CITY OF WASILLA

290 E. HERNING AVE.
WASILLA, ALASKA 99687
PHONE: (907) 373-9050
FAX: (907) 373-0788

COUNCIL MEMORANDUM NO. 92-05

FROM: Deputy Administrator

DATE: December 20, 1991

RE: Lake Lucille Study Project

We have contracted with Joe Eilers of E & S Engineering who, along with Gilfilian, are performing a two-year study of Lake Lucille. The purpose is to determine the best method of lake restoration and/or maintenance.

The attached documents were forwarded to the City from Mr. Eilers. He proposes to add a paleolimnology study to the existing contract. The work would cost about $12,000 total; the City share would be $3,600. He proposes to do the work while conducting the other lake work this summer. If Council wishes to add the work to the existing project we could authorize Mr. Eilers to make the proposal to EPA with the understanding that Council will appropriate the $3,600 for the City share.

Request Council guidance.

R E Harris

Robert E. Harris
Deputy Administrator

Approved contingent on EPA funding
1/13/92

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To Peter Curtis	From Joe Ellers
Co. Gilfillan	Co. E&S
Dept.	Phone #
Fax # 907-373-5686	Fax #

E&S Environmental Chemistry, Inc.

Post Office Box 609
1325 NW 9th Street
Corvallis, Oregon 97339
503-758-5***
Fax: 758-7319

Peter Curtis
Gilfillan Engineering
P.O. Box 871868
Wasilla, AK 99687

December 13, 1991

Dear Peter:

EPA, Region 10, announced that they are accepting proposals from the States for the Clean Lakes Program. I would like to submit a supplemental funding proposal to EPA to collect and analyze a sediment core from Lake Lucille. I am currently using paleolimnological approaches on three other lakes; the results have been extremely useful in reconstructing recent changes in water quality.

It would cost about $12,000 to do the work, which means the City would need to come up with about $3,600 for cost-sharing. I could do the coring this summer and incorporate the results into the existing diagnostic study.

Could you or Bob check with the City to see if they'd be interested in a project addition of this nature. I'd be glad to provide a short pre-proposal if they need more information to make a decision. However, before I go to that trouble, I'd like to know if they are receptive to this idea. Meanwhile, I'll check with Doug Redburn to see if the State would process the proposal.

The time-frame for the proposal is extremely tight. I probably have to have the application to the State by mid-January. Consequently, I'd need an indication from the City fairly quickly. Thanks for your help.

Sincerely,

Joe

Joseph M. Ellers

/jc

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To: Bob Harris	From: Peter
Co. City of Wasilla	Co. Gilfillan Engineering, Inc.
Dept.	Phone #
Fax # 373-0788	Fax #

PALEOLIMNOLOGY
(the study of lake history)

Q. Why do we want to know the past history of the lake?

A. The key to understanding the future of the lake is to understand how it has behaved in the past. Studying the lake sediments tells us how the lake processes operated before any alterations by man.

Q. Why would we want to know the history of the lake? Is this just an "academic" exercise?

A. No, it is not just another research project. The results from paleolimnology are extremely useful from a management standpoint because they tell us how far the lake has deviated (if at all) from natural conditions and what land use activities have contributed to a water quality decline. The results also tell us about rates of change so that management has an idea how fast it needs to respond.

Q. How is the work done?

A. A sediment core (usually less than 3 feet long) is collected from the lake bottom. A lead isotope is used to determine the age of the sediments. Diatom remains (algae "shells") are identified and counted. The algae tell us about past water quality. Other measurements of the sediment can also be made including nutrients, plant pigments, and pollen.

Q. What do we learn from paleolimnology that we don't learn from current watershed/lake studies?

A. The traditional diagnostic and feasibility studies tell us a lot about the current conditions in the lake. However, they tell us little about how the lake has changed, the type of the change, or the rate of change. Paleolimnology is the only highly accurate method of quantitatively telling us about the lake history beyond the period where data may have been collected. Paleolimnology compliments current water quality studies by removing uncertainty regarding past events and providing data for making more accurate future predictions.