PMC:	Data Date			PC Lead		
<input type="text"/>	<input type="checkbox"/> Cost Plus	<input type="checkbox"/> WorkShare							
		<input type="checkbox"/> Domestic							
								Availability	
1 S Curve for Overall Engineering (giving Schedule Performance Index (Earned Hours/Sch. Earned Hours))								Y	N
2 Highlights of Customer / PMC Interaction in Period , Highlights of Internal Customer/Vendor Interaction in Period & Significant HOLDS / Concerns								Y	N
3 Deliverables Status (Nos) - As per DCI								Y	N
4 Procurement Status (Delayed requisitions & forecasts)								Y	N
5 Milestones Status(Delayed, recovery plan & look ahead for next 90days)								Y	N
6 Vendor Documents Status (preferably approval status of up to 15 days & between 15-30days)								Y	N
7 Major Events/Changes (with significant highlights)								Y	N
8 Discipline Progress(% deviation chart)								Y	N
9 Cumulative Productivity								Y	N
10 Staffing								Y	N
11 Trends(Prebid quantities,IFC quantities, forecast & planned quantities)								Y	N
RCC								Y	N
Structural Steel								Y	N
Piles								Y	N
Inch-meter								Y	N
Inch-dia								Y	N
12 Quantity Dashboard(showing Estimated Savings)								Y	N
13 Cash flow(cost incurred vs. recoveries , invoice plan)								Y	N
14 Profit & Loss till date(factoring future income & expenditures)								Y	N
15 Quality Dashboard(critical reviews plan, technical review plan, continuous improvement plan)								Y	N
16 Notes								Y	N
17 Site Progress Photographs								Y	N

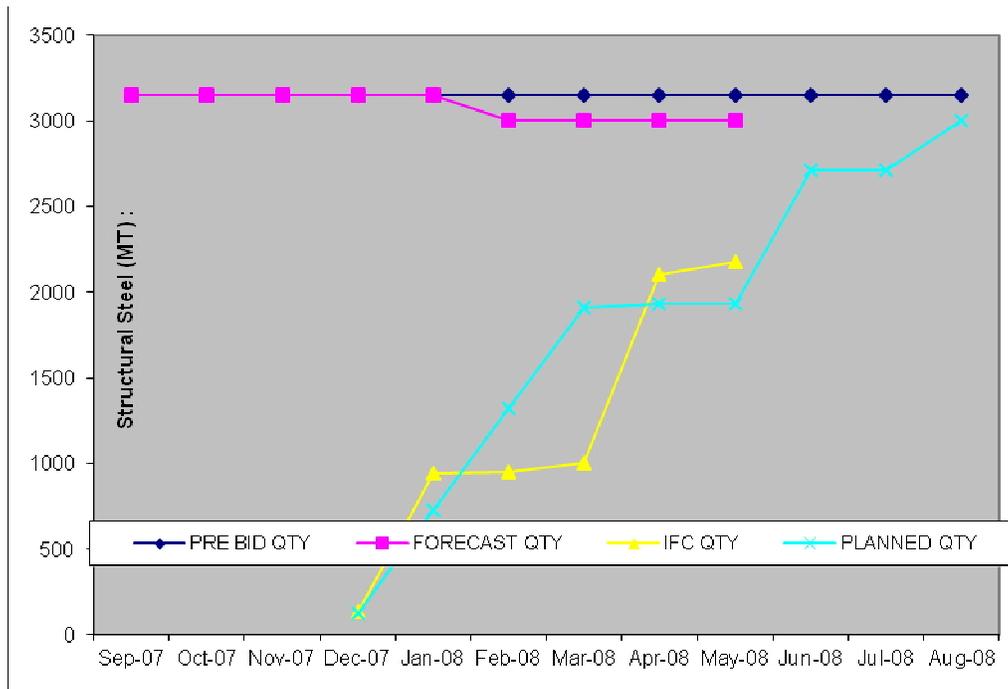
Job Analysis set-up list

Now most of the project engineers may not agree to.... “Less than one indicate an unfavourable condition”; these all depends on type of project we are into, e.g. for FEED or BASIC ENGINEERING are in general rate contract. In such scenario preparation of one engineered deliverable may have SPI less than one; this here is a desired result to any contractor/consultant.

Second point, which generally bothers all, is vendor print review status. The vendor document status covers:

Vendor Print Status (As on _____)					
Vendor	Item	>15 d	>30 d	Currently	Currently
				in Code 3	in Code 2
Name	Equipment/ Item Tag No.	No. of documents not cleared till 15 th day of receipt	No. of documents not cleared till 30 th day of receipt	No. of documents Rejected	Number of documents where only part Construction approval can be provided

Third, we will look into trends of one of the components:



This prediction chart conveys item details with simplicity.

Fourth, it is better to have simple yet effective quantity dashboard:

Quantity Dashboard:

Description	Est Savings, Cr	Remarks	
Piles	0.82	Saving	
Conc	0.08		
Stl	0.11		
CS pipe	0.00	-	
AS Pipe	0.00		
HT Cable	0.00		
LT Cable	0.00		
Control cable	0.00		
IO Count	-0.02		under evaluation
TOTAL	1.00		-

Last is quality & notes:

Other Expenses/Notes:

→ See Notes Below			
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Quality

Audits Due to Date:	2	Conducted:	2
Tech. Review Due to Date	14	Conducted	14
CDRNs Due:	57	Conducted	51
QMS Submitted in Period	Vacant		
CI Forms Sub. in Period:	1		

These and many more evaluation techniques are available for understanding the performance factor of engineering task force. It is for Project Engineering Managers to see HOW, WHAT, WHERE and WHEN these are to be reported to Project Sponsors or stake holders.

*The future lies before you
 Like a field of driven snow,
 Be careful how you tread it,
 For every step will show.*

About the Author



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Mr. Anil Seth is working as Assistant General Manager in Project Engineering Department of Larsen & Toubro Engineering at Faridabad, India and manages the Project Engineering Manager Portfolio for hydrocarbon projects. Before joining Larsen & Toubro Ltd. Engineering and construction division he has worked for Indian Petrochemicals Corporation Limited. He holds B.E. degree with Honors in CHEMICAL Engineering from Panjab University Chandigarh India and has also done Diploma in Environmental Management. He is Certified for Harvard Manage Mentor and specializes in Building High Performance cross functional Task Force as well as Converting Breakeven Projects to Profitable scenario. He can be reached at anil_seth@Intenc.com or anilshivani99@gmail.com.

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