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HEALY CLEAN COAL PROJECT

QUARTERLY TECHNICAL PROGRESS REPORT
No. 20

FOR THE PERIOD
OCTOBER 1, 1995 THROUGH DECEMBER 31, 1995

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

ALASKA INDUSTRIAL DEVELOPMENT AND EXPORT AUTHORITY

Patents Cleared By Chicago 3/22/96

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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 October 1, 1995, to December 31, 1995.

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. 20 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 January 1, 1996, through March 31, 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 October 1, 1995, through December 31, 1995.

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 (SO₂) 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 SO₂ 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 SO₂, 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 was performed. No on-site construction was done after the winter shutdown which began in November, 1996. Construction will begin again in the spring of 1996. Equipment manufacture will continue through the winter to be ready for installation throughout the balance of the construction process. 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 October 1, to December 31, 1995.

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 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 - 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, 1995. Structural steel erection began on August 16, 1995, and about 30 percent of the steel was erected by the end of October. On-site construction ceased in November of 1995, for the winter, and will restart in March 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.
- The building shell will be enclosed in 1996 allowing construction progress to continue uninterrupted through the winter of 1996.

Finance

- The construction process is within budget, with the contractor receiving \$26,860,469.87 through December 31, 1995, in progress payments towards the contract total of \$83,246,191. Off-site manufacturing of equipment is progressing within amounts budgeted.
- 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 in the NEPA process that lead to authorizing 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 in November of 1995. 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 by June, 1996. AIDEA and GVEA conducted one of three manufacturing inspections in December 1995, and found progress to be satisfactory. The remaining inspections will occur in late January of 1996 prior to release for shipment.

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.

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: PLANS FOR NEXT QUARTER (January 1 to March 31, 1996)

SUMMARY: Project construction will remain shut down for the winter months. Construction activities will resume in the Spring of 1996. 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 is 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 is complete and fabrication is in process. Delivery will occur during February of 1996 and installation will occur during the 1996 and 1997 construction seasons.

SCA

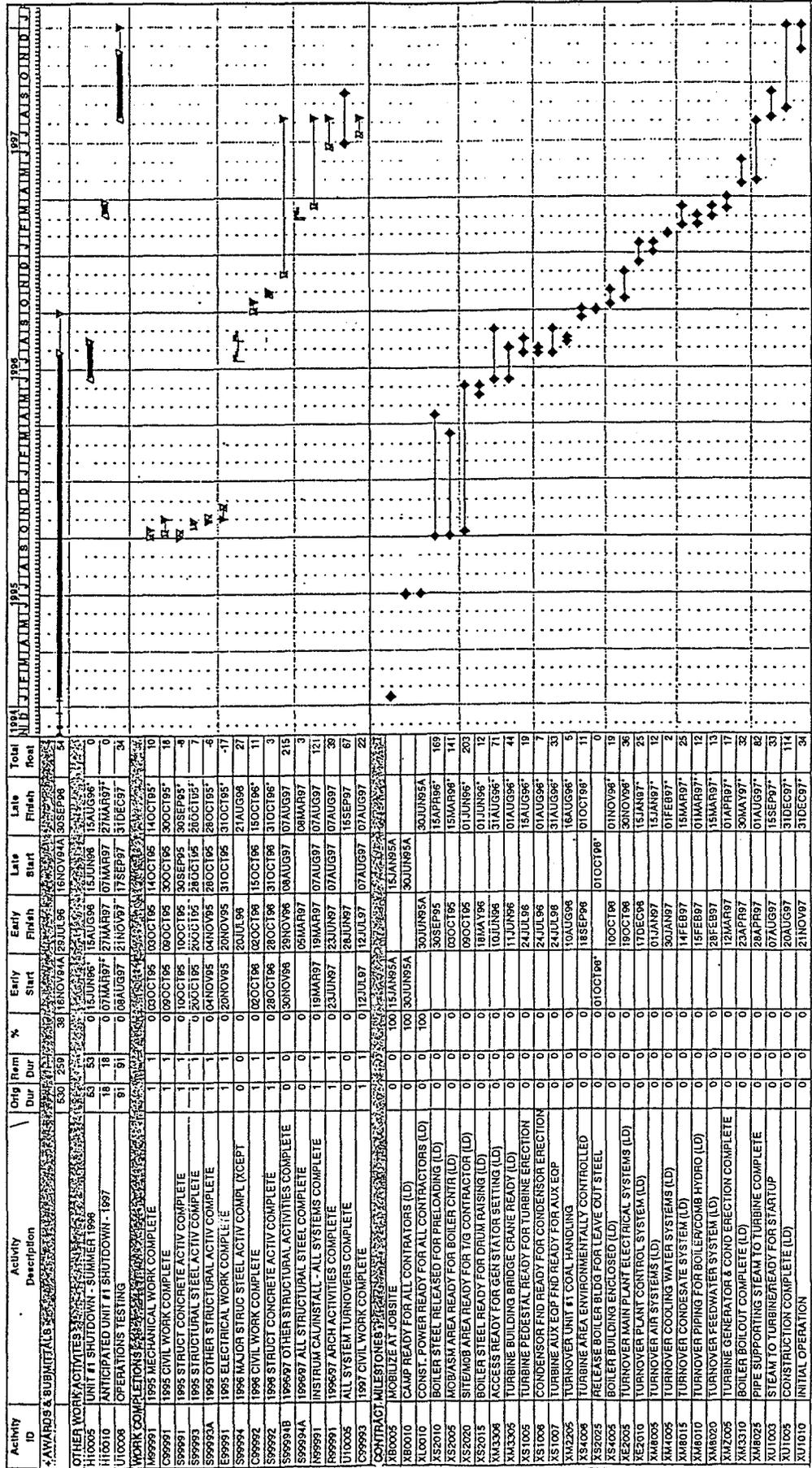
- Turbine, turbine auxiliary and piping, generator, embedded materials, electrical equipment, and instrumentation design is complete and fabrication is in process. Delivery will occur in August of 1996 and installation will follow soon thereafter.

SWEC

- Will continue to perform construction phase activities, which include reviewing vendor submittals, responding to requests for information from the contractor, and construction inspection.

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FIGURE 1 - Schedule



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AIDEA - HEALY CLEAN COAL PROJECT
H.C. PRICE CONSTRUCTION SCHEDULE
Dept Of Energy - September 1995

100P

Early Bar
 Float Bar
 Program Bar
 Critical Activity

10/20/94
 01/10/95
 01/01/95
 06/01/95

Project Start
 Project Finish
 Date Date
 Plot Date

ID: Primavera Systems, Inc.