JANUARY 13,1994

C.E.Bohac, BR 2B-C

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND
PHASE 1 INPUT

Please refer to Cost Estimate Request No. KIF93-1218-PO dated December 21,1993 (B65 931222 106) concerning the above subject.

Attached is a project development Estimate from Fossil Engineering providing Phase 1 Input for the Kingston Plant Phase 1 Study of the Coal Yard Runoff Pond Project.

Included in this package is a Phase 1 Scope, manhour estimate, and a workload based schedule.

If you have any questions call me at extension 6607.

K.W. Burnett

K.W.Burnett
Manager, Site Engineering
LP 2G-C

JLG:jdp
Attachments

cc:R.G.Johnson

December 21, 1993

R. G. Johnson, LP 2G-C

COST ESTIMATE REQUEST (CER) NO KIF 93 1218 P0 - KINGSTON FOSSIL PLANT - COAL YARD RUNOFF POND

Description: Heavy rains have in the past caused flows to be by-passed around the coal yard drainage pond. The by-passed flows were reported as not complying with the NPDES permit for the pond. It is reported that the two existing pumps are not well suited for the system operating conditions and do not operate reliably.

Scope: See attached.

Requested by: D. A. Howard

Reference: Problem Assessment and Resolution Request - see attached.

Purpose: To determine the cost and schedule for Phase I for PAB approval.

FOSSIL ENGRG Received DEC 23 '93

Referred	H	INFO	Date
RGJ		✓	
EAB			
CWB	✓		1/3
SCC			
WWD			
RWJ			
LAM			
LFN			
WLP			
EBR			
PKF			

Schedule:	Phase I	Phase II	Phase III
Start	~~2/94~~ 4/4/94	TBD	TBD
Complete	~~4-5/94~~ 5/20/94	TBD	TBD

Project Engineer: C. E. Bohac, BR 2B-C Extension 7319
Lead Engineer:
Project Manager: D. A. Howard, BR 3D-C Extension 6793

Submit data to PE by 1/13/93
PE submit data to Cost Estimating Section by 1/14/94
Cost estimate to PE by 1/21/94
Cost estimate to PM by 1/24/94

The activity number for all ES personnel to use in preparing the estimate is X1FN330116.

James W. Coan, BR 2B-C
Manager, Project Engineering Services

CEB
Attachments

cc(attachments):
R. W. Clevenger, SP 3B-C
G. V. Downer, BR 3D-C
D. A. Howard, BR 3D-C
RIMS, CST 13B-C

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND

1.0 BACKGROUND

Heavy rains have in the past caused flows to be by-passed around the coal yard drainage pond. The by-passed flows were reported as not complying with the NPDES permit for the pond. It is reported that the two existing pumps are not well suited for the system operating conditions and do not operate reliably.

2.0 PROJECT DEVELOPMENT

1) Provide a detailed scope statement for Phase I action. A suggested minimum list of items follows in section 3.0.
2) Provide a detailed cost estimate for Phase I.
3) Estimate expected duration for performing Phase I.
4) Phase I would begin in February 1994 or March 1994.
5) Identify possible constraints identified for performing this project in any Phase.

3.0 PHASE I SCOPE

1) Meet with plant and other interested personnel to discuss any additional information, verify scope, and review preliminary plans, proposed solutions, and expectations from the project.

2) A hydrologic analysis of the pond and existing pumping capacity will be performed in order to determine if the system will contain the 10-year 24-hour storm. Should it be determined that the system will not contain the above design storm, alternatives would be formulated and evaluated for containing the design storm. Should it be shown that the existing system is capable of containing the design storm, then alternatives for upgrading and improving the reliability of the system will be examined. Improving reliability will be examined by considering such additions as new pumps, new controls, electrical improvements, piping modifications, and other options as appropriate. The analysis of alternatives would result in the selection of a recommended alternative.

3) Determine the location, routing, and connection points of any additional piping, valves, and equipment to be installed.

4) Determine the drawings and documents which will require revising or preparing.

5) Develop and prepare a detailed engineering hours estimate and resource loaded

schedule for Phase II engineering.

6) Determine the possible impacts the rehabilitated system will have on any existing or remaining components in the system.

7) Review similar systems at other sites for possible information sharing.

8) Determine all possible state, federal, or local permits which will be required in the execution of this project.

9) Identify needed coordination with local, state, or federal agencies.

10) Provide a cost estimate to prepare the Phase II estimate and schedule for Phase III implementation.

11) Determine possible environmental issues to be addressed during any Phase.

12) Provide input to the Estimating Section, including identification of long lead procurement items to assist in preparation of the Phase II detailed estimate and Phase III preliminary estimate.

13) Develop and prepare a preliminary Phase III cost estimate.

4.0 PHASE I DELIVERABLES

1) Minutes of meetings documenting agreements made on actions to be taken, schedule, etc.

2) Memorandums, letters, and documents to the plant, engineering, Mod Svs, partners, etc.

3) List of local, state, and federal permits required.

4) Detailed hours estimate and schedule for Phase II engineering activities.

5) List of drawings and documents to be prepared or revised in Phase II.

6) A detailed cost estimate for Phase II and a preliminary estimate for Phase III.

7) Copy of all calculations performed.

8) Cost estimate from Mods Partner to prepare estimate and level IV schedule, and to participate in a constructability review in Phase II.

9) Conceptual drawings indicating the proposed alternative.

10) List of all alternatives considered with the evaluation of each alternative. The evaluation should include a conceptual cost estimate for each alternative.

11) List of all assumptions made.

12) Final project Phase I report.

ENGINEERING COST INPUT SHEET

Fiscal Year: 94
Phase: 1

PROJECT: KINGSTON FOSSIL PLANT
FEATURE: COAL YARD RUNOFF POND
CER: KIF93-1218-PO PCN: N/A
PREPAIRED: J.D.PARIS Fossil Engineering Service

MAN-HOURS

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
FOSSIL ENGINEERING SERVICES													
Elec Sys Engg							100	100					200
P&C Elec Engg													
Mech Aux Engg				3			60	30					93
Mech Sys Engg													
Site Sys Engg				10			80	60					150
Struct Engg							16	16					32
HYDRO ENGINEERING SERVICES													
Small Proj/Insp													
Civil Engg													
Elect Engg													
Mech Engg													
CLEAN AIR PROGRAM													
CUF FGD Project													
OTHER													
Proj Engg Serv													
Estg/Proj Ctrl													
TOTAL M/HOURS				13			256	206					475
SITE VISIT							7	1					8

January 12, 1994

K. W. Burnett, MR 3D-C

KINGSTON FOSSIL PLANT - COAL YARD RUNOFF POND - CER NO. KIF93-1218-PO
PROJECT DEVELOPMENT ESTIMATE

Attached is Electrical Engineering Section's input for the Project Development Estimate on the above project. The following items are included:

- General Project Scope
- Electrical Scope for Phase I
- Assumptions
- Phase I Deliverables
- FE-E manpower and schedule

If you have any questions or require additional information, please contact Cheryl Kosmidis at extension 8668-C.

Lloyd Nero
Manager, Electrical Engineering
LP 2G-C

CDK:cdk
Attachments

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND - CER NO. KIF93-1218-PO
PROJECT DEVELOPMENT ESTIMATE

I. Project Scope:

Problems exist with the coal yard runoff pond in that heavy rainfall causes water flows to bypass the pond. Replacement of the existing sump pumps, which do not operate reliably, will be necessary to accomplish environmental compliancy goals. The study's principle purpose will be to determine the conceptual design and to provide a detailed cost estimate for the detailed design of the solution.

II. Electrical Scope for Phase I:

A. Examine the types and quantities of equipment required and the feasiblity of their use, and discuss these subjects with FES Civil and Mechanical disciplines and Kingston Fossil Plant representatives to insure we are satisfying the needs of the plant.

B. Travel to the plant to review existing equipment for replacement.

C. Prepare a conceptual estimate to perform an economic evaluation.

D. Determine which drawings and documents require revision or preparation.

E. Develop and prepare a detailed engineering manhours estimate and schedule for Phase II engineering and preliminary estimate for Phase III.

III. Assumptions

A. No change in horsepower for the two sump pump motors, currently 30 and 60 hp, respectively.

B. A power analysis of the Kingston system, including these two undocumented sump pumps, will reveal that it is acceptable to power the proposed replacement pumps from the same board which currently powers them.

IV. Phase I deliverables will include the following:

1. A scope of Phase II electrical design.

2. A list of electrical drawings to be prepared or revised.

3. A bill of materials for electrical equipment including all long lead and engineered materials.

4. A detailed manhour estimate and schedule (duration from approval) for Phase II engineering (± 10%) and conceptual engineering estimate for Phase III (± 20%) with manhours and cost shown on a monthly basis.

ENGINEERING COST INPUT SHEET

FISCAL YEAR: 94
PHASE: I

PROJECT: Kingston Fossil Plant
FEATURE: Coal Yard Sump Pump
CER: PAF93-0111-PO
PREPARED BY: CDK

PCN: XXX

ENGG SVCS GROUP: SELECT ONE

- X FOSSIL ENGINEERING SERVICES
- ___ HYDRO ENGINEERING SERVICES
- ___ PROJECT ENGINEERING SERVICES
- ___ CLEAN AIR PROGRAM
- ___ OTHER ORGANIZATION: _____ Est'g Proj Controls, etc.

MAN-HOURS

Section Name	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
ELECTRICAL ENGINEERING							100	100					200

TRAVEL: NO. OF PERSON TRIPS

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
						2						2

OTHER DOLLARS (A/E Engineering Work, Est'd M-H's, Quote, Other Basis)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total

NOTES

Each trip represents one man-day.

Approved by Lloyd F. Nero

Date 1-12-94

January 12, 1994

K. W. Burnett, SP 3F-C

KINGSTON FOSSIL PLANT - COAL YARD RUNOFF POND -
CER KIF93-1218-P0

Please refer to your cost estimate request concerning the above subject. Attached is Mechanical Auxiliaries project development package for the modification of the existing coal yard pumping system of the Kingston Fossil Plant. Included in this package are a scope and engineering estimate.

If you have any questions please call Dan Bohl at extension 7558.

Victor W. Davis
Supervisor
Mechanical Auxiliaries
MR 3B-C

VWD:DEB
Attachments

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND

MECHANICAL AUXILIARIES

SCOPE FOR PHASE I

During periods of heavy rain the existing Coal Yard Runoff Pond frequently overflows into the river. The mechanical scope consists of the following:

- Determine any pumping modifications required.
- Determine the condition of the existing piping system and any modifications required.
- Develop a conceptual design of the modifications along with the appropriate materials list.
- Develop an estimate and schedule for phase 2 and 3.

ENGINEERING COST INPUT SHEET

PROJECT: KINGSTON FOSSIL PLANT

FISCAL YEAR: 1994
PHASE 1

FEATURE: COAL YARD RUNOFF POND

CER: KIF93-1218-P0 PCN:

PREPARED BY: D. E. BOHL

ENGG SVCS GROUP: select one
_X_FOSSIL ENGINEERING SERVICES
___HYDRO ENGINEERING SERVICES
___PROJECT ENGINEERING SERVICES
___CLEAN AIR PROGRAM
___OTHER ORGANIZATION: _____
Est'g, Proj Ctrls, etc.

MAN-HOURS

PDE MANHOURS 3

Section Name	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Mechanical Auxiliaries							60	30					90
												Total	93

TRAVEL : NO. OF PERSON TRIPS

Section Name	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Mechanical Auxiliaries							1						1

OTHER DOLLARS (A/E Engineering Work, Est'd M-H's, Quote, Other Basis)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
													0
													0
	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTES:

Approved by: _____

Date: _____

FILE: INFORM1.WK1

KINGSTON FOSSIL PLANT
YARD 1/11/94

COST ESTIMATE REQUEST No. KIF93-1218-PO
COAL YARD RUNOFF POND

CIVIL SITE ENGINEERING
Phase I Scope of work

A phase 1 scope of work for site engineering will require drainage area identification, rainfall volume and runoff rates. After the discharge pipe sizes and layout is determined by the mechanical section, we will check for pipe interferences along the route. The pump station will be designed to use the existing power supply.

Our involvement will include providing for the following:

1. Drainage areas identification.
2. Volumes, rates and points of entry for runoff.
3. Grading and drainage for the new areas.
4. Material quantities for a phase II estimate.
5. Phase II scope of work.
6. Manhour estimates for phase II design & phase III field support.
7. A schedule for phase II and III.
8. Site visits as necessary to obtain plant concurrence of the plan for phase II and to obtain necessary field information.

K.W.Burnett

K.W.Burnett
Manager, Site Engineering
LP 2G-C.

ENGINEERING COST INPUT SHEET

Fiscal Year: 94
Phase: 1

PROJECT: KINGSTON FOSSIL PLANT
FEATURE: COAL YARD RUNOFF POND
CER: KIF93-1218-PO PCN: N/A
PREPAIRED: J.D.PARIS Fossil Engineering Service

MAN-HOURS

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
FOSSIL ENGINEERING SERVICES													
Elec Sys Engg													
P&C Elec Engg													
Mech Aux Engg													
Mech Sys Engg													
Site Sys Engg				10			80	60					150
Struct Engg													
HYDRO ENGINEERING SERVICES													
Small Proj/Insp													
Civil Engg													
Elect Engg													
Mech Engg													
CLEAN AIR PROGRAM													
CUF FGD Project													
OTHER													
Proj Engg Serv													
Estg/Proj Ctrl													
TOTAL M/HOURS				10			80	60					150
SITE VISIT							3	1					4

January 11, 1993

K. W. Burnett

KINGSTON FOSSIL PLANT - COAL YARD RUNOFF POND -
CER NO KIF93-1218-P0 - STRUCTURAL PROJECT DEVELOPMENT INPUT

As requested from your Jerry Glover and the December 21, 1993 memo from J. W. Coan to R. G. Johnson, we have attached the subject cost estimate input. We have enclosed a phase I estimate and a phase I resource loaded schedule. If you have any questions or comments, please call Ron Purkey at 4820.

L. A. Nash
Manager, Structural Engineering
SP-2D-C

KINGSTON FOSSIL PLANT - COAL YARD RUNOFF POND

CER NO KIF93-1218-P0

STRUCTURAL ENGINEERING PDE INPUT

JANUARY 11, 1993

PHASE I SCOPE:

1. PROVIDE SKETCHES AND MATERIAL TAKEOFFS FOR THE COAL YARD PUMP SLAB AND ENCLOSURE MODIFICATIONS/REPLACEMENT WHICH ARE REQUIRED FOR THE NEW PUMPS.

2. PROVIDE MATERIAL TAKEOFFS AND SKETCHES FOR THE ELECTRICAL MODIFICATIONS REQUIRED FOR THE PUMP UPGRADE. *

3. PROVIDE A RESOURCE LOADED PHASE II SCHEDULE.

4. PROVIDE A PHASE II SCOPE.

5. PROVIDE A PRELIMINARY PHASE III SCOPE AND SCHEDULE.

SCHEDULE AND MANHOURS:

START: APRIL 15 FINISH MAY 15 32 MH REQUIRED

* IT IS ASSUMED THAT ONLY MINOR CHANGES FOR ITEM 2 WILL BE REQUIRED. NEW SUBSTATIONS ARE NOT ANTICIPATED.

ENGINEERING COST INPUT SHEET

FISCAL YEAR: 1994
PHASE:1

PROJECT: KINGSTON FOSSIL PLANT

FEATURE: COAL YARD RUNOFF POND

CER: KIF93-1218-P0 PCN:

PREPARED BY: R. E. PURKEY ENGG SVCS GROUP: select one

_X_FOSSIL ENGINEERING SERVICES
___HYDRO ENGINEERING SERVICES
___PROJECT ENGINEERING SERVICES
___CLEAN AIR PROGRAM
___OTHER ORGANIZATION: _____
Est'g, Proj Ctrls, etc.

MAN-HOURS	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
STRUCTURAL ENGINEERING							16	16					32

Section Name

TRAVEL : NO. OF PERSON TRIPS

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
TRUCTURAL ENGINEERING							1						1

OTHER DOLLARS (A/E Engineering Work, Est'd M-H's, Quote, Other Basis)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
													0
													0
													0
													0
	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTES:

Approved by: _____

ILE: IN_FORM.WR1 Date: _____