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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Status Of The Great Plains Coal Gasification Project

Construction of the Great Plains coal gasification plant in North Dakota was 4 weeks behind schedule as of December 31, 1982, but cumulative project costs were less than originally estimated as of that date.

The Great Plains project administrator established an extensive organization to oversee the construction of the project. GAO reviewed certain aspects of this organization, specifically audit groups, staff at the project site, and a computerized information system, and found them satisfactory for managing and overseeing the project.

The Department of Energy has extensive procedures for monitoring this project. With few exceptions, the Department followed the procedures established. It has not, however, completed its audit of incurred costs to determine that loan guarantee funds are spent only for eligible project costs. Such an audit was underway and the Department expected to complete it in 1983.

UNITED STATES GENERAL ACCOUNTING OFFICE

GAO/RCED-83-112
APRIL 8, 1983

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This is the third report on the loan guarantee for an alternative fuels demonstration project awarded to Great Plains Gasification Associates. The report is required by the Department of Energy Act of 1978--Civilian Applications (Public Law 95-238). We reviewed the status and management of the project and the Department of Energy's monitoring. Except where noted, the report discusses matters relating to these issues through December 31, 1982.

We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of Energy; and other interested parties.

for Milton J. Socolar
Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

STATUS OF THE GREAT PLAINS COAL GASIFICATION PROJECT

D I G E S T

In January 1982 the Department of Energy (DOE) awarded a loan guarantee to Great Plains Gasification Associates--a partnership of five companies--to build the Nation's first commercial plant producing synthetic natural gas from coal. The Great Plains project consists of a gasification plant, a coal mine, and a pipeline connecting the plant to an interstate network of natural gas pipelines.

The Department of the Treasury's Federal Financing Bank agreed to loan Great Plains up to $2.02 billion of the total estimated cost of $2.76 billion for the project. The Great Plains partners agreed to contribute up to $740 million from their own resources.

This is the third in a series of semiannual reports on the Great Plains project required by the Department of Energy Act--Civilian Applications (Public Law 95-238). GAO reviewed

--the status of the project in terms of how much has been spent and whether construction schedules were being met,

--certain aspects of the project administrator's management and oversight of the project, and

--DOE's monitoring of the project.

PROJECT CONSTRUCTION REMAINS SLIGHTLY BEHIND SCHEDULE BUT COSTS ARE LESS THAN EXPECTED

As of December 31, 1982, the gasification plant construction was about 4 weeks behind schedule--a slight improvement over the schedule slippage GAO reported in September 1982. Coal mine development was almost on

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schedule, with some slippages in engineering and construction activities. However, the project administrator does not believe that the slippages at either the plant or the coal mine will adversely affect the planned startup date. The pipeline was on schedule with construction expected to start in April 1983. (See pp. 5 to 8.)

At December 31, 1982, Great Plains again estimated that the total cost of the project would be $2.76 billion although the costs incurred as of that date were $70 million less than budgeted for the period. About $25 million of that amount resulted from reduced spending due to the schedule slippages. The remaining $45 million, however, was attributable to lower than budgeted inflation rates, less than anticipated subcontractor costs, and higher than expected labor productivity. (See pp. 7 and 8.)

SEGMENTS OF GREAT PLAINS PROJECT MANAGEMENT ARE SATISFACTORY

GAO reviewed certain segments of Great Plains' project management and found them to be satisfactory. Great Plains, through its project administrator, developed procedures and systems to manage, direct, and oversee the construction and startup of the project. These include a computerized management information system, various audit activities, and onsite management of the gasification plant construction. (See p. 9.)

The project administrator's management information system consolidates data generated from systems operated by the project's two prime contractors. The system maintains budget estimates, costs incurred, and construction data which are used for project decisionmaking. GAO found that the management information system produced accurate and reliable data. The system either contained

sufficient built-in controls or there were adequate manual controls to reduce the risk of inaccurate data. (See pp. 9 to 11.)

Both Great Plains and its project administrator established audit and evaluation groups to independently review project and contractor activities. In addition, a public accounting firm, Arthur Andersen & Co., annually audits Great Plains' financial statements and issues quarterly reports on cash expenditures and on the application of the funds received from the Federal Government and the Great Plains' partners. All of these groups had conducted extensive reviews of the project's major elements. Their audits identified some minor management weaknesses and ineligible costs. The project administrator corrected the weaknesses noted and obtained adjustments for the ineligible costs. (See pp. 11 to 17.)

The project administrator's staff, located at the plant site, implemented comprehensive procedures to oversee construction. In implementing these procedures, the onsite management staff identified problems and recommended corrective actions which the project administrator believed contributed to avoiding substantial delays in construction. (See pp. 17 to 19.)

DOE'S PROJECT MONITORING IS SATISFACTORY BUT STILL NOT COMPLETE

Generally, DOE was fulfilling its responsibilities to oversee the Great Plains loan guarantee and disseminate project information. DOE developed extensive procedures and established cost, schedule, and technical monitoring teams to implement these procedures; reviewed and approved Great Plains' requests for funds; and conducted analyses of the project's economics to determine whether Great Plains can fully repay the loan. (See pp. 20 to 25.)

As of December 31, 1982, DOE had not completed an audit of incurred costs to determine that loan guarantee funds were spent only for eligible project costs. However, such an audit was underway and DOE expected to complete it and issue a report in 1983. (See p. 25.)

DOE is required to make project information available to the public, but it cannot release material which it considers to be proprietary. Therefore, limited information has been made available. However, DOE plans to open three reading rooms to make non-proprietary information more available to the public. (See pp. 25 and 26.)

GAO requested and received comments from DOE, the Federal Financing Bank, the project administrator, and Arthur Andersen & Co. The Federal Financing Bank commented on sections of the report only. Generally, these officials agreed with the report although they offered some clarification in their specific areas. In preparing the final report, GAO incorporated these suggested changes as appropriate.

Contents

ABBREVIATIONS

ANG	ANG Coal Gasification Company
DOE	Department of Energy
GAO	General Accounting Office

CHAPTER 1

INTRODUCTION

This is the third in a series of reports required by the Department of Energy Act of 1978--Civilian Applications (Public Law 95-238). The act authorizes the Department of Energy (DOE) to provide loan guarantees for alternative fuel demonstration projects and requires the Comptroller General of the United States to audit recipients of such guarantees and report every 6 months from the date of enactment on February 25, 1978.[1] The Secretary of Energy awarded a loan guarantee to Great Plains Gasification Associates, Detroit, Michigan, on January 29, 1982, for up to $2.02 billion for a project to produce synthetic natural gas from coal.

The Federal Government, through the Department of the Treasury's Federal Financing Bank, is lending Great Plains part of the money for the project, with Great Plains financing the remainder with its own equity. The financial terms and conditions of the guarantee allow the Federal Financing Bank to periodically disburse funds to Great Plains upon DOE's approval and to provide up to approximately 75 percent of total project costs, with repayment not to exceed 20 years or 90 percent of the expected useful life of the major project assets, whichever is less. The loan and guarantee are "nonrecourse," which means that if Great Plains defaults, DOE's recourse is limited to the project's assets.

The Great Plains coal gasification plant will be the Nation's first commercial plant producing synthetic natural gas from coal. The facility, being built in Mercer County, North Dakota, consists of three components: a gasification plant, a lignite coal surface mine, and a pipeline connecting the plant to an interstate network of natural gas pipelines.[2] Full-scale construction of the plant began in August 1981. Initial gas production is scheduled to begin during August 1984, with full gas production scheduled for December 1984.

The synthetic gas produced by this project will use crushed lignite coal. Some of the coal cannot be used in the gasification process. This coal will be sold to a steam electric

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[1]The first report was entitled "Status of the Great Plains Coal Gasification Project Loan Guarantee--February 1982" (EMD-82-55, Mar. 6, 1982). The second report was entitled "Status of the Great Plains Coal Gasification Project--August 1982" (EMD-82-117, Sept. 14, 1982).

[2]For a further description of the project, see our status reports, EMD-82-55, Mar. 6, 1982, and EMD-82-117, Sept. 14, 1982.

generating plant, owned by Basin Electric Power Cooperative, adjacent to the coal gasification plant. Basin Electric will share in the development costs of the coal mine, coal and ash handling facilities, plant access roads, and water intake facilities.

PROJECT COST AND OWNERSHIP

The project was estimated to cost about $2.76 billion at December 31, 1982. This estimate includes $1.89 billion to construct the gasification plant, adjacent coal mine, and pipeline; $349 million for financing costs during construction; and about $521 million for contingencies. Of the total estimate, the Federal Financing Bank can lend, and DOE can guarantee, up to $2.02 billion. The project's participants agreed to contribute up to $740 million of their own equity.

The project is owned by Great Plains Gasification Associates, a partnership of five companies. The partners and their percent of equity are as follows.

	Percent of equity
Tenneco SNG, Inc. (a subsidiary of Tenneco, Inc.)	30
ANR Gasification Properties Company (controlled by American Natural Resources Company)	25
Transco Coal Gas Company (controlled by Transco Companies, Inc.)	20
MCN Coal Gasification Company (a subsidiary of MidCon Corporation, formerly Peoples Energy Corporation)	15
Pacific Synthetic Fuel Company (a subsidiary of Pacific Lighting Corporation) (note a)	10
Total	100

[a]On November 16, 1982, DOE approved the purchase by Pacific Synthetic Fuel Company of a 10-percent interest in the partnership--7.5 percent from ANR Gasification Properties Company and 2.5 percent from Transco Coal Gas Company.

PROJECT MANAGEMENT AND OVERSIGHT

Great Plains appointed ANG Coal Gasification Company (ANG),[3] Detroit, Michigan, as project administrator. ANG is responsible for the day-to-day planning, engineering, design, construction, and operation of the gasification plant, pipeline, and coal mine. Great Plains provides overall direction to ANG through a management committee composed of representatives from each of the partners.

The prime contractors for engineering, procurement, and constructing the gasification plant are The Lummus Company and Kaiser Engineers, Inc. Lummus is responsible for overall contractor management and for process and design engineering. Kaiser is responsible for civil engineering and onsite construction. The Coteau Properties Company, a subsidiary of North American Coal Corporation, will develop and operate the coal mine. The Michigan Wisconsin Pipe Line Company will construct the pipeline.

At the Federal level, DOE's Office of Coal, Gas, Shale, and Coal Liquids, Office of the Assistant Secretary for Fossil Energy, is responsible for monitoring the construction and operation of the Great Plains project to ensure that the project is completed in a timely manner and that loan guarantee funds are released and used appropriately. DOE's Chicago Operations Office is responsible for the day-to-day monitoring of the project, which includes determining that a reasonable assurance of debt repayment exists and assessing the reasonableness of requests for loan guarantee funds.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objective in this review was to update information on the Great Plains coal gasification project as of December 31, 1982, including its status and the funds disbursed. Because of the continuing nature of our work and the semiannual reporting requirement, this report focuses on three key aspects of ANG's management and oversight of the project--the computerized information system, audits and evaluations, and onsite management of the plant's construction. We also examined DOE's monitoring and the extent to which information about the project is being made available to the public and other Federal agencies.

The information provided is based on interviews not only with DOE headquarters officials but also with DOE officials

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[3]ANG is a wholly owned subsidiary of American Natural Resources Company.

at the Grand Forks and Morgantown Energy Technology Centers, Technical Information Center, and Chicago Operations Office; and project officials in Detroit, Michigan, and Mercer County, North Dakota. We also reviewed Great Plains internal reports; monthly and quarterly reports Great Plains submitted to DOE; and DOE reports related to the loan guarantee. We reviewed (1) DOE's plans for monitoring the project and its cost, schedule, technical, and loan disbursement procedures; (2) ANG's policies, plans, and procedures; (3) ANG's audit plans, workpapers, and reports; (4) procedures and records of the Great Plains audit committee; and (5) reports of Arthur Andersen & Co., the public accounting firm for the project.

Our review was performed in accordance with generally accepted government audit standards. We did not verify the cost or schedule data reported by Great Plains and DOE, but we did interview ANG and Arthur Andersen officials to determine the extent to which they tested and verified ANG's computerized information and reporting system. We also reviewed the reliability tests performed by one of ANG's audit groups and Arthur Andersen; we conducted a limited verification of the consolidation process at ANG.

We requested and received comments on the report from DOE, the Federal Financing Bank, ANG, and Arthur Andersen & Co. The Federal Financing Bank commented on sections of the report only. Generally, these officials agreed with the report although they offered some clarification in their specific areas. In preparing the final report, we incorporated these suggested changes as appropriate.

CHAPTER 2

PROJECT STATUS AS OF DECEMBER 31, 1982

Progress on the coal gasification plant was about 4 weeks behind schedule according to data Great Plains provided DOE. The coal mine was only slightly behind schedule but the pipeline was on schedule. Project officials told us that they expect to overcome these slippages by expanding construction efforts during the summer and that the project will still meet its scheduled December 1984 inservice date.

Great Plains reported to DOE that, as of December 31, 1982, total project costs amounted to $836.2 million. This amount was $70.4 million less than the amount Great Plains estimated would be spent as of that date. Funds received totaled $761.5 million. Great Plains borrowed $476.5 million of this amount from the Federal Financing Bank, and the Great Plains partners contributed $285 million in equity.

PHYSICAL PROGRESS

As of December 31, 1982, the plant (engineering, procurement, and construction) was about 66-percent complete compared with a planned 70 percent. The coal mine was about 51-percent complete compared with a planned 52 percent. Progress on the pipeline was not reported in terms of percentages, but it was on schedule.

Gasification plant progress

The plant's schedule slippage has improved since our September 1982 report.[1] At that time the plant was about 4 to 6 weeks behind schedule, while as of December 31, 1982, it was about 4 weeks behind schedule.

Great Plains uses a weighted-value percentage system to manage the plant's construction. The following table shows these weighted-values for the three major activities involved in the plant.

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[1]EMD-82-117, Sept. 14, 1982.

Activities	Weighted percentage of total plant	Planned percentage complete	Actual percentage complete	Percentage actually ahead (behind) schedule
Engineering	11.2	10.58	10.69	0.11
Procurement	42.1	38.83	36.83	(2.00)
Construction	46.7	20.08	18.07	(2.01)
Overall	100.0	69.49	65.59	(3.90)

The plant's various components were in varying stages of completion. The core of the plant--the building and equipment used in gasifying coal--was 28-percent complete, while the steam supply and distribution system was 9-percent complete. Offsite development, that is, access roads, was 100-percent complete.

Delays in issuing design drawings for structural steel and large bore fabricated pipe had been a major contributor to the delay in construction progress. Late issue of the drawings resulted in delivery delays which hampered enclosing buildings and work areas with protection needed to maximize progress during the winter. Construction progress was also hampered by late delivery of equipment, particularly certain air compressors which had to be reworked because they did not satisfy test requirements.

According to Great Plains, deliveries of structural steel had greatly improved as of December 31, 1982, and it anticipated no further adverse affects on construction. Further, Great Plains expects that the delays in design drawings for fabricated pipe should be resolved by early 1983. ANG is actively involved with subcontractors to reduce delays in delivering critical equipment and material. For example, efforts were being made to accelerate fabrication and delivery of pipe and meetings were held with the subcontractor to eliminate or reduce slippages in the delivery of air compressors.

Coal mine progress

Coal mine development was slightly behind schedule. The following table shows the weighted-value percentages of completion for the coal mine.

Activities	Weighted percentage of total mine	Planned percentage complete	Actual percentage complete	Percentage actually ahead (behind) schedule
Engineering	15.0	10.4	9.9	(0.5)
Procurement	20.0	8.6	9.0	0.4
Construction	65.0	33.4	32.6	(0.8)
Total	100.0	52.4	51.5	(0.9)

Engineering was behind schedule because fewer engineers had been hired than planned, but procurement was ahead of schedule because some coal mine equipment was delivered early. Construction was behind schedule because inclement weather delayed progress on the coal mine service building complex. As a result, Coteau revised the building complex completion date from July 15 to August 31, 1983. According to Great Plains, the revised date will not affect Coteau's ability to meet its scheduled March 1, 1984, date for delivering coal to the gasification plant.

Great Plains and Basin Electric share the development costs for the coal mine. Coteau initially scheduled coal deliveries to Basin Electric on March 1, 1983, and to Great Plains on March 1, 1984. However, as result of reduced demand for electricity, Basin Electric will not need the coal until May 1, 1983. As a result, Coteau revised its development plans for the various coal mine areas. As of December 31, 1982, ANG was studying the effect on the Great Plains project of Basin Electric's delivery delay and Coteau's mining development revisions.

Pipeline progress

Great Plains plans to transport the gas it produces to the market through an interconnecting series of pipelines. The gas will be transported through a 34-mile pipeline from the gasification plant to the interstate pipeline of the Northern Border Pipeline Company. Progress on the pipeline through December 31, 1982, included the following:

--Great Plains had obtained right-of-way leases from all private landowners for the pipeline route.

--North Dakota issued a construction permit for the pipeline.

--Bids for all critical materials had been received and quotation requests for installation were being prepared.

The Michigan Wisconsin Pipe Line Company will provide design services and construction management for the project's pipeline. Great Plains expects to begin construction in April 1983 and to complete the pipeline by October 1983.

PROJECT COSTS

Total project costs were $70.4 million less than the estimate Great Plains indicated as of December 31, 1982. Great Plains had expected cumulative project costs to be about $906.6 million, but actual costs incurred were $836.2 million.[2] Of the $70.4 million difference, about $24.7 million was attributed to reduced funding requirements because of the schedule slippage. The remaining $45.7 million was attributed to, among other things: (1) lower costs for certain plant equipment and commodities; (2) lower than expected interest expenses, resulting from reduced drawdowns of Federal loan funds and more favorable interest rates; (3) savings resulting from some subcontracts being awarded at lower amounts than originally budgeted; and (4) higher than expected labor productivity in certain construction activities, such as installation of electrical distribution equipment and interconnecting piping.

FUNDS DISBURSED

As of December 31, 1982, the Federal Financing Bank had loaned $476.5 million to Great Plains. Interest rates and terms of maturity varied. Funds are disbursed by the Federal Financing Bank after DOE approves Great Plains' requests.[3] Each disbursement to Great Plains can be considered a separate loan. During construction, Great Plains has the option of requesting short-term loans, with maturity from 45 days to 1 year, or long-term loans of up to 20 years.

As a result of declining interest rates and favorable financial conditions, Great Plains opted for some long-term loans rather than all short-term loans as it had prior to July 1982. In addition, all loans prior to July 1, 1982, have been refinanced as well as some loans made since that time. (App. I lists all moneys loaned, interest rates applied, and terms of the loans.)

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[2]Excludes pipeline since construction had not started as of December 31, 1982.

[3]Chapter 4 discusses DOE's procedures and methodology for approving these requests.

CHAPTER 3

GREAT PLAINS PROJECT MANAGEMENT

We examined three aspects of ANG's management process--the computerized information system, audits and evaluations, and on-site management of plant construction--and determined that they provide sufficient project direction and oversight. We believe that the computerized information system has sufficient controls to assure that the data used for project decisionmaking and for preparing project reports are accurate and reliable. The audits ANG conducted covered diverse project activities and included recommendations which contributed to improvements in ANG's overall project management. In addition, ANG's management and oversight at the construction site resulted in the early identification of problems which allowed ANG to take corrective actions.

RELIABILITY ASSESSMENT OF ANG's COMPUTERIZED INFORMATION SYSTEM

ANG's computerized information system maintains budget estimates, costs incurred, and construction progress data which ANG believes is vital to its project decisionmaking. The system consolidates data from systems operated by Kaiser and Lummus. As of December 31, 1982, the major components of Kaiser's, Lummus', and ANG's information systems had been independently tested, except for the coal mine system which was not fully automated until December 1982. The reliability tests made by ANG, Arthur Andersen, and us are discussed below.

Independent reliability assessments

ANG relies on Kaiser's computerized information system, located at the construction site, to provide the data it needs to oversee construction progress. Both Kaiser and Lummus have a computerized information system at their respective home offices which maintains project data.

In December 1982 one of ANG's audit groups--field accounting--determined that Kaiser's major computerized subsystems, that is, payroll, accounts payable, cost and commitment ledger, site material management, and equipment usage, are effective and reliable. The determination was based on the accounting group's review of the system's general computer controls. The group supplemented its review of these controls by manually comparing the data produced by the system with the original source data. The accounting group found no weaknesses in the system's general controls.

In October 1982 Arthur Andersen made a followup review of work they performed in May 1982 concerning Kaiser's computer operations at the plant site. During both reviews Arthur Andersen evaluated the general computer controls and found no significant weaknesses. In August 1982 Arthur Andersen also reviewed the general computer controls of Kaiser's home office in Oakland, California, including organizational controls, application systems development and maintenance, computer operations, systems software support, and backup and offsite storage of data and programs. Arthur Andersen reviewed these general computer controls as they interface with the system at the North Dakota project construction site. Arthur Andersen found that, while not all of the automated controls were in place, the system was supplemented with manual controls which lessen the risks of producing inaccurate data.

Arthur Andersen also reviewed Lummus' home office computer operations in 1982. The firm reviewed Lummus' general computer controls as well as the data verification performed by ANG's field accounting group for the Great Plains project. Specifically, Arthur Andersen reviewed general controls over the hardware, application systems development and maintenance, computer operations, systems software support, centralized data controls, and backup and offsite storage of data. Arthur Andersen concluded that the automated controls supplemented by manual controls were adequate to prevent significant errors.

In addition, Arthur Andersen reviewed the general controls of ANG's computer system and quarterly reviewed the consolidation of cost data submitted by ANG, Kaiser, and Lummus by verifying the total project cost report prepared by ANG. As a result of its reviews, Arthur Andersen concluded that the system was satisfactory to prevent significant errors in the data produced.

Our reliability assessment

To determine the reliability of ANG's computerized information system, we made a limited review of the consolidation of data by ANG. Based on the results of our work and the work performed by the field accounting group and Arthur Andersen, we believe that ANG's consolidated information system has sufficient controls to prevent significant errors for project decisionmaking and for preparing project reports.

We examined the work the field accounting group conducted concerning Kaiser's major computerized subsystems and the work Arthur Andersen conducted in its asessments of the computerized system components. In addition to discussing with the field accounting manager the work conducted in assessing Kaiser's major subsystems, we also reviewed their related work

programs, workpapers, and reports. We discussed with Arthur Andersen the work it conducted and reviewed its workpapers describing the effectiveness of system controls. We concluded that the field accounting group's and Arthur Andersen's work was adequate.

Since ANG's system consolidates project data produced by the Kaiser and Lummus systems, we verified for 1 month the cost data submitted by Kaiser and Lummus on monthly computer tapes. We compared the totals produced in the consolidation process with cost totals produced by ANG, Kaiser, and Lummus from each of their computer systems and found that the totals reconciled.

During our previous review,[1] we found weaknesses in Kaiser's controls relating to access to computer files and computer room security at the plant site. During this review, however, we found that the weaknesses had been corrected. Access to computer files and the computer room had been restricted to authorized personnel.

AUDITS AND EVALUATIONS

Another major aspect of Great Plains project management is audits and evaluations conducted by a variety of ANG groups and Arthur Andersen. During 1982 ANG's audit groups reviewed and assessed a number of major project and contractor activities. The work was adequately planned and implemented, and the results were reported to officials responsible for taking corrective actions based on the recommendations made. In addition, Arthur Andersen recommended procedural improvements to enhance ANG's project management. ANG acted on the recommendations which it believed improved management controls over the project.

ANG's internal audit group

ANG's internal audit group is primarily responsible for evaluating the effectiveness of ANG's administrative and financial controls. The group maintains its independence because it is not responsible to officials whose activities it audits and it reports to project management at high levels, that is, the Great Plains Audit Committee and ANG's Chief Executive Officer.

The internal audit group has a multiyear work plan which provides audit coverage for major aspects of the project. The plan provides for recurring audits, to be made at least annually, of the major entities conducting project activities, for example, ANG, contractors, and the coal mine developer. The

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[1]EMD-82-117, Sept. 14, 1982.

plan also covers internal controls in each of the major functional areas, including labor, procurement, inspection and quality, and subcontractor administration.

During 1982 ANG's internal audit group started 14 audits. As of December 31, it had issued six reports which addressed project cost and schedule controls, Kaiser's and Lummus' home office costs, change orders, procurement, and ANG's subcontract administration. For the remaining eight audits, fieldwork was in progress or draft reports were being processed. These audits addressed: (1) controls over compliance with Government filing requirements, (2) controller operations, (3) charges by Coteau, (4) charges by Lummus, (5) charges by other major contractors, (6) labor usage, (7) equipment usage, and (8) procurement.

The internal audit group's director told us that work conducted since the loan guarantee was awarded had not disclosed any significant deficiencies in basic internal controls over project activities. Although the group identified certain ineligible costs, they were not significant when compared with the total costs audited.

Arthur Andersen assessed the internal audit group's activities in 1982. The firm reviewed its audit plans, workpapers, and audit reports pertaining to some of the audits conducted, for example, Lummus' and Kaiser's home office costs and project controls. Arthur Andersen concluded that the work was adequate.

Because of Arthur Andersen's efforts, we limited our review of the internal audit group's work to a comprehensive evaluation of one of the six reports issued. We did, however, make a limited review of the other five reports. Because of the fundamental importance of the project's cost and schedule controls for effective management, we selected this report for our comprehensive evaluation.

Our evaluation of the project cost and schedule controls audit

ANG's internal audit group assessed the comprehensiveness and clarity of the cost and schedule control system design and the accuracy of reports generated by this system. The group compared summary reports with a variety of source documents or related detailed reports and concluded that the cost and schedule control system was adequate in detail and well documented. The major deficiency found was that the estimated cost of the project at completion had not been revised since the original November 1981 estimate, although it had changed in the interim. The report stated that actions were being taken to correct this deficiency. The auditors also found some mathematical errors in certain plant contractors' reports and made recommendations to prevent their recurrence.

We found that the work program and workpapers were of sufficient detail to support the conclusions reached and recommendations made. The July 27, 1982, report was submitted to the officials responsible for taking corrective actions, the Great Plains Audit Committee, and ANG's Chief Executive Officer. Also, a written reply was obtained from the head of the cost and schedule group concerning actions taken on the recommendations made. We verified that ANG had acted on the recommendations. We determined that the revision was made to the estimated project completion cost and that ANG requested the plant contractors to include certain edit mechanisms and take any other actions needed to ensure accurate reports.

The internal audit group also verifies that corrective actions are taken on recommendations made. However, this is not done until the activity is audited again. For example, project controls will not be audited again until 1983. In the interim, the group does not follow up on the status of open corrective actions, that is, actions which were in progress or planned at the time the report was issued. The group's director informed us that if there were significant findings his group would follow up on them immediately. We suggested to the group's director that managers be required to submit periodic reports concerning the status of open corrective actions rather than waiting until the next audit to follow up on its recommendations. He informed us that ANG considered our suggestion and now requires periodic reports from managers regarding the status of open corrective actions on significant findings.

Evaluation of other work

We found that the internal audit group's work on the other five audits it initiated during 1982 was adequate. Based on our limited evaluation, we found that

--a written plan had been prepared for each of the audits;

--the reports, where appropriate, included recommendations to management, and management replies were solicited and received; and

--the reports and management replies were distributed to appropriate officials.

Management replies indicated that actions relating to report recommendations had been or would be taken. In addition, followup audits had started or were planned for 1983.

Highlights from the five reports, illustrating the diversity of the information provided to management, follow.

--In April 1982 the group reported on its audit of $25.6 million of Lummus Company costs. The report concluded that the costs, which were reviewed on a sample basis, were reasonable and in compliance with contract terms, except for about $13,000 of computer charges identified as ineligible project costs. ANG requested Lummus to make an adjustment for the ineligible costs involved.

--Under ANG's management system, formal change orders are the only valid basis for incorporating changes into the budget baseline after technical review, cost and schedule analysis, and approval. In August 1982 the group reported that change order procedures were being implemented. However, certain procedural weaknesses concerning the extent of documentation of the review were noted. Recommendations to correct the weaknesses were made.

--In September 1982 the group reported on an audit of $18.1 million of Kaiser's home office incurred costs. The report concluded that the costs, which they reviewed on a sample basis, were reasonable except for charges totaling $7,800 which were resolved during the audit. The report made two recommendations for improving controls over costs.

--In October 1982 the group issued a report which discussed Kaiser and Lummus procurements of $343.6 million and their controls over materials at the project site. The report concluded that the fundamental objective of the procurement function--to procure materials and services at the lowest cost consistent with quality--was being met. However, it also noted some weaknesses in the receipt, warehousing, and recordkeeping of materials at the project site and made recommendations for improvement.

--In October 1982 the group issued a report which discussed ANG's and Kaiser's management of subcontracts at the plant site, including organization, staffing, and data management. The report concluded that ANG's organization, and Kaiser's organization with certain changes, appeared to facilitate project control. It also pointed out that staffing was adequate, data necessary to administer subcontracts was identified, and accurate information was received in a timely manner. The report did, however, include several recommendations for improving subcontract management.

Great Plains audit committee

The audit committee, composed of a representative of each of the partners, was established to help the Great Plains Management Committee provide overall direction to ANG and to protect the partners' interests. The committee carries out its audit function primarily through the ANG internal audit group, but the partners can provide staff to help in these audits. During 1982 each of the partners provided staff to the internal audit group. In addition, the audit committee can evaluate ANG's management, and it requires the partners to periodically audit ANG's incurred costs. Such an audit was scheduled for February 1983 and would address all costs incurred through November 1982.

The committee's specific responsibilities include (1) appraising the adequacy of the internal audit group's scope, frequency, and depth of its audits; (2) reviewing audit workpapers and reports considered necessary to ensure that audits are conducted in a professional manner; (3) coordinating follow up on audit findings; and (4) reporting, as necessary, to the Great Plains Management Committee on audits conducted. While the audit committee cannot require ANG to take actions to correct deficiencies the audits disclosed, the chairman informed us that the audit committee would report instances of inaction to the management committee, which can require that actions be taken.

The audit committee met 11 times in 1982. At those meetings, the committee, among other things, reviewed and approved the annual update of the internal audit group's work plan, reviewed the specific plans for proposed audits, and received reports and briefings from the group's director on the audits conducted. In addition, the committee received copies of the audit reports issued and management responses to the recommendations made. If the audits disclosed significant deficiencies, the committee chairman told us that the internal audit group would be directed to follow up immediately on corrective actions being taken. Committee members told us that they were satisfied with the internal audit group's coverage and the quality of its work.

Each member of the audit committee is to report the results of audit activities directly to the firm's representative on the management committee. Committee members we contacted told us that they provided such reports orally. In addition, the audit committee chairman periodically reports the results of audits to the management committee. The chairman generally provides this information about every 6 months, but told us that he would

provide the information more frequently if significant deficiencies were identified. The chairman's latest report to the management committee summarized major audit results and indicated that no significant exceptions or weaknesses in ANG's basic controls for managing the project had been noted.

ANG field accounting

ANG's field accounting group, located at the project site, verifies Kaiser's and Lummus' accounting operations to ensure that they comply with procedures established for controlling costs. During 1982 the group verified Kaiser's operations on a daily basis and, starting in May 1982, verified Lummus operations monthly. The group emphasized Kaiser's accounting operations because they are more extensive and complex than Lummus'. It can also verify Coteau's operations but has not and does not plan to do so because the operations involve fewer transactions and are being audited by ANG's internal audit group. The group is directly responsible to ANG's Controller and submits weekly reports on work completed. According to the Controller, the work disclosed some deficiencies but none that significantly affected the project's progress or cost.

The field accounting group has audit plans and work programs sufficient in scope and procedural detail to provide adequate audit coverage. The reports that were issued were timely, concise, clear and supported by factual evidence. The group also has procedures for following up on recommendations. During our previous review,[2] we noted that the group had identified certain weaknesses in Kaiser's inventory control system and corrective actions were being taken. During this review we verified that ANG had followed up on the corrective actions taken. ANG officials believed that Kaiser had corrected the weaknesses identified.

Arthur Andersen & Co.

Arthur Andersen is required to audit and report annually to Great Plains and DOE on the year-end financial statements on the project and whether the accounting records indicate that the project could default as defined in the loan guarantee agreement. The firm expected to complete the audit of Great Plains' 1982 financial statements by the end of February 1983. In addition to the annual reports, the firm was required to report at the time the first disbursement was made, 30 days later, and then every quarter concerning Great Plains' cash expenditures and the application of proceeds received from the Government and the partners. We found that Arthur Andersen met all of its reporting requirements through December 31, 1982.

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[2]EMD-82-117, Sept. 14, 1982.

In its reports concerning Great Plains' cash expenditures and the application of proceeds from the Government and the partners, Arthur Andersen certified that Great Plains' statements of proceeds reflected fairly the application of equity and Federal funds to project expenditures in accordance with the loan guarantee criteria. Arthur Andersen also certified that Great Plains' statements of cash expenditures reflected fairly project expenditures identified by Great Plains as applicable to the project in accordance with generally accepted accounting principles.

Since the loan guarantee agreement was signed, Arthur Andersen's audit work addressed, among other things, the costs of the plant contractors, the coal mine developer, and other ANG incurred costs. As part of this work, the firm evaluated internal controls and reliability of computer systems. In conducting its audits, the firm assessed and, if feasible, relied on the results of ANG's internal audit group, thus avoiding unnecessary duplication.

Arthur Andersen's practice is to advise Great Plains or ANG immediately of any deficiencies noted during its audits. The firm also provides suggestions for management improvements on the same basis. For example, as a result of its audit of procedures at the plant site in May 1982, Arthur Andersen wrote to ANG's Controller in June 1982 suggesting improvements in accounting procedures and internal controls. ANG concurred with many of the suggestions. An Arthur Andersen official told us that the firm has verified that the principal suggestions made were implemented and that it was satisfied with ANG's response.

ONSITE MANAGEMENT OF PLANT CONSTRUCTION

The third aspect of ANG's overall management we reviewed was its onsite management of the gasification plant construction. ANG has comprehensive management procedures to oversee construction. In implementing these procedures, we found that the onsite managers identified problems and suggested corrective actions needed.

Day-to-day monitoring of all construction activities, including planning, engineering, and inspecting, is carried out by ANG's Construction and Technical Services group. This group oversees project status; compares actual with forecasted performance; and identifies significant problems, unfavorable trends and corrective actions planned. To accomplish these functions, the technical group monitors the

--construction progress and the contractors' field and engineering work forces' performance,

--quality of materials purchased and construction methods employed, and

--construction workmanship and materials.

As part of its monitoring functions, the technical group reviews and analyzes contractors' reports and schedules for controlling project construction. In addition, the technical group audits, tests, and oversees vendors, contractors, and subcontractors to ensure that they comply with specifications and proper material storage, handling, and installation of items such as concrete, steel, piping, and wiring. The technical group, for example, monitors pipewelds to determine whether they meet specification and code requirements. In May 1982 the technical group rejected these welds at a higher than normal rate. Once the problem was identified, steps were taken to correct it. ANG not only required the rejected welds to be reworked at the contractors' expense, but also required the contractors to improve welding quality. Furthermore, expanded testing measures were initiated and will remain until the welding problem is resolved.

Another example of work performed by the technical group relates to its reviews of contractors' scheduled construction activities. The technical group recognized early in the construction phase that delays in deliveries of structural steel were adversely affecting contractors' performance. The group identified the cause of the delays and recommended corrective actions to ANG management. ANG acted on the recommendations made, and officials believe that this action helped the project avoid substantial delays in plant construction.

Through September 1982, the technical group's quality assurance staff conducted 10 audits and reported its results to appropriate ANG officials and the contractors involved. Three of the 10 audits related to material controls--receiving, storing, and maintaining. Three audits addressed structural construction--steel, concrete, and earthwork. Two audits addressed piping and the two remaining audits addressed welding and tank erections. We examined two of the audit reports issued. These reports summarized the audit results, discussed deficiencies found, evaluated the causes of deficiencies, recommended corrective actions, and reported on corrective actions contractors took.

The technical group's various day-to-day activities are reported to and discussed with ANG management in Detroit and with onsite contractors. Group members prepare weekly, monthly, and

quarterly progress reports. The reports include: narrative analysis of problems and resolutions, cost and milestone comparisons, trend charts, and graphical displays of the project's physical progress.

CONCLUSIONS

ANG has extensive policies and procedures for overseeing the construction of the Great Plains project. Additional management comes from a computerized information system, various audit groups, and staff located at the project site. Neither we nor any other audit group identified significant deficiencies in ANG's computer system or the individual systems which feed into it. Overall, the system contains both automated and manual controls which ensure that the data generated from the system is reliable and accurate.

The various audit and evaluation groups provide management continuous and significant information concerning major project components. Great Plains management recognized the usefulness of the information and acted on recommendations made which enhanced its overall effectiveness.

ANG established and implemented comprehensive procedures to oversee the project's construction. These procedures appear adequate for managing and controlling all construction activities. For example, ANG's onsite managers have identified problems and suggested actions which ANG believes minimized the effect of these problems on the construction schedule.

CHAPTER 4

DOE PROJECT MONITORING

DOE's primary responsibilities are to protect the Federal Government's interest under the loan agreement, determine that there is reasonable assurance the loan will be repaid, and assess the reasonableness of Great Plains' periodic requests for loan disbursements. In addition, DOE is required to make project information available to the public and other Government agencies.

For the most part, DOE was fulfilling its responsibilities to oversee the Great Plains loan guarantee and disseminate project information. DOE has developed extensive monitoring procedures which, if properly implemented, should result in adequate oversight of the project. Although DOE had not completed an incurred cost audit as its procedures require, it had analyzed the project's economics and had reviewed and approved all of Great Plains' disbursement requests. DOE also reviewed Great Plains' accounting system which serves as the basis for disbursement requests and found that the requests were supported by that system. DOE also made some project reports available to the public and was in the process of establishing three reading rooms to make additional information readily available.

PROTECTING THE GOVERNMENT'S INTEREST

DOE seeks to protect the Government's interest under the Great Plains loan guarantee agreement by maintaining a continuous overview of the project and assessing its progress and problems. DOE carries out this responsibility by monitoring all aspects of the project, including visiting the construction site and meeting regularly with ANG officials.

DOE's Chicago Operations Office is responsible for monitoring the project on a daily basis. Within the Chicago office a project manager carries out this responsibility, assisted by three teams--technical, planning and control, and contracting--and by DOE's Grand Forks[1] and Morgantown Energy Technology Centers. The technical team monitors technical and schedule aspects of the project; the planning and control team

[1]On February 28, 1983, DOE signed a cooperative agreement with the University of North Dakota to operate the Grand Forks Energy Technology Center as a university facility. DOE expects the transfer of activities to begin on April 1, 1983. DOE plans to establish a 10-person project office to, in part, oversee the agreement and to continue monitoring the Great Plains project.

assesses cost, schedule, and financial aspects; and the contracting team assures that Great Plains complies with the provisions of the loan guarantee agreement. Grand Forks helps in monitoring process engineering and environmental functions, while Morgantown serves as the central repository for data collected from the project and provides technical help as requested. We limited our review to assessing the monitoring procedures and activities of the technical monitor and the cost and schedule monitor.

Technical monitoring

DOE's project manager relies on the technical monitoring team to be knowledgeable of ANG's progress and problems. The team consists of a technical coordinator and seven team members, including a technical support contractor and six technical personnel (one from Chicago, two from DOE's Argonne National Laboratory, and three from the Grand Forks Energy Technology Center). The technical monitoring team

--maintains awareness of the project status,

--compares actual and forecasted performance against technical and schedule baselines, and

--identifies significant problems and unfavorable trends and evaluates planned resolutions.

DOE's technical monitoring efforts are based primarily on ANG's progress reports which provide project status and performance information and identify trends, problems, and resolutions. In addition, DOE uses Great Plains' plans, schedules, summary reports, and permit data to supplement the information provided, makes periodic visits to the project site, conducts inspections, and regularly meets with project officials.

During 1982 DOE became concerned that its ability to monitor the project by measuring progress against ANG's technical baselines was being hindered. According to DOE, ANG has made numerous changes to the baselines and has modified its construction permit without advising DOE, as required.

Adequate technical baselines for monitoring purposes are particularly important because the baselines represent Great Plains' planned performance and are used by DOE to assess Great Plains' actual performance. The technical baselines include engineering designs, specifications, capacities, and equipment sizes for the gasification plant and coal mine. The baselines also include the project's environmental aspects. The loan

guarantee states that before changes are made to the baselines, DOE must be given 10 days advance notice. In addition, DOE's guidelines provide that the technical baselines must reflect all changes in construction design.

As a result of its concerns about the baselines, DOE notified ANG in October 1982 that it was becoming increasingly difficult to monitor and accurately evaluate ANG's technical activities. In a November 4, 1982, meeting, DOE and ANG officials discussed DOE's concerns about the changes to the baselines. However, DOE's concerns were not resolved at this meeting.

In January 1983 DOE's project manager told us that while DOE and ANG had agreed that the baselines had changed, they disagreed on the materiality of these changes. To allow DOE to monitor from the same technical baselines ANG uses in constructing the project and to provide DOE a better basis for its monitoring activities, DOE has been working with ANG to resolve its concern about changes made to the baselines. Once this issue is resolved, a better understanding between DOE and ANG should exist concerning the type of changes which require DOE's approval.

Cost and schedule monitoring

The project manager also uses the planning and control team to monitor the Great Plains project. This team includes a cost and schedule monitor, a financial monitor, and a budget analyst. We limited our review to the activities of the cost and schedule monitor. The cost and schedule monitor

--verifies or validates data received from Great Plains,

--determines current status,

--analyzes trends,

--develops forecasts, and

--makes overall assessments of project status and outlook.

In performing these activities, we found that the monitor followed the procedures established.

The cost and schedule monitor relies primarily on data in ANG's cost performance report for measuring progress against the baselines established. DOE officials told us they are comfortable using ANG's data because the system ANG uses has been shown to be reliable. To further supplement the data, however, the project manager said that the monitor uses other reports in

carrying out his responsibilities. We found that the monitor did receive and use a number of prime and subcontractor reports.

The cost and schedule monitor used a variety of methods to comply with DOE's procedures. For example, the monitor verified the mathematical accuracy of the data submitted and crosschecked the various reports to ensure consistency with the previous month's performance. According to the project manager, if DOE identified a significant variance from information previously reported, it would initiate an independent analysis to determine the cause of the variance. As of December 31, 1982, however, DOE had not felt there was a need to do this. Using the verified data, the monitor then developed and analyzed cost and schedule trends, and provided an overall assessment of significant points, trends, and problems to the project manager as required. According to the project manager, the monitor also forecasts an estimate at completion for the project based on a statistical analysis of ANG's data.

REASONABLE ASSURANCE OF DEBT REPAYMENT

DOE is required to continually assess the project's economics to assure full repayment of the loan. If it determines Great Plains cannot repay the loan, DOE can withdraw the guarantee at any time, stop further disbursements, and declare a default.

Since August 1982 DOE has conducted economic analyses of the project on an ongoing basis. DOE uses a computer model to measure the impact on debt repayment of about 25 project variables, including construction and operating costs, revenues, interest rates, and coal and gas prices. According to DOE officials, these analyses showed that under varying conditions Great Plains could repay the loan.

In addition to conducting its own assessments of the project's economic viability, DOE contracted for an independent assessment by its technical support contractor which is due early in 1983. DOE expects to compare the results of the two assessments and determine where and why inconsistencies occur. DOE determined that it was necessary to have an independent assessment to compare with its own because of the importance of assuring that the project can generate sufficient funds to repay the loan. Great Plains is required to provide DOE an economic analysis of the project and expects to do so in March 1983. DOE plans to compare Great Plains' analysis with its own.

REASONABLENESS OF LOAN DISBURSEMENT REQUESTS

As part of its monitoring function, DOE must assess and approve each request for funds from Great Plains prior to authorizing the Federal Financing Bank to disburse them. DOE approves Great Plains' disbursement requests based, in part, on a review of Great Plains' estimates of cash requirements and DOE's review of Great Plains' accounting system which is used to formulate these requests. An audit of incurred costs would provide further assurance that loan guarantee funds are used only for eligible project costs. Although DOE had started such an audit, it had not been completed as of December 31, 1982.

Disbursement approval procedures

Since March 1982 Great Plains has requested and received funds almost weekly. When DOE receives a request for funds, it disseminates the request to the various monitoring teams for analysis. A checklist is used to assure consistency of the information provided and the reviews made. For each disbursement request, DOE checked Great Plains' calculations of total funds disbursed, guarantee fee, and equity contribution and verified that the (1) maturity date and terms of the debt are clearly identified and within the terms of the loan guarantee agreement, (2) request is within the guarantee ratio of 75 percent, (3) equity contribution is supported by a bank statement, and (4) request approximates the disbursement estimates Great Plains submitted to DOE.

Following their individual analysis, the teams met with the project manager to discuss the proposed disbursement. The project manager retains ultimate approval authority over the request. In arriving at his decision, the project manager considers whether the (1) project's scheduled inservice date will be met, (2) cumulative costs are within the loan guarantee amounts, and (3) technical progress of the project is such that it adversely affects the repayment of the loan. According to the project manager, DOE's review is concerned primarily with ensuring that legal requirements for releasing disbursements are met.

DOE had initiated certain actions, however, to augment its disbursement request review. In May and October 1982 DOE reported on the results of its reviews of Great Plains' accounting system and disbursement request procedures. DOE wanted to determine whether an adequate basis existed for formulating disbursement requests. DOE found no significant problems with the accounting system or disbursement procedures. DOE found them to be adequate for accumulating and segregating costs which served as the basis for disbursement requests. DOE plans to continue these reviews quarterly. If significant

problems are identified, DOE officials said that these reviews would be conducted more frequently.

Audit of costs

Under the procedures established, DOE's Chicago Operations Office was initially responsible for determining whether Great Plains spent funds only for eligible project costs. However, on March 15, 1982, by DOE Order 2321.1, the Office of the Inspector General was delegated this responsibility for the entire Department. Previously,[2] we recommended that DOE initiate such an audit as soon as possible.

On November 15, 1982, the Office of the Inspector General began a review to determine whether the audits performed by Arthur Andersen, ANG's internal audit group, and others provided adequate coverage of the costs incurred by Great Plains. As of December 31, 1982, the Office of Inspector General had not completed this review. An Office of Inspector General official told us this review should be completed and a report issued in 1983.

MAKING PROJECT INFORMATION AVAILABLE TO THE PUBLIC

DOE is required to make the information it maintains on the project available to the public and other Federal agencies. Such disclosure, however, must be consistent with provisions of the Federal law safeguarding confidential business information. Therefore, DOE may not release information which it believes would divulge trade secrets or other proprietary information. Within these requirements, DOE limited its distribution of project data to technical documents available through its normal report distribution channels.

The loan guarantee agreement between Great Plains and DOE provides for three types of information--licensor proprietary, nonlicensor proprietary, and all others. Licensor proprietary information is available for DOE review under strict secrecy restrictions but never physically acquired by DOE. Nonlicensor proprietary information can be obtained by DOE but not disclosed to the public. All other information generated as a result of DOE's monitoring must be made available to the public and other Government agencies. The Morgantown Energy Technology Center was designated the repository for all technical data on the project, and the Technical Information Center at Oak Ridge, Tennessee, receives data which ultimately is made available to the public.

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[2]EMD-82-117, dated Sept. 14, 1982.

Although Great Plains submits numerous monthly, quarterly, and annual reports to DOE, the only project document DOE routinely makes available for public dissemination through the Technical Information Center is Great Plains' quarterly technical report. According to DOE officials, this is in accordance with established DOE procedures for releasing technical information. DOE officials believe that the quarterly technical report satisfies its legislative requirement because it includes both technical and environmental monitoring information for the gasification plant, coal mine, and pipeline. The officials said that if topical reports were prepared, these too would be available for dissemination.

DOE officials have not felt that the public would be interested in the voluminous data, design drawings, and reports produced by Great Plains concerning the project. Consequently, DOE has not made this type of information available. However, as a result of public interest and numerous inquiries, DOE plans to augment the information currently made available to the public by establishing reading rooms in Washington, D.C.; Chicago, Illinois; and Oakland, California.

These readings room, which should be operational by April 1983, will include both technical and nontechnical material which are not currently accessible to interested parties. For example, the reading room will include several task force reports on the project, loan application documents, environmental impact statements, the loan guarantee agreement, and monthly technical summaries prepared by Great Plains concerning the project's status. DOE believes that this information would help companies interested in constructing a project similar to Great Plains and those interested in the environmental impacts of the project. Therefore, while only limited project information can be requested by the public through DOE's normal technical report distribution channels, DOE's efforts in establishing the Great Plains reading rooms will provide access to additional information.

DOE also routinely meets with and provides information to other agencies, such as the Synthetic Fuels Corporation and the Environmental Protection Agency. These agencies routinely have access to more information than the public. In addition, the Synthetic Fuels Corporation attends the monthly meetings DOE has with ANG.

CONCLUSIONS

DOE has extensive procedures for technical, cost, and schedule monitoring of the Great Plains project which, if properly implemented, should result in adequate monitoring of

the project. For the most part, DOE has followed the procedures established. It had analyzed the project's economics and had reviewed and approved all disbursement requests. In addition, DOE reviewed Great Plains' accounting system and found it adequate for formulating disbursement requests. DOE also disseminated some project reports to the public and had initiated actions to make additional information available. However, DOE had not completed its audit of incurred costs as its procedures require.

SCHEDULE OF LOANS

Date	Amount loaned	Interest rate (note a)	Loan maturity date
	(millions)		
Prior to July 1, 1982	$175.0		
July 1, 1982	23.0	14.482	b/Oct. 1, 1982
July 12, 1982	18.0	13.321	b/Oct. 1, 1982
July 19, 1982	2.5	12.987	b/Oct. 1, 1982
July 26, 1982	10.0	14.345	July 1, 2002
Aug. 2, 1982	8.5	11.808	Oct. 1, 1982
Aug. 9, 1982	16.0	12.765	Apr. 1, 1983
Aug. 16, 1982	5.0	11.625	b/Jan. 3, 1983
Aug. 23, 1982	10.5	13.338	July 1, 2002
Aug. 30, 1982	14.0	13.372	July 1, 2002
Sept. 7, 1982	15.0	13.412	Jan. 1, 2002
Sept. 13, 1982	25.0	13.333	July 1, 2002
Sept. 20, 1982	11.5	10.405	Jan. 3, 1983
Sept. 27, 1982	6.0	9.115	Jan. 3, 1983
Oct. 4, 1982	4.0	12.581	July 1, 2002
Oct. 12, 1982	23.5	11.817	July 1, 2002
Oct. 18, 1982	5.0	8.635	Jan. 3, 1983
Oct. 25, 1982	6.0	11.594	July 1, 2002
Nov. 1, 1982	5.0	11.683	July 1, 2002
Nov. 8, 1982	13.0	8.856	Jan. 3, 1983
Nov. 15, 1982	15.5	9.204	Jan. 3, 1983
Nov. 22, 1982	14.0	11.331	July 1, 2002
Dec. 1, 1982	10.5	11.624	July 1, 2002
Dec. 6, 1982	7.0	11.525	July 1, 2002
Dec. 13, 1982	15.5	9.305	Apr. 1, 1983
Dec. 20, 1982	9.0	9.015	Apr. 1, 1983
Dec. 27, 1982	8.5	9.345	July 1, 1983
Total	$476.5		

a/Interest rate includes the normal one-eighth of 1 percent Federal Financing Bank lending rate plus three-fourths of 1 percent for early debt retirement provisions not normally included in the Federal Financing Bank's loans.

b/These loans have been refinanced by Great Plains.

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