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HEALY CLEAN COAL PROJECT

QUARTERLY TECHNICAL PROGRESS REPORT
No. 21

FOR THE PERIOD
JANUARY 1, 1996 THROUGH MARCH 31, 1996

U.S. DEPARTMENT OF ENERGY COOPERATIVE AGREEMENT
DE-FC22-91PC90544

ALASKA INDUSTRIAL DEVELOPMENT AND EXPORT AUTHORITY

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Acronyms and Abbreviations

AIDEA	Alaska Industrial Development and Export Authority
AK	Alaska
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FWEC	Foster Wheeler Energy Corporation
GVEA	Golden Valley Electric Association, Inc.
HC Price	H.C. Price Company
HCCP	Healy Clean Coal Project
Joy	Joy Technologies, Inc.
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
No.	Number
NO_x	Nitrogen Oxides
OCIP	Owner Controlled Insurance Program
SCA	Sumitomo Corporation of America
SO_2	Sulfur dioxide
SWEC	Stone and Webster Engineering Corporation
TRW	TRW, Inc.
UCM	Usibelli Coal Mine, Inc.

SECTION 1 - SUMMARY

Please refer to Quarterly Technical Progress Report No. 1, January 1, to June 30, 1991, for the project background and objectives for the Healy Clean Coal Project (HCCP). The report presented in the following text covers the period January 1, 1996 to March 31, 1996.

The plant design is finalized and all Federal and State permits have been obtained for construction of the project. Construction of the project is on schedule and is within the budget established following the award of the general construction contract. Off-site manufacturing of equipment, including combustor supply and flue gas desulfurization system supply, is progressing on schedule and as budgeted.

Quarterly Technical Progress Report No. 21 will summarize the significant project development steps taken in the reporting period. The information is derived from the monthly reports, which are a more detailed chronology of events. The report concludes with a forecast of activities for the period of April 1, 1996, through June 30, 1996.

SECTION 2 - INTRODUCTION

This Quarterly Technical Progress Report is required under U.S. Department of Energy (DOE) Cooperative Agreement, Section XV, "Reporting Requirements" and Attachment C, "Federal Assistance Reporting Checklist". It covers the period of January 1, 1996, through March 31, 1996.

The primary objective of the HCCP is to conduct a cost-sharing project that will demonstrate a new power plant design which features innovative integration of an advanced combustor and heat recovery system coupled with both high- and low-temperature emission control processes. The parties anticipate that if the demonstration project is successful, the technology could become commercialized in the near term and will be capable of (1) achieving significant reductions in the emissions of sulfur dioxide (SO_2) and the oxides of nitrogen (NO_x) from existing facilities to minimize environmental impacts such as transboundary and interstate pollution and/or (2) providing for future energy needs in an environmentally acceptable manner.

The primary equipment elements comprising this new power plant design includes entrained combustion systems coupled with a boiler which will produce low-NO_x levels, and function as a limestone calciner and first-stage SO_2 remover

in addition to its heat recovery function; a single spray dryer absorber vessel for second-stage sulfur removal; a baghouse for third-stage sulfur and particulate removal; and a lime activation system which recovers unused reagent from particulate collected in the baghouse. The emission levels of SO_2, NO_x, and particulate to be demonstrated are expected to be less than the Federal New Source Performance Standards (NSPS).

The HCCP will be a 50 megawatt, coal-fired power plant that will be built adjacent to the existing 25 megawatt Healy No. 1 plant which is owned and operated by Golden Valley Electric Association (GVEA). The scope of the project consists of a power plant utilizing a combustion system that burns coal in stages.

The Alaska Industrial Development and Export Authority (AIDEA), will administer state funds, perform under the Cooperative Agreement, and finance and own the project through advance funding and the sale of bonds; DOE will provide cost-shared funding under the Cooperative Agreement to demonstrate advanced coal utilization technologies; AIDEA has assembled a team to design, build, supply coal, and operate the HCCP generating facility: GVEA, a member-owned cooperative electric utility which provides generation, transmission and distribution service to the Fairbanks area, will operate the facility under an agreement with AIDEA and will pay for power generated; Usibelli Coal Mine will furnish coal to GVEA; Stone and Webster Engineering Corporation will provide overall project engineering and management services; TRW and Joy will provide technology related to engineering, design and manufacturing; and Foster Wheeler Energy Corporation will provide combustor expertise.

Construction of the project began in May of 1995. During the summer and fall of 1995, earthwork, foundation and structural steel work were performed. No on-site construction was performed after the winter shutdown which began in November of 1995. Construction began again in March of 1996. Equipment manufacture continued through the winter to be ready for installation throughout the balance of the construction process. Construction is scheduled for completion during the summer of 1997. Startup testing will be complete by January of 1998, which will begin the demonstration testing period. Additional schedule details are provided on Figure 1 - Schedule.

SECTION 3 - PROJECT STATUS

The following status is for Phase II work performed during the period January 1, 1996, to March 31, 1996, and is presented in bullet format listed by major activities.

PROJECT MANAGEMENT

Project Management

The Healy Clean Coal Project (HCCP) team participants and their primary roles include:

- Alaska Industrial Development and Export Authority (AIDEA) - Ownership, overall project management, and financing.
- Golden Valley Electric Association, Inc. (GVEA) - Design input and review, operator, and purchaser of the HCCP electrical output.
- Usibelli Coal Mine, Inc. (UCM) - Design input and review, coal supplier, and ash disposal.
- TRW, Inc. (TRW) - Entrained combustion system technology supplier.
- Joy Technologies, Inc. (Joy) - Spray dryer, fabric filter, and ash recycle system technology supplier.
- Stone and Webster Engineering Corporation (SWEC) - Architect/Engineer.

In addition, Foster Wheeler Energy Corporation (FWEC) has been contracted for design and supply of the boiler. Sumitomo Corporation of America (SCA) has been contracted for design and supply of the turbine/generator. H.C. Price Company (H.C. Price) has been contracted for general construction of the project.

The required monthly reporting under the terms of the Cooperative Agreement, Article XV - Reporting Requirements, was fulfilled during this reporting period.

Construction Management

AIDEA is leading the construction management effort with staff located in Anchorage and a project team located at the job site to manage the site construction effort; administer all field services, supplier contracts, and material purchase orders; and provide direct construction coordination with the general contractor. AIDEA has retained an individual, Mr. Clive Herrington, who has extensive international experience in power plant construction. Mr. Herrington is assisted by staff from AIDEA and technical specialists from SWEC having

backgrounds suited for work in progress. In addition, support is provided as required from the SWEC office in Denver, Colorado, and off-site fabricators of equipment components.

- The schedule for general construction of the Project shows construction complete in August of 1997, with startup activity concluding in December of 1997. (See Figure 1 - Progress Schedule for additional details.) Demonstration testing will begin in January of 1998. Construction progress is on schedule. Earthwork, foundations preparation and the structural concrete were completed in September of 1995. Structural steel erection began on August 16, 1995, and continues ahead of schedule.

- On-site construction ceased in November of 1995, for the winter. In early March of 1996, the General Contractor and its subcontractors began to remobilize the workforce which will complete the remainder of the Phase II construction activities. On-site fabrication of tanks and silos is proceeding as planned. Lifting equipment for the boiler and combustor erection has been mobilized. The building shell will be enclosed in 1996 allowing construction to continue uninterrupted through the winter of 1996.

- Construction meetings were held weekly with H.C. Price to review its construction schedule and progress, interface owner furnished equipment fabrication schedules, and to coordinate with Joy, TRW, SCA, and FWEC, respectively, for the flue gas desulfurization system, combustors, turbine, and boiler deliveries and erection with general construction activities. Change orders, when necessary, continue to be negotiated with the General Contractor and the suppliers.

Finance

- The construction process is within budget, with the contractor receiving $27,421,043.51 through March 31, 1996, in progress payments towards the contract total of $83,246,191. Off-site manufacturing of equipment is progressing within amounts budgeted.

- Through this budgeting period, $118,018,000 of project expenditures have been made (44% of the project budget of $267,190,000). The project remains on schedule and within budget.

- Change Order No. 1 covering all related changes, except fireproofing, will be issued based upon an agreed to amount of $825,000. A Change Order

covering the fireproofing modifications, if required by the State Fire Marshal, will be finalized once all related matters are resolved.

PERMITTING/NEPA COMPLIANCE

The plant design is finalized and all federal and state permit related activities have been completed, and all permits necessary for the construction of the HCCP have been obtained. AIDEA is current in compliance with the permits, and representations made during the project's review under the provisions of the National Environmental Policy Act (NEPA). This review resulted in the issuance of a Final Environmental Impact Statement and Record of Decision that authorized construction of the Project.

OWNER FURNISHED EQUIPMENT

All vendors supplying owner furnished equipment have submitted manufacturing and inspection plans and their quality assurance programs. All fabrication releases have been issued for vendors to begin production of this equipment. The first shipping release for owner furnished equipment was issued in September of 1995 for the HCCP fire pump, which has been delivered to the site. Several other shipping releases were made throughout the winter months and deliveries of materials and equipment continued throughout the winter. Eleven of the 34 venders supplying the Owner Furnished Equipment have been issued shipping releases. The FWEC and SCA related erection work will be consolidated under the scope of work of H.C. Price by a change order, providing cost savings.

Combustor Supply

Off-site manufacturing of the TRW combustion system is on schedule and on budget. Delivery of the components to the site is scheduled for late spring of 1996. Plant inspections were made in November of 1995 and February of 1996 for a portion of the FWEC boiler components that were being fabricated in St. Catherines, Ontario, Canada; and for the TRW combustor assemblies and the remaining portion of the FWEC boiler components that are being fabricated in Dansville, New York. Pre-assembly milestones were met during the inspection. Partial shipping releases were issued for the TRW combustor assemblies beginning on February 7, 1996; and for major FWEC pressure components on February 21, 1996.

FGD System Supply

Off-site manufacturing of the Joy Flue Gas Desulfurization System is on schedule and on budget. Inspection of the spray dryer absorber was performed at the Niro Atomizer Manufacturing facility in Copenhagen, Denmark, in December of 1995. The inspection demonstrated satisfactory progress. Partial shipping releases were provided for the Joy Flue Gas Desulfurization and baghouse system structural support steel in January of 1996.

SCA

Turbine, turbine auxiliary and piping, generator, embedded materials, electrical equipment, and instrumentation design is complete and fabrication is in process. Delivery will occur in August of 1996 and installation will follow soon thereafter.

SECTION 4: SUMMARY AND PLANS FOR NEXT QUARTER (April 1, 1996, to June 30, 1996)

SUMMARY: Construction work is on-going at the HCCP site and will continue throughout the remainder of Phase II. Structural steel erection continues ahead of schedule and on-site fabrication of tanks and silos will proceed as planned. Lifting equipment for the boiler and combustor erection has been mobilized.

PLANS: Specific activities planned for next quarter include:

AIDEA

- Continued oversight of project construction and project management. Materials for the 1996 construction season are arriving at the site and will continue to do so through the general construction process.

Environmental

- All state and federal permits have been acquired and AIDEA remains in compliance.

TRW

- Engineering and design of the combustor systems are complete and fabrication is in process. Combustor systems will be installed as part of the boiler erection during the 1996 and 1997 construction seasons. Delivery on site is scheduled for May of 1996.

FWEC

- Engineering and design of the boiler system are complete and fabrication is in process. Boiler system will be delivered in June of 1996 and installed during the 1996 and 1997 construction seasons.

Joy

- Engineering and design of the spray dryer absorber and ash recycle system are complete and fabrication is complete. Installation will occur during the 1996 and 1997 construction seasons.

SCA

- Turbine, turbine auxiliary and piping, generator, embedded materials, electrical equipment, and instrumentation design is complete and fabrication is in process. Delivery will occur in August of 1996 and installation will follow soon thereafter.

SWEC

- Construction phase service activities will continue, and include reviewing vendor submittals, responding to requests for information from the contractor, and construction inspection.

FIGURE 1 -- PROGRESS SCHEDULE
Phase II B -- Construction
(HCCP Quarterly Report 21)

Primary Activity (WBS)	Tasks	Status	Percent Complete	Completion Date (actual/anticipated)
Owner Activities				
	Project Management	Active, in support of construction	On-going	12/97
	Construction Management	Active project support of construction	On-going	12/97
	Finance	Complete, total funding is available	100%	4/91
Combustor Supply				
	Fabrication	Complete; released for shipment 1/96 - 2/96	100%	2/96
	Field Advisory Services	Pending; erection part of Gen. Construction Contract	10%	8/97
FGD System Supply				
	Contract Administration	Complete	100%	3/95
	Engineering and Design	Complete	100%	3/95
	Procurement	Complete; released for shipment 2/96	100%	2/96
	Field Services	Pending; erection part of Gen. Construction Contract	40%	8/97
Construction				
	Engineering support to Constr.	Active	60%	8/97
	Equipment Procurement	Near Complete; 11 of 34 released to ship	80%	12/96
	General Construction			
	*Civil/Structural	Underway	70%	7/97
	Components			
	*Mechanical Components	Underway	10%	1-4/97
	*Elec/I & C Components	Underway	2%	12/96
	*Combustors Erection	Underway	10%	10/96
	*All Other Construction	Underway	25%	8/97
Construction Review Startup				
	Engineering Reviews	Complete	100%	11/94
	Operation	Incidental to systems testing	0%	1-8/97
	Startup Testing	Follows construction completion	0%	8-12/97

SUMMARY OF MAJOR ACTIVITIES	Completion Date (anticipated)
Design	Complete; November 1994
Construction	August 1997
Operation (Demonstration Testing)	July 1999