HCR

13

HOUSE COMMITTEE REPORT

(9)
Date Referred: February 8, 1989 FURTHER REFERRALS: FINANCE

Date of Committee Action: 3-8-89

The RESOURCES Committee considered: HCR 13

HOUSE CONCURRENT RESOLUTION NO. 13
[KENAI PENINSULA HYDROGEOLOGICAL SURVEYS]
Relating to hydrogeological surveys on the Kenai Peninsula.

RECOMMENDS:

[ ] replacing with _____ [ ] the same title [ ] a new title
[ ] the attached amendment(s)
[✓] do pass
[ ] do not pass
[ ] no recommendation
[ ] individual recommendations
[ ] additional referral to the _____ Committee

ADOPTS: _____ letter of intent

ATTACHES NEW FISCAL NOTE(s):
[✓] fiscal impact
[ ] zero fiscal note
[ ] zero with analysis

APPROVES PREVIOUS:
[ ] fiscal note(s) published:
_____
[ ] zero fiscal notes(s) published:
_____

SIGNING DO PASS:

SIGNING OTHER THAN DO PASS:
(Do Not Pass, No Recommendation, Amend)
Cliff Davidson (No rec pending fiscal note)

Chairman's signature

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: HCR 13
PUBLISH DATE: _____

FISCAL NOTE

REQUEST:

Revision Date: 3/9/89
Title: Kenai Hydrology

Agency Affected: Natural Resources
BRU: Geological Management

Sponsor: Rep. Navarre and co-sponsors
Requestor: House Resources Committee

Components: Geological Management

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES		130.0	50.0	50.0	55.0	55.0
TRAVEL		10.0	5.0	5.0	5.0	5.0
CONTRACTUAL		40.0	30.0	30.0	25.0	25.0
SUPPLIES		5.0	3.0	3.0	3.0	3.0
EQUIPMENT		15.0	12.0	12.0	12.0	12.0
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING		200.0	100.0	100.0	100.0	100.0
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		200.0	100.0	100.0	100.0	100.0
FEDERAL FUNDS		30.0	30.0	30.0	25.0	25.0
OTHER						
TOTAL		230.0	130.0	130.0	125.0	125.0

POSITIONS:

FULL-TIME		2.5	1.0	1.0	1.0	1.0
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

This funding will support a comprehensive investigation of the ground water and aquifers of the North Kenai, Sterling and Kenai areas. It will provide local residents, governments and industries with analyses and interpretations necessary to maintain high quality groundwater in the area. A report will be completed at year's end, and ground water monitoring will be maintained.

Prepared by: ~~Thomas Smith, Deputy Director~~
Division: ~~DGGS~~
Phone: 474-7147
Date: 3/7/89

Approved by Commissioner: Jennie Gorsuch
Agency: Natural Resources
Date: 3-10-89

Distribution (by preparer):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

Alaska State Legislature

Representative Mike Navarre

Date: March 7, 1989

MEMORANDUM

TO: All members, House Resources Committee

FROM: Rep. Mike Navarre

SCR 15 **SUBJECT:** HCR 13, Relating to Hydrogeological Surveys on the Kenai Peninsula

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The central Kenai Peninsula is almost completely dependent on groundwater for residential, commercial and industrial uses. In some instances, groundwater sources have been found to be contaminated by various hazardous substances.

The Department of Environmental Conservation has made real progress over the past year, identifying and beginning clean up of hazardous waste problems on the Kenai Peninsula. Many residents of the central peninsula are still quite concerned about groundwater contamination. This concern has generated a petition with over 200 signatures, requesting a comprehensive groundwater assessment of the Nikiski industrial complex and surrounding areas, including the communities of Kenai, Soldotna, and Sterling.

In response, I introduced a companion measure to SCR 15, introduced by Senator Mik[illegible]anski), calling for the Geologic and Geophysical Surveys division of the Department of Natural Resources to conduct a hydrogeologic study of the central Kenai Peninsula.

The division has formed a work plan for the hydrogeological study, which includes:

- reviewing existing groundwater data;
- collecting information on current water quality from existing monitoring wells;
- mapping underground water flow to determine water flow patterns;
- mapping underground water deposits; and monitoring changes in ground water usage, levels and quality over a period of time.

A baseline study like this makes good sense from a resource management perspective.

Other pertinent back-up information is attached. I respectfully urge the committee's favorable consideration of this legislation.

561-2020

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

STEVE COWPER, GOVERNOR

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400 WILLOUGHBY AVENUE 3RD FLOOR
JUNEAU ALASKA 99801
PHONE (907) 465-2520

February 17, 1989

RECEIVED

FEB 2 1 1989

The Honorable Mike Navarre
Alaska House of Representatives
P.O. BOX V
Juneau, AK 99811

Dear Mr. Navarre:

As you have requested, enclosed is our suggested work plan for a central Kenai Peninsula ground-water study. Should you have any questions or suggestions to improve the plan, please do not hesitate to contact us.

Sincerely,

William E. Long

William E. Long
Chief, Water Resources Section

WEL/jlw

Enclsoure

cc w/enclosures:
Robert Forbes
Jim Munter
Carol Wilson

T/P for State up Hydro study

Administrative Report 89-1

Central Kenai Peninsula Ground-Water Study
Suggested Work

By
J.A. Munter [1]

Alaska Division of Geological and Geophysical Surveys

February 1989

3700 Airport Way
Fairbanks, Alaska 99709

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[1] ADGGS, P.O. Box 772116, Eagle River, Alaska 99577

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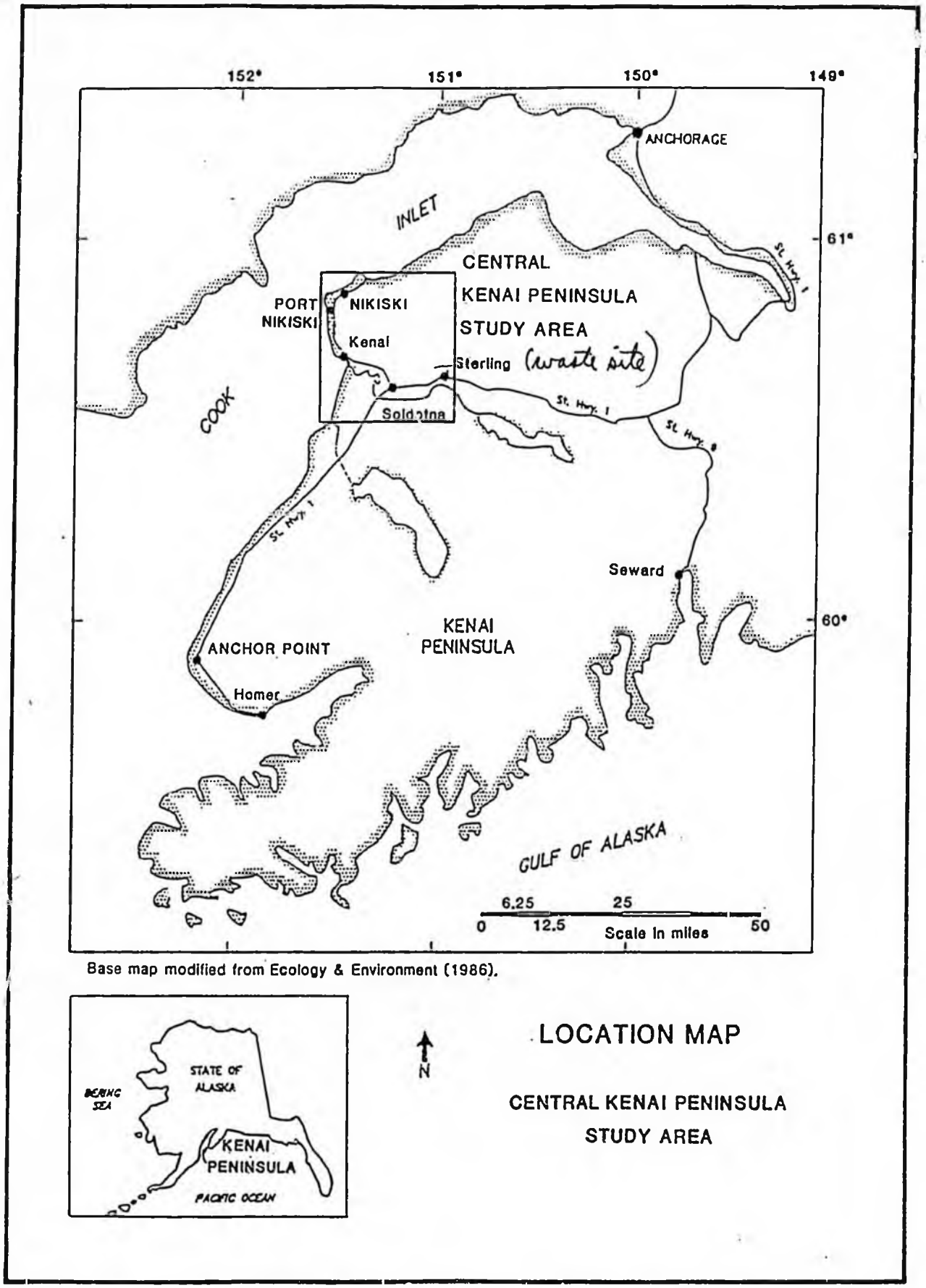
INTRODUCTION

The central Kenai Peninsula area of Alaska is almost completely dependent on ground-water for residential, commercial and industrial water supplies. This area includes the communities of Sterling, Soldotna, Kenai, and Nikiski (fig. 1). At least ten instances of ground-water contamination have been discovered in this area in recent years (Alaska Department of Environmental Conservation, 1988) causing widespread concern over the long-term potability of ground water. These concerns are expressed in a locally-circulated petition containing 213 signatures and in a resolution passed by the Kenai Peninsula Borough assembly (see Appendix). Both documents also express a request for hydrogeological work in the central Kenai Peninsula area to better define ground-water flow systems and risks to local wells. This report briefly reviews several ground-water issues in the area and outlines a comprehensive plan for determining ground-water conditions and movement in order to protect water supplies and facilitate the beneficial use of ground water.

DISCUSSION OF PROBLEMS

The most recent areawide study of the central Kenai Peninsula was conducted by Anderson and Jones (1972). They reported that area wells "are too few and too widely spaced to permit accurate mapping" of the water table or artesian potentiometric surface. These surfaces are useful for determining directions of ground-water flow. An inherent feature of the central Kenai Peninsula is that large areas are developed with lots ranging in size from one to five acres. Each developed lot typically has its own well. With large numbers of wells, the probabilities of any randomly-located contamination event having an effect on some private well is increased.



Base map modified from Ecology & Environment (1986).

Figure 1. Location of central Kenai Peninsula study area.

Since 1972 substantial growth has occurred in the central Kenai Peninsula area and hundreds of water-supply wells have been drilled. Except for the Nikiski and Sterling areas, no significant effort has been made to collect the logs from these wells and evaluate their utility for mapping ground-water flow systems. In some areas, such mapping may be feasible and may contribute substantially towards resolving contamination or water supply problems.

Concerns for ground-water quality at Sterling stem from past practices of disposing of liquid wastes in ponds at the Sterling Special Waste Site (Munter, 1988). Hydrogeologic investigations in the area have been limited to on-site evaluations. No clearly defined contaminant plume has been found, possibly because of the extreme heterogeneity of the glacial, alluvial, and lacustrine deposits in the area and the absence of a clear definition of regional flow paths. Existing wells may not be properly located to detect such a plume. The occurrence of numerous residential wells throughout a wide swath of probable down gradient directions from the Sterling Special Waste Site lends particular importance to the issue of whether or not a significant plume actually exists and the direction that it may be travelling.

Nikiski (including the Port Nikiski area) is one of Alaska's leading industrial centers. Past leaks have resulted in areas where fuel products are floating on the water table, and major industrial water-supply wells tapping the upper confined aquifer described by Nelson (1981) have been contaminated by benzene (Bill Ashton, DEC, oral commun., 1989). Other contamination has been documented in nearby mixed commercial and residential areas (J. Hayden, DEC, oral commun., 1989). In addition, lake levels have been drawn down by industrial pumping in the area (Nelson, 1981; Howland and Freethey, 1978).

Unocal Corporation has requested a temporary water-use permit from the Department of Natural Resources to test pump three wells near Cabin Lake at a total combined rate of up to 2200 gallons per minute for three days (C. Rewolinski, Unocal Corp., written commun., 1989). Should historic industrial pumping patterns be significantly changed, resulting changes in the ground-water flow system could affect lake levels, water levels in private wells, and contaminant migration patterns in the area. Evaluation of these possibilities may be an important aspect of future permitting activities.

PROPOSED WORK

The comprehensive hydrogeological study of the central Kenai Peninsula area described below consists of five conceptual components (Table 1).

Table 1. Conceptual components of the central Kenai Peninsula hydrogeological study.

I. Area-wide well log and water quality data acquisition and storage

II. Sterling area hydrogeological evaluation (see Munter, 1988)

III. Nikiski area hydrogeological evaluation

IV. Area-wide ground-water flow system mapping

V. Site-specific analysis and technical advisory

These conceptual components provide a logical means by which hydrogeological work in the central Kenai Peninsula area may be pursued. The first two components are largely self explanatory, and the third component will be reviewed in some detail in a subsequent section. The fourth component should be viewed as a practical task only for selected areas. The identification of these areas is dependent on the results of the first component and locations of contamination events, neither of which are

completely known at this time. The fifth component is dependent on site-specific issues, such as industrial well siting, water rights, and waste disposal permitting and facility clean-up planning. Although industry and regulatory agencies have substantial capabilities for conducting and reviewing pertinent investigations, the volume of work or the complexity of issues surrounding some of these sites may create a need for supplemental technical review or analysis.

NIKISKI AREA HYDROGEOLOGICAL EVALUATION

The water resources of the Nikiski area have been the subject of several investigations (Dames and Moore, 1975; Howland and Freethey, 1978; and Nelson, 1981). These studies have resulted in hydrogeologic cross sections, water-table maps, and conceptual and computer models of ground-water flow systems. Although water table and confined aquifers and confining units have been described in general terms, they have never been mapped in detail. Preparation of subsurface geologic maps showing the distribution of different lithologic units is proposed as Phase I of the Nikiski area hydrogeological evaluation (Table 2).

Phase II of the evaluation consists first of identifying time periods that are representative of relatively steady-state pumping conditions. Maps would be prepared showing the water-table surface of the unconfined aquifer and potentiometric surfaces of confined aquifers, if possible, for those periods. If sufficient data are not available for this task, then additional data collection would be conducted. The collection of additional water-level, well log, and water use data (Phase III) would be done to improve the accuracy of maps described above. Water-quality data collected by industry or state or

Table 2. Phases of the Nikiski area hydrogeological evaluation

I. Reconnaissance-level Subsurface Geologic Mapping
   A. Unconfined aquifer
   B. Upper confining unit
   C. Upper confined aquifer
   D. Lower confined aquifer

II. Reconnaissance-level Flow System Mapping
   A. Identification of representative time periods
   B. Water-level contour maps for each aquifer for each representative time period for which sufficient data exist.

III. Acquisition and Storage of Additional Data
   A. Well-log data
   B. Water-level data
   C. Water quality data (including developing a cooperative database with USGS)
   D. Water-use data

VI. Identification of Major Actual or Potential Flowpaths and Preparation of Report

local agencies would be entered into a permanent database in cooperation with the U.S. Geological Survey in order to provide long-term trends of contaminant levels or concentrations of natural dissolved constituents.

The subsurface geologic, water table, and potentiometric surface maps would be combined with information obtained from site investigations of contaminated ground water to identify major actual or potential contaminant flow paths (Phase IV). This information would be presented in one or more reports containing detailed maps of the area under investigation.

REFERENCES CITED

Alaska Department of Environmental Conservation, 1988, Alaska's groundwater quality protection strategy, draft: Prepared by Alaska Department of Environmental Conservation, Juneau, Alaska.

Anderson, G.S., and Jones, S.H., 1972, Water resources of the Kenai-Soldotna area, Alaska: U.S. Geological Survey Open-File Report, 81 p.

Dames and Moore, 1976, Report, ground water investigation, interrelationships between aquifers and surface water regimes, North Kenai area, Alaska: Prepared for Collier Carbon and Chemical Corporation, Los Angeles, CA, 92. p.

Ecology and Environment, Inc., 1986, Sterling Special Waste Site field investigation, Sterling, Alaska, TDD R10-8506-02, TDD F10-8612-02: Prepared for U.S. Environmental Protection Agency, Seattle, WA 59 p.

Howland, M.D., and Freethey, G.W., 1978, Selected hydrologic data related to the water table aquifer of the North Kenai area, Alaska: Alaska Division of Geological and Geophysical Surveys, Fairbanks, AK, 1 sheet.

Munter, J.A., 1988, Sterling area hydrogeological evaluation, project proposal: Alaska Division of Geological and Geophysical Surveys, Administrative Report 88-1, 5 p.

Nelson, G.L., 1981, Hydrology and the effects of industrial pumping in the Nikiski area, Alaska: U.S. Geological Survey Water-Resources Investigations 81-685, 22 p.

APPENDIX

Lennie Boston-Gorsuch
Commissioner
Dept. Of Natural Resources
400 Willoughby Ave.
Junuea, Ak. 99801

Dear Commissioner:

Enclosed is a petition that has been circulated recently. Some of us here on the North Kenai realize that contamination of groundwater is a widespread problem, not only in our area but in many parts of the country. Perhaps the idea that we were somehow immune to this was fostered by the sheer pristine and primal beauty that we enjoy here. However, times are changing. People are beginning to concern themselves with the important things that we have too long taken for granted. I think the positive response to this petition in the forms of comments such as "It's about time.", "We've got to do something soon.", and many simple earnest thank yous testify to this important change in attitude.

Some of us have seen far too many conflicting "facts about the groundwater" tossed about simply to justify permit applications and requests for variances by the industry. What really is happening with and to our groundwater?

The North Kenai Industrial Complex is the major refining sector of the state. Consequently, our community is not the typical residential area and should not be treated or examined as such. The state has accomodated the energy sector for 20 years, at certain times unchecked and loosely regulated environmentally.

Negative episodes involving the groundwater here are becoming ever more frequent. We believe the time has come for a comrehensive study here, if not for our safety and long term health factors, then certainly for everyones knowledge and above all, peace of mind.

Sincerely

Gary Superman
Box 8425
Nikiski, Ak. 99635

JAN - 6

cc; Gov. Steve Cowper
William A. Mullen
Robert Forbes
Peg Tileston
Bill Ashton
Bill Lamoreuax
Sen. Mike Syzmanski
Sen. Jay Kertulla
Rep. Jim Zawacki

PUBLIC AWARENESS COMMITTEE FOR ENVIRONMENT
Box 3722, Soldotna, Ak. 99669

This summer we have seen a large number of plans and applications for permitsaconcerning:

1.) Waste site openings and closures
2.) Wastewater discharge renewals
3.) Particulate emmisions into the air

In addition, the number of identifiable illegal dumpings may be on the rise. Production rates at some of the industrial facilities are at the upper end of their capacity. Due to these mounting demands on our local groundwater resources and in the absence of any significant, cohesive data on that resource which may or may not be severely impacted by the activities aforementioned, we the undersigned hereby petition the Alaska State Dept. of Geophysical Surveys and the Water Resource Board undertake steps to initiate a comprehensive hydrology assessment of the North Kenai Industrial Complex and surrounding affected areas.

(213 signatures with addresses)

Introduced by: Brown
Date: Jan. 17, 1989
Action: Adopted
Vote: Unanimous

KENAI PENINSULA BOROUGH

RESOLUTION 89-10

REQUESTING THE STATE TO FUND AND CONDUCT HYDROGEOLOGIC SURVEYS IN THE CENTRAL PENINSULA AREA OF THE KENAI PENINSULA BOROUGH

WHEREAS, the communities in and around the cities of Kenai and Soldotna comprise an area of extensive oil and gas and chemical/industrial activity; and

WHEREAS, these activities can create problems with contamination of water supplies through lack of knowledge of movements of underground water; and

WHEREAS, in April, 1988, a hydrogeologic evaluation was proposed for the area around Sterling, Alaska by the Department of Natural Resources, Division of Geological & Geophysical Surveys, to provide information about the ground water movement; and

WHEREAS, such information would be highly useful in locating facilities to handle future waste from the area activities and in alleviating problems of contamination that have occurred or may occur in the area; and

WHEREAS, the activities generating the wastes and their attendant problems in the central Kenai Peninsula area are of significant financial benefit to the entire state; and

WHEREAS, hydrogeologic surveys should be performed for all areas in the central Kenai Peninsula and not just the Sterling area;

NOW THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE KENAI PENINSULA BOROUGH:

Section 1. That the Alaska legislature is requested to provide funding for hydrogeologic surveys of the central Kenai Peninsula areas to determine ground water geology and movement so that the benefits of oil and gas production to the state from that area can continue and be directed using information vital to the protection of the water supplies and resources of the Kenai Peninsula, its residents and visitors.

Section 2. That the clerk shall send copies of this resolution to Governor Cowper; Dennis Kelso, Commissioner of DEC; Lennie Boston-Gorsuch, Commissioner of DNR; Senators Fischer, Szymanski, Binkley, and Kerttula and Representatives Cato, Navarre, Swackhammer, Wallis and Zawacki.

ADOPTED BY THE ASSEMBLY OF THE KENAI PENINSULA BOROUGH ON THIS 17th DAY OF January, 1989.

Jonathan W. Sewall, Assembly President

ATTEST:

Borough Clerk

MEMORANDUM
Department of Natural Resources

State of Alaska
Commissioner's Office

TO: Commissioner Dennis Kelso
Department of Environmental Conservation

David Ramseur
Office of the Governor

Denby Lloyd
Office of the Governor

DATE: February 6, 1989

RECEIVED
FEB 9 1989

FILE NO:

TELEPHONE NO: 465-2400

FROM: Rod Swope
Deputy Commissioner

SUBJECT: Groundwater Contamination

Attached is a memo from our Land and Water staff in Anchorage. At issue is the possible contamination, from Unocal, of domestic groundwater in the Kenai area.

Given the sensitivity and importance of this issue in the Kenai area, the attached information is provided for your information.

Please contact Gary Gustafson at 762-2252 if you desire more information.

Attachment

MEMORANDUM State of Alaska

DEPARTMENT OF NATURAL RESOURCES — DIVISION OF LAND AND WATER
SOUTHCENTRAL REGION

TO: Gary Gustafson
Director

DATE: February 2, 1989

FILE NO.:

THRU: Veronica Gilbert
Regional Manager

TELEPHONE NO.: 762-2253

SUBJECT: Unocal's TWP

THRU: Richard R. Thompson
Chief, Retained Lands

FROM: Gary J. Prokosch
Water Resource Manager

On January 27, 1989 Unocal Chemical Division, of North Kenai, requested that the SCRO, Water Section, process an application for a Temporary Water Use Permit (TWP). Unocal requested authorization to pump three (3) wells located in the vicinity of Cabin Lake at 2,200 gallons per minute for a period of three days in order to determine the individual and combined pumping capacity of these wells.

Recently Unocal discovered trace benzine contamination in one of its main production wells, well #6. Unocal is concerned that it will be required to shut down or curtail the use of water from this well which may leave it short of production water for its operation. For this reason, Unocal needs to know the pumping capacities of these Cabin Lake wells.

In order for SCRO to issue the TWP, a single agency (ADNR) Coastal Management Program consistency review needs to be made. To achieve this in a reasonable time period permission to conduct an expedited review was required. The expedited review was agreed to by the Director, DLWM, under the authority of 6 AAC 50.090.

Due to past controversies over groundwater in the North Kenai area in both water quality and quantity and the slight possibility that this test may affect the water levels in some domestic wells and Cabin Lake levels as well as the very slight possibility of moving contamination from well #6 in the direction of Cabin Lake SCRO determined that public notice would be given before a TWP could be issued. In addition to the Public Notice, the SCRO Water Section plans to hold an informational meeting on the topic in Nikishki on February 10, 1989. Unocal, DGGS, ADEC will also attend the meeting to address questions and concerns of the public. The legal ad (public notice) will be published on February 6, 1989 and the display ad inviting the public to the meeting will be published on February 8, 1989 in the Peninsula Clarion. All comments to the proposed pump test are due by February 16, 1989.

/unocal.twp

Central Kenai Peninsula Hydrogeological Study Cost Estimates
(thousands $) source: DNR

FY '90:

G.F.		
Personal services (2.5 positions)		130.0
	travel	10.0
	contractual	40.0
	supplies	5.0
	equipment	15.0
	sub-total	200.0
other funding (Federal USGS)		30.0
	total	230.0

FY '91 -'92 (each year):

G.F.		
Personal services (1 position)		50.0
	travel	5.0
	contractual	30.0
	supplies	3.0
	equipment	12.0
	sub-total	100.0
other funding:		30.0
	total	130.0

FY '93-'94 (each year):

G.F.		
Personal services (1 position)		55.0
	travel	5.0
	contractual	25.0
	supplies	3.0
	equipment	12.0
	sub-total	100.0
other funding:		25.0
	total	125.0