

WEST BASIN MUNICIPAL WATER DISTRICT

JULY 13, 2006 - Water Resources

Little, Baker

JULY 24, 2006 - Board Meeting

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ACTION CALENDAR

OCEAN-WATER DESALINATION DEMONSTRATION PROJECT
DEVELOPMENT SERVICES

SUMMARY:

Background

In May 2002, West Basin Municipal Water District (District) commissioned one of the first ocean-water desalination pilot facilities on the West Coast. This pilot facility was established to assist in assessing the feasibility of whether ocean-water desalination could play a role in West Basin's regional water supply portfolio. Extensive piloting and research over the past few years has allowed the District to unequivocally determine that ocean-water desalination is a practical and vital contribution to its long term planning goal in establishing a local and reliable water supply that will compliment the extensive water recycling and conservation programs the District currently employs.

West Basin's pilot plant has provided tremendous value towards the advancement of ocean-water desalination technology. Not only has the District been a solid leader within the ocean-water desalination industry, but the District has also been a conduit of information to other industry partners in the sharing of the various piloting and research findings. This information is being used today by numerous agencies to plan and understand the breadth of developing their own ocean-water desalination facilities.

While the District has determined that ocean-water desalination is feasible and obtained extensive operational and water quality experience at the piloting level, there has been a need to comprehensively evaluate several critical ocean-water desalination program processes and development components at a full scale level. This demonstration level evaluation using full-scale equipment is critical to the District's future success on a future full-scale project as it provides the due diligence in selecting the most appropriate technologies to be implemented at the full scale project level and ultimately be a tool in answering the stringent permitting and regulatory questions posed by the regulatory community. The District has been evaluating two potential Demonstration Project sites that could ultimately accommodate a full scale facility. The demonstration project is scoped to be 500,000 gallons per day of permeate production and will be utilized in such a fashion to demonstrate the ultimate operational, water quality, and process protocols that will be implemented in the full scale design. Additionally, the Demonstration Project will be critical in addressing regulatory and permitting concerns raised by the regulators and the environmental community. It is envisioned that the Demonstration Project will provide West Basin with the foundation for implementing the most cost-effective and environmentally acceptable Ocean-Water Desalination Project possible.

Professional Services Solicitation

In an effort to address the challenging ocean-water desalination program development issues, a "Request for Solicitation of Qualifications/Proposals" (RFP) was developed and released on May 2006, for professional consulting services to assist the District with providing a detailed demonstration project program analysis and design services. The program project development services is separated into four main areas of work: Phase A, Preliminary Design Development; Phase B, Demonstration Facility Design & Permitting; Phase C, Construction Management; and Phase D, Facility Operations and Maintenance. This RFP process was developed in a two phase process, which included a proposal of qualifications submittal to be followed by a shortlist invitation from the District to submit a shortlist proposal from the top three qualified teams.

Selection Process

Five proposals responding to the RFP request were submitted on May 19, 2006, from the following teams:

- Befesa/URS;
- CDM;
- Carollo Engineers;
- Malcom-Pirnie; and
- MWH.

The proposals were extensively reviewed by a qualified selection panel consisting of three District staff members and two outside municipal water agency members as follows:

- Paul Shoenberger, P.E. – West Basin Chief of Engineering;
- Marc Serna, P.E. – West Basin Engineering Manager;
- Phil Lauri, P.E. – West Basin Desal Project Manager;
- Russ Ryan, P.E. – Metropolitan Water District (Desal Unit); and
- Alvin Bautista, P.E. – Los Angeles Department of Water and Power (Desal Team).

The RFP review criteria included an emphasis on each team’s ability to demonstrate their project understanding, professional services capability, define their project team members and location, and provide their team member experience. A detailed review and assessment of the proposals resulted in a selection panel recommendation of inviting CDM, Carollo Engineers, and MWH to participate in the shortlist proposal process for further consideration. A detailed Consultant evaluation summary for the RFP proposal review and subsequent shortlist and interview review process is included as Exhibit A.

Three shortlist proposals were submitted June 9, 2006. The District held interviews on June 15, 2006, with each of the aforementioned teams. Each team was evaluated on their shortlist proposal submittal and their interview performance. The shortlist review included an emphasis on each team’s project approach, their previous project experience, ability to meet or shorten the predefined schedule, and professional services cost. The interview process required each team to give a formal fifteen minute presentation followed by a one hour question and answer period probing into the specifics of ocean-water desalination technologies, permitting challenges, regulatory requirements, and project management skill. The outcome of the proposal review and interview process resulted in the following score and ranking:

Rank	Team	Score	Phase A Costs
1	MWH	93	\$971,000
2	CDM	89	\$937,090
3	Carollo Engineers	78	\$633,282

Each team provided a unique program approach and perspective to address and deliver the District’s requested scope of work. However, the selection panel unanimously found that MWH Consultants provided the most comprehensive approach and ability to deliver the required scope of work. MWH provided the most diverse team regarding technical expertise, regulatory knowledge, environmental compliance, and project management oversight than either the CDM team or the Carollo team. CDM did provide a sufficient program approach, however, they were not as strong in their project management approach that would encompass the District’s involvement in the development, design and permitting of the demonstration project. Additionally, CDM did not have the level of regulatory and water quality expertise possessed by the MWH team. The Carollo team provided an excellent approach in facilitating an alternative intake assessment. However, while the alternative intake assessment is a critical component to the project, it is only one component of the several requested

scopes of work required under the RFP. Additionally, the Carollo team was unable to adequately discuss and provide information on how the District would permit an ocean-water desalination demonstration facility utilizing an open intake scenario. While the Carollo team did indicate they were committed to evaluating and performing all components of the required scopes of work, it appeared that their project approach would be focused on providing services for implementing an alternative intake technology with minimal effort put towards an independent evaluation of all viable pretreatment technologies and intake options.

There is a clear cost differential between the top two ranked teams (MWH & CDM) and the number three ranked team (Carollo Engineers). The selection panel performed a critical assessment of this cost difference and concluded that the scope of services provided by MWH and CDM were on par with what was requested in the RFP solicitation, whereas, the services and project approach proposed by Carollo Engineers focused on an alternative intake method that would potentially remove regulatory and permitting hurdles, thus, reducing the required scope of work and yielding a lower cost of services. Additionally, the Carollo approach makes many technical assumptions that are hydro-geologically unknown and risk inherent to the District without any substantial or supporting technical data to date. To further illustrate the significance of this cost differential as related to the required scope of work, both the MWH and CDM teams propose expending between \$230,000 and \$300,000 in professional subconsulting services to enhance the quality of their team's expertise as opposed to Carollo's approximate subconsultant expenditure of \$77,000. Many of the enhanced subconsulting services proposed by the MWH and CDM teams were in the areas of water quality, permitting, and regulatory compliance addressing the impingement and entrainment issues associated with a potential open water intake source and pretreatment technologies in addition to their services to assess alternative intake options. The selection panel concluded that the low cost proposed by Carollo would not adequately address all the required RFP elements as suggested in their proposal and determined that the cost proposed by the CDM and MWH teams were more representative of the costs necessary to perform the required scope of work at the detailed level to ensure the District's success of this project.

Staff is recommending award of the contract to MWH for Phase A for a not-to-exceed amount of \$971,000. At the conclusion of Phase A, staff will bring a recommendation for consideration regarding MWH's professional design services (Phase B) of the demonstration facility.

Membrane Consulting Services

West Basin has been long time advocates of being aggressively involved owners of the projects that are developed and implemented as part of the District's mission in developing reliable and cost-effective water supplies. This participation has allowed the District to shape and cost-effectively manage the implementation of critical project process components that heavily influence the District's short- and long-term treatment effectiveness and regulatory compliance requirements. These critical components have traditionally involved the pretreatment and desalination processes. While District staff has a good working knowledge of advanced membrane treatment processes, the District has relied on Separation Processes, Inc., to perform the detailed design of the reverse osmosis processes, associated chemical addition systems, and development of the pretreatment technology procurement specifications to ensure a uniform standard of implementation, treatment effectiveness, and operational stability. As a result of SPI's long-term involvement, the District has successfully implemented over \$300 million dollars of desalination technologies in the water recycling and brackish groundwater arenas. SPI has been responsible for the design of multiple phases of the District's pretreatment and reverse osmosis systems at the Water Recycling Facility and the Brewer Desalter Facility.

In an effort to emulate the District's previous model of success, staff is recommending scoping SPI to perform the detailed design of the membrane pretreatment and reverse osmosis processes for the ocean-water desalination demonstration project. SPI's role will be similar to that of other desalination projects managed by the District where they will function as the District's expert membrane consultant and work in collaboration with the District's project design consultant. It is expected that SPI will be

involved in supporting the District's efforts for each phase of the ocean-water desalination development project. Immediately, SPI will undertake a scope of work for Phases 0 & A to assist the District in assessing the alternative pretreatment and advanced membrane process technologies proposed by MWH, performing peer review of the proposed process design recommendations, assimilation of the District's piloting and research data and experiences to date to MWH, and provide collaboration and design review services of the preliminary design development recommendations to ensure continuity of the design protocols for the ocean-water desalination demonstration facility. While MWH has qualified membrane consultants as part of their team, SPI possesses advanced membrane design experience in a variety of water sources, is intricately familiar with the District's design and operational protocols, designed and has been an integral member of the District's ocean-water desalination piloting and research program/team for the past several years, and provides a breadth of industry experience unequivocal to any of the proposing teams the District has interviewed to date. The addition of the SPI team to this project will ensure the success of the District's ocean-water desalination program as it has experienced in the implementation and operations of the water recycling program.

SPI's proposed costs for the scope of work is \$73, 480. Future phases of SPI's scope of services will be brought to the Board for consideration in conjunction with MWH's future scopes of work for Phases B, C and D.

FISCAL IMPACTS:

Funds for this project are included in the construction fund.

ENVIRONMENTAL COMPLIANCE:

Environmental requirements for this project will be evaluated as part of the study scope.

COMMITTEE STATUS:

This item was reviewed by the Water Resources Committee on July 13, 2006 and was recommended for approval at the July 21, 2006 Special Board meeting.

RECOMMENDED MOTIONS:

That the Board authorizes the General Manager to:

1. Execute a Contract with MWH Consultants for professional design services as required for the Ocean-water Desalination Project Development Services for an amount of \$971,000 plus 10% for change orders, for a total amount not-to-exceed \$1,068,100; and
2. Execute a Contract with SPI Consultants for membrane consulting services as required for the Ocean-water Desalination Project Development Services for an amount of \$73,480 plus 10% for change orders, for a total amount not-to-exceed \$80,828.

EXHIBITS:

Exhibit A – Consultant Selection Summary

WEST BASIN MUNICIPAL WATER DISTRICT

Project: **Ocean Water Desalination Project Development Services**
 Evaluation Level: **Shortlist Proposal Evaluation/Interview**

Overall Rank	Firm / Team Name	Allowed Points	Evaluation Committee Scoring					Average Evaluation Score
			1	2	3	4	5	
1	MWH							
1	Project Approach	15	13	12	14	14	13	13
2	Previous Project Experience	10	9	9	10	9	9	9
3	Schedule	5	5	5	5	5	4	5
4	Professional Services Cost (Phases 0 & A)	5	4	5	4	4	4	4
	Subtotal	35	31	31	33	32	30	31
1	Formal Presentation/Question & Answer	65	61	59	63	62	63	62
TOTAL		100	92	90	96	94	93	93
2	CDM							
1	Project Approach	15	14	13	15	14	13	14
2	Previous Project Experience	10	9	9	9	9	8	9
3	Schedule	5	4	5	3	5	4	4
4	Professional Services Cost (Phases 0 & A)	5	5	5	5	4	3	4
	Subtotal	35	32	32	32	32	28	31
1	Formal Presentation/Question & Answer	65	57	55	60	59	60	58
TOTAL		100	89	87	92	91	88	89
3	Carollo							
1	Project Approach	15	11	13	9	10	10	11
2	Previous Project Experience	10	8	8	8	9	7	8
3	Schedule	5	4	5	3	5	4	4
4	Professional Services Cost (Phases 0 & A)	5	4	3	5	4	3	4
	Subtotal	35	27	29	25	28	24	27
1	Formal Presentation/Question & Answer	65	50	44	56	55	53	52
TOTAL		100	77	73	81	83	77	78