SCR

15

SENATE COMMITTEE REPORT

FURTHER FIN

DATE TURNED INTO OFFICE ____________

2/22/89

Mr. President:

RESOURCES Committee considered SCR 15

hydrogeological surveys on the Kenai Peninsula

and recommended

[ ] replace with ___ CS SCR 15 (Resources)) [X] same title
[ ] or adopt ___ CS ________) [] new title
[] technical title change (HB only)

[ ] attached amendment(s) and

[ ] ________ letter of intent adopted

[ ] do pass

[ ] do not pass

[ ] no recommendation

[ ] individual recommendations

[ ] further referral to ____________

FISCAL NOTE(S) [ ] zero [ ] fiscal impact [ ] appropriation no FN
[ ] new [ ] updated [ ] previous
[ ] same as previous fiscal note(s) published ____________

MEMBERS SIGNING DO PASS	OTHER RECOMMENDATIONS
[signature]	[signature] No Rec
[signature]	[signature] – Pass only with Zero Fiscal Note
[signature]	
[signature]	→ 0 Fiscal Note

[signature] – Do Pass – Bill question ph. not

Chairman signature and recommendation

[ ] Committee Backup attached

6-0713E
Bannister
3/17/89

Original sponsors: Szymanski, Kerttula, and Fischer

IN THE SENATE BY THE RESOURCES COMMITTEE

CS FOR SENATE CONCURRENT RESOLUTION NO. 15 (Resources)

IN THE LEGISLATURE OF THE STATE OF ALASKA

SIXTEENTH LEGISLATURE - FIRST SESSION

Relating to hydrogeological surveys on the Kenai Peninsula.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS the cities of Nikiski, Kenai, and Soldotna and their surrounding communities include areas of extensive oil, gas, chemical, and industrial activity; and

WHEREAS these activities can contaminate water supplies; and

WHEREAS contamination of water supplies may be more effectively controlled when the movement of underground water is understood; and

WHEREAS the United States Geological Survey has conducted limited hydrogeological surveys on the Kenai Peninsula; and

WHEREAS in April 1988 a hydrogeological evaluation was proposed for the area around Sterling, Alaska, by the Department of Natural Resources, division of geological and geophysical surveys, to provide information about the ground water movement in the area; and

WHEREAS hydrogeological information would be very useful in locating facilities to handle future waste from Nikiski, Kenai, Soldotna, and their surrounding areas and in alleviating the problems of contamination that have occurred or may occur in the area; and

WHEREAS hydrogeological surveys should be performed for Nikiski, Kenai, Soldotna, and their surrounding areas and not just for the Sterling area;

BE IT RESOLVED that in order for the oil, gas, chemical, and industrial production in the Nikiski and central Kenai Peninsula areas to continue in a manner that is consistent with the protection of the residents,

visitors, water supplies, and resources of the Kenai Peninsula, the Alaska State Legislature urges the Governor to direct the division of geological and geophysical surveys in the Department of Natural Resources

(1) to perform hydrogeological surveys of those parts of the Nikiski and central Kenai Peninsula areas that have not been surveyed by the United States Geological Survey to determine the movement and geology of the ground water in those areas; and

(2) to produce a comprehensive report for the Nikiski and central Kenai Peninsula areas based on the department's studies and the United States Geological Survey studies.

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: SCR 15
PUBLISH DATE:

FISCAL NOTE

REQUEST:

Revision Date: 14-Mar-89
Agency Affected: Natural Resources
Title: Relating to hydrogeological surveys on the Kenai Peninsula
BRU: Geological Management
Sponsor: Szymanski
Components: Geological Mgmt
Requestor: Senate Resources

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	0.0	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						
OTHER						
TOTAL	0.0	200.0	100.0	100.0	100.0	100.0

POSITIONS:

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

ANALYSIS:

This project will support a comprehensive investigation of the ground water and aquifers of the North Kenai, Sterling and Kenai areas. The goal is to provide residents, local governments, water managers and industry analyses and interpretations needed to maintain high quality ground water through a definition of the quantity, quality and movement patterns of the subsurface waters. A primary objective is a report on year's end and the establishment and maintenance of a ground water monitoring program.

Prepared by: Tom Smith, Deputy Director
Phone: 474-7147
Division: Geological Management
Date: 14-Mar-89

Approved by Commissioner: Lennie Gorsuch
Date: 14-Mar-89
Agency: Department of Natural Resources

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

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: SCR 15
PUBLISH DATE: 2/3/89

FISCAL NOTE

REQUEST:

Revision Date: _____
Title: Relating to hydrogeological survey on the Kenai Peninsula
Sponsor: Senator Szymanski and Senator
Requestor: Senator Szymanski Kerttula

Agency Affected: Environmental Conservation
BRU: Environmental Quality
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS: None

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Amy D. Kyle
Phone: 465-2600
Division: Commissioner's Office
Date: 10 February 1989

Approved by Commissioner: [signature]
Date: 2/10/89
Agency: Department of Environmental Conservation

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

STATE OF ALASKA

STEVE COWPER, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE COMMISSIONER

400 WILLOUGHBY AVE.
JUNEAU, ALASKA 99801-1796
PHONE: (907) 465-2400

March 14, 1989

The Honorable Bettye Fahrenkamp
Chair, Senate Resources Committee
P.O. Box V
Juneau, AK 99811

Dear Senator Fahrenkamp:

Subject: Senate Concurrent Resolution 15, relating to hydrogeological surveys on the Kenai Peninsula.

Position: The Department of Natural Resources supports the concept of performing a Kenai Peninsula hydrogeological survey, but would be unable to complete a project of the desired magnitude without additional funding.

Background: In January of this year, Kenai Peninsula residents concerned about contamination of groundwater supplies circulated a petition asking the state to complete a comprehensive study of local groundwater. Also in January, the Kenai Peninsula Borough Assembly passed a resolution asking the Legislature to fund a comprehensive hydrogeological survey of the Central Kenai Peninsula.

At the request of local residents and officials, hydrologists from the department's Division of Geological and Geophysical Surveys developed a suggested work plan for a Kenai water study (copy enclosed). To perform the work outlined in the suggested plan would require the funding described on the enclosed fiscal note.

Please let me know if you would like additional information about the proposed study.

Sincerely,

Lennie Gorsuch
Commissioner

Enclosure

10-J9LH

cc: Committee Members
Bill Sponsor
Denby Lloyd, Special Staff Assistant
Office of the Governor
Bob Evans, Legislative Liaison
Office of the Governor
Commissioner Dennis Kelso
Department of Environmental Conservation
Robert Forbes, Director
Division of Geological and Geophysical Surveys

STATE OF ALASKA

1989 LEGISLATIVE SESSION

BILL VERSION: CSSCR 15 (Fin

PUBLISH DATE: 4/12/89

FISCAL NOTE

REQUEST:

REVISION DATE:

AGENCY: Natural Resources

TITLE: Relating to hydrogeological surveys on the Kenai Peninsula

BRU: Geological Management

SPONSOR: Szymanski

COMPONENTS: Geological Management

REQUESTOR: Senate Finance

EXPENDITURES/REVENUES: (THOUSANDS OF DOLLARS)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERS. SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0
SUPPLIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
LAND/BUILD.	0	0	0	0	0	0
GRANTS/CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (THOUSANDS OF DOLLARS)

GENERAL FUNDS	0	0	0	0	0	0
FEDERAL FUNDS	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS: Funding for this project is included in the FY 90 budget.

PREPARED BY:

SENATOR RICK UEHLING, CO-CHAIRMAN
SENATE FINANCE COMMITTEE

DATE: April 11, 1989

PHONE NO.: 465-4821

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: CS SCR 15 (Resources)
PUBLISH DATE: 3/21/89

FISCAL NOTE

REQUEST:

Revision Date: _____
Title: Relating to hydrogeological survey on the Kenai Peninsula
Sponsor: Senator Szymanski and Senator
Requestor: Senator Szymanski Kerttula

Agency Affected: Environmental Conservation
BRU: Environmental Quality
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS: None

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Amy D. Kyle
Phone: 465-2600
Division: Commissioner's Office
Date: 10 February 1989

Approved by Commissioner: [signature]
Date: 2/10/89
Agency: Department of Environmental Conservation

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

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION CS SCR 15 (Resources) (b)

PUBLISH DATE: 3/21/89

FISCAL NOTE

REQUEST:

Revision Date: 14-Mar-89
Agency Affected: Natural Resources
Title: Relating to hydrogeological surveys on the Kenai Peninsula
BRU: Geological Management
Sponsor: Szymanski
Components: Geological Mgmt
Requestor: Senate Resources

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
EQUIPMENT		15.0	12.0	12.0	12.0	12
LAND&STRUCTURES						
GRANTS,CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	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						
OTHER						
TOTAL	0.0	200.0	100.0	100.0	100.0	100.0

POSITIONS:

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

ANALYSIS:

This project will support a comprehensive investigation of the ground water and aquifers of the North Kenai, Sterling and Kenai areas. The goal is to provide residents, local governments, water managers and industry analyses and interpretations needed to maintain high quality ground water through a definition of the quantity, quality and movement patterns of the subsurface waters. A primary objective is a report on year's end and the establishment and maintenance of a ground water monitoring program.

Prepared by: Tom Smith, Deputy Director
Phone: 474-7147
Division: Geological Management
Date: 14-Mar-89

Approved by Commissioner: Lennie Gorsuch
Date: 14-Mar-89
Agency: Department of Natural Resources

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

February 3, 1989 SENATE JOURNAL p. 295

SCR 15

SENATE CONCURRENT RESOLUTION NO. 15 by Senators Szymanski and Kerttula,

Relating to hydrogeological surveys on the Kenai Peninsula.

was read the first time and referred to the Community and Regional Affairs Committee, the Resources Committee and the Finance Committee.

February 9, 1989 SENATE JOURNAL p. 379

SCR 15

Senator Fischer moved and asked unanimous consent that he be shown as a co-sponsor on SENATE CONCURRENT RESOLUTION NO. 15 (Relating to hydrogeological surveys on the Kenai Peninsula). Without objection, it was so ordered.

February 22, 1989 SENATE JOURNAL p. 481

SCR 15

The Community and Regional Affairs Committee considered SENATE CONCURRENT RESOLUTION NO. 15 (Relating to hydrogeological surveys on the Kenai Peninsula) and a majority of the committee recommended do pass. The report was signed by Senator Adams, Chair, and concurred in by Senators Szymanski and Pourchot. Senators Pearce and Frank signed "no recommendation."

Zero fiscal note published today from Department of Environmental Conservation.

SENATE CONCURRENT RESOLUTION NO. 15 was referred to the Resources Committee.

SCR 15

The Resources Committee considered SENATE CONCURRENT RESOLUTION NO. 15 (Relating to hydrogeological surveys on the Kenai Peninsula) and a majority of the committee recommended it be replaced with

CS FOR SENATE CONCURRENT RESOLUTION NO. 15 (Resources)

and do pass. Senator Fahrenkamp, Chair, signed "do pass bill - question fiscal note." Senators Sturgulewski, Eliason and Kerttula signed "do pass." Senators Frank and Halford signed "do pass only with zero fiscal note" and Senator Zharoff signed "no recommendation."

Fiscal note for the committee substitute published today from Department of Natural Resources and zero fiscal note published today from Department of Environmental Conservation.

SENATE CONCURRENT RESOLUTION NO. 15 was referred to the Finance Committee.

April 11, 1989 SENATE JOURNAL p. 1173

SCR 15

The Finance Committee considered SENATE CONCURRENT RESOLUTION NO. 15 (Relating to hydrogeological surveys on the Kenai Peninsula) and a majority of the committee recommended it be replaced with

CS FOR SENATE CONCURRENT RESOLUTION NO. 15 (Finance)

and do pass. The report was signed by Senators Uehling and Binkley, Co-Chairs, and concurred in by Senators Frank, Pearce and Fischer.

Zero fiscal note for the committee substitute forthcoming.

SENATE CONCURRENT RESOLUTION NO. 15 was referred to the Rules Committee.

April 12, 1989 SENATE JOURNAL p. 1196

SCR 15

Zero fiscal note for Committee Substitute for Senate Concurrent Resolution No. 15 (Finance) (Relating to hydrogeological surveys on the Kenai Peninsula) published today from Senate Finance Committee.

April 14, 1989 SENATE JOURNAL p. 1240

SCR 15

The Rules Committee considered SENATE CONCURRENT RESOLUTION NO. 15 (Relating to hydrogeological surveys on the Kenai Peninsula) and a majority of the committee recommended calendar. The report was signed by Senator Sturgulewski, Chair, and concurred in by Senators Kerttula, Eliason and Kelly.

SENATE CONCURRENT RESOLUTION NO. 15 is on today's calendar.

April 14, 1989 SENATE JOURNAL p. 1249

SCR 15

SENATE CONCURRENT RESOLUTION NO. 15 (Relating to hydrogeological surveys on the Kenai Peninsula) was read the second time.

Senator Uehling moved and asked unanimous consent for the adoption of the Finance Committee Substitute offered on page 1173. Without objection, CS FOR SENATE CONCURRENT RESOLUTION NO. 15 (Finance) was adopted.

CS FOR SENATE CONCURRENT RESOLUTION NO. 15 (Finance) was read the second time.

Senator Halford moved and asked unanimous consent that CS FOR SENATE CONCURRENT RESOLUTION NO. 15 (Finance) be held to the April 17 calendar. Without objection, it was so ordered.

Alaska State Legislature

Senator Mike Szymanski

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FAX (907) 465-2652

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Anchorage, Alaska 99503
(907) 561-7617

165 E. Parks Highway
Legislative Information Office
Wasilla, Alaska 99687
(907) 376-MIKE

POSITION PAPER
SCR 15

NIKISKI HYDROGEOLOGICAL SURVEY

While considerable progress has been made during the past year to identify and begin cleaning up hazardous waste sites on the Kenai Peninsula, there is still considerable concern among residents of the Kenai/Nikiski area that pollutants from the Kenai industrial complex may potentially contaminate the local water supply. In order to monitor water quality on an on-going basis, the Division of Geologic and Geophysical Surveys of DNR has proposed to initiate a comprehensive groundwater survey of the North Kenai Peninsula area to better understand and manage the area's water resources.

This study would provide valuable information regarding the location, quality and flow patterns of groundwater on the North Kenai Peninsula; information which is necessary for the continued protection of the communitys' water supplies as well as the planning and siting of future industrial activities and waste disposal areas. Since good management of groundwater resources includes providing water for a variety of uses, it is necessary to know as much about the resource as possible.

The Division of Geologic and Geophysical Surveys has developed an outline for conducting a comprehensive study for the Kenai-Nikiski area which includes: reviewing existing groundwater data; collecting information on current water quality from existing monitoring wells; mapping underground water deposits; developing flow maps to chart water flow patterns; and montoring changes in ground- water levels, quality and usage over time.

SCR 15 request the Governor to direct the Division of Geologic and Geophysical Surveys to conduct a North Kenai Peninsula hydrogeologic study to insure clean water supplies for area residents and assist in site planning for future industrial projects.

Hydrogeologists lack money, staff for Nikiski groundwater study

By BEN SWAN
Staff Writer

State water geologists have begun preliminary work on a groundwater survey of the Nikiski area but stressed any results may be long in coming without sufficient money or staff.

"The fact that we're here today means that we've started something," said Jim Munter, head hydrogeologist with the division of geological and geophysical surveys. The division is part of the state Department of Natural Resources. Munter spoke at the North Kenai Chamber of Commerce weekly luncheon Thursday in Nikiski about the process of a comprehensive groundwater survey.

Bill Long, the divison's chief of water resources, prefaced Munter's talk with cold facts about the division's limitations.

"We're a small department with a small budget," Long said. "We have 39 projects statewide and four of those projects are on the Kenai Peninsula. We understand you're concerned about groundwater and will try to integrate a program as far as funds are allowed."

Munter told the group that without additional funding any study would be slow. He also said the upcoming fiscal year did not indicate any study for the area.

"If there's going to be money from the state, it'll have to come from the Legislature," Munter said.

The division's interest in a groundwater survey stems from a petition coordinated by Nikiski resident Gary Superman. Superman gathered more than 250 signatures after it was determined that a Nikiski well was contaminted with tetrachloroethylene, an ingredient found in solvent, degreaser and dry cleaning fluid.

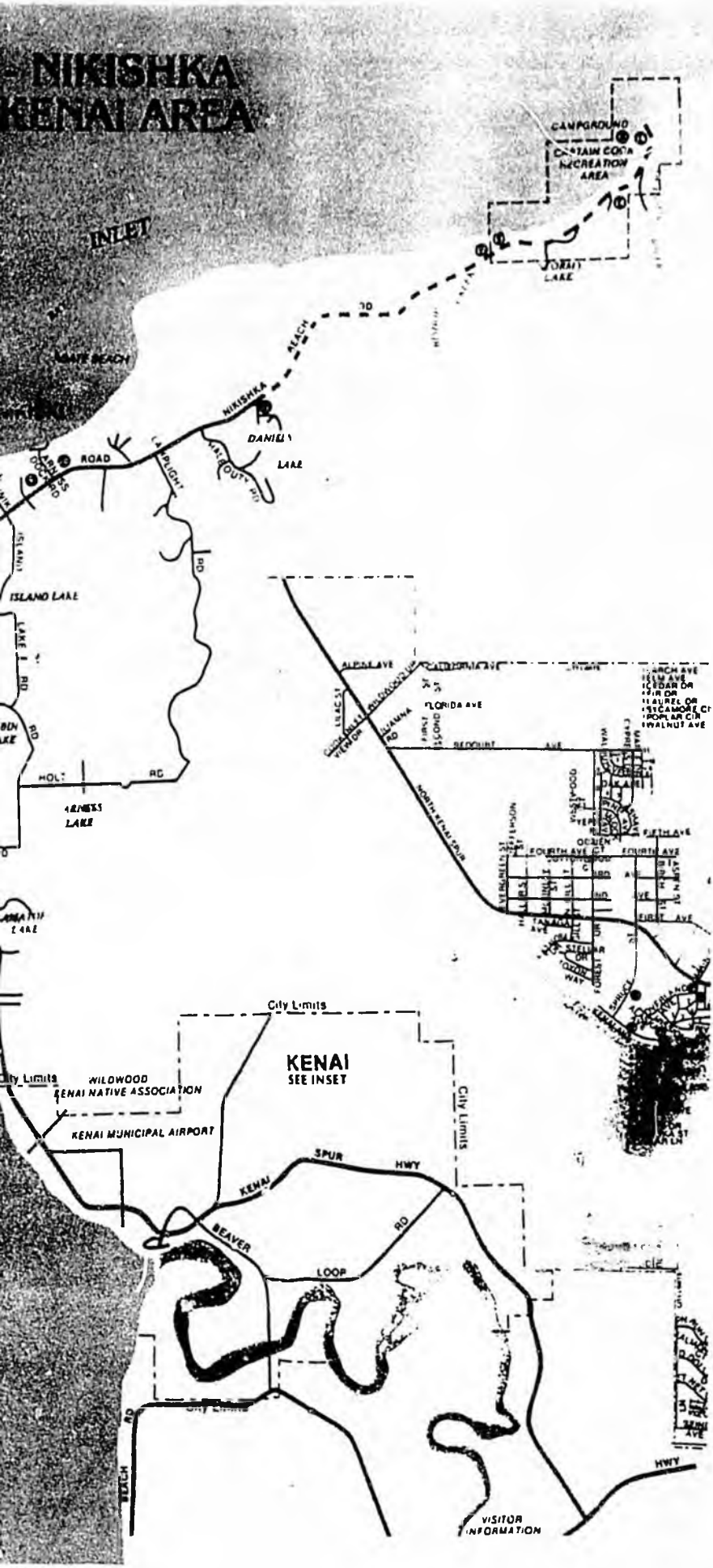
The petition requested a comprehensive groundwater survey on the Nikiski industrial complex and the surrounding area, Superman said. Water flow, water quality, soil identification of upper confining levels and the depths of the aquifer levels — the region under the ground that contains water — would be examined in the survey.

In a teleconference last week, hydrogeologists were asked to come to Nikiski and speak about the logistics of a comprehensive survey, Superman said.

"The timing for the petition was very good," Munter said. "It was a good thing to get us started (on a survey) because we don't just go into an area and tell the people a survey needs to be done."

Although a study has not been initiated, Munter said he was in Nikiski to solicit input and gather feedback from people about the water evaluation. He said any survey conducted should be done from the long-term perspective that the Nikiski groundwater would be the primary water source for years to come.

PENINSULA CLARION: 1/27/89


NIKISHKA
KENAI AREA
INLET
CAMPGROUND
RECREATION AREA
LAKE
BEACH
NIKISHKA
DANIELS
LAKE
ROAD
ISLAND LAKE
HOLT
RD
ARNESS
LAKE
ALDER AVE
FLORIDA AVE
SECOND AVE
NORTH KENAI SPUR
FIFTH AVE
FOURTH AVE
FIRST AVE
City Limits
KENAI
SEE INSET
WILDWOOD
KENAI NATIVE ASSOCIATION
KENAI MUNICIPAL AIRPORT
SPUR
HWY
KENAI
BEAVER
LOOP
RD
VISITOR
INFORMATION

Alaska State Legislature

Senator Mike Szymanski

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165 E. Parks Hwy.
Suite 105
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(907) 376-MIKE

February 22, 1989

MEMORANDUM

TO: Senator Bettye Fahrenkamp, Chair, Senate Resources

FROM: Senator Mike Szymanski

RE: Scheduling of SCR15: Nikiski Groundwater Study

This memo is to request a hearing in the Senate Resources Committee of SCR 15, a resolution relating to hydrogeologic studies on the Kenai Peninsula.

Attached are background materials and a fiscal note. I'd appreciate your scheduling SCR 15 for hearing at the earliest possible date.

Alaska State Legislature

Senator Mike Szymansk.

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P.O. Box V
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FAX (907) 465-2652

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(907) 561-7617

165 E. Parks Highway
Legislative Information Office
Wasilla, Alaska 99687
(907) 376-MIKE

March 9, 1989

MEMORANDUM

TO: Senator Bettye Fahrenkamp, Chair
Senate Resources Committee

FROM: Senator Mike Szymanski

RE: Scheduling of SCR 15: Kenai Hydro Study

I wish to request a hearing for SJR 15, a resolution asking the Governor to direct the Division of Geologic and Geophysical Surveys to conduct a hydrogeologic study of the North Kenai Peninsula area.

I would appreciate your scheduling a hearing at your earliest convenience. If you any questions regarding the resolution or scheduling, please contact my staffperson, Mary McBurney, at 4978.

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

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

CONTENTS

FIGURES

TABLES

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.

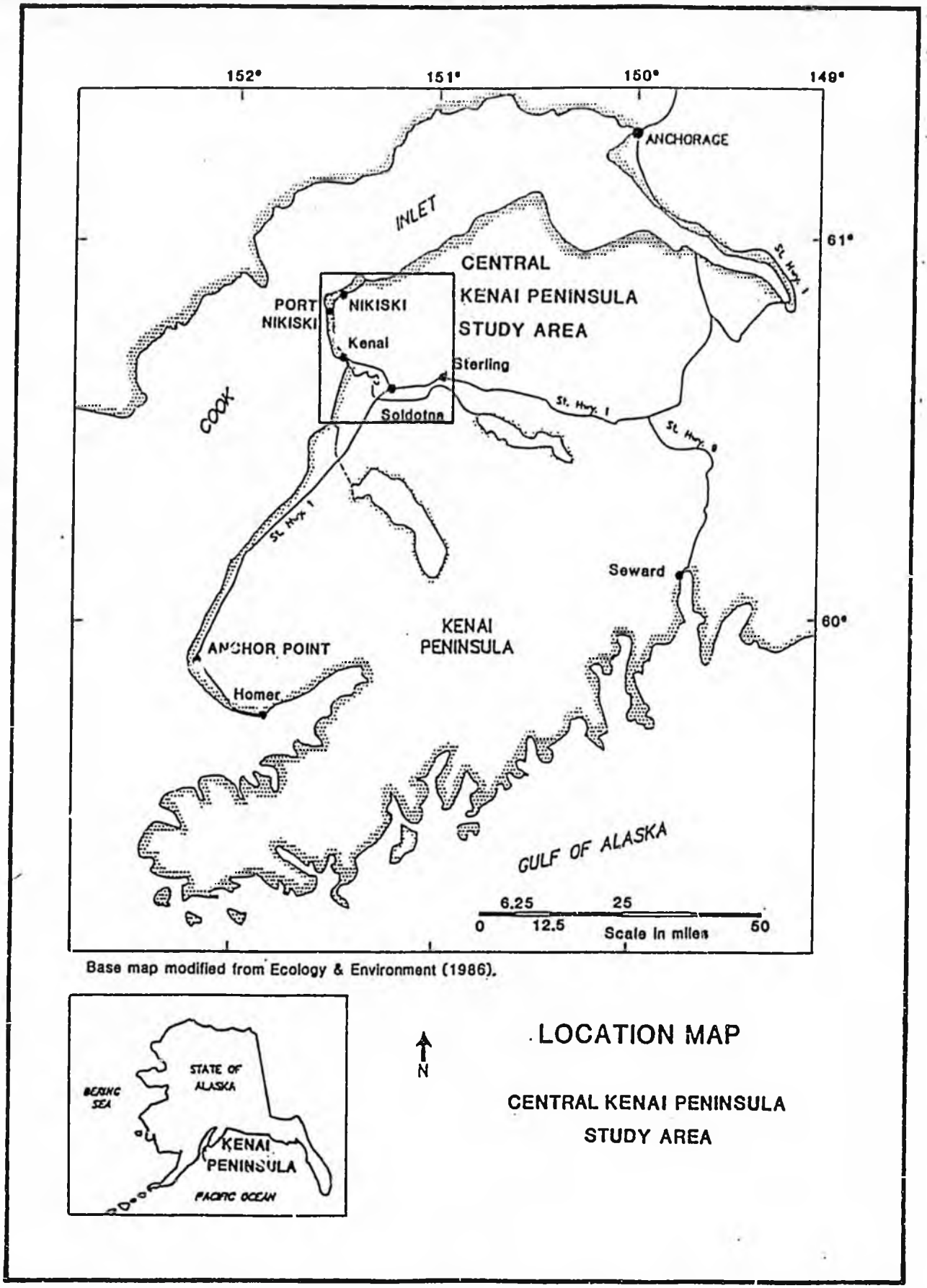

Figure 1. Location of central Kenai Peninsula study area.

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 3425
Nikiski, Ak. 99635

JAN - 6 19[illegible]

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

SCR 15
(Res)

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

ROBERT B. FORBES, STATE GEOLOGIST

STEVE COWPER, GOVERNOR

☒ 3700 AIRPORT WAY (DNR Building)
FAIRBANKS, ALASKA 99709-4609
PHONE: (907) 451-2760, 474-7147

☐ P.O. BOX 772116
EAGLE RIVER, ALASKA 99577-2116
PHONE: (907) 696-0070

☐ 3601 "C" STREET, SUITE 1236
P.O. BOX 107005
ANCHORAGE, ALASKA 99510-7005
PHONE: (907) 762-2356

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

March 21, 1989

The Honorable Bettye Fahrenkamp
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Senator Fahrenkamp:

It is my understanding that the teleconference testimony given by Bill Long, Chief of our Water Resources Section, during the March 15 Senate Resources Committee hearing on SCB 15 (Kenai Hydrogeological Investigations) has generated some additional questions by the Committee concerning the establishment of DGGS water research priorities, and the breadth and scope of our statewide water resource program.

In retrospect, Mr. Long feels that some of his statements to the committee during the hearing were incomplete, and he has asked me to clarify some of his responses in this letter, as supplemented by the enclosed program documents.

Initially, however, I would like to clarify the chronology of the events leading to the Kenai Peninsula water study resolution, including the Sterling Water Site problem.

Chronology of Kenai Peninsula Groundwater Events:

On January 6, 1989, DGGS received a copy of a petition which had been circulated by concerned Kenai Peninsula citizens, for state assistance to "Conduct Hydrogeologic Surveys in the Central Peninsula Borough." At that time, DGGS noted that they were the designated action agency in the petition, and the DNR Commissioner's Office was alerted to that fact. Subsequently, on January 17, 1989, the Kenai Peninsula Borough unanimously passed Resolution 89-10, which requested the State of Alaska to appropriate the necessary funds to implement the Central Peninsula Hydrogeologic survey.

Following these actions, the Kenai Peninsula Borough requested DGGS staff assistance and technical advice in the development of a Central Peninsula ground water investigation plan, and our Water Resources Section responded with report AR 89-1 (see enclosure).

All of the above activity occurred after th FY 90 budget planning and review process had been completed, and therefore, a proposed Central Peninsula

groundwater project was never considered in DGGS FY 90 budget increment discussions in 1988.

Sterling Waste Site Implications:

DGGS has been aware of potential groundwater problems surrounding Sterling Waste Site since 1983, and in cooperation with DEC, we have been gradually accumulating and computerizing groundwater and well log data from wells near the site. Until January, 1989, however, we were not aware of the groundswell of public concern in the Kenai Borough and special problems associated with Unocal's recent well contamination and the development of a long term manitoring plan for the Sterling Waste Site.

During our FY 1990 budget deliberations we did consider an increment for a Sterling Waste Site study, but under established priorities, including tight budget constraints and the growing concern with the lack of surface and groundwater data for ANWR, we elected to go with an ANWR water study increment rather than a Sterling Waste Site water study; a decision which was confirmed by internal DNR budget review, and approved by the Governor's office.

FY89 and Proposed FY90 Water Resources Research Program:

As requested, I have enclosed copies of the DGGS program documents which summarize current and projected water resource research programs. A review of the documents will show that our professional water research staff of 12 is committed to 39 different projects throughout Alaska. These projects are producing data and technical assistance for a large spectrum of Alaskan needs, including government agencies, industry and the private sector.

I hope this letter and the enclosed documents will effectively meet the Committee's request for additional information.

Sincerely,

Robert B Forbes

Robert B. Forbes
Director and State Geologist

/jr

Enclosures: #1 DGGS FY89 Water Program
#2 Proposed FY90 Water Projects
#3 ANWR Water Increment Request
#4 Administrative Report 89-1

cc: Commissioner Gorsuch w/enclosures
Deputy Commissioner Swope w/enclosures
Senator Fred Zharoff w/enclosures
Carol Wilson w/enclosures
Bill Long w/enclosures

Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys

Water Resources Section

GOALS & OBJECTIVES

GOALS: To provide water resources information needed by state, federal, and municipal agencies, and by industry and the general public in order to use and manage Alaska's water resources for the benefit of the people of Alaska.

OBJECTIVES: To collect, analyze, and distribute data on quantity and quality of Alaska's surface, subsurface and coastal waters;

To coordinate water data acquisition among state, federal, and local agencies.

STATUTORY AUTHORITY - A.S. 41.08.020.

Powers and duties. (a) The state geologist shall conduct geological and geophysical surveys to determine the potential of Alaskan lands for production of metals, minerals, and fuels; the locations and supplies of ground waters and construction materials; the potential geologic hazards to buildings, roads, bridges and other installations and structures; and shall conduct such other surveys and investigations as will advance knowledge of the geology of Alaska. With the approval of the commissioner, the state geologist may acquire, by gift or purchase, geological and geophysical reports, surveys and similar information. (b) In addition, the division of geological and geophysical surveys has the following powers and duties.:

(1) collect, record, evluate, and distribute data on the quantity, quality and location of underground, surface and coastal water of the state;
(2) publish or have published data on the water of the state;
(3) require the filing with it of the results and findings of surveys of water quality, quantity, and location;
(4) require of water well contractors, the filing with it of basic water and aquifer data normally obtained, including but not limited to well location, estimated elevation, well driller's logs, pumping tests and flow measurements and water quality determination;

WATER RESOURCES SECTION BUDGET HISTORY

Year	Budget Operating	RSA's	USGS [outgo]	Personnel total positions	Personnel filled positions
FY80	144.8				3
FY81					
FY82	1450.0		[671.6]	11	8
FY83	1564.9		[544.3]		
FY84	1090.0	286	[515.0]	15	10
FY85					
FY86	1055.6	105		17	14
FY87	815.2	175.5	[166.0]		13
FY88	585.6	150. est.	[100.0] est.	13*	13*
FY89	589.2	201	98.6	13*	13*

* All professional positions to be converted to seasonal positions with maximum of 10 months funding for FY88.

PERSONNEL - FY89

Management
Long, Chief (10)
Weir, Clerk Typist (12)

Surface Water
Inghram (10)
Carrick (10)
Ireland (10)
Collazzi (2)

Water Quality
Maurer (2)

Ground Water
Munter (10)
Allely (10)
Maynard (2)
Petrik (2)

Northern Region (FBX)
Ray (10)
Moorman (Lab) (6)

Student Interns
Welch (E.R.)
Scarpinato (USGS)
Roberts (USGS)
Harris (Fbx.)

DNR/DGGS WATER/WIND MONITORING SITES SUMMARY LIST

Note: This summary list combines all monitoring sites operated by the Water Resources Section. Each individual station is also part of a project detailed in the project description chapter of this document.

Permanent Stream Gaging Stations - (Quantity and Quality) - Operator: USGS

	Station Name	Data type	Station purpose
1.	Mendenhall R. nr Auke Bay	quant/qual	flood control, wetland, quality protection
2.	Indian R. nr Sitka	"	" adjudication, habitat, power, recreation
3.	Kenai R. nr Cooper Landing	"	" rec., habitat, flood mgt., supply
4.	Willow Cr. nr Willow	"	" rec., flood mgt, habitat
5.	Susitna R. nr Susitna Station	"	" habitat, power, flood
6.	Nuyakuk R. nr Dillingham	"	" habitat, index, flood
7.	Kobuk R. nr Kiana	"	" habitat, flood
8.	Wulik R. nr Kivalina	"	" gravel, habitat, mining
	N. Kenai area lake levels	"	" habitat, rec., supply, quality protection

	FY89
Cost to state -	$ 65,000
Cost to USGS -	85,000
TOTAL	$150,000

USGS COOP Ground-water Monitoring Stations - Operator: USGS

Station	Data type	Resp. agency	Purpose
Kenai Area			
1. City TW-3	level & qual	USGS	to monitor effects of industrial & municipal pumping
2. Union EW-1	" "		
3. Union OB-7A	" "		
4. Union PW-9			

Cost to state -	$ 5,600
Cost to USGS -	5,600
TOTAL	$11,200

Seasonal Stream Gaging Stations - operated by DGGS hydrologists for cooperating agencies; data are digitally recorded and stored in DNR computer programs.

Station	Requesting Agency
1. Humpy Cr. nr Cordova	Cordova & APA
2. Power Creek nr Cordova	Eyak Corporation
3. Frances Cr.	Usibelli Mine
4. Popovich Cr.	"
5. Lignite Cr.	"
6. Sanderson Cr.	"
7. Lignite Cr. (surface mining)	"
8. Two Bull Creek	"
9. Russian R. nr Cooper Landing	USFWS
10. Funny R. nr Sterling	"
11. Upper Swanson R. nr Sterling	"
12. Lower Swanson R. nr Nikiski	"
13. Nikolai Cr. nr Kasilof	"
14. Moose R. nr Sterling	"
15. Birch Cr. at Steese Hwy. bridge	DNR placer mining
16. Birch Cr. abv. Crooked Cr. confl.	"
17. Crooked Cr. nr Birch Cr.	"
18. Ketchem Cr. at Circle Hot Spr. Rd.	"
19. Deadwood Cr. at Circle Hot Spr. Rd.	"
20. Crooked Cr. at Steese Hwy. bridge	"
21. Bedrock Cr. below BLM campground	"
22. Mammoth Cr. at Steese Hwy. bridge	"
23. Porcupine Cr. abv. Bonanaza Cr.	"
24. Porcupine Cr. blw. Great Amer. Min.	"
25. Eagle Cr. at GHD Mining	"
26. Tolovana R. abv Wilber Cr.	"
27. Fishhook Cr. - Hatcher Pass	DLWM
28. Government Cr. - Hatcher Pass	"
29. Upper Granite Cr. nr Delta Junction	SCS

Snow Survey Stations

Station	Requesting Agency
1. Hatcher Pass I	DNR-DLWM
2. Two Trees	"
3. Wishbone Lake	"

Wind Monitoring Stations

1. Hatcher Pass	Mat-Su Borough
2. Pt. MacKenzie	Div. of Ag/USSCS
3. Nenana	"
4. Delta Junction	"
5. Gerstle River	"
6. Nistler Farm (Delta Ag Area)	"
7. Clear Creek	"
8. Wishbone Hill	DLWM

Precipitation Stations

Station	Requesting Agency
1. Granite Mountains (Granite Cr.)	USSCS/Div. of Ag
2. Clear Creek (Delta Ag area)	"
3. Gold Run Pass (Usibelli Mine)	Usibelli Mine

U.S. Geological Survey - Alaska Department of

Natural Resources, Division of Geological and Geophysical Surveys

Cooperative Water-Resources Study Program

Fiscal Year 1989

PROGRAM SUMMARY

10/21/88

	COST				
Program Element	DGGS	Direct Services	Unmatched	USGS	TOTAL
Surface-water data collection network	$65,000	$ 10,000	-0-	$ 75,000	$150,000
Ground-water monitoring	5,600	-0-	-0-	5,600	11,200
Well-Log data (GWSI)	28,000	62,400	-0-	90,400	180,800
Water-use program	-0-	60,000	-0-	60,000	120,000
TOTAL:	$98,600	$132,400	-0-	$231,000	$462,000

USGS/DGGS

Surface Water Data Network

10/21/89

FY 89 STATION COSTS

Station Name	DGGS	Direct Services	USGS	TOTAL
Southeast Alaska				
Mendenhall R nr Auke Bay	$ 4,800	--	$ 5,800	$ 11,600
Indian R nr Sitka	9,300	--	9,300	18,600
Southcentral Alaska				
Kenai R at Cooper Landing	4,000	--	4,000	8,000
Willow C nr Willow	6,400	$ 7,000	13,400	26,800
Susitna R at Susitna Station	8,200	--	8,200	16,400
Nuyakuk R nr Dillingham	4,400	3,000	7,400	14,800
Interior and Northern Alaska				
Kobuk R nr Kiana	12,300	--	12,300	24,600
Wulik R nr Kivalina	12,300	--	12,300	24,600
Other				
No. Kenai area lake levels	2,300	--	2,300	4,600
TOTAL:	$65,00	$10,000	$75,000	$150,000

USGS/DGGS

Ground Water Monitoring Program

10/29/89

FY 89 STATION COSTS

Station Name	DGGS	USGS	TOTAL
Kenai			
City TW-3	$1,400	$1,400	$ 2,800
Union EW-1	1,400	1,400	2,800
Union OB-7A	1,400	1,400	2,800
Union PW-9	1,400	1,400	2,800
TOTAL:	$5,600	$5,600	$11,200

FY 89 PROJECTS - DGGS WATER RESOURCES SECTION

SURFACE WATER

Statewide

1/ Streamflow Gaging Stations
2/ Instream Flow/Federal Reservation Water Rights/Basinwide Adjudication
3/ Navigability
4/ Hydrologic Data Management/Computer Support
5/ Snow Surveys
6/ Sand & Gravel/River Management
7/ Agricultural Areas, Wind & Water

Northern Region

8/ Placer Mining Waters
9/ Granite Creek

Southcentral Region

10/ Kenai Wildlife Refuge
11/ Hatcher Pass Ski Area Hydrology
12/ Matanuska Moose Range Hydrology
13/ Glacier/Outburst Flood Evaluation
14/ Recreational Rivers
15/ Eagle River Ski Area/Greenbelt Hydrology

Southeast Region

16/ Taku Glacier

17/ Hoseanna Basin (Usibelli Mine)

18/ Interior River EIS Revision (BLM)

19/ Rural Community Hydro Sites (APA & City of Cordova)

GROUND WATER

Statewide

20/ Critical Ground-water Database Systems - WATSTORE & WELTS
21/ Ground-Water Levels
22/ Statewide Ground-water Technical Advisory

Southcentral Region

23/ Anchorage Hillside Hydrology
24/ Eagle River Ground Water
25/ Matanuska-Susitna Ground Water
26/ Sterling Waste Site Investigation

Southeast Region

27/ Auke Bay Ground Water

28/ Alaska Water-use Data System (USGS)

29/ Ground-Water Quality Data Systems (DEC)

30/ Anchor River Well Test (DEC)

31/ Kodiak Coast Guard Base Seismic (USGS)

WATER QUALITY

Statewide

32/ Water Quality Laboratory Operation

33/ Surface Mining Technical Review

Southcentral Region

34/ Agricultural Area Lakes

35/ Kenai Lakes Acid Rain Investigation (EPA)

36/ Turbidity Database (Alaska Miners Assoc.)

37/ Hoseanna Basin Water Quality (Usibelli Mine)

38/ Mixing Zone Sample Analysis (DEC)

39/ Nome Sample Analyses (Institute of Marine Science)

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Streamflow Gaging Stations

PROJECT MANAGER: Bill Long PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Streamflow (quantity) data are needed for management and development of Alaska's waters for water supply, fish and wildlife habitat protection, recreational uses, flood evaluation and prediction, erosion prevention, road design, agriculture, and other needs. Waters are fundamentally important to all activity and resource development or protection in Alaska and the state government has primary responsibility for managing all water.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$31.9
200-500	$85.0

PERSONNEL ASSIGNED	TIME/MONTHS
Long (Hydro. V)	5 months
Maynard (Hydro. II)	0.5 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
This project supports 8 full time stream gaging stations which have been installed by and are operated by the USGS-WRD. State funds for the project are more than matched by USGS at a level indicated each year in a Cooperative Agreement contract. Water quality samples are also taken at the stations.

This program has been severely reduced (due to funding inadequacies) from 25 stations in FY83 to 8 stations in FY88 and FY89.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT Est. COMPLETION DATE

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Instream Flow/Fed. Res. Water Rights/Basin Adjudication

PROJECT MANAGER: Mark Inghram PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Provides for DNR review of any Instream Flow/Federal Reserve Water Rights/Basin Adjudication issues that arise. This review capacity is most used by DLWM in allocating water rights.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100$	10.6
200-500$	

PERSONNEL ASSIGNED	TIME/MONTHS
Inghram (Hydr. IV)	2 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

To provide hydrologic data and review capacity for Instream Flow/Fed. Res. Water Rights/Basin Adjudication to DNR. These issues are or will be occurring throughout the state. Indian River near Sitka was the first Federal Reserve Water Rights to come up for adjudication. Although negotiations failed with the US Park Service, DGGS data and review were used during the process. Ship Creek near Anchorage may be the next Federal Reserve Water Rights Issue to surface. This adjudication would be a large, complicated process requiring extensive DGGS water personnel time.

The BLM is currently undertaking instream flow studies and subsequent application through DLWM on several wild and scenic rivers under their jurisdiction. They have asked for our direct assistance in their field data collection. DLWM has also requested DGGS assistance in the analysis of the BLM data.

ADFG is involved in a systematic instream flow study/reservation project. They frequently seek DGGS data, analysis, and review. This protion of the project will also continue.

PROJECT COMPLETION DATE: ongoing

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Join data collection for 1-2 wild-scenic rivers w/BLM	FY90
PDF analysis of BLM report	FY90
Reports to ADFG	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Navigability

PROJECT MANAGER: Stan Carrick PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: To provide information on waterbody physical characteristics to be used in the defense of submerged lands project. What are the physical characteristics (e.g. width, depth, area, flow, etc.) of the waterbodies in question.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100$	70.6
200-500$	

PERSONNEL ASSIGNED	TIME/MONTHS
Carrick (Hydro. III)	1 mo.
Inghram (Hydro. IV)	.5 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
To provide the Attorney General's office with data on the physical characteristics of waterbodies for potential use in navigability litigation. The State of Alaska has legal right to title to all lands beneath navigable waters. The determination of navigability of a waterbody is a legal one decided in court. Data on the hydrologic and morphologic character of the waterbody in question is required to make a ruling.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Hydrologic Data Management/Computer Support

PROJECT MANAGER: Roy Ireland PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project provides for data recovery from electronic data storage modules and the subsequent analysis and reporting of this data. Stream stage and temperature, snow accumulation and wind parameters are monitored. Assistance is provided to other employees, for both hardware and software. Hardware includes mainframe and personal computers and electronic data gathering units. Software includes SAS, Fortran, AUS/US, DBase, Lotus 123, and various editors.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Ireland (Hydro. II)	6 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

Electronic data monitoring devices have been installed at many sites throughout Alaska. Data are stored electronically on Eprom Data Storage Modules (DSM's). These chips are periodically recovered from the field sites and must then be read and later erased for re-use. The data from each series of chips must be archived, compiled into a continuous string of observations, and then analyzed for compliance with ground truth. Due to the nature of the various data sources and the idiosyncrasies of the individual recorder, sophisticated record keeping and analysis techniques must be provided.

Hardware must be acquired to fulfill the various needs of various projects. This hardware must be configured, installed, and maintained. It must also be serviced at regular intervales. Software must be created to sort, check, adjust, compile and analyze this data. Further software must be developed to compile various text, graphic, and statistical reports for each data set and for each period of interest. Support must be given to other water section members so as to facilitate their usage of both the hardware and the software.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
programming, data minipulation & interpretation	as required
RI's, Public Data Files, progress & project reports	as required

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Snow Surveys

PROJECT MANAGER: Ed Collazzi PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Snow data is used for break-up flood prediction, water-supply forecasting, ski development evaluation, etc. The Hatcher Pass Management Plan, proposed Eagle Valley Ski Resort and Matanuska Valley Moose Range Management Plan all require snow data input for accurate environmental/resource assessment.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Collazzi (Hydro. II)	2 months
Carrick (Hydro. III)	.5 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipated future project activities)
Monthly snow surveys (depth and density determinations) for the following sites: Government Peak and Government Peak Alternate (proposed Hatcher Pass Ski Resort); Wishbone Hill (Matanuska Valley Moose Range/proposed coal development).

Installation of snow course, maintenance and installation of precipitation recording gages and instruments, and preparation of data reports and summaries.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Summary of snow data/Hatcher Pass Ski Area	yearly
Summary of snow data/Mat Valley Moose Range	yearly
miscellaneous snow data summaries	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Sand & Gravel/River Management

PROJECT MANAGER: Inghram PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Assists DNR managers in determining how much gravel is transported and how to extract it with the least impact to the river channel. Additionally, provides for management advise in channel reaches where erosion may threaten property.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100$
200-500$

PERSONNEL ASSIGNED	TIME/MONTHS
Inghram (Hydro. IV)	1 mon.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

Throughout the state gravel is an important resource for continued development. Gravel bars in stream channels are a major source for gravel in many locations. In order to manage the rivers and balance the extraction and supply, accurate estimates of bed-load transport are necessary. In the recent past both Glacier Creek near Girdwood and the Matanuska River near Palmer have been extensively used, and DGGS has provided bedload estimates and extraction techniques to DLWM and USCOE. Glacier Creek may again this year become a source for gravel and DGGS has been requested to assist in its plan.

Frequently localized bank erosion has caused loss of private property. In many cases this can be attributed to natural shifts in the channels. In other cases it may be a direct result of man's activities at another point of the river. Several such conditions exist this year which have involved DGGS in a technical advisory capacity. The Matanuska River near Bodenburg Butte has recently reactivated a historically abandoned distributary, causing extensive loss of valuable agricultural land. Lower Peters Creek in Chugiak has also experienced large channel shifts lately. Both of these are being worked on by DGGS water personnel.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Reports on findings	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Agricultural Area Studies, Wind and Precipitation

PROJECT MANAGER: Roy Ireland PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This porject provides basic meteorological data (wind and precipitation) for use by the Division of Agriculture, other agencies, and the public. It provides planning data to both managers and farmers to protect the development and the environment from wind and precipitation avents.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Roy Ireland (Hydro.II)	1.0 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Large tracts of land near Delta Junction, Nenana, and Point MacKenzie are being studied and developed for agriculture. Six wind stations and two precipitation monitoring stations exist within the various project areas. Regular maintenance of the sites is required. Backup equipment must also be maintained.

Data gathered from each site must be verified, adjusted for unique parameters of each site and then both archived and accumulated for later analysis. Public Data File reports of the observations from each site must be published as it becomes available on an annual basis. Data is to be accumulated so as to provide long-term reports when a sufficient confidence interval has been reached. Interim reports are provided as requested.

PROJECT COMPLETION DATE:

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Public Data File reports for each site	yearly

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Placer Mining Waters

PROJECT MANAGER: Scott Ray PHONE NO: 696-0070

PROJECT'S REGION: Northern

PROJECT'S ELECTION DISTRICT: House District: 18-21
Senate District: J K

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Data are used by other agencies for placer mining water quality studies. Database used as a general indicator of the overall water quality of the mined basins through time. Data collected can be used by both miner and government agencies.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Ray (Hydro.II)	3.0 mo.
Harris (Studen Intern)	3.0 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Data have been gathered on the Placer Mining streams since 1984. This large database is an important indicator of the overall water quality of these mined basins. It also shows if the miners are improving on their control of sediment input. Data collected has been used by ADFG, ADEC, BLM, and Army Corps of Engineers. The data collection in the 1988 season was scaled down. Only three automated sites were set up, with the remaining data collection by DGGS and DEC personnel. The 1989 season should be similar to 1988.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Final report to Usibelli Coal Mine	2/89
Public Data file report	2/89

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Granite Creek

PROJECT MANAGER: Scott Ray PHONE NO: 696-0070

PROJECT'S REGION: Northern

PROJECT'S ELECTION DISTRICT: House District: 17
Senate District: J

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project is to analyze the potential of flooding on the Granite-Rhoads Creek drainage, and the potential for sediment, fertilizer, and pesticide inputs into Clearwater Creek.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Ray (Hydro.II)	1.0 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
This cooperative project with SCS since 1986 has provided information concerning the potential of floods in the Granite-Rhoads Creek drainage, and the sediment input into Clearwater Creek. The data for the 1986 season indicated that flooding might be likely, however, data from 1987 and 1988 seasons has diminished the threat. In the 1989 season, I expect to concentrate efforts on the Old Granite Creek channel (appears to be acting as a flood gate). By using a time-lapse camera, a detailed survey of the channel, and the computer model HEC-2 (water surface profile), I expect to quantify the affect of the old channel.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Public Data file report	2/89
Final report to SCS	2/89

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Kenai Wildlife Range

PROJECT MANAGER: Inghram PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 5
Senate District: D

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project addresses issues connected with the hydrology of the Kenai Peninsula rivers. Technical support and hydrologic data for management divisions of DNR, ADFG, USFWS, and Kenai River Special Management Area Board are provided.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$
200-500	$

PERSONNEL ASSIGNED	TIME/MONTHS
Inghram (Hydro. IV)	2 mo.
Ireland (Hydro. II)	1 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Hydrologic data are needed for the Kenai River in order to make proper management decisions. Both state and federal management agencies need hydrologic information. DGGS is cooperating with several state and federal agencies in collection of data. A cooperative stream gaging operation with USFWS is currently underway at 5 sites, including the Russian River, Fynny River, Moose River, and two sites on the Swanson River.

Several sites have been dropped from the data collection project this past year due to USFWS change in plans. Data on stream bank stability was provided to DPOR during their intensive area planning process. If adequate funding is supplied a cooperative water quality monitoring program with DPOR will be added to this project during FY90.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Annual data reports	annually

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Hatcher Pass Ski Area Hydrology

PROJECT MANAGER: Stan Carrick PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: At DLWM's request, the WRS is providing technical assistance to the DLWM and the Hatcher Pass Planning team. Planners need hydrologic, snow, and wind data to aid them in ski area planning and project evaluations.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Carrick (Hydro. III)	2 mo.
Collazzi (Hydro. II)	1 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
The WRS will provide, and has provided, DLWM planners with hydrologic, snow, and climatic field and literature review data for ski area planning. Field activities include stream gaging at two sites, snow surveys, and wind monitoring.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Hydrology & Climate project	11/88
Evaluation report to DLWM & Planning Team	11/88
Ongoing technical assistance, reviews, & data collection	

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Matanuska Valley Moose Range

PROJECT MANAGER: Ed Collazzi PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Management planning in the Matanuska Valley Moose Range must take into account wildlife and recreation values and proposed development such as coal mining. Pertinent resource data, including surface and ground water, water quality, snow surveys and wind data are necessary to make informed decisions and evaluate development impacts.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Collazzi (Hydro. II)	2 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Activities:
- installation and maintenance of recording wind tower and snow course near proposed coal development
- compilation of streamflow data from recording stream gages on Moose Creek and Eska Creek
- providing temperature and wind data to consultants for coal development studies.
- review of surface and ground water environmental data collection efforts by industry consultant

Purpose: To fulfill the needs of state planners and managers for coordinated and comprehensive data as a basis in making informed management decisions.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Streamflow summaries, Moose & Eska Creeks	6/89
Wind-data summaries (Mat Valley Moose Range)	yearly
Snow-data summaries (Mat Valley Moose Range)	yearly

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Glacier/Outburst Flood Evaluation

PROJECT MANAGER: Bill Long PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House Districts: 6, 7-15, 16, 24
Senate Districts: E F G H I M

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: Public safety and health - glacial outburts floods occur in many locations in Southcentral Alaska threatening property and livelihood of people along rivers such as the Beluga, Drift, Copper and Knik. Monitoring of the headwater glaciers allows flood prediction.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Long (Hydro. V)	.2 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

Outburst lakes are monitored by imagery and by personal surveillance to predict times of lake discharge. Also, on the Knik Glacier, a sophisticated surveying net will allow determination of glacial surging several years before potential serious flooding occurs.

The project has supported investigation of Strandline Lake and others in past years but now limited funds allow only emergency response efforts.

PROJECT COMPLETION DATE: ongoing

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
reports on any flood observed	as necessary

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Recreational Rivers

PROJECT MANAGER: Stan Carrick PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: The WRS will assist DLWM's Recreational River Management Team in hydrologic data collection for use in management guidelines and instream flow determination.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Carrick (Hydro. III)	2 mo.
Collazzi (Hydro. II)	1 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
The WRS will undertake literature reviews and field studies to determine basin and streamflow characteristics for the six Recreational Rivers: The Little Susitna River, Talkeetna River, Deshka River, Talachulitna River, Alexander Creek, and Lake Creek. The extent of field activities and level of support to DLWM is not known at this time and is partially dependent on funding.

PROJECT COMPLETION DATE: FY91

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Technical assistance and data reports	FY89-91

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Eagle River Ski Area/Greenbelt

PROJECT MANAGER: Stan Carrick PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: The WRS provides DPOR planning teams with technical assistance concerning hydrology, snow science, and geology related to the proposed Eagle River Valley ski area and the Eagle River Greenbelt.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Carrick (Hydro. III)	2 mo.
Collazzi (Hydro. II)	1 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
The WRS provides technical assistance to DPOR staff and ski area and Greenbelt planning teams as a technical advisor. Field studies so far have been limited to miscellaneous streamflow measurements on Eagle River tributaries. Other technical support consists of literature review and information briefings at planning team meetings.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT Est. COMPLETION DATE

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Taku Glacier

PROJECT MANAGER: Bill Long PHONE NO: 696-0070

PROJECT'S REGION: Southeast

PROJECT'S ELECTION DISTRICT: House District: 4
Senate District: C

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: To monitor the advances of the Taku Glacier which threatens to dam the Taku River causing economic and other crises.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Bill Long (Hydro.V)	.2 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
To work with other investigators within DGGS and in other federal and state agencies to monitor and predict fluctuations and predict advances which endanger river activity.

PROJECT COMPLETION DATE: on-going at low level of involvement

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
review of report by R. Motyka and project proposal with USGS	

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Hoseanna Basin (Usibelli Mine)

PROJECT MANAGER: Scott Ray PHONE NO: 696-0070

PROJECT'S REGION: Northern

PROJECT'S ELECTION DISTRICT: House District: 17
Senate District: J

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: As contracted by Usibelli Coal Mine, DGGS is to study the overall sediment transport in the Hoseanna basin, both mined and unmined areas. Important study for the transport of sediments in a subarctic environment.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one. PRIVATE

100	$30.0
200-500	$33.6

PERSONNEL ASSIGNED	TIME/MONTHS
Ray (Hydro.II)	6 mo.
Harris (Student Intern)	3 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
As contracted by Usibelli Coal Mine, DGGS is to study sediment transport of both mined and unmined drainages. During the 1988 season, two additional sites were added to the study: two Bull creek and Louise Creek. These two creeks drain an area of future mining activity. This brings the total to 7 sites with automatic water samplers, 8 sites with datapod recorders and 9 total sampling sites. The 1989 season should be similar, although we are presently under negotiations with Usibelli and some sites might be added or dropped.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Public Data File report	3/89

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Interior River EIS Revision

PROJECT MANAGER: Ed Collazzi PHONE NO: 696-0070

PROJECT'S REGION: Interior

PROJECT'S ELECTION DISTRICT: House Districts: 17, 18-21, 24
Senate Districts: J K M

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: BLM has management responsibility for public lands and must balance conflicting usage demands. The agency is compiling a series of Environmental Impact Statements (EIS) for various management alternatives in four Interior river basins which receive both recreational and mining use. They are in need of hydrologic assistance in reviewing and revising the water resources components of these EIS documents to assess the impacts of various management/regulation alternatives.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $ 10K
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Ed Collazzi (Hydro.II)	2 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Review and revision of the Water Resources components of the Beaver Creek, Birch Creek, Fortymile River and Minto Flats Draft/Final Environmental Impact Statements, and responses to written comments by other reviewing agencies:

- Beaver Creek Final Cumulative EIS-reviewed/completed 10/88
- Birch Creek Draft Cumulative EIS-rewrite, responses/completed 11/88
- Birch Creek Final Cumulative EIS-review, revision/completed 11/88
- Fortymile River Draft Cumulative EIS-rewrite, responses/completed 12/88
- Fortymile River Final Cumulative EIS-review, revision/in progress
- Minto Flats Draft Cumulative EIS-rewrite, responses/in progress
- Fortymile River Final Cumulative EIS-in progress

PROJECT COMPLETION DATE: end of December 1988

FY 89 DELIVERABLES (Deliverables should include all draft repor preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Final Cumulative EIS for Beaver Creek, Birch Creek Fortymile River and Minto Flats drainages (4 vol.)	Jan.1989/final draft Spring '89/published

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Rural Community Hydro Sites

PROJECT MANAGER: Stan Carrick PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project provides APA and the Eyak Corporation in Cordova with streamflow data that aids in hydropower feasibility studies for rural Alaska communities.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$15.0
200-500	$

PERSONNEL ASSIGNED	TIME/MONTHS
Carrick (Hydro. III)	2.5 mo.
Collazzi (Hydro. II)	1 mo.
Ireland (Hydro. II)	5%

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
APA Projects: For three years the WRS section has monitored streamflow at four sites for APA (Haines, King Cove, Akutan, and Unalaska). Each site is being sutdied by APA and the community to assess alternate power sources, namely, hydro or geothermal. The data collected and analyzed by the WRS assists the planners and engineers in determining whether or not an alternate power source is feasible.
Eyak Corporation: The Eyak Corporation in Cordova is studying Power Creek at Cordova as a possible hydropower source for the community. The WRS is being funded by the Corporation to monitor streamflow on the creek for two years and analyze the resulting data for use in a hydropower feasibility study.

PROJECT COMPLETION DATE: APA projects - FY89; Eyak Corporation - FY91

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
PDF - Streamflow Data & Power Est./Delta Creek	FY89
PDF -Streamflow Data & Power Est./Little Salmon R-Haines	FY89
PDF -Streamflow Data & Power Est./Akutan	FY89
PDF -Streamflow Data for Makushin Volcanoe, Unalaska	FY89
PDF -Streamflow Data & Power Est./Power Creek, Cordova	FY91

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Statewide Ground-Water Data Systems

PROJECT MANAGER: Danita Maynard PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS?: This project fills DNR's need for maintaining a statewide well-log database for use in evaluating the ground-water resources of the state, as described by Alaska statute 41.08 and DNR regulation AAC 93.140. This project provides data with which to evaluate ground-water resources in Alaska.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	
200-500	$1.0	25.0 USGS

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist II (Maynard)	3 months
College Intern I (Roberts)	12 months
College Intern I (Scarpinato)	12 months
College Intern II (Welch)	4 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

To provide comprehensive and up-to-date data statewide on water wells and subsurface geohydrology. Water-well logs submitted by drillers or obtained from other agencies are coded into WELTS (Well Log Tracking System), a DGGS-based computerized ID file and into the USGS Prime system.

PROJECT COMPLETION DATE: On-going

FY 88 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Well data printouts available upon request	

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Statewide Ground-water Levels Monitoring

PROJECT MANAGER: Jim Munter PHONE NO: 696-0070

PROJECT'S REGION: Anchorage, Eagle River, Wasilla, Fairbanks, Kenai, Nenana

PROJECT'S ELECTION DISTRICT: House Districts: 5, 7-15, 16, 17, 18-21
Senate Districts: D E F G H I J K

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS?: Management of aquifers is dependent on field monitoring of key wells. To monitor the status of the ground-water resource, DNR requires records of ground-water-level fluctuations. The issue is the acquisition of timely, critical resource data to allow wise water-appropriation decisions to be made which have long-term impacts on maintaining water supplies and on protecting against contamination.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	
200-500	$	4.0

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist IV (Munter)	.5 month
Hydrologist II (Allely)	.5 month
Hydrologist II (Maynard)	.5 month

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

Purpose - To document fluctuations in major utilized aquifers in Alaska for aiding water-supply evaluations and water-use management by DLWM.

Description - Both natural and induced fluctuations in ground-water levels are important to define through time, so as to avoid resource depletion and yet maximize its usage. USGS is funded to monitor water levels at 4 observation wells and DGGS operates 11 observation wells in critical areas around the state. The inclusion of key observation wells assures that valuable long-term records will be collected after the specific projects that initiated the monitoring have ended. Data from continuous recorders, operated at most of these sites, are computer retrievable.

PROJECT COMPLETION DATE: On-going

FY 89 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Hydrographs	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Statewide Ground-water Technical Guidance

PROJECT MANAGER: Jim Munter PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELLCTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS?: This project fulfills DNR's need for collection and interpretation of hydrogeologic and geophysical data as required to assess the effects of proposed ground-water extractions, development activity, or waste dispoal problems.

This project addresses the need to have a sound technical basis for making decisions on unforeseen ground-water development and contamination issues.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$
200-500	$

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist IV (Munter)	2 months
Hydrologist II (Allely)	1 months
Hydrologist II (Maynard)	1 month
Hydrologist I (Petrik)	0.5 month

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

Purpose - To provide technical evaluations related to ground-water or geophysics problems.

Description - DGGS is routinely contacted by state and local agencies and the public for advice regarding a wide variety of ground-water issues in Alaska. This project collects and utilizes data collected through other projects to provide timely technical assessments of ground-water contamination, water-supply problems, engineering geology problems, and geologic hazards. Data collection includes geophysical well logging, seismic refraction surveying and general survey (transit) work. Technical reviews of other agency projects are also performed.

PROJECT COMPLETION DATE: On-going

FY 89 DELIVERABLES

(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Estimated 10-20 individual advisements	as requested
Estimated 500 telephone and personal contact advisements	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Southcentral/Anchorage Hillside Groundwater Hydrology

PROJECT MANAGER: Jim Munter PHONE NO: 696-0070

PROJECT'S REGION: Anchorage

PROJECT'S ELECTION DISTRICT: House District: 8
Senate District: F

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project fulfills DNR's need to identify cause-and-effect relationships (pumping vs water-level declines) at both site-specific and area-wide or aquifer-wide scales for the water rights adjudication program.
This project addresses the conflict between declining water levels (and failing wells) and continuing demand for water.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	
200-500	$	2.5

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist IV (Munter)	0.5 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)
Purpose - Identify and explain water-level declines and assess magnitudes of future well failure problems.
Description - Project will review USGS model of Anchorage groundwater system, evaluate proposed water-use plans, evaluate water-level trends from observation wells, and provide written, oral and visual information to water managers and at public hearings.

PROJECT COMPLETION DATE: On-going

FY 89 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Responses to request for information	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Southcentral/Eagle River Groundwater

PROJECT MANAGER: Jim Munter PHONE NO: 696-0070

PROJECT'S REGION: Eagle River

PROJECT'S ELECTION DISTRICT: House District: 15
Senate District: I

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project fulfills DNR's need to have a technical basis for adjudicating Eagle River's water permit applications.
This project addresses the issue of failed wells resulting from declining water levels in the Eagle River confined aquifer system.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	
200-500	$	2.0

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist IV (Munter)	2 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)
The purpose of this project is to provide a readily available technical foundation for Eagle River ground-water management activities.
Maps and text will be finalized and submitted to DGGS publication section. Water management issues will be addressed as they arise.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Water supply aquifers at Eagle River, Alaska: DGGS Professional Report, in preparation (Munter & Allely)	3-31-89 submit for pub.

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Southcentral/Mat-Su Ground-water Data

PROJECT MANAGER: Danita Maynard PHONE NO: 696-0070

PROJECT'S REGION: Mat-Su area

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project will continue to fulfill DNR's need to acquire and disseminate information on water wells and subsurface conditions in the Mat-Su borough. The project evaluates the ground-water resources of the Mat-Su Borough, including areas of poor water quality and low well yield.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	
200-500	$	2.0

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist II (Maynard)	4 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)
Provide water well data in an informative, readily understandable format for incorporation in land-use planning. Well data are summarized in reports designed for easy use by the general public. This work requires scrutinizing existing data, verifying questionable well locations, and collecting and entering new data. Numerous public and institutional requests for water resource data will be fulfilled. The reports include ground-water quality data collected for the project. A water level monitoring station is maintained.

PROJECT COMPLETION DATE: On-going

FY 88 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Draft RI report containing hydrogeologic information for Palmer 1:25,000 quadrangle	June 30, 1989
Initiate Wasilla East and West 1:25,000 quadrangle study	

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB-PROJECT: Southcentral/Sterling Area Ground-water Evaluation

PROJECT MANAGER: Bill Petrik PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 5
Senate District: D

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project fulfills DNR's need to perform baseline ground-water resource inventories in areas of substantial local concern about the quality of drinking water supplies.

This project addresses the issue of potential contamination of water supply wells from long-term liquid waste-disposal operations at the Sterling Special Waste Site

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Bill Petrik (Hydro.I)	2.5 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

The purpose of the project is to provide an assessment of potential pathways of movement of contaminants at and near the Sterling Special Waste Site and potential impacts to nearby water users and surface water bodies.

Well log and water quality data for the area will be assembled, reviewed, and organized.

PROJECT COMPLETION DATE: on-going at least through FY90

FY 89 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORTS, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Project file with well data and well location map	June 30, 1989

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Southeast Region/Auke Bay-Mendenhall Peninsula Ground Water

PROJECT MANAGER: Roger Allely PHONE NO: 696-0070

PROJECT'S REGION: Juneau

PROJECT'S ELECTION DISTRICT: House District: 4
Senate District: C

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS?: DNR's need to have a current technical basis for adjudication and water management, disbursing hydrologic information, and responding to data inquiries as mandated.

Need for acquisition, compilation and synthesis of aquifer data (driller's logs and field visits) by assembling a database from which technical analyses can be made. Water quality and water supply problems exist. A current resource database is fundamental to informed water management and adjudication decisions and comprehensive data applications and analysis.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	
200-500	$	4.0

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist II (Allely)	3.5 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

Purpose - To process and assemble well logs and field data gathered 1985-1986 into a usable format for entry into currently existing state WELTS and USGS WATSTORE databases. Organization of data will facilitate future technical analyses. Description - Transcribe water quality, water level, and lithologic data, and homeowner's observations onto standard forms. Map well locations on map base, and assign elevations. Transmittal to USGS for entry into WATSTORE database. Status - Indian Cove area data recorded and transmitted June 1988 to USGS. WATSTORE data entry nearing completion Dec. 1988. Currently, much of Auke Bay- Mendenhal Peninsula data has been processed. Anticipate transmittal of these data by end of fiscal year. Remainder to be completed FY90. Work will then begin on publications.

PROJECT COMPLETION DATE: ongoing

FY 89 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Basemap showing well locations; completed forms recording all pertinent field data, water quality, water level and homeowner's observations; transmittal of information to WATSTORE	6-30-89

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Alaska Water Use Data Systems (AWUDS)

PROJECT MANAGER: Bill Petrik PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project fulfills DNR's need to monitor quantities and types of water use throughout the State, thus providing realistic data on which to base sound surface and ground-water management decisions. This project addresses needs which include site specific water withdrawal, return, use, and availability data and is useful in issues such as water rights, future water demand projections, and development of commerce, industry, and residential developments in Alaska.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	7.0
200-500	$	6.0

PERSONNEL ASSIGNED	TIME/MONTHS
Hydrologist I (Petrik)	7 months
Student Intern (Welch)	7 months

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

The purpose of this project is to collect, store, and retrieve water use data from public, industrial, commercial, and agricultural sources throughout Alaska.

Description - Major water users throughout Alaska have been contacted and asked to provide water consumption data. This includes all major Alaskan cities, many industries, and scores of bush communities. Consumption figures are mostly metered and many estimated. Information is stored in the Land Administration System (LAS) where it is constantly being updated and appended. Information is transferred to DNR's geoprocessor for manipulation and report preparation.

PROJECT COMPLETION DATE: Ongoing

FY 89 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
Status reports to USGS	Quarterly
DGGS draft RI "1987 AWUDS Water Use Summary"	9-30-88
Project Management Plan	9-30-88
Proposal to USGS for continuation of AWUDS project	9-30-88

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Ground-Water Quality Data Systems

PROJECT MANAGER: Jim Munter PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project fulfills DNR's need to collect, evaluate, store and disseminate information about the quality of the ground water of Alaska.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	10.0 + 15.0 RSA from DEC
200-500	$	

PERSONNEL ASSIGNED	TIME/MONTHS
Munter (Hydro. IV)	5 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
The purpose of the project is to develop the conceptual design of an interagency, statewide ground-water quality data management system. The project has reviewed existing sources of data, current data management practices, examples of other state's systems, and potentially available data management systems. The project will explore possible interagency cooperative procedures and funding sources, and prepare a report.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Report of Investigations entitled "Design of a Ground-Water Quality Data System for Alaska"	6-30-89

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Anchor River Well Test

PROJECT MANAGER: Bill Petrik PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 5
Senate District: D

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project addresses the state's need to evaluate the suitability of an aquifer at Anchor Point for use as a public water supply and to advise other government agencies and the public accordingly.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	2.3
200-500	$	1.0

PERSONNEL ASSIGNED	TIME/MONTHS
Bill Petrik	1 month)

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Preliminary data gathering and fieldwork preparation (11-1-88 to 11-3-88); perform pump and recovery tests on observation and pumping well (11-7 to 11-10-08); construct draft report, edit, finalize, and complete as a DGGS Public Data File (11-14 to 12-31-88)

PROJECT COMPLETION DATE: 12-31-88

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
PDF "Results of pumping and recovery tests on wells for a proposed water supply at Anchor Point, AK"	12-31-88

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Kodiak Coast Guard Study-Seismic Refraction/Surficial Thickness-Bedrock Evaluation

PROJECT MANAGER: Roger Allely PHONE NO: 696-0070

PROJECT'S REGION: Kodiak

PROJECT'S ELECTION DISTRICT: House District: 27
Senate District: N

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project addresses the need for a sound technical basis for evaluating ground-water contamination issues in Alaska, as mandated by Congress. There is a need for acquisition, analysis, and synthesis of subsurface hydrostratigraphic data into map and database compilations. These will facilitate technically informed managerial decisions concerning cleanup of contaminated sites.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	20.0
200-500	$	13.9

PERSONNEL ASSIGNED	TIME/MONTHS
Roger Allely	5 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

At the request of the US Coast Guard, in 1987 and 1988, the USGS performed soil gas analysis, test hole boring, and monitor well installation to detect, define, and monitor fuel spill and other contamination plumes accumulated since WWII, and characterize aquifer systems. DGGS was contracted by USGS to perform detailed bedrock and surficial geologic mapping. Seismic refraction was included to characterize bedrock topography, thicknesses, and probable lithologies of overlying surficial deposits. These act inconcert to control the movement and accumulation of subsurface contaminants.

Two months of field work - execution of high resolution (short spacing) seismic refraction lines on Nyman Peninsula in and around the fuel farm, and longer reconnaissance lines in the greater Buskin Valley area were completed in mid-October 1988. Analysis of data, cross-section interpretations, and narrative report work in progress as of December. Transmittal of these to USGS in early 1989.

PROJECT COMPLETION DATE: March 1989

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Cross section showing layer thicknesses, lithologies and bedrock surface	Jan 1989
Bedrock topographic map of selected areas	Jan 1989
Narrative report discussing field and analytical methods and interpreatations	Feb 1989

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Water Quality Laboratory

PROJECT MANAGER: Mary Moorman PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: The laboratory provides analytical water quality services to other DGGS hydrology projects, as well as to other state agencies with water related research projects on a contractual basis. It is housed in the Duckering Building on the UAF campus, where we have space and equipment sharing agreements with the UAF-WRC.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Moorman (Hydro.III)	6.0
Ray (Hydro. II)	2.0
Harris (Student Intern)	4.0

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

The lab produces no independent reports but is acknowledged by the various projects it serves. The water quality lab was originally established in 1980 as a geothermal lab with the main emphasis switched from geothermal fluids to surface and groundwater analyses in 1984. Since that time, much of the lab's efforts have been focused on sediment analyses of waters effected by placer mining. We participated in a tri-agency analysis of placer mining impacts in the Birch Creek drainage and later expanded this inquiry to the Tolovana and Fortymile drainages. In the past we have provided hydrogeochemical data for projects at Auke Bay, Potter's Marsh, Tuluksak, Alaska Moose Range, etc. We are currently working on sediment analyses for the Usibelli project, a DGGS geothermal project, a DEC project to better define the mixing zone for placer mining, and a MMS contract to the state to examine environmental impacts of offshore gold dredging. Our future activities depend on other DGGS projects and contracts. We may be involved in hydrogeochemical analyses associated with North Slope and/or ANWR studies, or with baseline studies for the proposed Hatcher Pass Ski Area development.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT Est. COMPLETION DATE

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Surface Mining Technical Review

PROJECT MANAGER: Scott Ray PHONE NO: 451-2772

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: The project reviews and evaluates the technical information on surface and ground-water resources in surface mining permit applications. The review is requested by DNR Division of Mining (DOM).

DGGS findings on the technical water resource data in surface mining applications is used by DOM to evaluate and issue surface mining permits.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100 $
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Ray (Hydro. II)	1.0 mo.
Maurer (Hydro.III)	1.0 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

Hydrological information in surface coal mining permit applications is reviewed for completeness and adequacy.

Permit applications are evaluated for premining data, potential mining impacts, and restoration and monitoring plans on surface water and ground water systems. Findings are submitted to DNR Division of Mining.

PROJECT COMPLETION DATE: on-going

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
reviews	as requested

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB-PROJECT: Southcentral/Agricultural Area Lakes

PROJECT MANAGER: Mary Maurer PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 16
Senate District: E

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS?: This project determines the impact of the Point MacKenzie agricultural project on the chemical water quality and biological productivity of Horseshoe Lake.

Agricultural development at Point MacKenzie will produce non point sources of nutrients that may lead to water-quality degradation in area lakes. This study investigates the long-term limnological impacts of agricultural development on Horseshoe Lake.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one.

100	$	6.5
200-500	$	

PERSONNEL ASSIGNED	TIME/MONTHS
Mary Maurer	1.5 mo.

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

This project studies limnological conditions in Horseshoe Lake prior to and during development of the Point MacKenzie Agricultural Project.

Limnological variables (depth profiles, chemical analyses, biological activity) are measured to determine the effects of nutrient loading on water quality of Horseshoe lake.

PROJECT COMPLETION DATE: 1989

FY 88 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORT, FINAL REPORTS, MAPS, ETC.)

PRODUCT	Est. COMPLETION DATE
1986, 1987, and 1988 data will be analyzed in a DGGS report of Investigation, authored by Mary Maurer	1989

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Southcentral/Kenai Peninsula Lakes Acid Raid Research

PROJECT MANAGER: Mary Maurer PHONE NO: 696-0070

PROJECT'S REGION: Southcentral

PROJECT'S ELECTION DISTRICT: House District: 5
Senate District: D

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: The project provides quantitative information on the chemical status of 60 lakes for present and future evaluation of acid rain effects on the Kenai Peninsula.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	1.2
200-500	$	

PERSONNEL ASSIGNED	TIME/MONTHS
Mary Maurer (Hydro. III)	2 months

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
This project was initiated at the request of the U.S. Environmental Protection Agency, Environmental Research Laboratory in Corvallis, Oregon. EPA's study, entitled "Kenai Lakes Investigation Project (KLIP): Acid Rain Research in Alaska", is comparable to EPA's National Surface Water Survey (NSWS) projects for the lower 58.

This project provides EPA with the following information for theKLIP project:
1. All published and unpublished water quality data for the 60 KLIP lakes,
2. Comparison of KLIP, Nancy Lake District, and Mat-Su Valley lake water quality,
3. Field and field laboratory support in August 1988.

PROJECT COMPLETION DATE: 1988

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
"Compilation of limnological data for selected Kenai Peninsula lakes, southcentral Alaska", DGGS Public Data File 88-38 by Mary Maurer	1988

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Statewide Turbidity Bibliography

PROJECT MANAGER: Mary Maurer PHONE NO: 696-0070

PROJECT'S REGION: Statewide

PROJECT'S ELECTION DISTRICT: All

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project systematically compiles bibliographic citations and abstracts on turbidity and total suspended solids in surface waters, which will allow interested parties access to historical and recent information on the effects of sedimentation due to logging, mining, and road construction.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	25.0
200-500	$	

PERSONNEL ASSIGNED	TIME/MONTHS
Maurer (Hydro. III)	2.5 mo.
Ray (Hydro II)	1 mo.
Ireland (Hydro II)	.2 mo.
Harris (student intern)	10%

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)

This project will set up a computer-based bibliography on the topic of turbidity and total suspended sediment in freshwater in arctic and northern temperate climates. The bibliography will include a standard bibliographic citation, an abstract, and key words for each reference (i.e., journal articles, monographs, books, dissertations, theses, and published reports). The bibliography is set up with bibliographic software to facilitate managing, editing, and searching the bibliography. References will be acquired through: 1) DIALOG on-line database searches; 2) on-line library network searches; and 3) agency contacts. The US Dept. of Interior Alaska Resources Library (ARL) will conduct the on-line database searches. Bibliographic software will be compatible with that of ARL to allow for searching at the library. The expected size of the bibliography is approximately 10,000 citations.

PROJECT COMPLETION DATE: 1989

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
Computerized biblography on turbidity and total suspended sediment	1989
Public Data File on the availability of turbidity and suspended sediment data in Alaska	1989

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Hoseanna Basin/Poker Flats Mine Water Quality

PROJECT MANAGER: Mary Maurer PHONE NO: 696-0070

PROJECT'S REGION: Interior

PROJECT'S ELECTION DISTRICT: House District: 17
Senate District: J

WHICH ISSUES/NEED DOES THIS PROJECT ADDRESS: This project provides data on surface water and groundwater quality in the Poker Flats mine area which will be used by Division of Mining to manage water resources in the mined area.

This project addresses the effect of surface coal mining on 1) the ground-water quality of the Suntrana formation, mined spoils, and Hoseanna Creek alluvium, and 2) the surface water quality of Hoseanna Creek.

FUNDS ALLOCATED: (State/Federal/Interagency) circle one. PRIVATE

100 $ See Hoseanna Basin/Usibelli Mine
200-500 $

PERSONNEL ASSIGNED	TIME/MONTHS
Maurer (Hydrologist III)	4 months
Munter (Hydrologist IV)	.2 mo.
Maynard (Hydro. II)	.2 mo.

PROJECT PURPOSE AND DESCRIPTION (please describe past, current, and anticipated future project activities)

The project will determine the quality of surface waters and ground water on state lands which are affected by surface coal mining.

Streamflow measurements, sediment samples, and geochemical samples will be collected in Hosanna Creek. Geochemical samples will be collected at five wells at the Poker Flats Mine.

PROJECT COMPLETION DATE: 1989

FY 88 DELIVERABLES
(DELIVERABLES SHOULD INCLUDE ALL DRAFT REPORTS, PRELIMINARY REPORTS, FINAL REPORTS, MAPS, ETC.)

PRODUCT	COMPLETION DATE
A Public Data File will be written on project findings	1989

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Mixing Zone Sample Analysis

PROJECT MANAGER: Mary Moorman PHONE NO: 696-0070

PROJECT'S REGION: Fairbanks

PROJECT'S ELECTION DISTRICT: House District: 18-21
Senate District: J K

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: This project is a DEC project for which DGGS was contracted for analytical support. The resulting data will be used to formulate guidelines for defining the mixing zone for individual placer mining sites. With guidelines in hand DEC hopes to persuade the EPA to modify its NPDES permitting procedures to allow for a site-specific designated mixing zone for each placer mine.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	3.0
200-500	$	

PERSONNEL ASSIGNED	TIME/MONTHS
Moorman (Hydro.III)	1 mo.
Ray (Hydro.II)	0.5 mo.
Harris (Student Intern)	1 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
Larry Peterson, a private consultant was contracted by DEC to design this project, carry out the sampling procedures and analyze the resulting data. The laboratory performed turbidity and total suspended solids analyses on about 150 sediment samples, and digested and analyzed for As an additional 150 water and sediment samples. The raw data were then given to Larry to incorporate into his model.

PROJECT COMPLETION DATE: 2/88

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
A report will be written by Larry Petersen for DEC This report is subject to community review	12/88

FY 89 PROJECT SUMMARY

SECTION: Water Resources

PROJECT/SUB PROJECT: Nome Sample Analyses

PROJECT MANAGER: Mary Moorman PHONE NO: 696-0070

PROJECT'S REGION: Northern

PROJECT'S ELECTION DISTRICT: House District: 23
Senate District: L

WHICH ISSUES/NEEDS DOES THIS PROJECT ADDRESS: DGGS was contracted to analyze water, sediment and biota samples for trace metals in response to a request for information concerning the impact of an offshore gold dredging operations on the environment. We were contracted by two scientists at the UofA to porcess the samples resulting from this study, which is funded by the Minerals Management Service, but stems from a Compliance Order and request for information served by EPA on the Western Gold Exploration and Mining Co. and Inspiration Gold Incorp. who operate a dredge offshore of Nome.

FUNDS ALLOCATED: (State/Federal/Interagency) Circle one.

100	$	3.6
200-500	$	1.9

PERSONNEL ASSIGNED	TIME/MONTHS
Moorman (Hydro.III)	1.0 mo.
Ray (Hydro.II)	0.5 mo.
Harris (Studen Intern)	1.0 mo.

PROJECT PURPOSE AND DESCRIPTION (Please describe past, current, and anticipate future project activities)
This was a one-time contract for services, but the entire study is ongoing and we may be contracted next year for analytical services.

PROJECT COMPLETION DATE: 12/1/88

FY 89 DELIVERABLES (Deliverables should include all draft reports, preliminary reports, final reports, maps, etc)

PRODUCT	Est. COMPLETION DATE
A report to MMS from Drs. Gosink and Naidu of UofA Fairbanks in which DGGS will be acknowledged	?

PROJECT NUMBER:	PROJECT TITLE:	STATUTORY AUTHORITY:	LOCATION:
95	Statewide Critical Water Database	AS 41.08.017 AS 41.08.020 AS 41.08.040	Statewide PROJECT MANAGER: W. Long PHONE: 696-0070

LINE ITEM DETAIL		PRIOR YEAR FY 88 ACTUAL	CURRENT YEAR FY 89 AUTHORIZED	BUDGET YEAR - FY 90 AGENCY ADJUSTED BASE	AGENCY INCREMENT/ DECREMENT	AGENCY AGENCY REQUEST	GOVERNOR'S BUDGET
71000	Personal Services			158.0		158.0	158.0
72000	Travel			5.0		5.0	5.0
73000	Contractual Services			90.5		90.5	90.5
74000	Supplies and Materials						
75690	Equipment						
75025	Lands/Buildings						
77000	Grants, Claims						
78000	Miscellaneous						
	TOTAL			253.5		253.5	253.5
1002	Federal Receipts						
1004	General Fund			253.5		253.5	253.5
1006	I-A Receipts						
1007	Other:						
15	Full-Time			1.0		1.0	1.0
16	Part-Time			3.0		3.0	3.0
17	Non Permanent						
18	Staff Months			36.0		36.0	36.0

PROJECT DESCRIPTION:

The State of Alaska's network of stream-gaging stations has fewer stations per square mile than any other state, and no historical flow or water-quality data exist for many major streams and rivers in Alaska. Stream-gaging stations record the height, or stage, of the water surface. Calculations derived from this record define a continuous record of the volume of water flowing in the stream, or stream discharge.

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Water-quality issues are becoming increasingly important as development activities and population density impact the quality of surface and ground water. Water-quality analyses determine percentages and types of dissolved and suspended materials present in the water, including such constituents as calcium, magnesium, iron, benzene, arsenic, silt, and bacteria.

DGGS also collects and receives ground-water data from well drillers, homeowners, and other state and federal agencies. These data are entered into WATSTORE and WELTS computer data-management systems that allow over 20,000 water-well entries to be efficiently catalogued and manipulated. This is the only integrated ground-water database available to private, industry, and governmental concerns within the state.

DNR is charged with management of surface and subsurface waters within the state. Data describing stream discharge, water-quality, and ground-water are crucial to that management role. The Statewide Critical Water Database project encompasses:

1. Water-supply determinations: to assess the availability of surface and subsurface (ground water) drinking water for communities and industry.
2. Pollution and health concerns: to assess the impact of development activities and protect surface and ground water from contamination by oil spills, waste disposal, and salt-water intrusion.
3. Fish and game habitat management: to determine the supply and availabity of waters necessary to support fish and other wildlife, in cooperation with ADFG and USFWS.
4. Recreational concerns: for management of suitable swimming, boating, and fishing waters.
5. Construction projects and sand and gravel mining: to provide data for development of bridge, culvert, and embankment design requirements, and to determine stream-bed sand and gravel deposits.
6. Erosion and river bank protection: to design bank-stabilization and stream-diversion structures.
7. Hydropower projects: to assess suitability, evaluation, and design considerations for potential hydropower sites.

This statewide project includes a 50/50 cooperative ~~matching~~ agreement with the U.S. Geological Survey Water Resources Division. In order to coordinate statewide water-resource programs, this project also supports an updated and annual revision of the AWARE 5-year plan. The AWARE plan also coordinates (on a 5-year time line) state and federal interagency water projects, such as the U.S. Geological Survey/DNR water data collection efforts.

The Statewide Critical Water Database Project includes the following specific investigations in FY90:

1. Statewide Ground-water Data Systems: Provides a comprehensive, up-to-date statewide system of water wells and subsurface hydrogeology. Water-well logs submitted by drillers or obtained from other agencies are coded into WELTS (Well Log Tracking System), a DGGS computerized

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data-management system. This is an ongoing data-management project.

2. Statewide Ground-water Quality Protection: This subproject is a cooperative effort with DEC and involves the implementation of ground-water protection strategies in areas of data management or hydrologic assessment.
3. Statewide Ground-water Level Monitoring: DGGS monitors and defines natural and induced fluctuations in ground-water levels by means of 11 observation wells in critical development areas of the state, and the U.S. Geological Survey funds the operations of an additional 10 observation wells.
4. Statewide Ground-water Technical Advisory Service: DGGS is routinely contacted by state and local agencies and the public sector for advice on ground-water issues. This subproject collects and analyzes ground-water data and reviews and collects data from other agency projects that relate to these issues.
5. Alaska Water Use Data System (AWUDS): This subproject fulfills DNR's need to monitor the statewide quantity and types of water use and analyzes and presents these data in a form suitable to sound management decisions involving surface and ground water.
6. Statewide Streamflow Gaging Stations: Management of Alaskan surface waters requires data on the quantity, quality, and timing of stream flow. This subproject is a cooperative effort with the U.S. Geological Survey to collect and analyze streamflow and water-quality data. All state funds are matched by federal funds.
7. Statewide Rural Community Hydro Sites: The Alaska Power Authority continuously evaluates alternate power-generation methods for rural communities. With RSA funding, DGGS provides APA with stream-data collection and data evaluation at eight sites (FY86) throughout the state.
8. Water Rights/River Adjudication: This subproject provides for DGGS involvement in surface and subsurface water rights determinations and basinwide river adjudication, which require extensive hydrologic data collection and interpretation.
9. Navigability: The State of Alaska has title to all lands beneath navigable waters. Navigability determinations are legal issues decided in court. Data on the hydrologic and morphologic character of a water body are provided by DGGS to the court to assist in decision-making.
10. Gravel Studies: This study investigates the quantity of gravel transported in river systems and how it can be extracted with the least impact on a river and its ecosystem. These data are essential to DNR management of gravel resources.
11. Water-quality Laboratory: This project provides analytical services to determine the quality of surface and ground-water samples. Water samples are analyzed for inorganic constituents, turbidity, sediment, trace and heavy metals, conductivity, and total dissolved solids.
12. Statewide Surface Mining Review: Permit applications are evaluated for pre-mining data, potential mining impact, and restoration and monitoring plans as they relate to surface water and ground-water systems. Findings are delivered to the Division of Mining.
13. Hydrologic Database and Computer Support: The effective management of this computerized database is important to the decision-making process as it relates to hydrologic issues. This subproject includes the management of this database and the use of computer-based modeling such as the Hydrologic Engineering Center (HEC) series.

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PERFORMANCE OBJECTIVES: To provide data and analyses on the quantity, quality, and availability of Alaska surface, ground, and coastal waters for water-resource managers and other users; and to coordinate Alaska water-resources data collection among State, federal, and private agencies.

ECONOMIC RETURNS: By maintaining a statewide hydrologic database, DGGS provides information necessary to the State's decision-making process regarding current and future resource development. Any development of potential economic benefit to the State is directly related to the availability of the water resource and management of the resource. By providing hydrologic data and knowledge of Alaska's water resources, this project helps facilitate informed and responsible resource development.

PERSONNEL SUMMARY:

PCN	Job Class	Loc	Months
2051	Hydrologist V	EBK	8.0
2143	Hydrologist II	EBK	8.0
2052	Hydrologist I	EBK	8.0
2108	Clerk Typist III	EBK	12.0

PROJECT NUMBER:	PROJECT TITLE:	STATUTORY AUTHORITY:	LOCATION:
96	Northern Region Water Resources	AS 41.08.017 AS 41.08.020 AS 41.08.040	Northern Alaska PROJECT MANAGER: W. Long PHONE: 696-0070

LINE ITEM DETAIL		PRIOR YEAR FY 88 ACTUAL	CURRENT YEAR FY 89 AUTHORIZED	BUDGET YEAR - FY 90 AGENCY ADJUSTED BASE	BUDGET YEAR - FY 90 AGENCY INCREMENT/ DECREMENT	BUDGET YEAR - FY 90 AGENCY AGENCY REQUEST	BUDGET YEAR - FY 90 GOVERNOR'S BUDGET
71000	Personal Services			106.4		106.4	106.4
72000	Travel			5.0		5.0	5.0
73000	Contractual Services						
74000	Supplies and Materials						
75690	Equipment						
75025	Lands/Buildings						
77000	Grants, Claims						
78000	Miscellaneous						
	TOTAL			111.4		111.4	111.4
1002	Federal Receipts						
1004	General Fund			111.4		111.4	111.4
1006	I-A Receipts						
1007	Other:						
15	Full-Time						
16	Part-Time			3.0		3.0	3.0
17	Non Permanent						
18	Staff Months			22.0		22.0	22.0

PROJECT DESCRIPTION:

This project funds the collection, analyses, and interpretation of hydrologic data in the Northern Region; its function is parallel to the Southcentral Region Water Resources Project, with some significant differences.

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P2 PROJECT DETAIL

Northern Region Water Resources

AGENCY Natural Resources

BRU Geological Management

COMPONENT Geological Management

Revised Date 10/13/88

FY 90

11: 1908

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The Northern Region Water Resources Project focuses on investigations of northern-climate mining and pollution problems, arsenic occurrences in ground water in the Fairbanks area, permafrost-caused erosion problems, and precipitation monitoring for northern-climate agricultural needs. Severe flooding caused by ice-damming during spring breakup and streamflow and water-quality monitoring on major North Slope rivers that traverse petroleum-development areas are also studied in this project.

The Northern Region Water Resources Project will conduct the following investigations in FY90:

1. Placer Mining: to provide data on quantity, quality, and flow of water into, through, and downstream from placer-mining operations.
2. Granite Creek Flood Evaluation: to provide discharge and precipitation data for flood analysis and the design of flood prevention measures to protect Delta agricultural lands.
3. Hoseanna Creek Streamflow and Sediment Load: to assess effects of coal mining on stream basins, particularly those near the Usibelli Mine, by defining streamflow, sediment transport, and water quality in the Lignite Creek basin and adjacent subbasins.
4. Agricultural Area Water and Wind: to provide basic meteorologic and hydrologic data by establishing wind and precipitation monitoring and data-collection sites. These data are used by the Division of Agriculture, state and federal agencies, and the public for agricultural development in the Delta and Nenana agricultural areas.
5. ANWR Hydrology: Currently, water is the only resource under state management within ANWR. In this fragile ecosystem, adequate water supplies and quality are critical. For the state to properly manage this important resource, collection of data showing quantity, quality, and timing of surface and subsurface water sources is essential. Limited funding shortfalls during FY90 would limit DGGS involvement to organizational review only; the project is proposed elsewhere in this budget as an increment, because of its urgency.

PERFORMANCE OBJECTIVES:

1. To provide accurate information about the quality, quantity, and availability of northern Alaska's underground and surface water to water-resource managers and other users; and
2. provide a basis for economic growth by conducting studies of erosion, streamflow, ground water, water quality, and sediment transport in mining and agricultural areas.

ECONOMIC RETURNS: Resource extraction and agricultural development dominate water resource projects in the northern region. Some projects monitor water resources on existing mining and agricultural areas that economically benefit the State. Water investigations in ANWR will assure the State in more rapidly approving water needs and in defending the State's management authority. Water-resources data for resource-extraction activities in the northern region directly benefit the State by allowing for more rapid development, while still meeting the environmental protection-data collection needs of the State and DNR as water managers.

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P2 ADDITIONAL EXPLANATION FORM

Northern Region Water Resources

AGENCY Natural Resources

BRU Geological Management

COMPONENT Geological Management

Revised Date 10/13/88

FY 90

PERSONNEL SUMMARY:

PCN	Job Class	Loc	Months
2095	Hydrologist II	EBK	8.0
2056	Hydrologist III	JBC	6.0
2174	Hydrologist II	JBC	8.0

P2 ADDITIONAL EXPLANATION FORM

Northern Region Water Resources

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AGENCY Natural Resources

BRU Geological Management

COMPONENT Geological Management

FY 90

Revised Date 10/13/88

PROJECT NUMBER:	PROJECT TITLE:	STATUTORY AUTHORITY:	LOCATION:
97	Southcentral Region Water Resources	AS 41.08.017 AS 41.08.020 AS 41.08.040	Southcentral Alaska PROJECT MANAGER: W. Long PHONE: 696-0070

LINE ITEM DETAIL		PRIOR YEAR FY 88 ACTUAL	CURRENT YEAR FY 89 AUTHORIZED	BUDGET YEAR - FY 90 AGENCY ADJUSTED BASE	BUDGET YEAR - FY 90 AGENCY INCREMENT/ DECREMENT	BUDGET YEAR - FY 90 AGENCY AGENCY REQUEST	BUDGET YEAR - FY 90 GOVERNOR'S BUDGET
71000	Personal Services			163.4		163.4	163.4
72000	Travel			5.0		5.0	5.0
73000	Contractual Services						
74000	Supplies and Materials						
75690	Equipment						
75025	Lands/Buildings						
77000	Grants, Claims						
78000	Miscellaneous						
	TOTAL			168.4		168.4	168.4
1002	Federal Receipts						
1004	General Fund			168.4		168.4	168.4
1006	I-A Receipts						
1007	Other:						
15	Full-Time						
16	Part-Time			4.0		4.0	4.0
17	Non Permanent						
18	Staff Months			32.0		32.0	32.0

PROJECT DESCRIPTION:

The Southcentral Region Water Resources project is the largest of the three regional water resources projects, all of which address similar water resource issues.

Water resource issues in the populous Southcentral Region range from basic issues such as drinking water to complex issues such as flooding,

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P2 PROJECT DETAIL

Southcentral Region Water Resources

AGENCY Natural Resources

BRU Geological Management

COMPONENT Geological Management

Revised Date 10/14/88

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stream-bed mining, and pollution, and influence community planning, natural-resource development, and various private and industrial development activities.

The Southcentral Region Water Resources project provides for the collection, analysis, and interpretation of hydrologic data in Southcentral Alaska and encompasses the following areas of investigation:

1. Quantity, quality, and timing of surface and subsurface waters
2. Water-quality and pollution
3. Domestic and municipal surface-water and well-water aquifer supplies
4. Flooding, erosion, and glacial outbursts
5. Precipitation (rain, snow, snowmelt) and runoff
6. Streambed sources of sand and gravel
7. Hydropower potential
8. Recreational uses, fish and game habitat, and wetlands
9. The effect of placer mining

The Southcentral Region Water Resources Project will include the following activities investigations in FY90:

1. Anchorage Hillside Aquifer Mapping: This study focuses on specific areas where ground-water levels have declined and wells have failed, and where aquifer contamination problems may also exist. The study will identify the controls that govern ground-water quality and quantity to aid in resolving conflicts which arise when water levels decline and demand increases.
   Anchorage Hillside Ground-water Hydraulics: This subproject identifies the cause and effect relationship for site-specific aquiferwide issues that relate to water-rights adjudication, and the conflicts related to declining water levels and increasing demand.
2. Mat-Su Ground-water Data: This subproject will compile available water-well data from the Matanuska-Susitna Borough for development of a ground-water management plan.
   Sterling Area Ground-water Evaluation: This subproject will investigate potential contamination of water wells from long-term liquid waste disposal at the Sterling Special Waste Site.
3. Hatcher Pass/Matanuska Valley Moose Range: This project will gather surface-water, ground-water, water-quality, and wind and snow survey data for inclusion in a comprehensive DLWM land-management plan for the Moose Range and Hatcher Pass areas. These data will also provide baseline information for future development of the area's resources.
4. Government Peak and Chugach Park Ski Area Evaluation: This study will provide basic hydrologic information, including snow-survey data, streamflow availability for snow production, and an impact assessment of ski-area development to assist land lease programs of DLWM and DOPOR during the anticipated development of ski areas in Hatcher Pass and Chugach State Park.

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5. Kodiak Coast Guard Base Aquifer Study: This project, supported by federal funds from USGS, explores the bedrock/gravel interface in the Coast Guard base area as part of a contamination investigation.
6. Snow Surveys: This subproject will collect snow data, maintain snow-sample networks, and record and analyze these data, which are used in flood prediction, water-supply forecasting, and ski-development evaluations.
7. Kenai Wildlife Refuge Hydrology: This project is a cooperative program with USFWS to operate a stream monitoring system in the Kenai Wildlife Refuge.
8. Recreational Rivers Evaluation: This project will provide hydrological data for DLWM's recreational river evaluation program.

PERFORMANCE OBJECTIVES:

1. To provide data and analyses on the quantity, quality, and availability of southcentral Alaska's surface, ground, and coastal water to water-resource managers and other users, and to coordinate Alaska water-resources data collection among State, federal, and private agencies.
2. To provide a basis for economic expansion by providing analyses of water supply, water quality, and snow accumulation to developers and recreation-land managers.

ECONOMIC RETURNS: Accurate data and interpretations are essential to wise management of water resources in Alaska. Wise water management is especially important in highly populated areas like southcentral Alaska. In some areas, intense use of ground water has diminished the water supply, a supply which is managed by the State through DNR (charged with adjudicating these resources). Failure to adequately administer ground-water resources in the southcentral region could result in severe economic difficulties. Recreation and tourism developments, such as the proposed Chugach ski area, create special water needs, and hydrologic data collected by DGGS will facilitate evaluation of the proposed development. Snow surveys for the proposed Hatcher Pass ski area and for the Kenai special management area are also of direct economic benefit to the State because they provide necessary data for development of recreation-based resources.

PERSONNEL SUMMARY:

PCN	Job Class	Loc	Months
2145	Hydrologist III	EBK	8.0
2078	Hydrologist IV	EBK	8.0
2144	Hydrologist III	EBK	8.0
2141	Hydrologist II	EBK	8.0

PROJECT NUMBER:	PROJECT TITLE:	STATUTORY AUTHORITY:	LOCATION:
98	Southeastern Region Water Resources	AS 41.08.017 AS 41.08.020 AS 41.08.040	Southeast Alaska PROJECT MANAGER: W. Long PHONE: 696-0070

LINE ITEM DETAIL		PRIOR YEAR FY 88 ACTUAL	CURRENT YEAR FY 89 AUTHORIZED	BUDGET YEAR - FY 90 AGENCY ADJUSTED BASE	AGENCY INCREMENT/ DECREMENT	AGENCY AGENCY REQUEST	GOVERNOR'S BUDGET
71000	Personal Services			72.8		72.8	72.8
72000	Travel			5.0		5.0	5.0
73000	Contractual Services						
74000	Supplies and Materials						
75690	Equipment						
75025	Lands/Buildings						
77000	Grants, Claims						
78000	Miscellaneous						
	TOTAL			77.8		77.8	77.8
1002	Federal Receipts						
1004	General Fund			77.8		77.8	77.8
1006	I-A Receipts						
1007	Other:						
15	Full-Time						
16	Part-Time			2.0		2.0	2.0
17	Non Permanent						
18	Staff Months			16.0		16.0	16.0

PROJECT DESCRIPTION:

This project provides for the collection, analysis, and interpretation of hydrologic data in Southeastern Alaska and addresses the hydrologic issues described in the Southcentral Region Water Resources Project.

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The Southeastern Region Water Resources Project will conduct the following specific investigations in FY90:

1. Hubbard Glacier: The surging of Hubbard Glacier resulted in the temporary formation of Russell Lake, which raised a variety of hydrologic concerns ranging from flooding and ground-water contamination to moraine' outbursts. The long-term effects on the Situk River from the likely flooding of Russell Lake need to be assessed. Interagency suppo. c and monitoring will be available as funding permits.

2. Rural Microhydro Studies: Southeastern Alaska is well suited to microhydro development, and the Alaska Power Authority has requested DGGS hydrologists collect streamflow data for potential power generation information.

PERFORMANCE OBJECTIVES: To provide accurate information about the quantity, quality, and availability of southeastern Alaska's surface, ground, and coastal waters for water-resource managers and other users; and to coordinate Alaska water-resources data collection among State, federal, and private agencies.

ECONOMIC RETURNS: Most water resources projects in the southeastern region are related to resource-extraction activities (mining and logging) and to the fishing industry. Because these industries are dependent on water resources, it is essential that hydrologic data be available and to facilitate continued responsible resource development.

PERSONNEL SUMMARY:

PCN	Job Class	Loc	Months
2097	Hydrologist II	EBK	8.0
2142	Hydrologist III	EBK	8.0

PROJECT NUMBER:	PROJECT TITLE:	STATUTORY AUTHORITY:	LOCATION:
99	North Slope Water and Sand and Gravel Evaluation	AS 41.08.017 AS 41.00.020 AS 41.06.040	Northern Alaska PROJECT MANAGER: W. Long PHONE: 696-0070

LINE ITEM DETAIL		PRIOR YEAR FY 88 ACTUAL	CURRENT YEAR FY 89 AUTHORIZED	BUDGET YEAR - FY 90 AGENCY ADJUSTED BASE	AGENCY INCREMENT/ DECREMENT	AGENCY REQUEST	GOVERNOR'S BUDGET
71000	Personal Services				125.0	125.0	175.0
72000	Travel				15.0	15.0	17.1
73000	Contractual Services				85.0	85.0	80.2
74000	Supplies and Materials				10.0	10.0	7.7
75690	Equipment				15.0	15.0	20.0
75025	Lands/Building						
77000	Grants, Claims						
78000	Miscellaneous						
	TOTAL				250.0	250.0	300.0
1002	Federal Receipts						200.0
1004	General Fund				250.0	250.0	
1006	I-A Receipts						
1007	Other: GENERAL FUND MATCH						100.0
15	Full-Time						
16	Part-Time						
17	Non Permanent						
18	Staff Months				25.0	25.0	30.0

PROJECT DESCRIPTION:

The Department of Natural Resources is the management agency for Alaska water resources, including water quantity and quality data collection, water use, and water appropriation. Effective and prudent water management requires adequate site-specific data, analyses, and information on surface and sub-surface water resources. Current and projected petroleum exploration and development on the North Slope and Coastal Plain

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require prudent and timely water-management and policy decisions. However, supporting water data are not available. Water data and information are also needed by the oil industry in order to meet their obligations to the State in their exploration and production programs. Water-resource data and information are also required for any environmental monitoring that may be conducted on the impact of oil and gas activity on the Coastal Plain environment. The need for baseline water data is acute.

Congress may open areas of the Arctic National Wildlife Refuge to oil and gas exploration and development. It is essential that such opening be predicated upon established and environmentally sensitive land-use stipulations based on sound environmental data. DNR will prepare stipulations associated with water-use authorizations. DLWM will produce a stipulation package to cover federal water rights appropriation and oil industry appropriation. Water and sand-and-gravel data are needed to produce appropriate stipulations. These stipulations will be coordinated with other affected agencies.

Data on the quantity and quality of surface water are necessary for the management of fish-bearing streams and the protection of the fish habitat. The data are also needed to prepare for the adjudication and allocation of federal reserved water rights, which the Federal government will file for in the near future. A baseline water-data collection program is required for these management programs.

The increment purchases the following:

1. Water data, analyses, and reports on the surface and subsurface waters of the North Slope and Coastal Plain, with special attention to areas of active or potential petroleum exploration and development.

2. Water data and information needed by State agencies to effectively manage the water and sand and gravel resources of the area.

3. Water and sand and gravel resource knowledge and information in support of petroleum development in the area.

4. Fundamental data and support of DLWM for preparation of management stipulations.

5. Coordination of State of Alaska water-resources investigations and integrations of water data with that of other agencies to produce comprehensive data and knowledge bases for all users of the information.

The outline of work for this increment includes a DGGS review of data from all available sources, contacts to relevant agencies, and coordination of plans for field and laboratory activities. Field-investigation plans and programs will be coordinated with State, Federal, and local agencies and appropriate elements of the private sector.

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DGGS will also conduct a needs assessment of the management agencies of the State, including DNR, DEC, and DF&G. These management needs will guide the design of the water-resources program to ensure that the products are relevant with maximum usefulness.

Streams and lakes will be measured for the quantity and quality of the water, discharge will be ascertained for streams in the study area, and larger lakes will be sampled and measured for volume. Stream-stage gaging stations will be established on most streams not currently monitored by other agencies. Reconnaissance surveys of the large stream systems will be conducted to provide ready information related to probable flow rates and flood stages. Bedload data will be collected to ascertain sand and gravel replenishment capability.

The large springs in the foothills region of the Coastal Plain are an unusual characteristic of the subsurface water resources of the area. These springs will be measured for discharge, and water samples will be taken to establish the quality of these ground-water discharges. Water beneath the lakes and streams of the area is probably the only shallow source of ground water because the area is in the continuous permafrost belt. These waters will be investigated to evaluate quantity, direction of movement, and quality.

In addition, water below the permafrost zone will be sampled to provide baseline information about water quality. The nature of these aquifers will also be investigated to provide information needed for injection and waste-disposal interpretation.

Water-quality sampling and analysis will accompany all surface and ground-water investigations. The measured parameters and the sampling schedule will be developed to fit the needs and conditions present for each site.

The sand and gravel of the river systems will be evaluated for location, availability, replacement rate, areal extent, and grain size distribution to provide engineering habitat, and construction information.

PERSONNEL SUMMARY:

PCN	POSITION	TERM	PCN	POSITION	TERM
2051	Hydrologist II	2 months	2142	Hydrologist II	2 months
2078	Hydrologist IV	2 months	2143	Hydrologist II	2 months
2144	Hydrologist IV	2 months	2052	Hydrologist I	2 months
2174	Hydrologist IV	2 months	2141	Hydrologist I	2 months
2145	Hydrologist III	2 months	2016	Geologist V	1 month
2095	Hydrologist II	2 months	2146	Geologist IV	1 month
2097	Hydrologist II	2 months	2060	Geologist III	1 month

Approved Increment

North Slope Water Resource Inventory and Geologic Mapping and Mineral Resource Assessment

Using federal matching dollars, this increment funds 104 staff months on two projects: North Slope Water Resource Inventory Project ($100.0 GF Match) and Geologic Mapping and Mineral Resource Assessment Program ($150.0 GF Match).

Water Resource Inventory Project

Need: There may be no oil development in ANWR until the area's water resources are inventoried and quantified. This project funds 38 staff-months of hydrologist/geologist time and the travel and logistical support necessary to accomplish the inventory. State funding will be matched on a 2:1 basis by grants and contracts (expected $200.0) from several federal and local agencies and by private industry. In addition, we anticipate matching in-kind services and cooperative work agreements from the U.S. Geological Survey ($100.0) and U.S. Fish and Wildlife Service ($500.0). Most of the $800.0 match is contingent on approval of this increment.

Public benefit: Water data collected during this project will provide the basis for sound water management by the State and will help protect State waters from degradation. In addition, weather information collected during project work will benefit residents of the area. And, the quantity, quality, and location of the water supply will be defined for North Slope villages.

Economic stimulation: Water data (quantity and quality) are critical to oilfield development. In addition, an accurate hydrologic evaluation is needed for wildlife and fishery management. Jobs affected by the project are generally related to development of additional oil-producing areas on the North Slope.

Direct revenue to the State: Available matching funds (and programs) from federal and local agencies and private industry mean the State will receive up to $800.0 in grants, contracts, and services for its $100.0 GF Match.

Support groups: Alaska Water Resources Board, Alaska Oil and Gas Association (oil and gas industry), federal agencies (USGS, USFWS, EPA, BLM, USBM, USFS), State agencies (DNR, ADFC, DEC, DOTPF), environmental organizations, and local communities.

Consequences of not funding this increment: The development of ANWR oil fields could be substantially hindered - or even halted - by the lack of water data. Fish and wildlife waters will be inadequately managed. The State, as manager of all waters in Alaska, may make uninformed water-management decisions, and State waters may become contaminated due to inadequate resource knowledge. In addition, the lack of coordination among federal, State, local, and private authorities may result in duplication of activities.

Geologic Mapping Project

Need: This increment, contingent on federal matching funds, will revitalize the DGGS mineral assessment program. It will provide baseline geologic data that will encourage industry to invest in mineral exploration in Alaska, which will permit informed commodity development and exploration.

Economic stimulation: This increment will provide a

direct stimulus to the mineral exploration industry, which brings from $15 to $70 million per year into the State. Most of this money is spent in Alaska for groceries, fuel, air-taxi service, helicopters, and local labor. If an operating mine is discovered, the economic benefits and employment opportunities can total in the hundreds of millions of dollars (for instance, Red Dog).

Direct revenue to the State: This increment provides direct, immediate revenue to the State through matching federal programs, including the U.S. Geological Survey "COGEOMAP" and "Alaska Initiative" proposals, and through the U.S. Bureau of Mines "Alaska Mining District" contracts. These federal matching programs provide the State with approximately two federal dollars for every State dollar.

Project support: Expansion of the DGGS geologic-mapping and mineral-resource assessment efforts has been advocated by the Alaska Minerals Commission, Alaska Miners Association, local Chambers of Commerce, and most communities as part of their economic development programs.

Public benefit: All Alaskans benefit by stimulation of the mineral exploration industry, which brings from $15 to $70 million per year into the State's economy. In addition, field travel, laboratory, and professional services funded by this increment are generally provided by in-state vendors.

Consequences of not funding increment: State geologic-mapping and mineral-resource assessment programs will continue to shrink. Few, if any, new areas of the State will receive attention, and industry will not receive basic information needed to stimulate exploration programs.

Key Budget Issue

- Legislative approval of requested increment.

Key Legislative Issue

- DGGS will be involved in the 6(i) issue should the determination of the mineral-in-character lands become necessary.

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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TABLES

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.

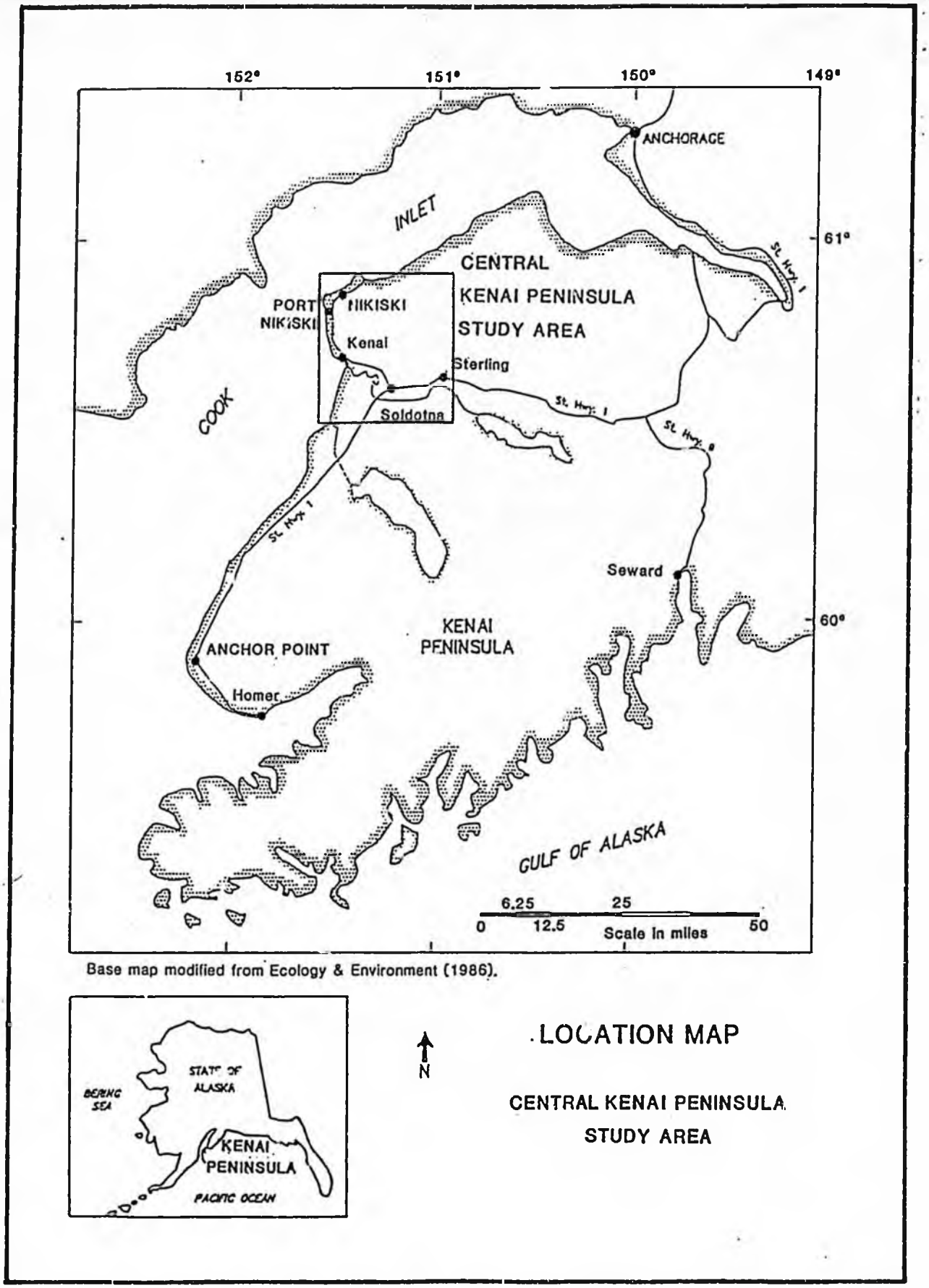

Figure 1. Location of central Kenai Peninsula study area.

Since 1972 substantial growth nas 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.

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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 3425
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

Hydrogeologists lack money, staff for Nikiski groundwater study

By BEN SWAN
Staff Writer

State water geologists have begun preliminary work on a groundwater survey of the Nikiski area but stressed any results may be long in coming without sufficient money or staff.

"The fact that we're here today means that we've started something," said Jim Munter, head hydrogeologist with the division of geological and geophysical surveys. The division is part of the state Department of Natural Resources. Munter spoke at the North Kenai Chamber of Commerce weekly luncheon Thursday in Nikiski about the process of a comprehensive groundwater survey.

Bill Long, the divison's chief of water resources, prefaced Munter's talk with cold facts about the division's limitations.

"We're a small department with a small budget," Long said. "We have 39 projects statewide and four of those projects are on the Kenai Peninsula. We understand you're concerned about groundwater and will try to integrate a program as far as funds are allowed."

Munter told the group that without additional funding any study would be slow. He also said the upcoming fiscal year did not indicate any study for the area.

"If there's going to be money from the state, it'll have to come from the Legislature," Munter said.

The division's interest in a groundwater survey stems from a petition coordinated by Nikiski resident Gary Superman. Superman gathered more than 250 signatures after it was determined that a Nikiski well was contaminted with tetrachloroethylene, an ingredient found in solvent, degreaser and dry cleaning fluid.

The petition requested a comprehensive groundwater survey on the Nikiski industrial complex and the surrounding area, Superman said. Water flow, water quality, soil identification of upper confining levels and the depths of the aquifer levels — the region under the ground that contains water — would be examined in the survey.

In a teleconference last week, hydrogeologists were asked to come to Nikiski and speak about the logistics of a comprehensive survey, Superman said.

"The timing for the petition was very good," Munter said. "It was a good thing to get us started (on a survey) because we don't just go into an area and tell the people a survey needs to be done."

Although a study has not been initiated, Munter said he was in Nikiski to solicit input and gather feedback from people about the water evaluation. He said any survey conducted should be done from the long-term perspective that the Nikiski groundwater would be the primary water source for years to come.

PENINSULA CLARION: 1/27/89

Alaska Environmental Lobby, Inc.

P.O. Box 22151 Juneau, Alaska 99802 907-586-2345

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KENAI HYDROGEOLOGICAL SURVEYS

The Alaska Environmental Lobby strongly supports this legislation.

* Accurate groundwater information is essential to protecting public health in the Kenai Peninsula area, due to toxic contamination of parts of the aquifer.

* Such information is also essential to properly site a· d manage groundwater withdrawals for industrial and other development in the area. The effect of large-scale withdrawals on toxic migration cannot currently be predicted, so further industrial development is essentially blocked until better information is available.

Hydrogeological surveys of the Kenai area are necessary from public health, environmental, and economic standpoints.

March 15, 1989
by Bill Glude