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Brightwater Project Overview Report

Presentation to the Budget and Fiscal Management Committee

Bob Bingham, P.E.
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PTM Consulting LLC

Project Oversight Review Team

- **R. W. Beck** – Over 50 years providing independent engineering oversight and advice to utilities and financial institutions.
- **Charles River** – Specialize in review of major capital projects and programs. Focus on management and construction issues impacting program budget and schedule.
- **PTM Consulting** – Provide peer review of wastewater utility capital improvement programs and facility operations



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Project Review Process

- Data Gathering on Brightwater Project
- Interviews of Brightwater Staff
- Observe project progress meetings
- Data gathering on comparable projects
- Preliminary Draft report
- DNR staff review-factual content only
- Draft Report
- Final Report



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Key Questions

1. Are the proposed overall budget and allocations reasonable?
2. What are the major budget and schedule risks? How are they being managed?
3. What are the key management issues?



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Question No. 1: Are the proposed overall budget and allocations reasonable?

Key Findings

- Budget process and methodology is generally consistent with industry norms
 - Half of the Construction Cost Estimate is based on allowances
 - Two potentially risky elements (Treatment Process & Odor Control) account for 30% of the treatment plant estimate
 - Not all geotech information was developed at 30% design.
 - Contingencies are low-end of industry experience
 - Contingencies do not cover all risks
- Allied Costs (engineering, prof. services and staff costs)
 - Conveyance: consistent with comparable project (Jones Island) and industry norms
 - Treatment Plant: higher than comparable projects and industry norms

Question No. 1: Are the proposed overall budget and allocations reasonable?

Conclusions

- Budget may be on the low side but is having the effect of driving program efficiencies
- Modifications to the proposed baseline budget are not warranted at this time
- Several factors could impact future costs (e.g., unbudgeted risks, level of allowances, staff with limited experience relative to tunneling and GC/CM)
- A line item budget with detailed escalation assumptions is required to track project costs

Question No. 2: What are the major budget and schedule risks? How are they being managed?

Key Findings

Principal Project Risks

- Treatment technology scale-up and odor control commitment
- Building code, seismic concerns, and siting issues
- High groundwater conditions in portions of tunnel
- Unforeseen conditions in tunnel
- Schedule delays once construction begins will be expensive

Question No. 2: What are the major budget and schedule risks? How are they being managed?

Key Findings

Current Risk Management Approaches:

- KC is using a Geotechnical Baseline Report (GBR) to establish clear baseline with respect to subsurface conditions
- Conveyance contracts have prescribed tunnel boring machine (TBM) performance criteria and designated maintenance schedule

Question No. 2: What are the major budget and schedule risks? How are they being managed?

Conclusions

- Brightwater should expand on previous risk assessment activities in a more formalized manner.
- Work around strategies should be evaluated for key risks.
- For tunneling, Brightwater should have a pre-determined method to deal with subsurface obstructions, including a general workaround plan.



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Question No. 3: What are the key management issues?

Key Findings

- Brightwater Project is well managed
- Areas where Brightwater can improve:
 - Lump sum design contract for Treatment Plant combined with decision not to have design engineers prepare construction cost estimates may have unintended consequences, especially with respect to aggressive value engineering and cost management
 - Potential for duplication between GC/CM and CM for the Treatment Plant
 - Independent schedules have been developed for Treatment Plant and Conveyance
 - Change order approval authority has not been delegated to the lowest practical level

Question No. 3: What are the key management issues?

Conclusions

- Brightwater should work to develop a collaborative relationship between Treatment Plant Designer and GC/CM.
- The Treatment Plant GC/CM contract should include specific requirements to enhance competition during bidding of subcontractor packages.
- Treatment Plant Construction Manager contract (to be negotiated) must avoid duplication with GC/CM.

Question No. 3: What are the key management issues?

Conclusions

- Interrelated activities between the Treatment Plant and Conveyance Projects should be identified and carefully evaluated to avoid schedule delays and warranty issues at the Treatment Plant
- Significant change order approval authority should be delegated down to facilitate timely decisions during construction.