

**COUNCIL ACTION MEMORANDUM**

98-  
**CM No-16**

**SUBJECT: Requesting authorization to sole-source Engineering and Design contract for Sewer Treatment Plant Digester #2 as provided for in Wasilla Municipal Code.**

PREPARED BY: Public Works Department      DATE: March 16, 1998

FOR AGENDA OF: March 23, 1998

**SUMMARY:**

The Public Works Department requests authorization to issue a sole-source contract with CH2M Hill for engineering and design of improvements to the Wasilla Sewer Treatment Plant not to exceed \$125,000. There is \$600,000 in FY '98 CIP for the digester. ADEC is considering a second grant of \$420,000 which will enable additional improvements to the treatment plant. Having design and engineering completed will increase the grant funding ratings on the receiving building and power generator.

CH2M Hill did the original design on Digester #1 and retains rights to the drawings. The firm's access to previous design information will minimize overall design costs for these improvements.

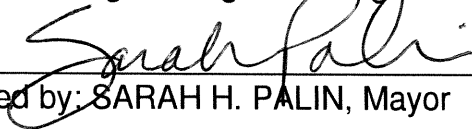
Elements of the engineering design through proposal process include:

Basic Aerobic Digestion Facilities	\$ 69,000
Septage Receiving Building	\$ 42,500
Emergency Power Generation	<u>\$ 13,500</u>
	\$125,000

FISCAL IMPACT:  No  Yes, amount requested NTE \$125,000 Fund: 05.599.6524

**RECOMMENDED ACTION:**

Authorize contract from Sewer Construction Fund CIP (05.599.6524) for above proposal for engineering and design.



Reviewed by: SARAH H. PALIN, Mayor

Attachments: CH2M Hill Proposal for Engineering and Design services 3/14/98  
ADEC approval of sole-source contract with CH2M Hill 3/10/98  
Memorandum from Bill Harvey, Deputy Director Public Works 3/16/98

**APPROVED**

DATE: 3/23/98  
BY: Peter Van Meter

# Design Proposal for City of Wasilla WWTP Improvements

TO: William Harvey, City of Wasilla  
COPIES: Cindy Roberts, City of Wasilla  
FROM: Chris Arts, CH2M HILL  
DATE: March 10, 1998

## Background

The City of Wasilla Wastewater Treatment Plant (WWTP) is in need of improvements to more efficiently process the increasing volume of septage received at the WWTP. This proposal addresses professional engineering services for the necessary WWTP improvements, and includes services for design and bidding of the project. Depending on funding and capital costs of the improvements, the project may ultimately include: an additional aerobic digestion tank; modifications to the existing aerobic digestion tank; additional sludge drying beds; a septage receiving building with truck wash facilities; modifications to the existing control building including additional blower installation; installation of a new stand-by electrical generator; yard piping modifications; and site work.

The City has proposed awarding an engineering service contract sole-source to CH2M HILL. The advantages of awarding the contract sole-source include:

- Reducing schedule constraints and costs related to the traditional consultant selection process. To allow for construction this summer, the design must be relatively fast-tracked.
- Minimizing costs relative to design due to CH2M HILL's previous design experience and project knowledge.
- CH2M HILL's ready access to previous design data information (i.e. existing facility design calculations, geotechnical and survey information).
- CH2M HILL's access to project staff involved in design of the original treatment facilities.

Project funding is available but limited. It is the City's intent to receive preliminary construction cost estimates at the design evaluation stage (technical memorandum), the design development stage (30% and 90% design submittals) and the final design. It is anticipated that the project contract documents will be prepared to allow bidding of additive and/or deductive alternates to assure that the City can accomplish as much of the expansion as possible with the available funding. The specific improvements include:

- Additional aerobic digester with yard piping to run new and existing digesters in series or parallel.
- Addition of a septage receiving station with controls/screening for rocks, grit and floatables.
- Addition of two additional blowers and associated equipment in the control room to accommodate the new digester.
- Potential addition of extra sludge drying beds.
- Potential septage receiving station building enclosure with truck wash facilities.
- Potential stand-by electrical generator sized to operate the entire WWTP during a period of prolonged power outage.
- Associated site improvements, grading, fencing etc.

## Workplan

### Non - Design Services

#### Task 1- Pre-Design Technical Memorandum

A design evaluation will be performed to verify the proper sizing of the new digester and associated facilities. All potential improvements will be preliminarily sized and a cost estimate prepared. Six copies of the Technical Memorandum will be provided to the City.

#### Task 2 - Permitting Assistance

Plan review coordination with the Alaska Department of Environmental (ADEC), and all building permits will be coordinated. It is assumed that the City will pay all fees for regulatory plan review and permitting.

### Design Services

Design services will be subdivided into three separate tasks, representing three separate submittals to the City for the 30%, 90% and final design documents. The number of drawings and design effort will vary depending on the level of funding and priority of treatment plant improvements. Additionally, the following activities are included for completion:

- Hold kickoff meeting and site visit by key design staff and City of Wasilla personnel.
- Prepare drawings, for the 30%, 90% and final design phases.
- Prepare technical specifications for all work to be constructed at 30%, 90% and final design phases.
- Prepare cost estimates for 30%, 90% and final design phases

- Provide the City with six copies of plans, specifications and cost estimate for the 30%, 90% and final design plans, specifications and construction cost estimate. Thirty bid sets of final design drawings (11 x 17) and specifications will be provided. One full size mylar set of final design drawings will also be provided.

### **Services During Bidding**

- Services during bidding will include the following:
- Distribute contract documents from CH2M HILL's Anchorage office.
- Answer and record questions from contractor's during bidding.
- Prepare and distribute all required addenda to the contract documents.
- Schedule and conduct the pre-bid conference.
- It is assumed that the City will advertise the project for bidding and conduct the bid opening.

### **Cost Proposal**

Cost proposals have been prepared based on the estimated level of effort and expenses for three design alternatives. The design level of effort for each alternative is represented in the proposed drawing schedules presented in Tables 1, 2 and 3. Cost proposals are presented in Tables 4, 5 and 6 and represent costs to design and bid the basic aerobic digestion facilities, the basic facilities with a septage receiving building and the basic facilities with emergency power generation, respectively.

### **Schedule**

The proposed schedule for the project is attached. The project schedule is relatively fast-tracked and will require timely delivery of submittals and review comments.

**TABLE 1**  
Proposed Drawing Schedule - Basic Aerobic Digestion Facilities  
*City of Wasilla WWTP Improvements*

Sheet No.	Drawing No.	Drawing Title
1	G-1	Cover Sheet, Drawing Index, Vicinity Map
2	G-2	General Notes, Abbreviations and Symbols
3	C-1	Site Plan
4	T-1	Yard Piping
5	T-2	Aerobic Digester Plan
6	T-3	Aerobic Digester Section and Details
7	T-4	Aerobic Digester - Miscellaneous Details
8	T-8	Control Building Modifications Plan
9	E-1	Aerobic Digester - Electrical Plan and Sections

**TABLE 2**  
Proposed Additional Drawings - Add Septage Receiving Building  
*City of Wasilla WWTP Improvements*

Sheet No.	Drawing No.	Drawing Title
10	T-5	Septage Receiving Building - Plan and Sections
11	T-6	Septage Receiving Building - Architectural Details
12	T-7	Septage Receiving Building - Structural / Mechanical
13	T-8	Septage Receiving Building - Miscellaneous Details
14	I-1	Process and Instrumentation Diagram
15	E-2	Septage Receiving Building - Electrical Plans and Details

**TABLE 3**

Proposed Additional Drawings - Add Emergency Power Generation  
*City of Wasilla WWTP Improvements*

Sheet No.	Drawing No.	Drawing Title
16	T-9	Control Building Modifications - Details
17	E-3	Emergency Generator - Electrical Plan and Details

**TABLE 4**

Cost Proposal - Basic Aerobic Digestion Facilities  
*City of Wasilla WWTP Improvements*

Task No.	Task Description	Labor	Expenses	Total
1	Pre-Design Technical Memorandum	\$8,000	\$300	\$8,300
2	Permitting / Reviews	\$2,900	\$300	\$3,200
3	30% Design	\$10,800	\$1,200	\$12,000
4	90% Design	\$22,100	\$1,900	\$24,000
5	Final Design	\$13,600	\$1,900	\$15,500
6	Services During Bidding	\$5,000	\$1,000	\$6,000
<b>Total Lump Sum Fee Proposal</b>		<b>\$62,400</b>	<b>\$6,600</b>	<b>\$69,000</b>

**TABLE 5**  
**Cost Proposal - Additional Engineering Fees for Septage Receiving Building**  
*City of Wasilla WWTP Improvements*

<b>Task</b>	<b>Labor</b>	<b>Expenses</b>	<b>Total</b>
Design	\$36,400	\$2,600	\$39,000
Services During Bidding	\$3,500	\$0	\$3,500
<b>Total Additional Fees</b>	<b>\$39,900</b>	<b>\$2,600</b>	<b>\$42,500</b>

**TABLE 6**  
**Cost Proposal - Additional Engineering Fees for Emergency Generator Facilities**

<b>Task</b>	<b>Labor</b>	<b>Expenses</b>	<b>Total</b>
Design	\$10,800	\$1,200	\$12,000
Services During Bidding	\$1,500	\$0	\$1,500
<b>Total Additional Fees</b>	<b>\$12,300</b>	<b>\$1,200</b>	<b>\$13,500</b>

# STATE OF ALASKA

TONY KNOWLES, GOVERNOR  
FAX: (907) 269-7509  
Phone: (907) 269-7502  
555 Cordova Street  
Anchorage, AK 99501

## DEPT. OF ENVIRONMENTAL CONSERVATION

### FACILITY CONSTRUCTION AND OPERATION

RECEIVED

March 10, 1998

MAR 12 1998  
CITY OF WASILLA, ALASKA

Mr. William Harvey  
Department of Public Works  
City of Wasilla  
290 East Herning Avenue  
Wasilla, AK 99654

**SUBJECT: Professional Services Contract Eligibility - CH<sub>2</sub>MHill, Inc.  
Wasilla, Wastewater Treatment Plant Improvements**

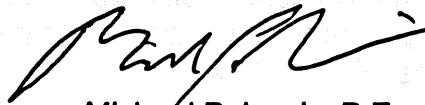
Dear Mr. Harvey:

I have reviewed your request for sole-sourcing engineering work on the subject project to CH<sub>2</sub>MHill, Inc. and give concurrence. I found the reasons provided in CH<sub>2</sub>MHill March 6, 1998-report sufficient for substantiating your request. Justification for sole-sourcing is based primarily on the following reasons:

- ◆ Reducing scheduling constraints and costs involved with consultation selection process.
- ◆ Minimizing costs for design work due to CH<sub>2</sub>MHill's past design experience and project knowledge.
- ◆ Access to previous design data information from existing facilities
- ◆ Access to project staff involved with the original design of the existing facility.

For eligibility of engineering costs, please submit a signed copy of the contract when available. If you have any questions, please call me at our office in Anchorage at 269-7616.

Sincerely,



Michael P. Lewis, P.E.  
Project Engineer

MPL/ect (G:\eq-fco-cler\wasilla\ch2mhill.ctr)

cc: Archie Giddings/EH-Engineer/Wasilla





## CITY OF WASILLA

290 E. HERNING AVE.

WASILLA, ALASKA 99654-7091

PHONE: (907) 373-9050

FAX: (907) 373-9085

### MEMO

**TO:** Cindy Roberts  
Director of Public Works

**FROM:** William W. Harvey *wwh*  
Deputy Director of Public Works

**DATE:** March 16, 1998

**RE:** Digester Construction Project FY98

The current number of sewer customers is 470 as provided by Utility Billing. Installation records show there are 225 residential tanks, 154 small or light commercial tanks, and 47 heavy commercial tanks. Tank size can range from 1000 gallons to 20,000 gallons. Residential tanks are normally in the range of 1000 gallons to 2000 gallons. Light commercial are in the range of 1500 gallons to 3000 gallons. Heavy commercial range from 5000 gallons to 20,000 gallons.

Wasilla Municipal Code states that residential tanks are to be pumped once every three years, commercial tanks with less than 60,000 gallons of flow per month every two years and commercial that exceeds 60,000 gallons per month, each year. Residential systems are pumped during warm weather to eliminate layered freezing if done during the winter months. The two types of commercial systems are pumped during the winter months due to the volume of water entering the system as it eliminates freezing that is encountered in residential systems with low flow.

The current digester is 35 feet in diameter and has a 20 foot high side wall. The operational height of the digester is 19 feet. A minimum level of 11.5 feet must be maintained in the digester at all times in order to provide the necessary back pressure for the blowers. The actual working capacity as to gallonage fill is 7.5 feet or a total of 52,500 gallons. This was calculated as one foot of height is 7000 gallons. The above information was obtained from the Operation and Maintenance manual. The O and M manual also says that the total gallonage dumped is 4200 gallons per day on a seven day average.

The function of the digester is to treat the solids from the septic tanks through aerobic microbial bacteria, essentially eating the solids. The loading capacity of the digester is based on the ability of the aerobic bacteria to handle the gallonage of septage dumped each day. The strength of the septage (BOD) also effects the number of gallons per day that can be dumped.

The digester is usually cleaned every 12 to 18 months. This is the removal of the solids from digester to drying beds and inspection of system components and repair as needed. The Operation and Maintenance manual says that the digester has to run for 30 days from last dumping of septage until it is ready to be placed on the drying beds. It is possible, if repairs are needed, that the digester would be out of service for up to 60 days.

Problems arising from single digester:

1. Lack of ability to pump tanks on a scheduled basis due to gallonage of wastewater and strength of wastewater.
2. Not able to meet Wasilla Municipal Code requirements.
3. Odor - Increased potential due to shock loading system. This means unbalancing the delicate relationship of PH, dissolved oxygen and microorganisms during the treatment process.
4. Emergency septic pumper cost when digester cannot be utilized by City pumper.
5. Lack of power to run plant during an extended power outage.
6. Ineffective use of time as to collection personnel.

The installation of a second digester will eliminate the above problems as well as lower personnel costs over the life cycle of the treatment plant.

The City Council has appropriated \$600,000 for the FY98 CIP to construct this project. Through the efforts of Public Works staff, the City of Wasilla is on the Alaska Department of Environmental Conservation grant list to be funded for \$420,000 for FY99. As part of the digester project, a dump and wash building was included along with an electrical upgrade for the entire plant to provide emergency power in case of an extended power outage by Matanuska Electric Association. It is felt that the cost of the design of these areas could be reduced through sole sourcing of professional services as provided for by the Wasilla Municipal Code. Attached is a proposal from CH2MHill and ADEC.