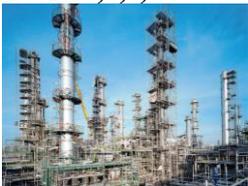




APEC ENGINEER REGISTER ENGINEERING PRACTICE REPORT

Name of Candidate: Trese T. Bustamante
Professional Discipline: Civil Engineering

Date of Application: **August 1, 2016**

Career Episode Title: <i>Managing various Designed and Executed Scaffolds; Under Hung types, Birdcage types, Independent Run Types, Based & Mobile Tower types under the BFIM's Maintenance Contract at Oil & Gas Sectors.</i>	Competency Elements Claimed
Dates of Career Episode: <i>May 2008 to Present (110 Months)</i>	
<p><i>CE 1.1 Introduction</i></p>  <p>I was promoted as Chief Civil/Structural Engineer after I took lead in BFIM's accreditation as SCAFFOLD Specialist Contractor by Saudi Aramco in early 2008. This career episode summarizes the experiences I gained working as Head of Engineering Team in the Scaffold and Maintenance Section then turned as Scaffold Division: one of BFIM's emerging Business Unit that focuses the integration of specialist engineering knowledge and opportunities to shape the direction of business while augmenting sustainable development within Hydrocarbon, Petrochemical and Energy-Power Industries. My pivotal role was consistently contributes to developing and communicating the engineering body of knowledge through Scaffold Engineering and advocates innovative engineering solutions to scaffold maintenance service sector.</p>	<p><i>PCI.2b</i></p> <p><i>PCI.1a,b,c,d</i></p>  <p><i>PC3.3a,b,c</i></p>
<p><i>CE 1.2 Background</i></p> <p>Nearly mid of 2008, I headed the BFIM Engineering team and its open mandate was to be resilient and proactive in responding to the burgeoning demands of cutting edge technology for scaffold designs and executions in Service Maintenance Sectors. By way of research and study market trends coupled with objectively prepared business strategies, I recorded that Scaffold and Maintenance Contract opportunities among key Hydrocarbon Players like ARAMCO, SABIC, and Non- Aramco or Non-SABIC Private Companies in Saudi Arabia has contract value closed to SAR 100 Million annually and subjected to two (2) interrelated categories/types: Long Form Contract and the Short Form contracts. I learned that the Long Form Scaffold contracts are "maintenance contracts" with existing plants in "live operation" which lasts for three years with a further two year extension based on (1) performance once my scaffold implementations has early acceptance or less modifications/alterations; (2) strong Client satisfaction whenever my scaffold has no design rework or less revisions thereby resulted to an early resumption of "plant operation". At the term end (five years), because the Client calls for a rebid, I ensure that our company is always included and awarded anew. Through my persistent advocacy on providing leadership on ethical considerations across disciplines the Long Form contracts enabled my company's engineering specialization evolved in a multi-year engagement with the Client's diversified nationalities, making it attractive and profitable. Short-Form Scaffold</p>	<p><i>PE1A.1a,b; PC3.1a</i></p> <p><i>PE1B.2b,c</i></p>  <p><i>PE1B.3a,b,e</i></p> <p><i>PE1A.2a,d</i></p>

<p>Projects on other hand, last from a few days to a few months and I came to know that contracts are limited in value to less than SAR 3M. These projects are urgent-needs based and can arise on very short notice, thus, I trained our Engineering Team to be flexible, be influenced and be readily encouraged by the responsive sustainable engineering practices at hand.</p>	<p><i>PC3.4a,d,e</i></p>
<p><i>CE 1.3 Identifying the Cause of the Problem</i></p> <p>Opportunities for long-term maintenance contracts and short form contracts do exist in all major industry segments. However, in my initial but thorough study of industry practices and trends, I found out that only companies' individual best practices often dictate attractiveness and viability of these contracts. Moreover, during my first two-year encounters being frontline practitioner and design manager, both key industry players ARAMCO and SABIC Companies review their contracts on a yearly basis and the renewal of these contracts were solely based on price competitiveness. Also both organizations were known to not renew a contract if an unnecessary lower bid was submitted. There was a time then, when I decided not to renew Long Form maintenance contracts with these organizations though terms of reference for award was earlier issued. Simply because it tends to be less profitable as lower bid by other competitor was the criterion to stay in "continuation" notwithstanding scope's complexities. At times also, even thorough constructive and valid arguments was my appeal for new price application, that is, based on prevalent market research, evaluation with client's representative did not ensured a realistic augmentation of sustained commercial viability and even business integrity for long term relationship with us.</p> <p>For non-ARAMCO and non-SABIC Companies on the other hand I discovered that they base their contract renewals via heavily weightage on performance thereby making "continuity" more plausible. However profitable, it delved me to randomly abide through unguided market development, of which, data were often inaccessible if not inadequate, thus aggravate complex market penetration for engineering contributions in addition to stringent standards drawn-out from diverse nationalities' implementation programs. In the overall scenario, my leadership acumen to Engineering Team must lend BFIM scaffold designers and crews to expend considerable effort in pursuing the timely execution of these types of scaffold contracts. Because criteria for getting the two year extension was on-time job completion expediting early operation resumption; my role as structural engineer specialist must have doubled its emphasis on quality and safety with zero major incidents (death of an employee) in addition to appropriate and validated records. There are times that Quarterly feedback cannot be provided by the Client; hence, it impacted me to undermine some rating of each scaffold job on quality, with tendency to encounter unidentified areas needing improvements more difficult.</p>	<p><i>PEIA.1a,b,c</i></p> <p><i>PEBI.1b,c</i></p> <p><i>PEIA.3a,d</i></p> <p><i>PC2.2c,d,f</i></p>
<p><i>CE 1.4 Analysis of Possible Solutions</i></p> <p>On subsequent years, I was able to determine that only three groupings comprising of ARAMCO, SABIC, and Private companies unprecedentedly underscored Long and Short Form maintenance contract opportunity at Saudi Arabia. Proactively responding to this scenario, I ensure that my Engineering Team is endorsing the utilization of innovative scaffold types including updated materials' technology. Because the overall opportunity was in excess of SR 100 M annually, I drove relentless engineering efforts for BFIM to secure maintenance contracts that focused 40% for Aramco & SABIC; 60% on Private companies year-round. My Managerial engineering proficiency and technocracy, i.e., monitors and contributes to market plans for engineering applications; BFIM had 3-Long Form contracts in placed with worth SR 35 million yearly. These contracts run through five years with guaranteed 2 year extension as well. My structural engineering specialization and pro-training management techniques, scaffold design and site execution became the main reason why Short-form Scaffold projects by BFIM got the most profitable (average 30%) as these were done on timely-bounded but quality basis. My leadership in Multi-diverse Engineering Team, BFIM crews executed up to</p>	<p><i>PC3.3a,b</i></p> <p><i>PC2.7a,b,d</i></p> <p><i>PEIA.1a,c,f</i></p> <p><i>PEIA.2b,d</i></p>

<p>25 such projects annually. While it is difficult to estimate Client spending on Short-Form Scaffold projects, constant collaboration with multi-disciplined end-users coupled with consistent market monitoring, yearly expenditure of SAR 30M was my usual conservative guess. With several new plants seeing commissioning, an increase 15% in the Short-Form project for BFIM has been byproducts of my anticipation strategy.</p>	<p><i>PC2.1a,b,c</i></p>
<p><i>CE 1.5 Project Planning and Implementation</i></p> <p>From bid submission (which I took part also during abstract quantities' generation) that resulted to awarded scaffold project for BFIM, I am involved and thus, took lead in all of its intricate implementations as well. Over the years, I became adaptive and innovative in design preparation for scaffold structures because Scaffolding maintenance needs are ever present to all Refineries and Gas plant sectors.</p> <p>In fact, during execution of scaffold design plans including site implementation, there are only three major types of services for long term scaffold jobs; <i>a) Inspection</i>, which utilization of 10meter high scaffold entails 2-3 days by proponents' representative; must have 15-30 crews per site due to daily frequencies, <i>b) Routine Maintenance</i> that has 12 meter high scaffold, frequently done every after 3 days with minimum crew-team size of 15; <i>c) Shut down</i>, done twice a year but limits one month lead time against actual duration of intended work which connotes a- 24 hours timing for straight 60-75 days period, covering all complex structures (confined space included), intricate passages and multi-diverse nationalities & personnel extending multi-disciplined activities, who called for my site inventory up to SAR 4 million worth of scaffold materials, readily extracted from design abstracts. Distinctively, I learned that respective sites of Refineries & Plants have long form maintenance contracts and routinely undergo expansion or modification, for which a Contracting company was pre-selected and entrusted. This Contracting company, on occasion, is required to bring a scaffolding outfit which may sometime "different" from the one which holds the Long Form Maintenance contract. This scenario falls under special admission for category of Short-form Scaffold projects, of which, Scaffold Specialist like my company must draw in; subsequently thus, my inescapable function will primarily initiates a design with quality program to ensure that the scaffold outcomes are achieved to the required standards of quality specified in the sub-let-contract; then I thoroughly evaluated the performance of the scaffold design outcome in the user's (Contracting Company) environment availing appropriate tools approved by the end-proponent. On this stage, I ensure that all documentation for the design remains accurate and current during the design development, thereby keeping accurate records on all aspects of scaffold design & execution progress including crews' site environmental conditions. For consistency with BFIM standard policy, I develop logistics and costing for the material acquisition and other innovative resources required to support scaffold and maintenance design plans in addition to strong monitoring on project processes against program and initiates remedial action if necessary. The attempt to be efficient was my daily target, hence, I usually contentious by prioritizing competing demands to achieve personal, team and the organization's goals and objectives relentlessly. On my preparation and monitoring, I consistently review the entire work plans and validate weekly programs and budget allocations. For multi-layered scaffold structures, I intentionally develop creative and flexible approaches thereby simplifying solution. I managed as often all emerging challenges and opportunities on large and complex scaffold structures throughout the whole project life cycle. From monthly to yearly moving forward, I daily intend to increase my Engineering team's intensity for client cultivation in the Petrochemical and Chemical industry segments with more frequent face-to-face engagements,</p>	<p><i>PC2.1a,b,c</i></p> <p><i>PC1.2b</i></p> <p><i>PC2.4a,b,c</i></p> <p><i>PC2.3a,b,c</i></p> <p><i>PC2.2a,</i></p> <p><i>PC2.5a</i></p> <p><i>PC2.9f</i></p> <p><i>PC2.6b</i></p> <p><i>PC2.8a</i></p> <p><i>PC2.8c</i></p> <p><i>PC3.4b,c</i></p>

spearheading involvement at client’s technical meetings, and conscientiously attends project related exhibitions. These efforts had proven to culminate in 4-5 new maintenance contracts by BFIM with Private companies and not less than two contracts each with ARAMCO and SABIC Companies every three subsequent years.

CE1.6 Summary



To date, BFIM continues to be chosen among the first three scaffolding company to render scaffold services kingdom-wide by major Hydrocarbon industry players. My nearing to 10 years stint in Scaffolding Engineering, had enunciated me in the area of a) Identifying technical/expertise requirements easily; b) it moulded me to demonstrate professional leadership openly; c) it optimizes my way of leading the development of alliances and partnerships with other professionals in the achievement of integrated social and environmentally sensitive engineering solutions.

PC3.2b,c,d

More importantly, in my current years of professional applications, it redefines my approach in identifying opportunities to effect decisions that have engineering implications in particular. Additionally, it intensified my advocacies to ensure compliance to government policies and directions in support to the achievement of engineering standards notwithstanding innovative engineering solutions. Interestingly, as I grew productively in business market study, it evolved me to be leading and informing the proponent-community on engineering options to gain their involvement in the development of engineering solutions to industrial-community problems also.

PC3.3a,b,d

By and large, I gained confidence through continuously identifies and implements best practices; on occasion of systemic schemes, I constructively reviews and supports proposals and opinions by multi and diverse engineers; literally, seeks to advance sustainable practices and outcomes and come up with negotiated financial resources to promote innovation as well while purposively encourages others to seek and achieve innovation.

PC3.1a,b,c,d,e

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Engineering Qualifications:



**APEC ENGINEER REGISTER PROJECT
ENGINEERING PRACTICE REPORT
SELF ASSESSMENT**

UNIT PC1	CONTRIBUTES TO THE DEVELOPMENT OF ENGINEERING PRACTICE	Self-Assessment	
ELEMENTS: (ALL THESE ELEMENTS <u>MUST</u> BE ADDRESSED)			
PC1.1	Provides significant contributions to science and practice of engineering	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC1.2	Leads engineering practice in area of specialization	<input type="checkbox"/> YES	<input type="checkbox"/> NO
UNIT PC2	LEADS/MANAGES SIGNIFICANT PROJECTS	Self-Assessment	
ELEMENTS: (ALL THESE ELEMENTS <u>MUST</u> BE ADDRESSED)			
PC2.1	Interpret project scope	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.2	Manage project quality, safety and risk	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.3	Implement planning and design process	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.4	Review the design outcomes in operation	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.5	Prepares and maintain documentation during the design process	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.6	Manages time and progress	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.7	Review the design to achieve acceptance	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.8	Manages work priorities and resources	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC2.9	Manages the assets within the operation/system	<input type="checkbox"/> YES	<input type="checkbox"/> NO
UNIT PC3	DEMONSTRATES ENGINEERING LEADERSHIP	Self-Assessment	
ELEMENTS: (ALL THESE ELEMENTS <u>MUST</u> BE ADDRESSED)			
PC3.1	Facilitates innovation	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC3.2	Promotes the engineering profession	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC3.3	Provides significant engineering contributions to community	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC3.4	Encourages and manages workplace change	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PC3.5	Motivates and mentors other	<input type="checkbox"/> YES	<input type="checkbox"/> NO

UNIT PE1A	MANAGES ENGINEERING BUSINESS/ORGANIZATIONAL OUTCOME	Self-Assessment	
AT LEAST TWO ELEMENTS MUST BE ADDRESSED FROM THE FOLLOWING:			
PE1A.1	Establishes engineering business/organization direction	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1A.2	Manages a multi-disciplined team	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1A.3	Leads and manages the engineering business/organization	<input type="checkbox"/> YES	<input type="checkbox"/> NO

UNIT PE1B	RESEARCH AND DEVELOPMENT	Self-Assessment	
AT LEAST TWO ELEMENTS MUST BE ADDRESSED FROM THE FOLLOWING:			
PE1B.1	Identifies opportunities for new or improved processes and / or products/materials	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1B.2	Identifies the resources required for R & D	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1B.3	Initiates concept developments	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1B.4	Gains commitments to the R&D proposal	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1B.5	Ensures research is undertaken	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PE1B.6	Collaborates in the application or potential commercialization of research outcome	<input type="checkbox"/> YES	<input type="checkbox"/> NO