

**SUBJECT: Contract Award For Sewage Lagoon Upgrade Program**

REQUESTED BY: Public Works

PREPARED BY: Public Works

DATE: June 18, 1999

FOR AGENDA OF: June 28, 1999

**SUMMARY:**

LCMF, Inc. has been retained to prepare the Sewer Master Plan for Wasilla. Part of the Master Plan includes a study of the existing treatment plant which makes this firm the logical choice to address a long term solution to the odor problem that has been on-going at the plant for the last several weeks.

The attached proposal outlines the scope of work.

**FISCAL IMPACT:** \_\_No \_\_x Yes, amount requested: \$ 21,390 Fund: 05.599.6520

**RECOMMENDED ACTION:**

It is recommended that LCMF, Inc. be awarded a professional services contract to recommend sewer lagoon system upgrades to address the odor problem over the long term.

  
Reviewed by: SARAH PALIN, Mayor

Attachments: Proposal from LCMF

Presented to council on 6/28/99  
Action taken:  Approved  Denied  
other: \_\_\_\_\_  
Verified by K. VanGevel



June 11, 1999

City of Wasilla  
Attn: Don Shiesl, Public Works Director  
290 E. Herning Avenue  
Wasilla, Alaska 99654-7091

Phone: (907) 373-9050  
Fax: (907) 373-9054

Re: **Revised Proposal to Provide Engineering Services**  
**Sewage Lagoon Upgrade Program**

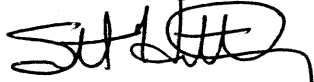
Dear Mr. Shiesl:

In accordance with your request to Greg Jones of G.V. Jones & Associates, Inc. (GVJ), GVJ has prepared a revised proposal to upgrade the sewage lagoon system for the City of Wasilla. Attached herewith is a draft of the proposed scope of work consisting of 3 pages; a cost proposal for \$21,390 consisting of 1 page; and supporting information for dissolved oxygen instrumentation consisting of 7 pages.

We consider the proposal a draft at this point, and the scope and fee are open for discussion to assure that they are consistent with your needs.

Sincerely,

LCMF, Incorporated



Scott Hattenburg, P.E.

**RECEIVED**

JUN 15 1999

**CITY OF WASILLA**  
Public Works Dept.

cc: Greg Jones  
Mark Mason

Attachments: Proposal (3 pages)  
Cost Proposal (1 page)  
DO Meter Information (7 pages)

W:\ENG-DOC\99018 Wasilla WWTP\Contract\Shiesl Proposal 2.doc

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Phone: (907) 346-4123  
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Email: gvjones@alaska.net

June 11, 1999

Mr. Scott Hattenburg  
LCMF, Inc.  
139 East 51<sup>st</sup> Avenue  
Anchorage, Alaska 99503

Dear Scott:

Subject: City of Wasilla  
Sewage Lagoon System Upgrade Program  
Revised Proposal to Provide Engineering Services

## **Background**

The City of Wasilla is currently served by an aerated lagoon wastewater treatment system. The facility receives septic tank effluent from the City's collection system and discharges it to percolation beds for disposal. The sludge accumulated in the lagoon ponds is believed to be source of objectionable odors within the vicinity of the ponds. The City wishes to eliminate the odor problem with a lagoon system upgrade program. The City has requested engineering services from LCMF, Inc. (LCMF) and its subcontractor, GV Jones & Associates, Inc. (GVJ&A) to support the upgrade program.

This letter is our revised proposal to provide LCMF services related to the upgrade of the existing lagoon treatment system.

## **Proposed Scope of Work**

Our proposed scope of work is represented in the follow task descriptions.

### **Task 1: Evaluate Aeration System Upgrade**

From limited observation of the turbulence pattern on the surface of the existing lagoon ponds, it is likely that the ponds are not completely mixed. As a consequence, biomass that forms in the ponds settles to the bottom of the ponds and accumulates as sludge. It is likely that a primary source of the odor in the vicinity of the lagoons is related to the seasonal turnover of the ponds that results in mixing of this accumulated sludge and release of anaerobic gases of decomposition to the atmosphere.

One means of reducing odors is to increase the aeration system capacity of the lagoon system. Delivery of more air to the ponds would increase concentrations of dissolved oxygen available to the sludge accumulating at the bottom of the ponds. This would encourage aerobic digestion of the deposited sludge and oxidation of malodorous anaerobic gases prior to their release to the air above the ponds. It would also increase the degree of mixing occurring within the ponds. Improved mixing applied to the upstream end of the first pond would improve the overall degree of organic stabilization occurring in the lagoon treatment system.

There are many different types of aeration systems that can be used in the lagoon upgrade program. We will investigate two of these systems. One is the Parkson Biolac diffuser system now in use in Palmer, and the other is a surplus Hinde-style diffused aeration system that is available from a local contractor in Wasilla. We will prepare pre-design opinions of project capital and O&M costs for each alternative.

To correctly size the aeration system, we propose to conduct a limited on-site assessment of oxygen uptake rates and other oxygen transfer characteristics of the septic tank effluent entering the existing lagoon treatment system. This assessment will be used in conjunction with the diffuser manufacturer's literature on oxygen transfer efficiency to select blower capacity and required diffuser system configuration for the proposed upgrade.

### ***Task 2: Coordination with Regulatory Agencies for Sludge Management***

The relocation of the sludge accumulated in the existing lagoons to a dewatering pit near the municipal airport will require the approval of the ADEC. It is our understanding that the City has communicated with the ADEC and is advised that the Department will require only a plan review submittal and as-built drawings of the dewatering pond at this time.

Using information provided by the City, we propose to prepare an ADEC plan review submittal for the dewatering pit. The submittal will include location maps, drawings, and text to explain the intended use and function of the dewatering pit, and a request for approval to construct it. We will also prepare and submit as-built drawings of the completed facility for ADEC with a request for approval to operate the facility.

### ***Task 3: Evaluate Option of Upgrading Lagoon System to EAAS System***

If the City is going to consider upgrading the aeration system to control odors in the existing lagoon, it may be prudent to consider upgrading the lagoon treatment system to an extended aeration activated sludge (EAAS) system configured with aerated ponds and a gravity clarifier. This is a common retrofit for lagoon systems and may be more cost effective than attempting to maintain aerobic conditions in the existing lagoon ponds.

The hydraulic detention period for the EAAS system would be approximately 1.5 to 2 days as opposed to the 60 days provided by the existing system's configuration. It could be the aeration system for the EAAS configuration and associated waste sludge digestion/storage would be more cost effective than installing an upgrade to maintain aerobic conditions in the existing ponds.

We propose to compare the capital and operating costs of the EAAS alternative with upgrading the existing aeration system and reporting the results of that analysis to the City.

### ***Future Task: Prepare Construction Documents for Upgrade Program***

Once an upgrade plan is identified and endorsed by the City, we will provide a proposal for design services to prepare construction documents for the upgrade and a plan review submittal suitable for use by the City in requesting approval for the upgrade from ADEC.

### ***Cost Proposal***

We will provide the aforementioned services on a time and materials basis at a billing rate of \$100 per hour with direct costs invoiced at cost plus 5%. We expect to be able to complete the foregoing tasks for a not-to-exceed amount of \$21,390. A summary of these costs is included in the attached cost spreadsheet.

### ***Closure***

We hope this letter proposal meets the objectives of the client. If you have questions, comments or suggestions, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Greg Jones', with a long horizontal flourish extending to the right.

Greg Jones, P.E., DEE  
President  
GV Jones & Associates, Inc.

Attachment: Cost Proposal Spreadsheet

**City of Wasilla  
Lagoon System Upgrade  
Cost Proposal for Engineering Services  
June 11, 1999**

<b>Labor</b>					
Description	Hours	Staff	Hourly Rate	Total	Total
<b>Task 1: Evaluate Aeration System Upgrade</b>					
Conduct on-site Wastewater O2 Transfer Characterization	32	LAW	\$100	\$3,200	
Evaluate Biolac Odor Control System	16	CRW	\$100	\$1,600	
Evaluate Hinde-style Odor Control System	16	CRW	\$100	\$1,600	
Prepare Opinions of Project Costs	12	LAW	\$100	\$1,200	
Prepare Opinions of O&M Costs	8	LAW	\$100	\$800	
Subtotal Task 1:					\$8,400
<b>Task 2: Coordinate with Regulatory Agencies for Sludge Management</b>					
Coordinate with City on Plans for Dewatering Pit	3	GVJ	\$100	\$300	
Prepare ADEC Plan Review Submittal	20	GVJ	\$100	\$2,000	
Prepare As-Built Drawing Submittal for ADEC	6	GVJ	\$100	\$600	
Subtotal Task 2					\$2,900
<b>Task 3: Evaluate Option of Upgrading Lagoon System to EAAS System</b>					
Configure EAAS System Using Ponds	16	GVJ	\$100	\$1,600	
Prepare Pre-design Opinions of Project Costs for EAAS System	8	GVJ	\$100	\$800	
Prepare Opinions of O&M Costs for EAAS System	4	GVJ	\$100	\$400	
Prepare Technical Memorandum Comparing EAAS with Aeration Only	20	GVJ	\$100	\$2,000	
Meet with City Staff to Present Findings	3	GVJ	\$100	\$300	
Subtotal Task 3					\$5,100
<b>Total Labor Costs</b>					<b>\$16,400</b>
<b>Expenses</b>					
Description	Quantity	Units	Unit Price	Total	Total
<b>Task 1: Evaluate Aeration System Upgrade</b>					
O2 Transfer Test Equipment and Instruments	All Req'd	Lump Sum	\$2,400	\$2,400	
<b>Task 2: Coordinate with Regulatory Agencies for Sludge Management</b>					
Graphics for Plan Review Submittal	All Req'd	Lump Sum	\$500	\$500	
<b>Task 3: Evaluate Option of Upgrading Lagoon System to EAAS System</b>					
No Expenses				\$0	
Subtotal Expenses					\$2,900
Markup at 5%					\$145
<b>Total Expenses</b>					<b>\$3,045</b>
Subtotal Labor and Expenses					\$19,445
Contingency at 10%					\$1,945
<b>Total Estimated Cost</b>					<b>\$21,390</b>