NORTH DAKOTA STATE WATER COMMISSION

REGISTER

ATTENDANCE AT State Water Commission

DATE October 1 & 2 81 PLACE Dickinson, N Dak.

PROJECT NO.

Your Name	Your Address	Who do you Represent? (Or Occupation)
Michael Dwyer	Bismarck	State Water Comm
Bruce F McCollom	"	Bartlett West / Boyle
Dave Hardman	"	Bartlett West / Boyle Engr.
Don Kirkuk	"	" " "
Jens A Eidle	Richardton	Manager - Richardton Mfg.
Denis Dantes	Richardton	Richardton Park Dist
Albert Hecker	Bowman	water Supt.
Raymond Lorenz	Bowman	City Commission
Dan Berg	Bowman	Chamber of Commerce City Planning Commission
Terry Oester	Dickinson	Roosevelt - Custer Reg. Council
Flynn Ell	"	Dickinson Press
Albert Fisher	Scranton	
Vernon Fetter	Scranton	
R. J. Hibbe	Scranton	City mayor
Virgil Fendrickson	Scranton	

SWC Form No. 83

(500/6-80)

NORTH DAKOTA STATE WATER COMMISSION

REGISTER

ATTENDANCE AT _____

DATE _____ PLACE _____

_____ PROJECT NO. _____

Your Name	Your Address	Who do you Represent? (Or Occupation)
Roger Faustad	West Fargo	Moore Eng. Inc
Clifford Moore	West Fargo	Moore Eng. Inc. Steel Co. Water Management Board
Ruben Hummel	Mott	farmer
Claude Hardmeyer	Mott	farmer
Arnold Rotering	Amidon	Farmer
George Hardmeyer	Mott	Hettinger County WRB
Howard M. Olson	Carrington	NDSU - Cptn. Irrig. Stn.
Magnus Meier	Hettinger	Hettinger Community
Tom Quail	"	" Rural - Sanitary
Allen McIntyre	Hettinger	City Council rep.
Gary Dewhirst	Hettinger	Hettinger Chamber of Commerce
Jim Hopkins	Hettinger	Economic Development
Darrell L. Popken	Hettinger, N. Dak.	Southwest Water Coop.
Harold Pahlmeyer	Regent	Southwest Drain Co-op Board
J.H. Pahlmeyer	Regent	

SWC Form No. 83

(500/6-80)

NORTH DAKOTA STATE WATER COMMISSION

REGISTER

ATTENDANCE AT _____

DATE _____ PLACE _____

_____ PROJECT NO. _____

Your Name	Your Address	Who do you Represent? (Or Occupation)
Herbert Klasker	Taylor N.D.	West Dunn Water Resource Board
Leonard Jacobs	Reeder N.D.	SW. Coop
Alvin Rokeny	Amidon N.D.	Slope Co. Farmers & Ranchers.
Allen Lacks	Dickinson	SWRD Member
Skip Wolff	OMAHA NE	CHILES, HEIDER & CO.
BILL BEAVERS	" "	" " " "
Jim Bullock	" "	" " "
Ray David	KLTC Radio	DICKINSON, N.D.
Joseph Steiner	Reeder N.D.	Board of Dir. Member Southwest Water Coop
Robert Stranik	Dickinson, N.D.	advisory Comm for State Water Comm West River Water Supply Dist - Secretary
Jerome Olson	Clifford N Dak	N. DAK Rural water Sys assoc - Circuit Rider
LAURENCE MCMORTY	MINOT	N.D. WATER USERS ASSOCIATION
GARY JACOBSON	Bismarck	BASIN Electric Power Cooperative
Mark Johnson	Bismarck	Houston Engineering Inc.

SWC Form No. 83

(500/6-80)

MINUTES

North Dakota State Water Commission
Dickinson, North Dakota

October 1, 1981

The North Dakota State Water Commission held a meeting at the City Hall in Dickinson, North Dakota, on October 1, 1981. Governor-Chairman, Allen Olson, called the meeting to order at 11:30 a.m., and requested Secretary Vernon Fahy to call the roll and present the agenda.

MEMBERS PRESENT:
Allen I. Olson, Governor-Chairman
Kent Jones, Commissioner, Department of Agriculture, Bismarck
Alvin Kramer, Member from Minot
Florenz Bjornson, Member from West Fargo
Ray Hutton, Member from Oslo, Minnesota
Henry Schank, Member from Dickinson
Bernie Vculek, Member from Crete
Vernon Fahy, State Engineer and Secretary, North Dakota State Water Commission, Bismarck

MEMBERS ABSENT:
Garvin Jacobson, Member from Alexander
Guy Larson, Member from Bismarck

OTHERS PRESENT:
State Water Commission Staff Members
Approximately 45 persons interested in agenda items

The attendance register is on file in the State Water Commission offices (filed with official copy of minutes).

The proceedings of the meeting were recorded to assist in compilation of the minutes.

CONSIDERATION OF MINUTES OF AUGUST 12, 1981 MEETING - APPROVED

The minutes of the August 12, 1981 meeting held in Walhalla, North Dakota, were briefly reviewed by Secretary Fahy. There were no corrections or additions to the minutes.

It was moved by Commissioner Kramer, seconded by Commissioner Vculek, and unanimously carried, that the minutes of August 12, 1981 be approved as presented.

DISCUSSION RELATIVE TO STATE WATER COMMISSION COST SHARING GUIDELINES

At the August 12, 1981 meeting, the Commission directed the staff to prepare historical background information concerning the State Water Commission cost sharing policy for local water management projects.

Mike Dwyer, Assistant Attorney General for the Commission, distributed copies of a memorandum containing this information. It was the consensus of the Commission members, that a discussion on the cost sharing policy be deferred at this time, and placed on the agenda for a future meeting.

CONTINUED DISCUSSION OF REQUEST FOR COST PARTICIPATION IN SWAN CREEK DIVERSION IN CASS COUNTY (SWC Project No. 847)

Dave Sprynczynatyk stated that in June 1981 a request was received for cost participation in the proposed diversion of Swan Creek within the City of Casselton. This request was submitted to the Commission at their August 12, 1981 meeting. At that meeting, it was pointed out to the Commission that the primary benefactors of the proposed project would be residents within the City of Casselton and that in the past, participation by the State Water Commission in drainage projects has been limited to those projects that benefit agricultural areas.

At the August 12 meeting, the Project Engineer, Roger Fenstad with Moore Engineering, stated that the channel benefits the City of Casselton only to the extent that a control structure will be installed on the end of the proposed channel to prevent backup water from entering the city. He also stated that the Maple River Water Resource Board has been requested by local landowners to clean the old channel that meanders through farmland just east of the city limits. Also the proposed channel diversion is being done in lieu of a cleanout at approximately one-half the cost of a cleanout. He indicated that the proposed project will benefit agricultural land.

After discussion by the Commission at the August 12 meeting, Commissioner Jacobson moved, seconded by Commissioner Larson, and unanimously carried, that action on the Swan Creek Diversion request for cost participation be tabled and that the staff make a field inspection and further review the application prior to October 1, 1981 to determine whether additional areas other than residential areas within the city will benefit from the project.

Dave Sprynczynatyk indicated that a field inspection was conducted by a staff member. The inspection report indicates that the proposed project would benefit residents of the city, however, it also indicated that the project would benefit a small parcel of agricultural land east of the city and would provide a more efficient drainage system from the grain elevator which would result in indirect benefits to agricultural interests. Mr. Sprynczynatyk stated that the proposed project is unique in that it provides for drainage of water, an outlet for the city's storm sewer system, and flood protection for the city. Those portions of the project that could be considered as flood protection measures would be the outlet structure which consists of a ditch block and a gated 48-inch culvert, and the channel block which will prevent water from backing into the City of Casselton. The construction costs for these two items would be approximately $6,300.

It was recommended by the State Engineer that the State Water Commission participate in those items which will provide flood protection for the City of Casselton and that participation be limited to 50 percent of the eligible construction items not to exceed $3,150.

It was moved by Commissioner Jones, seconded by Commissioner Bjornson, and unanimously carried, that the State Water Commission participate in 50 percent of the eligible construction items not to exceed $3,150 for the diversion of Swan Creek in Cass County. This motion is contingent upon the availability of funds.

DISCUSSION OF SOUTHWEST PIPELINE PROJECT (SWC Project No. 1736)

Robert Dorothy, Project Manager for the Southwest Pipeline Project, reported on a series of public meetings that had been held in the area during the past week. Due to many conflicts, Mr. Dorothy stated that the attendance at these meetings had not been as good as expected, but was pleased with the quality of input from those who were in attendance.

Mr. Dorothy and Mr. Dwyer explained several issues and factors which must be considered by the State Water Commission during this phase of the Southwest Pipeline Project. These are set forth in a memorandum to the State Engineer and the State Water Commission and is attached hereto as APPENDIX "A".

Mr. Jim Bullock, Financial Consultant for the project, was introduced. Mr. Bullock distributed copies of the first interim report on the financial analysis of the project. The report, which was the basis of Mr. Bullock's discussion, is attached hereto as APPENDIX "B".

Mr. Bruce McCollom and Mr. Donald Kukak, representing the joint venture of Bartlett & West Consulting Engineers and Boyle Engineering Corporation, were introduced. Copies of the Interim Report on Alternative Systems Study for the Southwest Pipeline Project were distributed to the Commission members. This report is on file in the State Water Commission offices. This interim report is intended to provide the Commission members with information which will aid in the selection of a route for the Southwest Pipeline Project and the facilities to support that route. The information includes a description of the service area, water demands, basic design criteria, alternative routes and cost estimates.

Mr. McCollom and Mr. Kukuk, through the use of charts and maps, discussed in detail the interim report. A summary of their discussion and of the interim report is attached hereto as APPENDIX "C".

The Commission recessed their meeting at 12:45 p.m.; reconvened at 2:00 p.m.

CONTINUED DISCUSSION OF SOUTHWEST PIPELINE PROJECT (SWC Project No. 1736)

In response to a question asked regarding contacts with the Indians relative to the project, Secretary Fahy indicated that he and several of his staff members met with Tribal Council representatives and discussed various items related to Indian resource needs on the reservation; how the State Water Commission as a state agency might be able to assist the Indians in arriving at probble solutions to their water resource problems particularly in the areas of planning and water management; and water deliveries and sales. Secretary Fahy stated that the Tribal Council representatives indicated that they would submit a proposal on the above items.

Mr. Dwyer stated that prior to the meeting referred to by Secretary Fahy, a meeting was held in June with the Council representatives to discuss whether there would be any possibility of serving the individual Indians on the reservation with the Southwest Pipeline Project. At that meeting, the Indian officials expressed interest but indicated that a survey would be necessary to determine where those possible uses and needs might be. Thus far, Mr. Dwyer indicated that no response has been received.

Mr. Joe Steier, a member of the Southwest Cooperative and a member of the Southwest Pipeline Advisory Committee, commented that although the attendance was not as good as expected at the public meetings, the intent, need and interest is definitely there.

Mr. Ray Lorenz, Bowman City Commissioner, reiterated Mr. Steier's comments.

Mr. Allen McIntyre, Hettinger City Council member, indicated that the City of Hettinger supports the backing of the Southwest Pipeline Project and wishes to go on record in support of Alternative Plan C.

Mr. Herb Urlacher from Taylor, a member of the Southwest Pipeline Advisory Committee and Chairman of the West River Joint Water Resources Board, addressed the intent and useage by other counties and noted that although there isn't a great amount of interest being expressed at this time, they want to be involved. Mr. Urlacher stated that the Joint Water Resources Board has expressed a tremendous amount of interest in the project.

Secretary Fahy stated that it would be necessary for the Commission members to authorize entering into an agreement of intent to purchase water with prospective water users of the Southwest Pipeline Project. The primary purpose of this agreement of intent is to define those potential water users who are seriously interested in purchasing water from the project. Among other provisions, the proposed agreement provides that a subsequent water purchase contract will be entered into and requires a good intention fee which will be deposited in the resources trust fund.

Mike Dwyer explained the attached draft agreement of intent to purchase water (included in APPENDIX "A"). He noted that it may be necessary to modify the agreement, and that the resolution of the State Water Commission should delegate such authority to the State Engineer.

It was moved by Commissioner Jones, seconded by Commissioner Schank, and unanimously carried, that the State Water Commission approve the agreement of intent to purchase water, with the State Engineer to have the authority to modify such agreement where he deems necessary.

Secretary Fahy stated that at the Commission's next meeting scheduled for October 13 and 14, it will be necessary that the Commission take action on the delineation of service area; routing and intake structure; extent of system; and possible industrial use within the system.

It was also requested that copies of the preliminary agendas for future Water Commission meetings be mailed to the Southwest Pipeline Advisory Committee.

RECONSIDERATION FOR COST PARTICIPATION IN HOPE AND SUSSEX DAMS IN STEELE COUNTY (SWC Project Nos. 1410 and 1742)

Secretary Fahy stated that at the Commission's meeting on August 12, 1981, the Commission approved 50 percent cost participation of the construction

costs for the Sussex Dam in Steele County, not to exceed $77,000. The Commission also approved 50 percent of the eligible construction costs for the Hope Dam, not to exceed $22,000. The action taken by the Commission was based on cost estimates provided by Moore Engineering in behalf of the Steele County Water Resource District. The preliminary engineering estimates were $152,525 for Sussex Dam and $42,782 for Hope Dam.

On August 25, 1981, the Steele County Water Resource District opened bids for the two projects and the low bid on the Sussex Dam was $250,744, and $90,714 on Hope Dam. The low bid for the Sussex Dam was over the estimate by approximately 65 percent; and the low bid for the Hope Dam was over by approximately 112 percent.

Because of the high bids, the Steele County Water Resource District and their engineers have decided not to construct the Hope Dam and modify the design of the Sussex Dam. Mr. Sprynczynatyk explained the modifications of the Sussex Dam, and stated that the modified design has been reviewed by the Water Commission staff. The estimated cost of the modified plan is approximately $211,000.

Mr. Roger Fenstad, Moore Engineering, and representing the Steele County Water Resource Board, explained the project as modified and the benefits that would be derived from the modifications. Local project sponsors have approved the additional costs for the modified project.

The recommendation of the State Engineer was that the Commission rescind its August 12, 1981 action approving 50 percent of the eligible construction costs for the Hope Dam in Steele County, not to exceed an amount of $22,000; and to increase State Water Commission cost participation for the modified Sussex Dam in Steele County from $77,000 approved at August 12, 1981 meeting to a total of $105,500.

It was moved by Commissioner Bjornson, seconded by Commissioner Hutton, and unanimously carried, that the State Water Commission rescind its action of August 12, 1981 approving $22,000 for the Hope Dam in Steele County.

It was moved by Commissioner Bjornson, seconded by Commissioner Hutton, and unanimously carried, that the State Water Commission grant 50 percent of the eligible construction costs for the modified Sussex Dam in Steele County, not to exceed $105,500 from funds provided for in HB-1466. The motion was made contingent upon the availability of funds and contingent upon granting of a construction permit for the amended project.

ILLEGAL DRAINAGE
(SWC Project No. 1053)

Commissioner Hutton suggested that a serious effort be made to review illegal drainage in North Dakota. Specific reference was made to Walsh County.

RED RIVER DIKING BRIEFING
(SWC Project No. 1638)

Secretary Fahy briefed the Commission members on the Red River diking matter and discussed possible litigation. Commissioner Jones requested that this item be placed on a future agenda so that the Commission members could receive a complete briefing of the problem.

It was moved by Commissioner Bjornson, seconded by Commissioner Kramer, and unanimously carried, that the meeting adjourn at 3:30 p.m.

Allen I. Olson
Governor-Chairman

ATTEST:

Vernon Fahy
State Engineer and Secretary

October 1, 1981

APPENDIX "A"

SWC NORTH DAKOTA STATE WATER COMMISSION
900 east boulevard bismarck 58505
701-224-2750 north dakota

MEMO TO: Vern Fahy, State Engineer
State Water Commission Members
FROM: Bob Dorothy, Southwest Pipeline Project Manager
Michael Dwyer, Assistant Attorney General
RE: Southwest Pipeline Project - SWC Project File #1736
DATE: September 29, 1981

This is to discuss several of the issues and factors which must be considered by the State Water Commission during this phase of the Southwest Pipeline Project. It is intended that this memo will be supplemented with additional information and recommendations, where necessary, in order for the Commission to make appropriate decision on these matters.

1. Industrial Use.

As indicated by the attached letters of interest from both ANG and Nakota Coal Company, those two energy interests have expressed a desire to utilize the Southwest Pipeline Project for their water needs. In addition, the attached letter from Tenneco, Inc., indicates that Tenneco at this time is not prepared to participate in the Southwest Pipeline Project. The interest expressed by ANG and Nakota presents an important issue for consideration. Decision to include industrial use in the Southwest Pipeline Project may directly affect other decisions to be made.

2. Intake Structure - ANG and Basin Electric.

Several meetings have been held between State Water Commission staff and officials of ANG and Basin Electric to discuss possible use of the existing ANG Intake Structure for the Southwest Pipeline Project. Depending on the formula which is used, State Water Commission cost-sharing for use of the existing intake for the Southwest Pipeline Project could range from 2.5 million up to 16 million. Negotiations are still underway concerning this matter.

3. Selection of Pipeline Route.

The consulting engineers have identified six alternative routes, three of which are between the water intake sources and Richardton, and

three routes for the distribution of water from Richardton to various points throughout the service area. Details of each route are contained in sections C, D, E and G of the interim report.

It is necessary that the State Water Commission make a selection of the preferred route at its October 13-14 meeting in order to enable the completion of ground control and aerial surveying before permanent snow cover prevents the work from being accomplished this fall. In making this decision, the Commission must consider the engineering and economic factors, and the various other factors, many of which are set forth in this memo.

4. Changes in Service Area.

The service area as delineated in the Interim Report was defined based on surveys conducted for the SAWS Report in 1977-78 and data gathered by the Rural Water Office of the Old West Regional Commission in the spring of 1981. During the past month three cities who had previously expressed no interest in pipeline water have presented written requests to be considered in the pipeline studies. Those cities are Beulah, New Leipzig and Glen Ullin. It is very possible that similar requests will be received from additional cities.

It should be noted that there are no binding agreements with potential water users to obtain pipeline water. It is possible that when water purchase contracts are presented to the cities some of the cities now in the service area may decide not to purchase pipeline water.

Because of the present undefined commitment of potential users and the high cost of aerial surveys, it may be necessary to authorize the State Engineer to revise the service area boundaries and to amend the aerial surveying requirements of the consulting engineers contract, as appropriate, to conform to the most recent information available concerning water users' interest in purchasing pipeline water.

There is also a policy question as to whether or not an increment of excess capacity should be designed into the pipeline to provide the availability of water for uncommitted users and future growth.

5. Extent of Water Supply System.

For the purpose of the Interim Report it was assumed that the primary transmission mains would include those portions of the pipeline having a capacity of 500 gpm or greater. Lines of this size will be required to serve Dickinson, Beach, Bowman and Beulah. Secondary transmission mains are defined as those lines having a capacity of from 100 gpm to 500 gpm and would serve most of the remaining cities.

For the preliminary design studies that will commence immediately following the selection of the route, it will be necessary for the Commission to establish a policy concerning the extent of the pipeline system.

The primary question is how far into the service area the pipeline should extend. For example, the city of Beach is included in the service area but requires the construction of 46 miles of pipeline from Belfield without any intervening users. Also, should secondary transmission mains be constructed to other cities such as Mott, Hettinger, and New England?

6. Water Treatment.

Water treatment has been addressed separately in the Interim Report, to allow the Commission to make a separate decision as to whether or not water treatment should be included as part of the Southwest Pipeline Project. (See Section F of the interim report for water treatment information.) Information obtained from the cities and rural water cooperatives within the service area indicates that with the possible exception of Dickinson, all potential users prefer to receive treated water. Dickinson has indicated it would prefer to receive raw water but has expressed a willingness to accept treated water if centralized treatment proves to be the most economical for all pipeline users. Treated water would also be acceptable to potential industrial users.

7. Right-of-Way.

Several legal issues are related to the easement and acquisition program for the Southwest Pipeline Project. It will be necessary at some time for the Commission to establish policy for right-of-way acquistion. This policy would include the amount of consideration to be paid for easements, use of condemnation, and other matters. Upon receiving the strip maps and legal descriptions from the engineering consultants, the first step will be to verify title for the various tracts of land for which acquistion of easements or fee title is necessary. A title memorandum from the local county abstract offices should be sufficient in many instances for this purpose. Upon establishing title, the next step will be the actual acquistion of easements and fee title for the necessary property. The magnitude of the Southwest Pipeline Project would appear, at this time, to require that a right-of-way acquistion firm be retained to perform this work. After easements and fee title have been secured, condemnation will be necessary for tracts which could not be secured on a willing seller basis. Rather than condemnation, the pipeline could be moved to an adjacent tract; however, the expense would most likely be prohibitive.

In some instances, the Southwest Pipeline Project may be located within the right-of-way of county or state roads. While this may enable the avoidance of difficult site conditions, and provide for easier operation and maintenance access, the North Dakota Supreme Court has ruled that utilities in easement road rights-of-way are an additional servitude. Thus, in addition to approval of the respective state and county road authorities in those instances, easements from the landowners will also be necessary.

In the event that the Southwest Pipeline Project crosses a portion of the Fort Berthold Indian Reservation, it will be necessary to secure approval from the Three Affiliated Tribes, as well as the Secretary of Interior. It has been suggested that the Secretary of Interior has delegated his authority as trustee for the Indian tribes to the local superintendent of the Bureau of Indian Affairs. This will have to be more carefully addressed. Also, if the Southwest Pipeline Project crosses Indian land which has been allotted to individual Indians with right of alienation, it will be necessary to secure necessary right of way from those individual Indians.

8. Indian Issues.

On June 16, 1981, and on August 21, 1981, State Water Commission staff met with Indian officials from the Three Affiliated Tribes to discuss the Southwest Pipeline Project. The Indian officials encouraged the location of the intake structure on the Fort Berthold Indian Reservation, which is Alternative Route 3 of the Interim Report. The Indian officials indicated that while they would not attempt to levy a charge for water taken from the Indian reservation for municipal, domestic, and rural purposes, they did intend to levy a charge for any water delivered for industrial uses. Since approval of the Three Affiliated Tribes is necessary to cross Indian lands, it appears that the Three Affiliated Tribes has sufficient ability to require such conditions concerning the appropriation of water from within the exterior boundaries of the Indian Reservation. While to my knowledge industry officials have not taken a position concerning payment to Indians for water, there does not appear to be much interest in such an arrangement.

9. Coal Reserves.

Since coal reserves that have been leased constitute an interest to which the right-of-way for the Southwest Pipeline Project would be subservient, it is essential that the pipeline routing, based on the best information available, avoid coal areas which may be mined during the life of the project. Several meetings with respective coal companies and other parties have been held to determine coal leases and future coal mining operations. Upon acquisition of necessary easements for pipeline right-of-way, agreements will have to be entered into between the State Water Commission and the respective coal companies which hold the affected coal leases. These agreements will generally approve the location of the Southwest Pipeline Project, but will probably require that the pipeline be relocated in the event of coal mining operations in that area. Section 38-01-06 of the North Dakota Century Code gives mine operators the authority to vacate roads for mining purposes. Thus, location of the Southwest Pipeline Project along county roads will probably provide little protection against coal mining operations. However, as a practical matter, state roads may be less likely to be vacated, and thus incidentally provide greater protection to the Southwest Pipeline Project.

10. Permits.

A number of permits will be required for the Southwest Pipeline Project. Since these will be required regardless of the Alternative Route selected, the various permits are not explained in detail at this time. It does not appear that permits will provide any particular advantage or disadvantage to any of the alternatives.

It should be pointed out that if heavy industrial use is to be included as part of the Southwest Pipeline Project, the Energy Conversion and Transmission Facility Siting Act (Ch 49-22) will apply and appropriate routing permits from the PSC will be required.

11. Water Use Contracts.

Immediately after the October 1, 1981 State Water Commission meeting, it is intended that the State Water Commission enter into an agreement of intent to purchase water with prospective water users of the Southwest Pipeline Project. A copy of this agreement is attached. The primary purpose of this agreement of intent is to define those potential water users who are seriously interested in purchasing water from the Southwest Pipeline Project. Among other provisions, the proposed agreement provides that a subsequent water purchase contract will be entered into, and requires a good intention fee which will be deposited in the resources trust fund. After the State Water Commission makes its recommendations to the Legislative Council on October 1, 1982, it is intended that a binding water purchase contract will be executed with water users, with the terms being in accordance with those recommendations, but contingent upon legislative approval in accordance with those recommendations.

12. Construction, Operation, and Management Entities.

Eventually, it will be necessary to recommend and establish the necessary entities to provide for the construction, management, operation, and maintenance of the Southwest Pipeline Project.

In conclusion, the foregoing represent the various issues which must be considered by the State Water Commission during the development of preliminary designs for the Southwest Pipeline Project.

Sincerely,

Robert Dorothy
Bob Dorothy
Project Manager

Michael Dwyer
Michael Dwyer
Assistant Attorney General

MD:BD:ps
Incl.: as

ANG COAL GASIFICATION COMPANY
MEMBER OF THE AMERICAN NATURAL RESOURCES SYSTEM
ONE WOODWARD AVENUE, DETROIT, MICHIGAN 48226

NOEL F. MERMER
EXECUTIVE VICE PRESIDENT

September 10, 1981

Mr. Vernon Fahy, Secretary & State Engineer
North Dakota State Water Commission
900 East Boulevard
Bismarck, North Dakota 58505

Re: Southwest Pipeline Project Study

Dear Vern:

This letter is being written in regard to ANG Coal Gasification Company's potential interest in the Southwest Pipeline project that is presently underway to supplement the water resources of Dickinson and other nearby communities with water supplies from the Missouri River.

Although your current project is generally structured to supply water to various communities in the southwest portion of the state, we believe that some consideration should also be given to the possible future supply of water to industry in this area.

ANG currently has various coal reserves in the Dickinson area which we have no specific plans for at the present time, but would like to consider the possible future development of these fields as part of our long-term planning. As a result, the ability to have some assurance of a reasonable supply of water for industrial purposes in this area in the future would indeed be helpful.

Due to ANG's current major commitments and sizeable expenditures we are involved in with the Great Plains project at Beulah and the very long-term nature of the possible development of the coal reserves in Dickinson, ANG could not at this time assume any major financial commitment in order to have some assurances that an industrial supply of water could be made available.

However, if it was found that future supply of water for industry in the Dickinson area could be a consideration in your planning, then ANG would be willing to consider the following as a possibility in development of our future planning.

If the timing for the water pipeline project and its related costs were found to be generally acceptable, then ANG could possibly consider providing funding so that the pipeline when constructed could be increased one incremental size larger in order to provide additional spare capacity. This spare capacity would then generally be available to industry.

If the above consideration is found to have some merit as you further develop your studies and planning work, then ANG would certainly be willing to have further communication along these lines.

Sincerely,

Nael

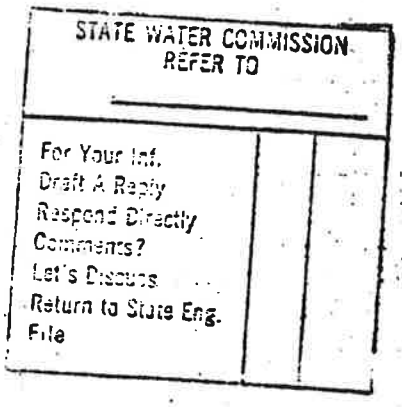
N. F. Mermer
Executive Vice President

NFM/JWP/arl

cc: A. E. Browning
D. L. Imler
J. D. Melarvie
J. W. Parker

Nokota

September 25, 1981



Mr. Vernon Fahy
State Engineer and Secretary to
the Commission
NORTH DAKOTA STATE WATER CONSERVATION
COMMISSION
State Office Building
900 East Boulevard
Bismarck, ND 58505

Dear Mr. Fahy:

Thank you for the opportunity to meet with you, your staff, and Mr. Donald H. Kukuk, your engineering consultant, on September 15, 1981. We appreciate the opportunity to discuss matters of mutual interest regarding the delivery of water from Lake Sakakawea to southwestern North Dakota and look forward to meeting with you again in the future.

As we informed you at our meeting, we have continued to make progress in the development of our coal-to-methanol project in Dunn County, North Dakota, since the time of our last meeting on April 9, 1981. Our design studies and analyses for the project under the grant from the U.S. Department of Energy are well underway and are expected to be completed in mid-1982.

The Bureau of Reclamation has been designated as the lead agency for preparation of the Environmental Impact Statement (EIS) for our project. An initial meeting was held with the Bureau of Reclamation in Billings, Montana, during the month of August, 1981, to generally discuss our project and the requirements for preparation of the EIS. We will coordinate with the Commission with respect to the commencement of negotiations with the Bureau of Reclamation on the federal water marketing agreement.

We are now in the process of developing the State application for a conditional water permit and expect to submit it to your office in the latter part of October, 1981, or early in the month of November, 1981. At this time, we expect to request approximately 17,000 acre-feet of water per year, with a peak demand rate of 14,200 gallons per minute. We have tentatively identified several alternate points of

diversion, all located on Lake Sakakawea. Two of the alternate points of diversion are on Renner's Bay. We are also considering the feasibility of a site north of the plant site as an option. The existing Basin Electric intake facility on Renner's Bay is an additional alternative.

At the present time, we tentatively plan to commence preparation of our plant site in Dunn County during the fall of 1983. We plan to construct a pipeline for the delivery of water from Lake Sakakawea to our plant site in mid-1984 through 1985. Construction of the first phase of our project is expected to be complete in 1987.

As we indicated in the meeting with you, The Nokota Company is interested in becoming a customer of the proposed state water pipeline for southwestern North Dakota. We hope that your preliminary engineering design studies can consider the estimated needs of The Nokota Company, at least as an alternative to your basic design. We would be willing to assist you in any way we can for this purpose.

We appreciate the cooperation we have had from you and your office in the past and look forward to coordinating the progress of our project with that of yours. Thank you very much for your assistance with these matters.

Sincerely,

THE NOKOTA COMPANY

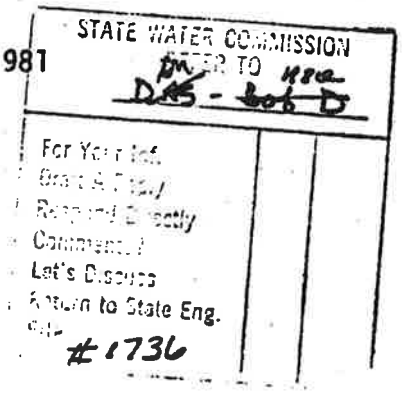
G. E. Andersen
President

GEA/vg

Intake Water Company
A Tenneco Company

P.O. Box 2511
Houston, Texas 77001
(713) 757-2131

August 28, 1981



Mr. Vernon Fahy
State Engineer
State Office Building
900 East Boulevard
Bismark, North Dakota 58505

Dear Mr. Fahy:

I enjoyed visiting with you and Bob Dorothy in your office last week. We have thoroughly reviewed our position in the Northern Great Plains and we feel that the West River Project is developing ahead of our time table. According to our best projections, it will be early 1986 before we could make a firm commitment to participate. We do not feel that Intake Water Company could commit itself today, without substantial risk of incurring a take or pay water delivery situation.

I intend to follow your project closely and I wish you very much success with it. It is a great undertaking and will serve a tremendous need within the State.

Sincerely,

Richard L. Echols
Manager

RLE:ac

CC: Gary T. Cheatham
H. E. Degreenia

AGREEMENT OF INTENT TO PURCHASE WATER

I. PARTIES

THIS AGREEMENT is by and between the North Dakota State Water Commission, 900 East Boulevard, Bismarck, North Dakota, 58505, hereinafter referred to as the Commission, acting through the State Engineer, Vern Fahy; and the _____

_____ hereinafter referred to as the (City) (Cooperative) (other).

II. PURPOSE OF AGREEMENT

The Forty Seventh (47th) Legislative Assembly of North Dakota enacted Senate Bill 2338 which, among other things, appropriated funds and directed the State Water Commission to contract for preliminary designs for a water supply pipeline facility for supplementation of the water resources of Dickinson and the area of North Dakota south and west of the Missouri River with water supplies from the Missouri River for multiple purposes including domestic, rural water district, and municipal uses. This proposed water pipeline facility shall be referred to as the Southwest Pipeline Project, or Project. SB 2338 directs the State Water Commission to submit the preliminary designs for the Southwest Pipeline Project to the Legislative Council, or its designee, on or before October 1, 1982. In order to develop sufficiently detailed and accurate preliminary designs for the Southwest Pipeline Project, upon which further decisions concerning the Project can and will be based, it is necessary to identify as accurately as possible those cities, rural water cooperatives, and other potential water users which intend to purchase water from the Southwest Pipeline Project. It is also necessary to identify those cities, rural water cooperatives, and other potential water users which intend to purchase water from the Project in order to select the routing of the water pipeline facility which will deliver water to those cities, rural water cooperatives, and other potential water purchasers in the most appropriate manner. Therefore, the purpose of this agreement is for the Commission to secure from the (City) (Cooperative) (other) a reliable commitment of intent to purchase water from the Southwest Pipeline Project in accordance with the terms of this and subsequent agreements, for the reasons expressed in this section, and for the (City) (Cooperative) (other) to be assured that delivery of water to the area in which it is located in sufficient amounts to satisfy its needs will be included in the development of preliminary designs for the Southwest Pipeline Project.

III. GENERAL TERMS OF AGREEMENT

1. The (City) (Cooperative) (other) hereby agrees that it will enter into a water purchase contract with the Commission prior to January 1, 1983. Such water purchase contract shall be contingent upon legislative approval of the Southwest Pipeline Project in accordance and consistent

with the terms and provisions of such water purchase contract, which shall be consistent with the final recommendation of the Commission to the Legislative Council on or before October 1, 1982. It is anticipated that such water purchase contract will require that the (City) (Cooperative) (other) purchase all of its water supply, except for emergency and other supplemental uses to be approved by the Commission, from the Southwest Pipeline Project, and that all water to be delivered by the Southwest Pipeline Project will be potable water in accordance with applicable federal and state water quality standards. In addition to the foregoing, and among other things, the water purchase contract will contain provisions concerning water rates and fees which shall be consistent with the final recommendations of the Commission to the Legislative Council as part of the preliminary designs to be submitted on or before October 1, 1982. Water rates and fees are described in Section III of this agreement.

2. The Commission agrees that the estimated water needs of the (City) (Cooperative) (other) will be included in the development of preliminary designs for the Southwest Pipeline Project.

3. The Commission agrees to develop the previously described water purchase contract setting forth the terms and conditions under which the (City) (Cooperative) (other) may purchase water from the Southwest Pipeline Project. Such water purchase contract will be presented to the (City) (Cooperative) (other) by October 15, 1982.

4. This agreement is a commitment of intent by the (City) (Cooperative) (other) to enter into a water purchase contract with the Commission to purchase water from the Southwest Pipeline Project. The terms of this agreement shall not be construed to establish the terms, fees, or conditions, under which water shall be purchased pursuant to such water purchase contract.

IV. ESTIMATE OF COSTS

Based on 1981 costs, it is estimated that the operation and maintenance cost of the Southwest Pipeline Project will be in the range of $.60 to $1.00 per 1000 gallons of water used per month. Preliminary estimates of the capital construction costs of the Southwest Pipeline Project, based on 1981 costs, are approximately 60-90 million dollars. More accurate determination of capital construction costs and of operation and maintenance costs will be provided as part of the development of preliminary designs for the Southwest Pipeline Project. At this time, no recommendation has been developed concerning water use rates for water purchased from the Southwest Pipeline Project. Capital construction costs, operation and maintenance costs, ability and willingness to repay, and other facotrs will be considered in establishing a recommendation for water use rates.

V. COMMITMENT FEE

The (City) (Cooperative) (other) agrees to pay to the Commission, upon adoption of a resolution by the Commission requiring such payment,

a commitment fee of fifty (50) cents per capita within the boundaries of the (City) (Cooperative) (other) based on the 1980 census, but not to exceed $2500.00. The Commission shall deposit such payment into the resources trust fund.

VI. AMENDMENTS TO AGREEMENT

Changes to any provision of this agreement will not be effective or binding unless such changes are in writing, signed by the parties, and attached hereto.

DATE

NORTH DAKOTA STATE WATER COMMISSION
By

_____

Vern Fahy
State Engineer and Secretary

By resolution of the governing body of the (City) (Cooperative) (other), enacted on the _____ day of _____, 1981, the foregoing Agreement of intent to purchase water from the Southwest Pipeline Project was approved, and the execution of this Agreement was duly authorized.

DATE

(City) (Cooperative) (Other)
By

_____

Chairman

APPENDIX "B"

CHILES, HEIDER & CO., INC.
1300 WOODMEN TOWER • OMAHA, NEBRASKA 68102 • TELEPHONE (402) 346-6677
MEMBER NEW YORK STOCK EXCHANGE, INC.

October 1, 1981

State Water Commission
Bismarck, North Dakota

Gentlemen:

We are pleased to present to you the first interim report on our study of the Southwest Area Pipeline Project. Since our retention on August 6, 1981, we have launched a massive fact-finding mission to address the following questions and concerns:

- Domestic water needs in the area.
- Citizens' attitudes.
- What citizens are paying for water now.
- Repayment capability.
- Willingness to pay for the Project.

In pursuit of the above, we have done the following:

- Attended five project coordinating committee meetings.
- Attended two Southwest Pipeline Advisory Committee meetings.
- Assisted in the distributing to the public 3,000 questionnaires regarding the project.
- Attended a meeting with officials of American Natural Gas-Basin Electric and State Water Commission staff regarding the possibility of contracting for the use of the ANG intake structure.
- Researched financial data available at the State Auditor's office.
- Conducted forty-five personal interviews with the public, city officials and advisory committee members in the following communities: Dickinson, New England, Regent, Haynes, Hettinger, Reeder, Scranton, Bowman and Bismarck.
- Prepared the attached reports to the Commission.

TABLE OF CONTENTS

COMPARISON BETWEEN PRESENT WATER EXPENSE AND ANTICIPATED O&M COST

	1980 Gross Water Revenue	1980 Water Expense	1980 Profit (Deficit)	1980 Gallons Delivered	Expense Per 1000 Gal.	Percent Increase Needed To Pay Present Cost O&M At .60¢	.80¢	1.00
Beach	$ 56,522	$ 60,360	(3,838)	87,000,000	$ .69	186 %	215 %	244 %
Beulah	208,943	135,331	73,612	146,221,000	.92	165	186	208
Belfield	53,127	56,188	(3,061)	48,000,000	1.17	151	168	217
Bowman	85,438	78,075	7,363	102,955,000	.75	180	206	233
Dickinson	984,469	715,741	268,728	671,932,000	1.06	156	175	104
Dodge	4,852	3,895	957	9,384,000	.41	246	295	343
Gladstone	6,891	9,627	(2,735)	15,000,000	.64	193	225	256
Halliday	17,420	21,538	(4,118)	11,674,000	1.84	132	143	154
Hebron	24,884	16,898	7,986	35,535,000	.47	227	270	312
Hettinger	58,922	85,584	(26,662)	65,905,000	1.29	146	162	177
Mott	63,468	60,550	6,927	47,651,000	1.27	147	162	178
New England	39,465	N/A	N/A	53,939,000	.73	182	209	236
New Leipzig	21,389	20,583	806	13,678,000	1.50	140	153	166
Reeder	13,655	13,084	571	14,484,000	.90	166	188	211
Richardton	27,304	34,912	(7,608)	45,000,000	.77	177	203	229
Scranton	30,552	28,600	2,552	22,000,000	1.30	146	161	176
Southeart	22,000	14,000	8,000	18,000,000	.77	177	203	229
Taylor	11,088	11,620	532	7,289,000	1.59	137	150	162

PERCENT INCREASE NEEDED TO PAY
PRESENT COST PLUS .80¢ PER 1000
O&M AND 125 MILLION CAPITAL COST

		100% Cost At No Interest 50 Years	10% Cost At 14% 30 Years	25% Cost At 14% 30 Years	50% Cost At 14% 30 Years
Beach	*$.69	359%	292%	552%	988%
Beulah	.92	269	219	414	741
Belfield	1.17	211	172	325	582
Bowman	.75	330	269	508	909
Dickinson	1.06	233	190	359	643
Dodge	.41	604	492	929	1663
Gladstone	.64	387	315	595	1065
Halliday	1.84	134	109	207	310
Hebron	.47	527	429	810	1451
Hettinger	1.29	192	156	295	528
Mott	1.27	195	159	300	537
New England	.73	339	276	521	934
New Leipzig	1.50	165	134	254	454
Reeder	.90	275	224	423	775
Richardton	.77	322	262	494	885
Scranton	1.30	190	155	293	524
Southeart	.77	322	262	494	885
Taylor	1.59	155	127	239	428

* 2.47, 2.01, 3.80, 6.81

MONTHLY COST TO AVERAGE USER FOR O&M AND CAPITAL REPAYMENT

	O & M At .60	O & M At .80	O & M At 1.00	O & M At .80¢ Plus 100% Capital Cost No Interest	O & M At .80¢ Plus 10% Capital Cost At 14%	O & M At .80¢ Plus 25% Capital Cost At 14%	O & M At .80¢ Plus 50% Capital Cost At 14%
*In addition to their present delivery cost a family of four would pay per month	$ 7.20	9.60	12.00	29.76	24.24	45.72	81.84
** In addition to delivery cost a farmer would pay per month	$ 10.20	13.60	17.00	42.16	34.34	64.77	115.94

* 100 gallons a day per person

** 17,500 gallons a month

BULK WATER RATES CHARGED TOWNS ON SIMILAR SYSTEMS

NORTH PRAIRIE SYSTEM - MINOT

Town	Population	Monthly Minimum Rate	1980 Gallons	1980 Cost Per 1000 Gal.
Max	317	$794 plus 1.93 per M	9480M	1.20
Surrey	998	$170 plus 2.05 Per M 1.77 over 1 million	12000	.92

BARNES SYSTEM - VALLEY CITY

Sanborn	239	$535 for 300M .70 Minimum		1.78
Litchville	251	$595 for 350M .70 Minimum		1.70
Oriska	125	$295 for 150M .70 Minimum		1.97

DAKOTA SYSTEM

Finley	718	$1560 for 1,200M 1.00 per 1,000 over 1 mil.	18000M	1.37

GRAND FORKS TRAIL SYSTEM - THOMPSON

Thompson	795	Served as retail customers		
Emerado	596	Min 1500M gal. Max. 3000M at 1.38		1.38
Northwood	1240	Min 1000M gal. Max. 4500M at 1.25		1.25
Hatton	791	Min 750M gal. Max. 2000M at 1.25		1.25

CASS SYSTEM - KINDRED

Briarwood	47	$158 for 150M gallon	1800M	1.05
Davenport	195	$105 for 100M gallon	1200M	1.05
Mapleton	307	$525 for 500M gallon	5210M	1.04

CASS SYSTEM - KINDRED (CONT'D)

Caselton	1658	$4500 for 3600M gallon	44400M	1.24
Argusville	147	$324 for 240M gallon 100 Minimum		1.35
Amenia	93	$180 for 120M gallon 100 Minimum		1.50
Hunter	369	$560 for 415M gallon	5850M	1.29
Buffalo	230	$385 for 285M gallon	3850M	1.31

Burleigh System - Bismarck — Bills each tap direct at retail

Ag Ssiz System - Bottineau — Bills each tap direct at retail

All seasons system - Gilby — Bills each tap direct at retail

Bulk Water Rates Charged Towns on Similar Systems

I. B-Y Rural Water - Tabor, South Dakota

Town	Population	Monthly Minimum	Rate Per 1000 Gal.	1980 Gallons	1980 Cost Per 1000 Gal.
Irene	461	$209 1st 1M	$1.25	13,933M	$1.43
Utica	89	$ 91 1st 1M	$1.25	2,105M	$1.76
Volin	157	$126 1st 1M	$1.25	2,920M	$1.76
Mission Hill	161	NONE	$1.25	3,220M	$1.25

II. Randall System - Lake Andes, South Dakota

Town	Population	Monthly Minimum	Rate Per 1,000 Gal.	1980 Gallons	1980 Cost Per 1000 Gal.
Platte	1351	$1490.00	.75¢	39,543M	$1.20
Geddes	308	$ 342.50	.75¢	8,476M	$1.23
Wagner	1586	$2000.00	.75¢	66,121M	$1.11
Armour	925	$1120.00	.75¢	30,931M	$1.18
Marty (Church School)		NONE	.75¢	14,306M	.75¢
Greenwood	110	NONE	.75¢	7,475M	.75¢
Aurora-Brule Rural Water		NONE	.75¢	20,222M	.75¢

1980-81 WATER RATES PER 1,000 GALLONS

	Billing Cycle	Minimum	
Beach	Mo.	$ 4.00 1st 2 M	$ 0.50 next 3 M, 0.30 over 5 M
Belfield	Bi-Mo.	11.15 1st 4 M	0.75 over 4 M
Bowman	Q	5.50 1st 3 M	0.80 next 37 M, 0.60 over 40 M
Dickinson	Mo.		1.45 per M meter charge plus:
			3.75 per M for 5/8" meter
			6.00 per M for 3/4" meter
			9.00 per M for 1" meter
			18.00 per M for 1 1/2" meter
			28.00 per M for 2" meter
			48.00 per M for 3" meter
			82.00 per M for 4" meter
			168.00 per M for 6" meter
Dodge	Mo.	2.00 1st 1 M	1.25 next 1 M, $1.00 over 2 M
Dunn Center	Mo.	4.00 1st 1 M	1.50 next 1 M, $1.25 next 1 M, 0.75 over 3 M
Gladstone	Mo.	2.00 1st 2 M	1.00 next 5 M, 0.50 over 7 M
Halliday	Bi-Mo.	14.00 1st 6 M	0.80 next 4 M, 0.50 over 10 M
Hebron	Q	6.00 1st 5 M	0.80 next 5 M, 0.60 next 5 M, 0.50 over 15 M
Hettinger	Q	4.50 1st 3 M	0.65 next 37 M, 0.40 over 40 M
Manning			
Mott	Mo	6.70 1st 4 M	1.00 next 12 M, 4.80 all over 16 M
New England	Bi-Mo.	4.00 1st 2 M	1.00 next 10 M, 0.70 next 10 M, 0.50 next 10 M, 0.30 over 32 M
Reeder	Mo.	7.00 1st 4 M	1.00 next 2 M, 0.75 over 4 M
Richardton	Mo.	3.00 1st 2 M	1.00 thereafter
Scranton	Mo.	3.00 1st 2 M	1.00 thereafter
Southheart	Mo.	6.00 1st 3 M	0.75 per M thereafter
Taylor	Mo.	3.00 1st 2 M	3.50 per M next 500 gal.
			4.00 " "
			4.50 " "
			5.00 " "
			5.50 " "
			6.00 " "
			6.25 " "
			6.50 " "
			6.75 " "
			7.00 " "
			0.25 per M over 7,000
Beaulah	Mo.	6.30 1st 3 M	1.70 Next 2 M
			1.20 Next 5 M
			.90 Next 10 M
			.85 Thereafter
New Leipzig	Q	$13.50 1st 5300	1.40 Next 24,700
			1.00 over 30,000

NORTH DAKOTA STATE WATER COMMISSION
SOUTHWEST PIPELINE PROJECT

FINANCIAL CONSULTANT QUESTIONAIRE

In order to develop the best system for delivering water to Southwest North Dakota, the North Dakota State Water Commission needs your help. Please take a moment to answer the questions below which apply to you; then fold and mail this questionaire to the State Water Commission. Your responses will help us design a system which will best serve your needs. Thank you for your assistance.

I. *Community* See Page 9

II. *Occupation* See Page 9

III. *If an adequate supply of good quality water was available, would it improve:*

A.	*Sales of automatic washers, dishwashers, milking machines, water heaters, swimming pools, lawn water systems ?*	65 *yes*	21 *no*
B.	*Laundromats - car wash business - motels and restaurants ?*	70 *yes*	17 *no*
C.	*Expansion of cattle, hog or sheep feeding ?*	61 *yes*	22 *no*
D.	*Dairy operations ?*	60 *yes*	25 *no*
E.	*New industry relocating in your area ?*	82 *yes*	10 *no*
F.	*Community recreation facilities - (swimming pools, parks, golf courses) and the general appearance of your community (lawns) ?*	73 *yes*	9 *no*

IV. *Does your present supply and quality of water adversely affect the life of:*

A.	*Clothing ?*	53 *yes*	37 *no*
B.	*Automatic washers ?*	53 *yes*	37 *no*
C.	*Dishwashers ?*	51 *yes*	40 *no*

(continued reverse side)

IV. Continued -

D. Automobile paint ? — 11 yes / 23 no

E. Farm machinery and auto radiators ? — 47 yes / 38 no

F. Water heaters ? — 47 yes / 23 no

V. How much does it cost to drill a well and purchase a pump for an individual water supply ?

Well $ See Attachment Pump $ See Attachment

VI. What improvements, if any, might you experience in your general lifestyle if you had an assured supply of good quality water ?

See Page 9

VII. Have any general medical or dental problems been caused by the present quality of drinking water ?

A. Decay or discoloring of teeth ? — 22 yes / 58 no

B. Skin diseases ? — 11 yes / 70 no

C. Internal - high incidence of particular diseases ? — 17 yes / 60 no

VIII. How much more would you be willing to pay per month for an adequate supply of good quality water ?

50% 26 75% 5 100% 3

150% 1 200% _____ Don't know 49

From:

Stamp

N. D. State Water Commission
State Office Building
900 East Boulevard
Bismarck, North Dakota 58501

I. Communities or Areas Responding

Bowman	Gascoyne
Dickinson	Scranton
Haynes	Hebron
Mott	Elgin
Hettinger	Regent
Rhame	

II. Occupation

Professional	- 17	Public Office	- 7
Sales	- 5	Merchants	- 28
Workmen	- 4	No. Identification	- 18
Farmer/Rancher	- 13	Retired	- 3
Officer Worker	- 6		

III. Cost of Well

$1000 to $4000	- 75
$10,000	- 7
$15,000	- 4

Cost of a Pump

$300 to $500	- 66
$1000 to $3000	- 11

IV. Improvements in Lifestyle

Nicer lawn and garden	- 27
Feel better about drinking water	- 18
Better fire protection	- 4
Better recreation	- 7
Better looking clothes & cars	- 9
Improved economy	- 9

97 Replies as of 09-21-81

AUGUST 1981
SOUTHWEST AREA INTERVIEWS

Dickinson

State Employee - wife had stomach problems first six weeks they were in town. Daughter complained about the way her clothes looked.

Oil Company Executive - oil companies would rather locate in Bismark can't get employees to live here. Groups do not want to have a convention or meetings in Dickinson because of the water. Would gladly pay twice as much as the new rates in town.

Motel Manager -
Can't wash down sidewalks & entrance.
Scale builds up on washing machines & hot water heater.
Didn't think it affected convention business.
Getting by now but would be disasterous if he couldn't get enough water to operate their laundry or if he had to refill the swimming pool (truck in 30M gallons).
At one time Patterson Lake was a "neat" little recreation area and attracted visitors - not any more.
Would pay 50% more for motel water and 100% for home us.

Gas Station Owner -
Won't drink the water hauls it in from his folks farm.
Drilled his own well so he could wash cars.
Would be willing to pay <u>much</u> more for good water.

Soft Drink Bottling Plant Manager -
Has his own filtering system to further treat city water. Thinks he would still use it but could save some money if city water was higher quality.
Thinks the new damn gates will solve the problem.
The recent drought was highly unusual and might not occur again for many years.

Retired Merchant -
Drilled his own well for lawn and garden($2,000)
Nine new holes on golf course can't be used because they can't plant and water the grass.

Trust Officer Bank -
Drilled their own well ($3,000) had to pass up vacation this year.
Haul their drinking water from relatives farm.
Sodium deposit builds up on automatic washer.
Willing to pay any additional cost that would be fair - everything else is going up.

Automobile Dealer -

Hurts car sales can't keep them looking nice.

Drilled their own well ($3,000).

Doesn't know of medical or dental problems.

Feels that new industry isn't locating in town and city and economic growth are suffering. New industry would greatly increase his sales and profits.

Increased price of water is not a factor - whatever it might be.

City Official -

Dickinson has the highest water rates in the state and the poorest quality water.

217 well permits issued in 1980, 743 issued from 01-01-81 to 08-01-81.

Lawn and garden watering limited to two hours one day a week.

This city could use 4,000,000 gallons of water a day, their getting by on 1,500,000 gallons.

Population has been growing at a rate of 8% a year.

1282 acre sub-division ready to go but city can't furnish water to it.

Lost chance for new industry - company was going to build a 8 to 10 million dollar plant.

Laundries are re-cycling their rinse water and using it again.

Lost sales by merchants because new housing can't be built has to be monumental.

High sodium contnet is hard on automatic washers and air conditioners.

Chamber of Commerce Official -

People have to drive 80-90 miles for fishing and water sports when they had it right outside of town before.

Haynes	Wheat farmer's wells vary from 15 feet to 1000 feet, has plenty of water buy signed up for southwest co-op for a back up supply. Willing to pay more but depends on price.
Regent	Grain elevator manager doesn't like high mineral content - would pay quite a bit more. High school superintendent lived there so long doesn't notice water quality.
Scranton	Banker concerned about supply when coal companies start full scale mining. Willing to pay considerably more.
Beach	Mayor is restricting use this summer, quality is good but supply short. Willing to pay more, very interested.
Bowman	Mayor, poor quality, restricted watering this summer. Planning a new well can't wait for pipelines. Worried about serving coal mine workers in the future. Possible gasahol plant if they can supply the water. Willing to pay more, he knoww they'll need the pipeline eventually.
Dodge	Mayor, good supply poor quality willingness to pay depends on price vs cost of new treatment plant.
Halliday	Mayor, poor quality, very interested willing to pay more.
Hebron	Mayor, poor quality would have to spend $500M to $600M for new treatment plant, depends on price of pipeline water.
Hettinger	Mayor, poor quality and not enough restricting use, limiting growth. Willing to pay more.
Mott	Mayor, good supply, poor quality. Willing to pay more.
New England	Mayor, wants pipeline as a back up supply.
Reeder	Mayor, adequate supply for now would be in real trouble if population doubled because of coal mine workers. Willing to pay more.
Richardton	Mayor, poor quality had to restrict use for first time this year. Willingness to pay depends on price.
Dunn Center	Mayor, water very brackish willing to pay more. They expect a new Menthonal Plant to be in operation in 1986 and will have a lot more people to serve.

Taylor	Mayor, willing to listen depends on price. They will need more water.
Scranton	Mayor, poor quality and very close to using their capacity now. Will need a new source or treatment plant soon. Willingness to pay depends on the price, very interested in SAWS project.

SUMMARY OF THE INTERIM REPORT

SOUTHWEST PIPELINE PROJECT

SECTION A - INTRODUCTION

This report summarizes the Southwest Pipeline Project interim report which provides information to allow the selection of a pipeline route.

The purpose of the Southwest Pipeline Project is for supplementation of the water resources of Dickinson and the area of North Dakota south and west of the Missouri River for multiple purposes including domestic, rural water district and municipal uses.

A wholesale water agency would be formed to operate the water transport system to serve multiple users within the project service area.

SECTION B - SERVICE AREA, WATER DEMANDS AND FACILITIES

The project service area is shown in Figure 1. This service area was delineated prior to August 3, 1981. Since this date, the communities of Beulah, New Leipzig, and Glen Ullin have expressed an interest in receiving water from the Southwest Pipeline Project.

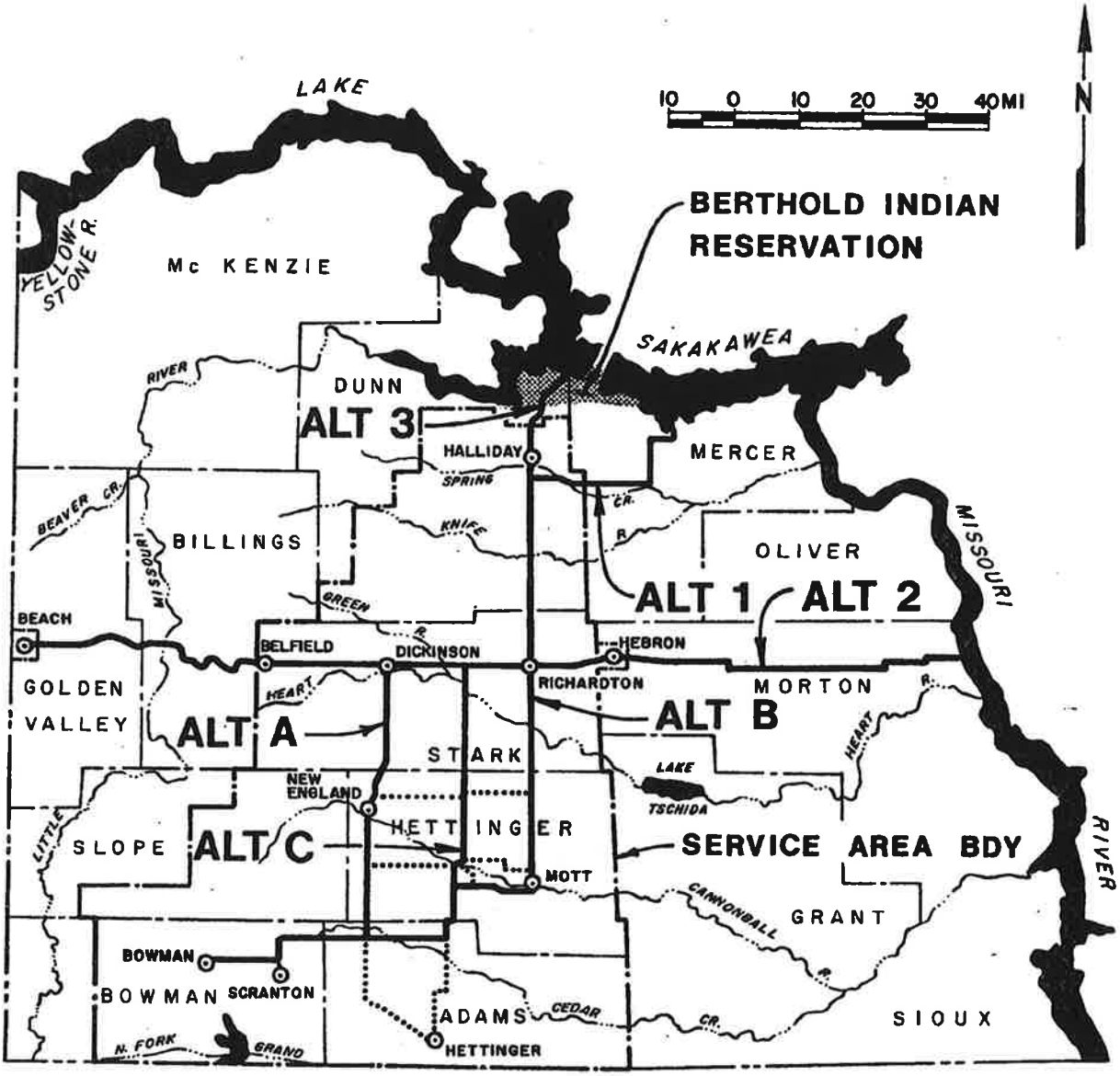
Population and water demands are shown in Table 1.

The facilities necessary for supplying water to the study area include:

- Intake Structure
- Treatment Plant(s); if required
- Pump Stations
- Reservoirs
- Primary Transmission Pipelines
- Secondary Transmission Pipelines

Primary transmission mains are designated as pipelines serving communities with peak flow requirements in excess of 500 gallons per minute (gpm).

Secondary Transmission mains are designated as pipelines serving communities with peak demands of between 100 gpm and 500 gpm. These pipelines have been included in the alternate route study for purposes of comparing costs of service to the total area.



PRIMARY TRANSMISSION MAIN

SECONDARY TRANSMISSION MAIN

SOUTHWEST PIPELINE PROJECT

TABLE 1

SERVICE AREA POPULATION AND PEAK WATER DEMANDS

Locality	Population & Year 1970	1980	2000	Year 2000 Water Demand 1000 gpd	gpm	Existing Water System
Amidon	54	41	53	13	9	No
Beach	1,408	1,392	3,688	922	640	Yes
Belfield	1,130	1,268	1,772	443	308	Yes
Bowman	1,762	2,070	3,437	859	597	Yes
Bucyrus	42	32	49	12	9	No
Dickinson	12,405	15,893	35,000	8,750	6,076	Yes
Dodge	121	200	204	51	35	Yes
Dunn Center	107	169	311	78	54	Yes
Gascoyne	34	23	53	13	9	No
Gladstone	222	316	351	88	61	Yes
Halliday	413	355	968	242	168	Yes
Haynes	53	58	63	16	11	No
Hebron	1,103	1,081	1,251	313	217	Yes
Hettinger	1,655	1,738	2,028	507	352	Yes
Lefor	--	110	120	30	21	No
Manning	42	42	50	13	9	Yes
Mott	1,368	1,273	1,441	360	250	Yes
New England	906	826	973	243	169	Yes
Reeder	306	355	432	108	75	Yes
Regent	344	296	363	91	63	Yes
Richardton	799	704	1,290	323	224	Yes
Scranton	360	416	647	162	112	Yes
South Heart	132	297	420	105	73	Yes
Taylor	162	239	257	64	45	Yes
Subtotals	24,928	29,194	55,221	13,806	9,587	
South West Water Cooperative Farms and Rural Residences				1,440	1,000	No
Slope Area Water Users Cooperative Farms and Rural Residences				1,440	1,000	No
TOTALS OF PEAK WATER DEMAND				16,686	11,587	

1. The 1970 and 1980 populations are from census figures. The year 2000 population is the Level B population shown in the SAWS Report except for Dickinson, Lefor, Manning and South Heart. For these cities their population was obtained from city officials and other data. A minimal change in population is expected between the years 2000 and 2025.

2. The water demand equals population x 100 gallons per capita per day x 2.5 peaking factor. It is expressed in units of thousands of gpd and in gallons per minute. Design flow for farms and rural residences is estimated at 1000 gpm for each cooperative.

SECTION C - ALTERNATIVE ROUTE DESCRIPTIONS

Three alternative points of withdrawal of water from the Missouri River were investigated:

(1) The existing ANG intake facilities north of Beulah on Renner Bay or a new intake nearby.

(2) A new intake about 3 miles north of Mandan.

(3) A new intake near the northerly extension of Highway 8 on the Fort Berthold Indian Reservation.

Alternative pipeline routes are shown on Figure 1. The pipeline routes are divided into six basic routes, three between the sources of water and Richardton and three routes for distribution of water from Richardton into the service area. Richardton is a common point for combining a source route with a distribution route to make a complete system.

The three source segments are identified as Alternative Routes 1, 2 and 3. The three distribution segments are identified as Alternative Routes A, B, and C. A complete system would be 1A, 1B, 2C, etc.

Variation of Alternative Route 1 Pipeline

A variation of Route 1 was investigated by a "Diagonal" alignment from Zap to Richardton. Rugged terrain along the route would require additional pipe appurtenances and access roads parallel to the pipeline in inaccessible areas. There is no significant savings in utilizing the "Diagonal" route.

Variation of Alternative Route 1 Intake

Another variation of this alternative would be to construct a new intake structure north of the ANG facility in Renner Bay. Depending on final sharing costs of the ANG intake it may be economical to build a separate intake.

Variation of Alternative Route 2

A variation of Route 2 was investigated by constructing a separate intake on Lake Sakakawea on the Fort Berthold Indian Reservoir and a pipeline to Halliday. This variation would cost in excess of $1.5 million more than Alternative Route 2.

Variation of Sizing Concept

The possibility of reducing the primary transmission main size by constructing raw water reservoirs for seasonal storage was investigated. The cost of constructing raw water open reservoirs, inlet and outlet piping facilities and additional pump units versus the cost savings by the reduction of primary transmission facilities were close to being the same. If the reservoirs were covered so that seasonal storage is available for treated water, the concept will be considerably more expensive.

Comparison of Alternative Route Facilities

The following is a comparison of the various facilities required for the alternate route comparisons.

1. Intakes -- Routes 2 and 3 require the construction of a new intake facility and acquisition of property. A variation of Alternative Route 1 also provides for the construction of a new intake facility and land acquisition of property.

2. Transmission Pipelines

COMPARISON OF ALTERNATIVE ROUTE COMBINATIONS
PRIMARY AND SECONDARY TRANMISSION MAINS
LENGTH IN MILES

ROUTE COMBINATION	PRIMARY MAINS	SECONDARY MAINS	TOTAL
1A	227	61	288
1B	254	66	320
1C	242	68	310
2A	235	77	312
2B	262	82	344
2C	250	84	334
3A	213	59	272
3B	240	64	304
3C	228	66	294

Based on the above table, Alternative Route 3A has the shortest Primary and Secondary Mains.

3. Pump Stations

COMPARISON OF ALTERNATIVE ROUTE COMBINATIONS
NUMBER OF PUMP STATIONS AND TOTAL HORSEPOWER

ROUTE COMBINATION	PUMP STATIONS	TOTAL HORSEPOWER
1A	9	7405
1B	11	7170
1C	11	7350
2A	11	9505
2B	13	9270
2C	13	9450
3A	9	7150
3B	11	6870
3C	11	7050

The above table indicates there is little horsepower difference between Alternative Routes A, B, & C. Alternative Route 2 requires 2 more pump stations and an increase in horsepower.

4. Reservoirs

COMPARISON OF ALTERNATIVE ROUTE COMBINATIONS
NUMBER OF RESERVOIRS AND TOTAL CAPACITY
CAPACITY IN MILLIONS OF GALLONS

ROUTE COMBINATION	RESERVOIRS	TOTAL CAPACITY
1A	10	23.20
1B	12	22.95
1C	12	23.65
2A	12	26.05
2B	14	25.80
2C	14	26.50
3A	10	23.10
3B	12	22.85
3C	12	23.55

Route A requires the least number of reservoirs. The requirements of Route 1 and 3 are about the same.

SECTION D - CONSTRUCTION COST ESTIMATES

The cost estimates for the various alternative routes are summarized below. These estimates include all anticipated costs except water treatment plant(s) and right-of-way, legal, administrative and financing.

COMPARISON OF VARIOUS ALTERNATIVE ROUTE COMBINATIONS
COST ESTIMATES FOR PRIMARY AND SECONDARY SYSTEMS
(September 1981 $)

ROUTE COMBINATION	PRIMARY SYSTEM	SECONDARY SYSTEM	TOTAL COST
1A	$ 82,272,000	$ 7,156,000	$ 89,428,000
1B	$ 86,676,000	$ 6,861,000	$ 93,537,000
1C	$ 84,120,000	$ 6,665,000	$ 90,785,000
2A	$ 89,603,000	$ 9,020,000	$ 98,623,000
2B	$ 94,007,000	$ 8,725,000	$ 102,732,000
2C	$ 91,451,000	$ 8,529,000	$ 99,980,000
3A	$ 76,653,000	$ 6,945,000	$ 83,598,000
3B	$ 81,057,000	$ 6,650,000	$ 87,707,000
3C	$ 78,501,000	$ 6,454,000	$ 84,955,000

Based on the above table, Alternative Route 3A has the lowest total estimated costs using current construction costs.

SECTION E - OPERATION AND MAINTENANCE COSTS

The composite costs of annual operation and maintenance for power, pump stations, reservoirs and transmission pipelines are shown in the table below for each alternate system. It assumes the system operating at design capacity.

BASIC ANNUAL OPERATION AND MAINTENANCE COSTS
(September 1981 $)

Route Combination	Power	Pump Stations	Reservoirs	Transmission Pipelines	Total
1A	547,000	69,000	43,000	283,000	942,000
1B	530,000	84,000	44,000	316,000	974,000
1C	543,000	84,000	45,000	304,000	976,000
2A	703,000	84,000	47,000	301,000	1,135,000
2B	685,000	99,000	48,000	333,000	1,165,000
2C	698,000	99,000	48,000	321,000	1,166,000
3A	528,000	69,000	43,000	267,000	907,000
3B	508,000	84,000	44,000	299,000	935,000
3C	521,000	84,000	45,000	287,000	937,000

The system is designed to supply an annual average quantity of 2,436,000,000 gallons for the year 2000 population. Based on the above table, the basic operation and maintenance costs are estimated at $0.37 to $0.48 per 1,000 gallons. Power cost is a major component of the total and varies from $0.21 to $0.29 per 1,000 gallons.

Initially the system will be operating at a lower flow than the design capacity. The maintenance costs will remain approximately the same and the operating costs will be reduced by the power factors. Therefore, initial costs will be considerably higher per 1,000 gallons than when the system is operating at design capacity. The table below compares system capacity with cost per 1,000 gallons.

BASIC OPERATION AND MAINTENANCE COSTS OF WATER AT VARIOUS FLOWS
ALTERNATE 3A

Average Daily Q in MG	Percent of Design	Cost/1000 Gallons (September 1981)
1.7	25	$0.84
3.3	50	$0.53
5.0	75	$0.42
6.7	100	$0.37

SECTION F - WATER TREATMENT ALTERNATIVES

The SWC staff requested that study of water treatment be separated from the study of the basic supply systems to allow appropriate decisions concerning the treatment of water. Both the 1978 and 1980 SAWS studies included treatment. Minimum treatment required by the North Dakota Department of Health for surface water is disinfection, clarification, and filtration.

Alternative Water Treatment Plant Locations

Regardless of which entity constructs and finances the necessary treatment facilities, it is desirable to minimize the number of plants.

One alternative would be for a single water treatment plant located near the source. This alternative would provide treated water to all customers along the pipeline routes. Pumping treated water rather than raw water would result in less wear on the pumps. The primary drawback to this plan would be the abandonment of Dickinson's existing water treatment plant. This plant is in good condition and presently supplies treated water to the residents of Dickinson. It is estimated that the existing plant could treat 6.0 MGD of raw water from Lake Sakakawea.

In order to utilize the existing treatment plant, raw water must be transported to Dickinson. Raw water could be supplied to Dickinson by

constructing additional pipelines. Other areas would be served by constructing treatment plants in other locations. In order to evaluate the relative costs, it is necessary to compare a system that supplies treated water everywhere with one that supplies raw water to Dickinson and treated water elsewhere. Alternative route system 1A will be used for this comparison since it would not require additional transmission mains, pump stations and reservoirs and would be the most cost-effective.

This Alternative 1A would require the following facilities:

1. Locate a 1.4 MGD water treatment plant at Richardton to supply filtered water to the Richardton-Hebron area.

2. Locate a 0.7 MGD water treatment plant at Halliday to supply filtered water in that area.

3. Locate an 8.6 MGD water treatment plant at Dickinson to supply areas downstream of Dickinson and Dickinson's requirements in excess of 6 MGD.

4. Locate chlorination or other facilities at several points along the raw water pipeline in order to control slime and algae growth on the pipeline walls.

Unit Costs of Operation and Maintenance

The annual costs shown are for an annual water production of 2,436,000,000 gallons for the year 2,000 population. The unit costs are estimated at $0.14 and $0.26 per thousand gallons for alternates with single treatment plants and multiple treatment plants respectively, without softening.

Initially the system will be operating at a lower flow than the design capacity. The maintenance costs will remain approximately the same and the operating costs will be reduced by the chemical costs. Therefore, initial costs will be considerably higher per 1,000 gallons than when the system is operating at design capacity. The table below compares system capacity with cost per 1,000 gallons for the more economical treatment alternative.

TREATMENT OPERATION AND MAINTENANCE COSTS OF WATER AT VARIOUS FLOWS
SINGLE TREATMENT PLANT

Average Daily Q in MG	Percent of Design	Cost/1000 Gallons (September 1981 $)
1.7	25	0.42
3.3	50	0.23
5.0	75	0.17
6.7	100	0.14

Life Cycle Cost Comparisons

The life cycle costs for the two treatment alternatives studied are shown in the table below.

LIFE CYCLE COSTS TREATMENT ALTERNATIVES
(September 1981 $)

Treatment Alternative	Construction Cost	Annualized Construction Cost CRF=0.07830	Annual Sinking Fund Payment	Annual Operation & Maintenance Cost	Total Annual Life Cycle Cost
Single	11,600,000	908,000		340,000	1,248,000
Multiple	11,400,000	893,000	62,000	640,000	1,595,000

The table shows that on a life cycle cost basis the single treatment plant alternative is 21% lower than the multiple plant alternative. The primary advantage of the multiple alternative is that it allows more flexibility in construction staging. It should be mentioned that chlorination of raw surface water is currently not favored by public health officials due to concern for trihalomethanes in drinking water. Therefore, if the multiple alternate is selected for the project a detailed study of the control of slime will be necessary. Softening is not included in the above costs.

SECTION G - LIFE CYCLE COST COMPARISON

The following table compares annual costs for the various alternative systems. Water treatment is not included in these costs.

BASIC LIFE CYCLE ANNUAL SYSTEM COSTS
(September 1981 $ Thousands)

Route Combination	Construction Cost	Annualized Construction Cost CPF=0.07830	Annual Maintenance & Operation Cost	Total Annual Life Cycle Cost
1A	89,428	7,002	942	7,944
1B	93,537	7,324	974	8,298
1C	90,785	7,108	976	8,084
2A	98,623	7,723	1,135	8,858
2B	102,732	8,044	1,165	9,209
2C	99,980	7,828	1,166	8,994
3A	83,598	6,546	907	7,453
3B	87,707	6,867	935	7,802
3C	84,955	6,652	937	7,589

The annualized construction cost component makes up 87 percent to 88 percent of the total annual life cycle cost. Construction costs are so dominant that a ranking of alternatives by life cycle cost is the same as by construction cost.

It is important to emphasize that right-of-way and site acquisition costs are not included. They are discussed in Section H.

SECTION H - RIGHT-OF-WAY AND LAND ACQUISITION

The costs of land acquisition will vary with the different alternative routes. In most cases the alternative pipeline routes are parallel to existing roads. If the pipeline is placed within the right-of-way area of the parallel road, due to unusual site conditions or other reasons, it will be necessary to secure the approval of the appropriate road authorities. In all instances, including those where the pipeline may be located within a road right-of-way, the State Water Commission Counsel has indicated that easements must be secured from the surface landowner.

Land acquisition will be necessary for the various facilities associated with the project. These include treatment plant site(s), pump station sites and reservoir sites. In most cases these sites will be adjacent to existing roads.

A portion of Alternative Route 3 is within the boundaries of the Fort Berthold Indian Reservation. Indian land is generally held in Trust for the Indian people by the United States Government, administered by the Department of Interior through the Bureau of Indian Affairs. In some cases, Indian land has been allotted to individual Indians and is owned in fee individually. In many such cases, individual Indians have the right of alienation of their allotted land. Right-of-way across the Fort Berthold Indian Reservation would require approval of the Three Affiliated Tribes, as well as the Secretary of the Interior, as Trustee for the Indians. Acquisition of right-of-way from individual Indians who own allotted lands will also be necessary. Discussion with Tribal officials indicate that they would be amenable to a pipeline delivery system limited to domestic, municipal, and rural water uses.

A check of the Public Service Commission's records indicates that there are no mine plans on file for coal mining where any of the proposed routes cross coal reserve areas. Since any project facilities located over coal reserves would interfere with strip mining operations, right-of-way and site acquisition in these areas must be carefully addressed.

SECTION I - ALTERNATIVE ROUTE EVALUATIONS

Alternative Route 3A has the lowest estimated basic life cycle cost. However, several other factors which have not been included in the basic life-cycle costs may have potentially significant impacts on the selection of the most appropriate alternative route. This includes Indian water rights, right-of-way over Indian lands and right-of-way over leased coal reserves. These items must be considered in selecting the alternative route.

Alternative Route 1A has only a 6.6 percent higher basic life cycle cost than Route 3A. This is true providing the cost sharing for the ANG intake does not increase above the $2,500,000 used in this report.

If the ANG intake cost sharing reaches $12,700,000, it is estimated that a separate intake on Renner Bay could be constructed for the same cost. At that intake cost level the construction cost of Alternative Route 1A would exceed that of Alternative Route 2A but the annual life cycle cost would still be 1.3 percent less. Potential coal reserve interference is judged to be significantly lower for Alternative Route 2A.