

CHAPTER 4
MITIGATING MEASURES AND AIR
AND WATER QUALITY ASPECTS



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4. Mitigating Measures and Air and Water Quality Aspects

This chapter discusses those actions, devices, procedures, or operating priorities which would be carried out by ANGGCC to minimize or prevent environmental degradation which might occur during the construction or operation of the proposed gasification plant and associated facilities. Many of the mitigating measures are required and are enforceable by governmental agencies under a variety of existing contracts, leases, laws, orders, or regulations. Others have been volunteered by ANGGCC in various reports furnished to assist in the preparation of this statement. A last category of mitigating measures would be stipulations or requirements that ANGGCC must comply with to obtain the governmental permits required to construct and operate the proposed plant and associated facilities.

4.1 Legal and Institutional Requirements

4.1.1 Contractual Requirements

Water for the ANGGCC coal gasification project would be provided from Lake Sakakawea (Garrison Reservoir) under a contract between ANGGCC and the Secretary of the Interior. Under that contract, the Secretary of the Interior would require the following:

The contractor shall, within its legal authority, comply with all applicable orders, laws, and regulations of the United States and the State of North Dakota concerning protection of the environment and relating to pollution of water and air.

4.1.2 Federal and State Standards

4.1.2.1 Air Quality

Extracts from the Federal (88) and State (89) Ambient Air Quality Standards and Significant Air Deterioration Limits (90, 92) that would be applicable to ANGGCC - Basin Electric project were shown in Tables 3-2, 3-5, and 3-7. In addition, both the Federal Government and the State of North Dakota have established New Source Performance Standards for fossil fuel fired steam boilers. The maximum unit emissions in pounds per MMBtu input are (Federal and North Dakota standards are identical):

<u>Pollutant</u>	<u>Gaseous</u>	<u>Fuel Type</u>	
		<u>Liquid</u>	<u>Solid</u>
Sulfur Dioxide	--	0.8	1.2
Nitrogen Oxides	0.2	0.3	0.7
Particulates	0.1	0.1	0.1

The nitrogen oxide standard for coal does not presently apply to lignite. Also, when more than one fuel type is used, the allowable input is based on the percentage Btu input of each type of fuel.

The proposed Basin Electric powerplant would meet the New Source Performance Standards for fossil fueled steam boilers. Applicability of existing New Source Performance Standards to the proposed gasification plant is more complicated, however, and a letter from the North Dakota State Department of Health to ANCGGC regarding the applicability of New Source Performance Standards is presented in Appendix B. The Environmental Protection Agency is currently establishing emission standards for coal gasification plants (106); the ANCGGC plant would have to meet such standards before it could actually be built. The estimated maximum ground-level concentrations of pollutants from both the ANCGGC and Basin Electric projects would be within Federal and State Ambient Air and Significant Deterioration standards. No Federal or State standards exist regarding the trace element emissions from the proposed plants.

While the ANCGGC and Basin Electric projects do not exceed the Federal Significant Ambient Air Deterioration Limits, they do use up a large portion of the allowable degradation of existing air quality. The region is designated as a Class II area and calculated pollutant concentrations including associated growth (Table XVII, Appendix I) would be about 27 percent and 87 percent of the allowable annual and 24-hour TSP degradation; and about 44 percent, 68 percent, and 25 percent of the allowable annual, 24-hour, and 3-hour SO₂ degradation. If these levels are actually reached, further coal-related industrial development in the immediate area could be limited.

4.1.2.2 Water Quality

It does not appear that the gasification plant and related facilities would cause any water quality standards to be exceeded, although existing water quality may be degraded at times. Laws governing water quality impacts exist at both the Federal and State levels. The Federal legislation which serves as a basis is the Federal Water Pollution Control Act Amendments of 1972. This Act was designed to reduce the cumulative effects of regional development on water quality. The Safe Drinking Water Act is also a pertinent piece of Federal legislation. The Federal Government has recommended different standards for drinking water, irrigation water, recreational uses, and effects on aquatic life--all of which would serve to mitigate impacts because discharges from the ANCGGC project would not be allowed to exceed the standards.

The North Dakota State Health Department is responsible for water quality control in North Dakota. They have established Standards of Surface Water Quality for North Dakota which apply to the proposed project (91). The Knife River and Antelope Creek have been designated Class II streams. North Dakota State Water Quality Standards contain an antidegradation policy which states: "Water whose existing quality is higher than the established standards will be maintained at the higher quality unless it can be affirmatively demonstrated that a change in quality is justifiable to provide necessary economic or social development and will not adversely affect the stated beneficial uses of the water. All exceptions must be supported by data."

4.1.3 Mining and Reclamation Requirements

Since the coal to be mined for the project, as proposed, does not involve Federal land or coal, Federal laws and regulations do not apply. The 1969 North Dakota Mining Control and Reclamation Law (SB 2095) with its 1971, 1973, and 1975 revisions, however, regulates the surface mining of coal on all lands within the State. A permit issued by the North Dakota Public Service Commission (PSC) is required for surface mining. The application must include a description of the tracts of land and estimated acreage to be affected. A permit is good for 3 years and must satisfy the requirements of the law.

Adequate protective measures must be included in the application which must be accompanied by a \$1,500/acre bond in the form prescribed by the Commission. The bond remains in effect until the mined acreage has been reclaimed and the reclamation approved by the PSC.

A reclamation plan is to be submitted to the PSC. After approval, the operator may engage in surface mining subject to the following requirements (extracted):

1. Land must be regraded to approximate the original contour unless a different topography is required for an intended use.
2. Suitable plant growth material to 5 feet deep must be saved and respread. If 5 feet of topsoil is not available, whatever is available must be spread.
3. Runoff water must be impounded, drained, or treated.
4. Final cuts and end walls must be backsloped to 35° or less unless an alternative use is intended such as a water impoundment.
5. All refuse from the mining operation must be removed or buried.

6. The reclamation plan must be based on advice and technical assistance of State agencies. The landowner is to be asked to state his preference for a reclamation plan.

7. The PSC shall approve in writing the vegetation to be planted.

8. Reclamation must be completed within 3 years after the mining permit expires.

9. Until reclamation satisfies the PSC, control of the land remains with the PSC.

10. If the landowner's water supply is disrupted or reduced in quality, the operator must provide a new supply at no cost to the owner.

4.1.4 Other Institutional Requirements

4.1.4.1 Cultural Resources

Two Federal statutes afford protection to historic, archaeological, and paleontologic resources that might be disturbed by the proposed project. The Historic Preservation Act of 1966 (80 Stat. 915) requires that all Federal actions that will impact cultural resources must be reviewed by the Presidential Advisory Council on Historic Preservation prior to their implementation. Also, Executive Order 11593 (1971), "Protection and Enhancement of the Cultural Environment," directs that historic values be preserved (see also Section 4.4.2).

4.1.4.2 Railroad Spur

Chapter 49-11 of the North Dakota Century Code (NDCC) sets forth the basic requirements relative to railroad crossings of highways. These requirements include: (1) the restoration of any highway so that "its usefulness is not materially impaired" (Section 49-11-04), (2) standards for the construction of all crossings (Section 49-11-06), and (3) maintenance in a safe state of repair of all crossings so constructed (Section 49-11-05). Caution signs are required pursuant to Section 49-11-16.

In addition, the Mercer County Zoning Ordinance has been amended to provide for conditional uses for railroad trackage and spurs in agricultural and industrial districts. Conditions included in this amendment are:

1. No trackage shall be placed within 125 feet of a residence unless a written agreement is made with the owner of the residence and presented to the Planning Commission.

2. The applicant shall conform to all requirements regarding preservation, removal, or relocation of historical and archeological artifacts.

3. The applicant shall provide any reasonable information the Planning Commission deems necessary.

4.2 Mitigation Measures for the Proposed Project

This section discusses those measures which would be implemented at the proposed gasification complex and mine by ANCCGC (or Coteau Properties).

4.2.1 Air Quality

4.2.1.1 Atmospheric Emissions

Gaseous emissions from the gasification process would be passed through control facilities before emission into the atmosphere:

1. Dust generated by loading the coal locks would be processed to remove particulates;

2. The Stretford plant would be provided primarily to control H₂S generated in the plant system. This plant is mitigating because the production of byproduct sulfur for sale would be incidental to the primary purpose of the plant;

3. Gases escaping from several process units would be trapped and incinerated to convert H₂S and other sulfur compounds to SO₂; and

4. Stack would be of sufficient height to provide adequate dispersion of emissions.

4.2.1.2 Dust Control

The following measures would be in effect to control fugitive dust generated by the project:

1. Dumping of coal into receiving hoppers would occur in an enclosure equipped with inertial and bag-type filters;

2. Conveyors for crushed coal would be equipped with bag-type dust collectors;

3. All solid wastes would be treated with water;

4. Dry ash locks would be equipped with wet cyclones to collect ash for disposal;

5. Wet ash locks would water the ash before transport to the disposal area;

6. Major access roads and parking areas would be hard-surfaced; unpaved roads and right-of-way would be sprayed periodically with water as required;

7. Dust collectors would be installed in all coal handling areas as needed;

8. The reclaimed mine area would be graded to minimize airborne dust level and maximize vegetation; and

9. Ash would be returned to the mine and buried.

These dust suppression measures should be effective in controlling fugitive dust. Various governmental agencies could require more extensive dust suppression measures should a problem become apparent.

4.2.1.3 Odor

Primary sources of potential odors would be routed through the following control processes:

1. A CO₂ stream, containing 97 percent CO₂ and 3 percent H₂S, COS, CO, C₂H₄, H₂, CH₄, and C₂H₆ would be passed through a Stretford plant to remove elemental sulfur and the remaining stream incinerated in the superheater/incinerator furnace.

2. The expansion gas from the gas liquor area would contain CO and H₂S and would be incinerated.

3. The bulk of the coal lock gas would be collected, compressed, and returned to process; a residual vent would convey the remainder to the atmosphere.

4. The vent stream from the gas liquor collection pit would be conveyed to incineration.

4.2.2 Noise

Compressors and coal handling equipment such as crushers and screens would be located inside buildings designed to minimize noise. Fans, blowers, and burners would be designed to produce less noise by eliminating turbulence and streamlining the flow. Steam lines would be designed for flow velocities considered low enough not to create excessive noise. Also, since the winter temperatures in North Dakota are very low, heat insulation around steam lines would be heavy, contributing to further reductions in noise levels. An important parameter for selecting high pressure drop valves would be low noise characteristics.

Fan noise from air coolers and cooling towers would be controlled by locating the units to minimize boundary noise and by avoiding

the placement of many noisy pieces of equipment together. In addition, the tip speed of the fan can be designed to minimize noise, and noise barriers can be placed around the cooling units, if necessary.

Mine haul roads would be routed to avoid residences to reduce the potential for noise impact. Purchase orders for equipment would include noise control specifications. Where noise cannot be reduced by design, special noise barriers, foundation isolation, and other muffling methods would be provided.

4.2.3 Biological Systems

4.2.3.1 Terrestrial Flora

Although habitat loss as a result of the proposed gasification complex would be unavoidable, unnecessary habitat destruction would be avoided. During construction, disturbance would be confined to the immediate construction site. During mining operations, haul roads would be routed to avoid sensitive habitats and minimize wind erosion, and sediment control practices would be followed.

4.2.3.2 Terrestrial Fauna

Measures to minimize habitat disturbance would serve to minimize impacts on animals. It is the policy of ANGGC that unnecessary disturbance of terrestrial fauna during all phases of construction and operation would be avoided.

4.2.3.3 Aquatic Systems

Tunneling would be used during construction of the water intake system to minimize bottom disturbance. The water intake was designed to be at a depth where, during normal pool elevations, few larval and fingerling fish should be present. Design intake velocities of 0.5 cfs (peak demand) should be low enough that most fingerlings and adults can avoid entrainment. A horizontal velocity cap inlet would be used to reduce fish entrapment.

Drainage from the mining area would be confined to, and impounded within, the perimeter of the mining area as much as possible. Sedimentation basins would be provided to reduce silt from any runoff leaving the minesite.

Construction of the product pipeline would cross 12 rivers or creeks (Section 2.1.3.1). Until such time as the exact crossing locations are known, specific mitigating measures cannot be detailed. However, the following discussion relates the kinds of mitigating measures generally practiced by pipeline construction contractors.

Specific construction methods used to minimize damage to stream-banks, adjacent drainage areas, and fish and wildlife habitat are

(1) scheduling construction during dry periods, (2) avoiding cutting off streamflow, and (3) avoiding crossings during fish spawning. Stone, broken masonry, or crushed rock is used as a mat to protect stream bottoms and to reduce bank erosion. Where appropriate, wood or steel bulkheads are constructed to also reduce erosion.

Contractors replace stream-bank plugs and grade banks to slopes equal to or less than the original angle. Sandbagging is used where banks are graded steeper than the original slope. Terraces are also constructed, where necessary, to control erosion. In slide areas, underground bulkheads of piles, wire mesh, and cables are installed. Fertilizer and seed, selected in consultation with the county agricultural agent, are applied to slopes vulnerable to erosion.

4.2.4 Reclamation

(As discussed in Section 4.1.3, Title 38 of the North Dakota Century Code (SB 2095) requires that the landowner state how he wants his land reclaimed. This is not done until just before mining the land; thus, a more detailed reclamation plan than that presented in this section is not possible at this time.)

Coteau Properties would perform the mining operations for ANGCGC. Prior to mining, Coteau Properties would make written application to the North Dakota Public Service Commission (PSC) for a surface mining permit. The permit would include both a limited (3-year) and extended (10-year) mining plan consisting of a legal description of the land, the identity of surface and subsurface owners, and the source of the operator's right to mine. The application would contain detailed hydrologic, geologic, topographic, and soil maps, plus the results of a comprehensive soil survey performed by a professional soil classifier.

A reclamation plan would be prepared and submitted with the application and would cover the land described in the limited mining plan. The plan will be prepared in detail before mining and will address the specific parcels of land to be mined. The reclamation plan would comply with the requirements of SB 2095 and the rules and regulations of the PSC.

Reclamation measures to be undertaken would include:

1. Regrading the area to the approximate original contour or topography, unless otherwise instructed by the PSC.
2. Saving, segregating, and resspreading suitable plant growth soil up to a maximum of 5 feet deep.
3. Impounding, draining, and/or treating all runoff water.

4. Backsloping final cuts, high walls, and end walls to an angle not exceeding 35°, except under those conditions permitted by the PSC.

5. Burying all waste material from the operation.

6. Replanting the regraded land with seeds, plants, cuttings, trees, shrubs, grasses, or legumes as approved by the PSC.

7. Fencing would be constructed for safety reasons, when only a portion of a landowner's property is mined, or if an existing fence is damaged or destroyed.

In addition, Coteau Properties would post a mandatory \$1,500 performance bond on each acre to be mined. The bond would be returned in portions as various stages of the reclamation program are completed to the satisfaction of the PSC.

Numerous studies on reclamation (i.e., fertilization, revegetation, soil productivity, etc.) are being conducted by governmental, university, and mining groups in southwestern North Dakota and adjacent areas. Some 13 reclamation studies are in progress at NACCO's Indian Head Mine about 10 miles southwest of the proposed plantsite. Results of these studies would be incorporated into the final reclamation plan.

Reclamation would utilize the most appropriate procedures for the particular parcels of land involved. Fertilizer type and application rate, types of grasses used, and the species of trees selected for the reclamation process would depend on soil characteristics and on the landowner's preference with regard to land use following reclamation. Extensive irrigation would probably not be used because annual precipitation is generally adequate to establish plant growth. Specific reclamation details cannot be set forth at present, but it is possible to indicate those practices that have shown success.

a. Grasses

Several grasses have been used on reclaimed lands at the Indian Head Mine. Unless otherwise specified by legal requirements or in light of new data, ANGCGC would use those grasses which have shown the best results. These include crested wheatgrass, smooth brome grass, western wheatgrass, and green needlegrass. The crested wheatgrass and smooth brome grass appear to be most successful, although all of the above have done well on areas where topsoil has been returned. Also, a legume, yellow sweet clover, has been used as a soil stabilizer and nurse crop. Other native and warm season grasses have been used mainly for research purposes, but a mixture of native grasses would be used to restore native rangeland when requested by the landowner.

b. Fertilizer

Soils of the coal areas are inherently low in phosphorous. A blend of 18 percent N, 46 percent P₂O₅, 0 percent K₂O fertilizer applied at a rate of 125 lbs/acre has shown successful results. A study is currently underway at the Indian Head Mine to determine the possible benefits of refertilization.

c. Woody Vegetation

Since 1974, more than 5,800 trees and shrubs have been planted at the Indian Head Mine. Varieties used were: Hansen hedgerose, silver buffaloberry, American plum, green ash, Russian olive, caragana, hawthorn, golden currant, laurel-leaf willow, chokecherry, Siberian elm, ponderosa pine, and Eastern red cedar. The last two conifers were only recently planted and survival percentages have not been established.

The woody vegetation was planted on areas of varying soil conditions. Areas that received 2 feet of topsoil by far have the highest survival rates. (It is too early to have results on areas reclaimed with 5 feet of topsoil.) Species doing well on these areas include green ash, caragana, and Hansen hedgerose; silver buffaloberry, American plum, and Russian olive have only done fair. On areas without topsoil, the sodium adsorption ratio (SAR) seems to determine the survival percentage (i.e., the higher the SAR the lower the survival). Species showing some ability to survive in soils with high SAR's include: caragana, Russian olive, green ash, silver buffaloberry, and Siberian elm. These species would do well on areas left without much topsoil if topsoils are concentrated for agricultural use. Those doing poorly include: hawthorn, American plum, golden currant, and chokecherry.

4.3 Monitoring Programs

4.3.1 Air Quality

The diffusion calculations and impact analysis indicate that under all meteorological conditions diffusion of effluents would be thorough enough that ambient ground concentrations would be below limits set by North Dakota and the Federal Government. However, the occasional conditions of plume trapping or fumigation may lead to periods of high ground concentrations. An ambient air quality monitoring program would be established by ANGCGC to assess the validity of the projections and to determine what actual ground concentrations are reached.

The air quality monitoring program would be designed prior to the start of plant operation. From a conceptual standpoint, the

program would be based on the following considerations: (1) a minimum of two short periods of active monitoring would be conducted each year, one period during the worst month, and one during a different season; (2) passive monitoring would be conducted for the first full year of plant operation; (3) pollutants monitored would be SO₂, NO_x, and TSP; and (4) the program would be designed to meet with the approval of the State of North Dakota and the Federal EPA.

4.3.2 Water Quality

4.3.2.1 Surface Water

The location of surface water sites selected for flow and chemical quality monitoring are shown in Figure 4-1. In addition, records from the three USGS gaging stations in the area (Spring Creek-Zap, Knife River-Golden Valley, Knife River-Hazen) would be acquired as they become available. A rainfall gage would be installed at the plant.

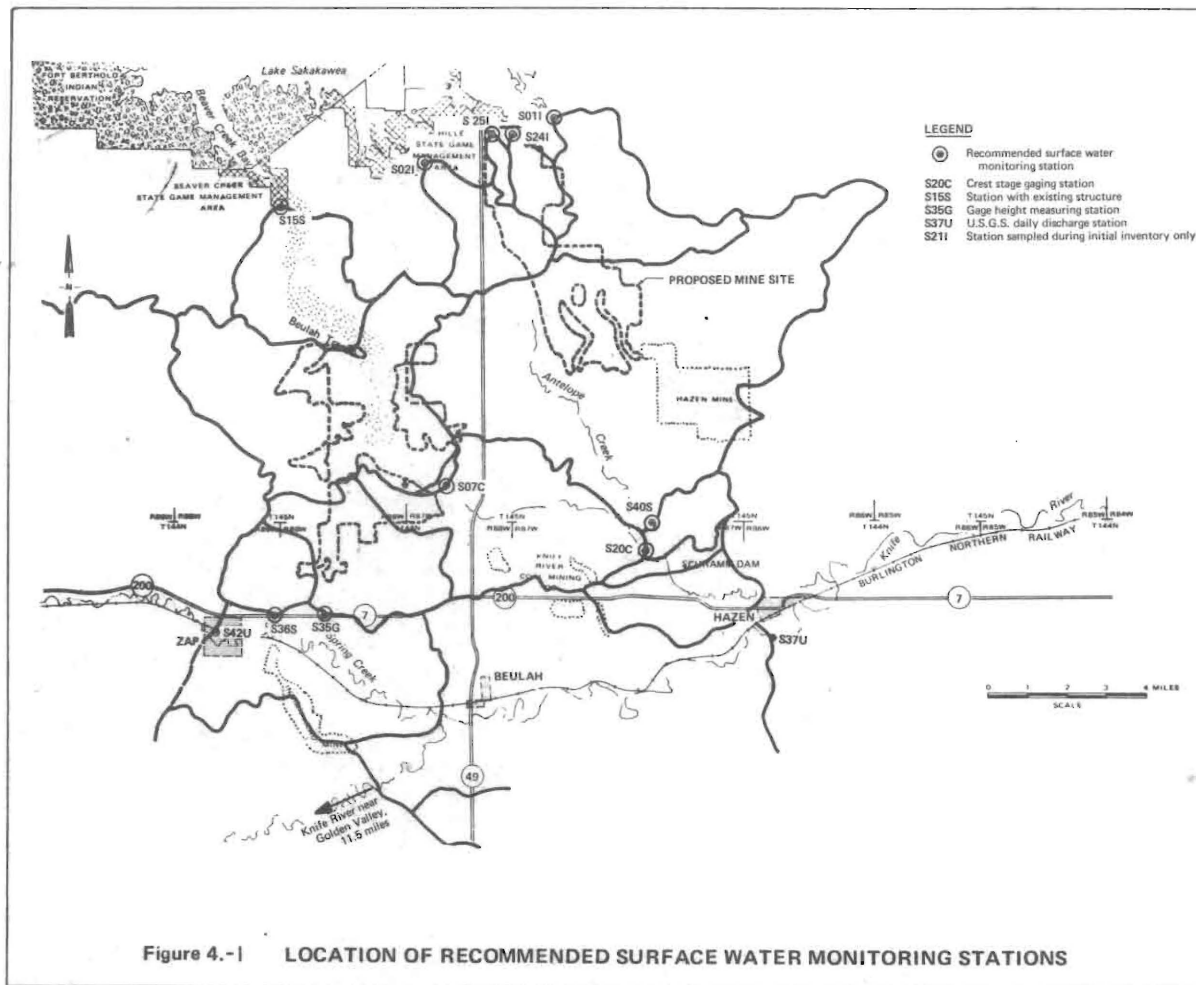
The surface water monitoring stations would vary from year to year, depending on the location of the mining activity. The progression of the monitoring program would be approximately as follows:

<u>Year</u>	<u>Station</u>
1978	S07C, S20C
1980	add S40S
1981	add S35G, S15S
1986	add S36S
1989	add S02I
1991	add S25I
1994	add S24I
2001	add S01I

One year prior to mining in each subbasin, the appropriate monitoring station would be activated. Spring snowmelt runoff would be measured and samples analyzed for dissolved oxygen, pH, color, suspended solids, turbidity, TDS, bicarbonate, sulfate, fluoride, sodium, boron, selenium, arsenic, mercury, iron, and molybdenum. The full gamut of toxic trace elements would be analyzed periodically.

After the first year indicated, the same analyses would be obtained during spring snowmelt and during one of two other times: either directly following the first yearly occurrence of a major precipitation event, or directly following the first 7-day period in which a total of at least 2.90 inches of precipitation falls.

Surface water stations would be deleted from the program 1 year after completion of the reclamation program within a drainage

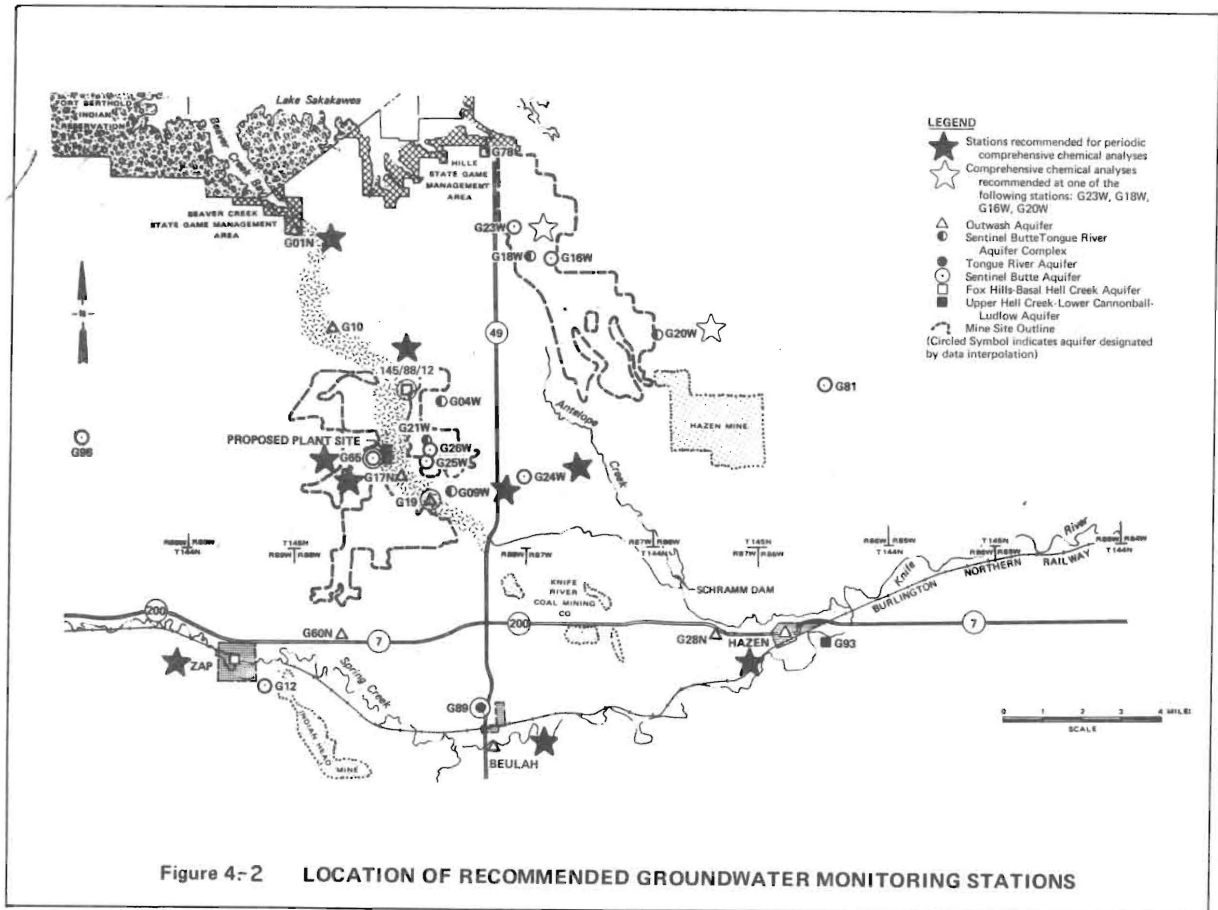


basin, unless the last analysis indicates that the quality of the water at that station is unacceptable. In that case, additional corrective measures would be taken.

4.3.2.2 Ground Water

After mining begins, a regular monitoring program would be established to measure water levels, saturated thickness, and ground-water quality. The locations of the wells to be monitored are shown in Figure 4-2. All wells would be sampled at least twice a year for pH, conductivity, and water levels. Chemical constituents would be monitored annually in those wells indicated with a star (Figure 4-2). These analyses would include TDS, bicarbonate, sulfate, fluoride, sodium, calcium, magnesium, boron, iron, molybdenum, lead, arsenic, and phenolic salts.

To monitor any effects of the disposed ash on the ground water, wells would be constructed within the mine pit area and adjacent to it. Wells within the disposal area would be open below the



bottom of the mine pit only; those adjacent to ash disposal areas would be open at various depths. The number of wells, location, and depth of perforation would depend on local ground-water conditions.

4.3.3 Biological Systems

Biological monitoring during operations would be conducted with emphasis on the development of post-mining plant communities and wildlife habitat. Repopulation of the area by primary consumers (herbivores) and species of higher trophic levels would also be monitored. Particular emphasis would be placed on small mammals and songbirds due to their intermediate position in the food chain. Basically, the methods used in the field study would also be used for biological monitoring; the timetable would be developed after mining and rehabilitation programs have begun.

For aquatic systems, biological monitoring would include water quality sampling at the water intake depth in Renner Bay. Plankton

and larval fish studies would be conducted to determine the effect of the water intake on these taxa. Water quality monitoring of the Knife River has previously been described (Section 4.3.2.1).

4.4 Mitigation Measures Related to the Sociocultural Environment

4.4.1 Socioeconomic Environment

Several research studies have been undertaken by ANGCGC within the geographic area of the proposed plant to identify and plan mitigating measures for potentially sensitive areas of impact. The socioeconomic characterization was undertaken to specifically identify the community facilities which would be affected by relocation of a large construction work force and the change from a predominantly agricultural economy to one that contains a major industrial base. The information was given to the North Dakota Legislature so that proper legislation could be enacted.

The concept of a totally self-contained construction camp to house all construction workers was eliminated after discussions between ANGCGC and local Government planners. A desire to expand the local municipalities was expressed by local leaders. A mixed housing program was then adopted which assumes that 50 percent of the work force relocating to the area cities and 20 percent residing in a construction camp; 30 percent of the work force would be hired locally. The camp is designed to absorb work force peaks, single construction workers, and construction workers who return home on weekends.

Persons residing on the 25 farmsteads to be affected by mining would be compensated. Surface leases require that surface owners be reimbursed for all damage to growing farm crops and other property resulting from mining operations. The North Dakota Surface Owner Protection Act (NDCC, Chapter 38-18) further provides for compensation to surface owners for loss of agricultural production as well as all farm buildings within 500 feet of any mining operations. The compensation would be calculated on a fair market value basis or based upon the cost of removal to an area that will not come within 500 feet of mining.

4.4.2 Cultural Environment

A preliminary archaeological and historical assessment of the plant-mine site was conducted to identify the presence of any unknown sites. To avoid one site of possible historical significance, the layout of the plant has been shifted from its original location.

More detailed studies of the mine sites and product pipeline route will be conducted as outlined in Section 2.4.3. Under Public Law 93-291 (1974) ANGCGC and Great Lakes must agree that should any employee discover evidence of possible scientific, prehistorical, historical, or archeological data that the North Dakota

Historic Preservation Officer will be notified immediately in writing giving the location and nature of the findings. Where appropriate, the Historic Preservation Officer may order delays and/or changes in the work to accomplish salvage.

In addition, the following requirements are a part of the general conditions of Great Lakes' contracts for pipeline construction (extracted):

a. If fossil relics, artifacts, or other items of possible scientific, prehistorical, historical, or archaeological significance are unearthed during excavation operation by either company or contractor personnel, operations are to be halted and the appropriate company representative is to be notified of the type of material discovered and its location.

b. The company representative will promptly notify the State Historic Preservation Officer of the material and its location.

c. Before construction, Great Lakes will undertake a predictive study to determine areas of relative cultural resource potential along the route. Should cultural resource materials be unearthed, the contractors would go through the proper notification procedures and move their excavating equipment to the closest area previously identified as having a low cultural resource potential. Excavation of the discovery site would not resume until clearance has been received.

d. The company representative shall not clear the discovery site for excavation until clearance is received from the archaeological authority contacted or other responsible Government agency.

4.5 Governmental Permit Conditions

4.5.1 North Dakota State Water Permit Conditions

The North Dakota State Water Commission (SWC) attached a number of conditions to ANGCGC's conditional water permit which would help lessen the impact of the proposed project. These conditions are (extracted):

1. ANGCGC must use the most environmentally acceptable engineering and technological methods in the design of the gasification plant, and every effort shall be made to minimize evaporation and other wasteful uses of water.

2. ANGCGC shall prepare a comprehensive environmental statement and analysis concerning water appropriations for the plant, incorporating a detailed impact section.

3. ANGCGC shall comply in the design and operating procedures for its facilities with such orders as the SWC shall promulgate.

4. ANGCGC shall make available to North Dakota distributors or users such gas or byproducts requested for use entirely within the State of North Dakota and as permissible by Federal regulation.

5. ANGCGC shall consult and cooperate with and secure all necessary permits from all agencies of the State of North Dakota having an interest in the usage of water and the effects of the applicant's facilities upon the environment, economy, and governmental units within the State.

6. ANGCGC shall meet periodically with the Legislative Council Committee on Resources Development and the Governor's Task Force on Coal Gasification to answer questions and provide information related to its project and related matters affecting water and the quality of life in North Dakota.

7. ANGCGC shall be bound by all applicable State and Federal legislation and State regulations and orders now existing or hereinafter enacted, adopted, or promulgated.

8. Mined or disturbed lands shall be returned to at least the level of agricultural productivity that existed prior to mining or disturbance.

9. No assignment, transfer, or sale of any part of the water shall be made without prior SWC written approval.

10. ANGCGC shall provide metering devices to record the actual amounts of water diverted.

11. Should the SWC or legislature provide for a water user's fee, ANGCGC shall be subject to such fees.

12. Mining shall be in accordance with recommendations of the SWC with respect to the protection of existing ground-water supplies.

13. Upon termination of plant operations, all water supply and transmission facilities and their rights-of-way shall be conveyed to the State.

4.5.2 Mercer County Rezoning Permit Conditions

The Mercer County Board of County Commissioners has attached a number of stipulations to ANGCGC's conditional use permit, during rezoning of the plant-mine site from agricultural to industrial uses, that would lessen the impacts of the proposed project. The stipulations are as follows (extracted):

1. ANGCGC shall construct its proposed gasification plant in two separate phases. The initial conditional use permit shall apply only to the first phase; the second phase will require an additional conditional use permit.

2. Any right created by approval of the conditional use permit is created solely in ANGCGC and cannot be assigned except as approved by the Board.

3. ANGCGC shall submit to the Board an erosion and sediment control plan for the plantsite approved by the Mercer County Soil Conservation District Supervisors.

4. ANGCGC shall comply with all requirements and recommendations of the erosion and sediment control plan and shall employ accepted conservation practices to reduce runoff and retain natural vegetation at the plantsite.

5. Upon termination of operations, ANGCGC shall reclaim and return the plantsite to its original condition.

6. Approval of the conditional use permit does not imply that the Board authorizes obstruction of any section line or section line road unless such obstruction is permitted by law.

7. Prior to obstruction of any portion of County Road 13, ANGCGC shall construct three new roads bounding the plantsite on the east, south, and west section lines. Before obstructing any portion of County Road 14, ANGCGC shall construct roads around all such obstructions.

8. ANGCGC shall construct an access road from the plantsite to County Road 11. ANGCGC shall reimburse Mercer County for the maintenance costs of this access road as well as Mercer County's portion of the reconstruction and maintenance costs for County Road 11 from the access road to State Highway 200. The reimbursement shall be made annually until the Board deems that energy associated tax revenue is adequate for the County to assume such costs.

9. ANGCGC shall annually reimburse Mercer County for costs for maintenance of county roads designated as construction haul roads. These haul roads shall be designated by the Board after consultation with ANGCGC.

10. All annual reimbursement pursuant to Conditions No. 8 and No. 9 shall be due October 1 of each year.

11. Before construction of any deepwell waste disposal facility, ANGCGC shall submit to the Board a copy of the permit issued by the State Department of Health and provide the Board with any information it deems necessary.

12. ANCGGC shall neither draw or utilize ground water from underlying or adjacent aquifers following completion of the water pipeline and the start of water diversion from Garrison Reservoir.

13. ANCGGC shall provide the Board with a detailed report outlining the effects of the proposed gasification plant on area ground water quantity and quality in general, and underlying aquifers specifically.

14. ANCGGC shall make all reasonable efforts to avoid damage to the water supply and quality of Mercer County. ANCGGC shall be liable for any valid claim of damage due to disrupted or diminished water supplies or deteriorating water quality resulting from their project and shall restore ground water quantity and quality to levels existing prior to construction of the plant.

15. ANCGGC shall provide vehicles, equipment, and procedures to cope with fires, explosions, chemical spills, or other calamities occurring at the plant and shall have sole responsibility for dealing with such occurrences.

16. ANCGGC shall submit to the Board a report outlining ANCGGC's plan to comply with Condition No. 15.

17. ANCGGC shall permit free access to the plantsite to the county land use administrator or other representative of the Board. Such access shall be permitted at such times and under such circumstances so as not to create a safety risk or to violate any of ANCGGC's contractual secrecy obligations.

18. Upon request of the Board, ANCGGC shall report to the Board regarding ANCGGC's compliance with State and Federal legislation and regulations.

19. ANCGGC shall file with the Board a plan for financing the plant pollution control facilities. Such plan shall include Mercer County as one of the entities through which such pollution control facilities may be financed.

20. Upon ANCGGC's failure to comply with any conditions attached to the conditional use permit, Mercer County shall have available to it all civil and criminal enforcement provisions and remedies under North Dakota law or the Mercer County Zoning Ordinance.

21. ANCGGC shall submit to the Board a copy of the Certificate of Site Compatibility for the plant as obtained from the North Dakota Public Service Commission and a copy of the Permit to Construct as obtained from the North Dakota State Department of Health.

4.5.3 U.S. Fish and Wildlife Service Conditions to Corps of Engineers Permits

At least two stream crossings of the product pipeline, the Missouri River and Red River of the North, will require Corps of Engineer Section 10 and/or Section 404 permits. Under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended), the U.S. Fish and Wildlife Service (FWS) is charged with evaluating impacts to fish and wildlife resulting from actions related to the permit application and recommending mitigating permit conditions to the Corps of Engineers.

Specific stipulations and recommendations are not possible until site specific applications are made by Great Lakes, and the FWS conducts site specific reviews. However, in general, the FWS would discourage routing the pipeline through brushy draws leading to stream banks. They would also suggest that the route avoid or minimize damage to stands of riparian vegetation. In addition, the FWS would request that disturbed vegetation be restored and that spoil materials be handled and disposed in a manner minimizing siltation. Normally, the FWS would suggest that the work be done during months of low water flows; the specific timing of the work could be significant if fish spawning or migration considerations exist.

Similarly, it is likely that Section 404 permits would be required from the Corps before some of the wetlands on the plant-mine site and product pipeline route can be disturbed. Again, the FWS would be required to review each application site by site and make recommendations. In general, the FWS would request that trenched wetlands be replugged and, if porous materials are encountered during trenching, the bottom sealed. The basin contour would need to be generally restored. The FWS would request that the work be done during dry periods and, where possible, the ponds not be drained. They would also suggest stipulations for trenching and spoil handling when working in standing water. Where the wetlands would be destroyed, the FWS would suggest replacement measures. Onsite coordination during construction could relieve many potential problems.

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