PWCSA CONSTRUCTION MANAGEMENT AT RISK (CMAR) PROJECT DELIVERY

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Outline

* What is the CMAR Delivery Method?
* What are the statutory requirements?
* Why use it at PWCSA?
* What are the different roles of the project team?
* PWCSA Process
* Project Requirements

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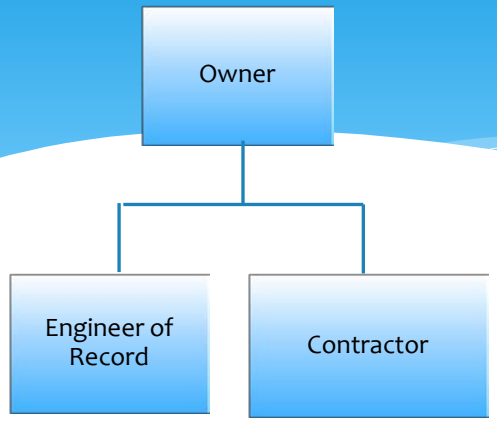
Project Delivery



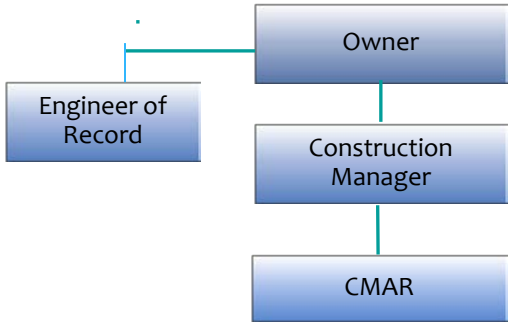
Design-Bid-Build (DBB)

- Design Errors and Omissions (Owner)
- Fixed Scope and Design
- Variable Construction Cost until Bid Opening
- Sequential Scheduling (Finish – Start)
- Constructability Issues

Primary Benefits to PWCSA in using a Construction Manager at Risk (CMAR) are a more flexible basis for Contractor selections, negotiation of risk allocation between the Owner and the CMAR, and CMAR involvement during design.

Construction Manager at Risk (CMAR)

- Design Errors and Omissions (CMAR)
- Evolving Design and Cost Estimate offerings
- Flexibility to Owner
- Early involvement of Constructor, Major Trades & Equipment Suppliers
- Fast-Tracking



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CMAR Delivery Method

* Design initiated by Owner
* CMAR selected early in the design process
* CMAR initially serves as agent of the Owner providing pre-construction services
  - Design Scope and Constructability Review
  - Budget, Schedule, and Cost Monitoring
  - Identifies Subcontractors for Bidding / Self Performance
* CMAR submits Guaranteed Maximum Price (GMP) based on agreed design milestone

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CMAR Delivery Method

* GMP establishes assumptions, allowances and contingencies and who controls their use.
* If GMP is accepted by Owner, relationship changes to Owner/Contractor.

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CMAR Statutory Requirements

* Authorized by Virginia Public Procurement Act
* Localities adopt guidelines consistent with VA approved procedures. For SA:
  - Board of Directors based on GM recommendation approves CMAR as a project delivery method
  - 2-Step Procurement Process: prequalification and RFP (GM may opt for 1-step process)
  - RFP prepared by committee to include PE
  - Selection Method is spelled out in RFP

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Why Consider CMAR For PWCSA?

* DBB projects are adversarial by nature
* Enabling legislation in Virginia
* Provides advantages to PWCSA as an agent during design (constructability, value engineering, budget, and schedule) leading to change in relationship if GMP accepted
* Advantageous delivery method given uncertainty of technology and risk allocation involved to meet new regulatory requirements

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Challenges for CMAR Delivery at PWCSA

* Staff Learning Curve
* Navigating new procurement procedures
* Development of CMAR Guidelines and Contract Documents: Performance Guarantees and CMAR Liability
* How to avoid loss of control of the design?
* How to avoid loss of quality deliverables?
* How to maintain competitive pricing?
* Exit Strategy if parties cannot agree to GMP Agreement

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* PWCSA CMAR Process
  * Request to GM for CMAR Project Delivery
  * BOD approval of GM Recommendation
  * GM waiver of 2-step process, directly to RFP
  * Proposal Evaluation
  * Selection of CMAR at 30% design milestone for pre-construction services
  * GMP Agreement and General Conditions. EJCDC
  * Open Book Bid Process
  * Special Provision: all subcontractor/equipment supply bids/contracts assignable to PWCSA
  * Explored Early Award of Equipment Packages
  * Pilot Study for Alternate Technology

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Project Team

* PWCSA – Owner: E&P, ESWR
* CDM Smith – Design Engineer
* CH2M HILL – Owner project representative
* Haskell - CMAR

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Air Pollution Control

1. Existing FBI
    a. Additional emission requirements per MACT SSI Rule
    b. Compliance deadline March 21, 2016
    c. Process capacity limited by increase in sludge BTU content
2. Emissions Impacted by MACT Limitations
    a. Mercury
    b. Cadmium
    c. NOx
    d. SO2

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Air Pollution Control cont'd

3. Design of Control Technology
    a. CDM Smith responsible to produce design to meet new emission requirements.
    b. Sorbent Polymer Composite Technology
        i. Minimized head loss allows re-use of existing exhaust blower relative to competing technologies
    c. Wet Electrostatic Precipitator
    d. pH-adjusted Tray Scrubber
4. Ancillary improvements
    a. Control System Update
    b. Chemical Systems
    c. Ductwork Replacement
    d. CEMS Update
    e. Interim Treatment Facilities

Project Requirements

* Meet new regulatory requirements
* All integrated components successfully work as a system
* Temporary solids processing while FBI is out of service
* Construction coordination with Plant Operations

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Owner Decision Making Throughout Process

* Extensive document review at 30%, 60% and 90%
* Alternative Technology and Suppliers for Cost Control
* Independent Cost Estimate in Conjunction with GMP
* Created owner contingency

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Open Book Cost Accounting

* Complete disclosure on all pricing at each design level estimate (30%, 60%, GMP at 90 %)
* Open book approach to billing & payment requisitions

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Value Added

- Ability to build trust with stakeholders through design workshops and demonstrate that PWCSA had not lost control of design
- Sought input from staff throughout the design process.
- Major Decisions included Executive Management

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Financial Summary

CDM Smith Construction Estimate*..... $ 9,677,000
2014 Haskell 30% Estimate $11,209,550
2014 Haskell 60% Estimate..... $14,305,286**
2015 Haskell GMP..... $ 8,822,964

*Note: Does not include CDM Task Order or Design Costs

** Note: 60% Estimate Triggered Review of Technology and Design Approach

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