Overall Craft Effectiveness (OCE)

Craft productivity is a key element for a successful maintenance operation. Contract maintenance providers count on being more productive that in house services they replace. The profit and customer-centered maintenance leader (in house or contractor) must consider total asset management in terms of improvement opportunities across all maintenance resources. There are many questions to be asked about how we can improve the contribution that each of these six resources make toward your goal for maintenance excellence:

- Physical resources; equipment and facilities
- People resources; craft labor and equipment operators
- Technical skill resources; craft labor that is enhanced by effective training
- Material resources; MRO parts and supplies
- Information resources; useful reliability information not a sea of useless data
- Hidden Resources: synergy of team work as a true people asset multiplier

Measuring and improving overall craft effectiveness (OCE) must be one of many components to continuous reliability improvement process and total asset management. OCE includes three key elements very closely related to the three elements of the OEE Factor.

Overall Equipment Effectiveness (OEE): We must clearly understand the elements of OCE and how the OCE Factor relates to better use of our craft work force. Most everyone recognizes and understands the world-class metric Overall Equipment Effectiveness (OEE) that measures the combination of three elements for the physical asset; equipment asset availability, performance and quality output. OEE is about measuring asset productivity. The calculation of OEE is shown in Figure 1.

The OEE Factor = % Availability(A) x % Performance(P) x % Quality(Q)

An OEE Factor of 85% is recognized as world-class

Therefore OEE of 85% requires at least the 95% level for each of the 3 elements:

So if OEE = A x P x Q then if each factor is 95% or .95

OEE = .95 x .95 x 95 ≅ 85%

Figure 1: Overall Craft Effectiveness (OCE)

Craft Labor Productivity: The OCE Factor focuses upon craft labor productivity and measuring/ improving the value added contribution that people assets make. Just like OEE, there are three elements to the OCE Factor:

- the effectiveness factor: Craft Utilization for OCE *and Asset Availability for OEE*
- the efficiency factor: Craft Performance for OCE *and Asset performance for OEE*
- the quality factor: Craft Service Quality for OCE *and Quality of Asset output for OEE*

Three Elements of OCE: All three elements of OCE can be as well defined as all three of the OEE Factors. We will now review the three key elements for measuring OCE and see how they very closely align with the three elements for determining the OEE Factor for equipment assets. Figure 2 provides a comparative summary and Figure 3 defines how OCE is calculated.

Overall Craft Effectiveness (OCE)	Overall Equipment Effectiveness (OEE)	Elements of OEE and OCE
1. Craft Utilization or Pure Wrench Time (CU)	Asset Availability (A)	Effectiveness
2. Craft Performance (CP)	Asset Performance (P)	Efficiency
3. Craft Service Quality (CSQ)	Quality of Asset's Output (Q)	Quality

Figure 2 Summary Comparisons of OCE and OEE

The OCE Factor = % Craft Utilization (CU) x % Craft Performance (CP) x % Craft Service Quality (CSQ)

Therefore OCE = % CU x %CP x %CSQ

Typically C and CP can be easily measured.

Craft Service Quality (CSQ) is somewhat harder to measure and can be more subjective.

Later in Part II we will see how all three elements of OCE can be measured and how all three contribute to increased craft productivity

Figure 3: Calculating Overall Craft Effectiveness

OCE Focuses Upon Your Craft Labor Resources: We strongly believe in basic maintenance best practices as the foundation for maintenance excellence. This is what I call Continuous Reliability Improvement (CRI). CRI is about maintenance business process improvement that includes opportunities across all maintenance resources; equipment and facility assets as well as people resources-our crafts work force and equipment operators. CRI must also include MRO materials management assets, maintenance informational assets and the added value resource of synergistic team-based processes**.** Continuous Reliability Improvement improves the total maintenance operation and can start with measuring and improving OCE.