Kingston Fossil Plant

Ph I

Systems Engr.

08/03/2004

1	**KIF530: Develop Fly Ash, Gypsum, and Bottom Ash Storage**									
2	**Phase/Activity**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**		**Totals**	**Prv Yrs**	
3										
4										
5	**Phase 1**									
6	Engineering	200	50					250		
7	PE/PC/PS		20					20		
8	Plant Support		5					5		
9	PSS - Inspection							0		
10										
11	Total Phase 1	200	75	0	0	0		275		
12										
13	**Phase 2**									
14										
15	Engineering	0	0	70	300	0				
16										
17	PE/PC/PS	0	0	25	30	0				
18										
19	GUBMK (estimate)	0	0		35	0				
20	Plant Support	0	0	5	20	0				
21										
22	Long Lead Material (LLM)									
23	*Turbine Materials and PSS Rehab*	0	0			0				
24	*blank*	0	0		4000	4000				
25	*total LLM*	0	0	0	4000	4000				
26										
27	Total Phase 2	0	0	100	4385	4000				
28										

Bret.

Per our conversation of today, this is the 1st of 6 Cost-estimate roll-ups that I need for initial project approval.

Thanks.

Dan

Kingston Fossil Plant

Ph I

Systems Eng.

08/03/2004

1	**KIF530: Develop Fly Ash, Gypsum, and Bottom Ash Storage**								
2	**Phase/Activity**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**Totals**	**Prv Yrs**	
3									
4									
5	**Phase 1**								
6	Engineering	200	50				250		
7	PE/PC/PS		20				20		
8	Plant Support		5				5		
9	PSS - Inspection						0		
10									
11	Total Phase 1	200	75	0	0	0	275		
12									
13	**Phase 2**								
14									
15	Engineering	0	0	70	300	0	370		
16									
17	PE/PC/PS	0	0	25	30	0	55		
18									
19	GUBMK (estimate)	0	0		35	0	35		
20	Plant Support	0	0	5	20	0	25		
21									
22	Long Lead Material (LLM)								
23	*Turbine Materials and PSS Rehab*	0	0			0	0		
24	*blank*	0	0		4000	4000	8000		
25	*total LLM*	0	0	0	4000	4000	8000		
26									
27	Total Phase 2	0	0	100	4385	4000	8485		
28									

1	**KIF530: Develop Fly Ash, Gypsum, and Bottom Ash Storage**									
2	**Phase/Activity**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**		**Totals**	**Prv Yrs**	
29	**Phase 3**									
30										
31	Engineering	0	0	0	200	200		400		
32										
33	PE/PC/PS	0	0	0	15	35		50		
34										
35	Plant Support	0	0	0	20	20		40		
36										
37	Installation (x)									
38	*GUBMK*	0	0	0	20	20		40		
39	*blank*	0	0	0	0	0		0		
40	*Total GUBMK*	0	0	0	20	20		40		
41										
42	*Turnkey Installation*	0	0	0	3360	0		3360		
43	*blank*	0	0	0	0	0		0		
44	*Total*	0	0	0	3360	3725		7085		
45										
46	*Asbestos abatement (GUBMK)*	0	0	0	0	0		0		
47										
48	*Total Installation*	0	0	0	3380	3745		7125		
49										
50	Total Phase 3	0	0	0	3615	4000		7615		
51										
52	**Total: All Phases**	200	75	100	8000	8000		16375		
	Assumptions:									
	1. Design and installation of system will be by turnkey contractor; scope similar to CUF dry fly ash system.									
	2. Design of BOP interfaces will be by FE&TS									
	3. FE&TS Lead will be Civil Department									
	4. An outage will be required for some BOP interface tie-ins									

Capital Project Justification Form

Project Name
KIF--DEVELOP FLY ASH, GYPSUM & BOTTOM ASH DISPOSAL CAPACITY

Project ID KIF530 **Rev#** 0

CSF: Achieve excellence in the Asset optimization and production processes.

I. Project Description

Organization
Owner: FPG
Lead: Yard Operations

Location
Loc: KIF

Technical Contact
Name: HEDGECOTH,MELISSA A
Phone: 423/751-6426

Responsible Mgr
Name: DAVIS,MICHAEL D
Phone: 423/751-7864

Project
Type: Capital
Cat: ASSET PRESERVATION
Prgm: No Program

	Estimated	Actual
Start Date:	07/30/2003	
In-Srvc Date:	09/30/2008	
Outage Date:		

Problem Description
Analysis of recent dike failure in the existing dredge cells has raised uncertainties regarding the current long-term disposal plans for fly ash and bottom ash. An emergency cell was developed (O&M) which will provide a maximum of three years of fly ash and bottom ash capacity. In addition, planned scrubbers for Kingston will produce an additional high-volume by-product which may be co-disposed with fly ash and bottom ash beginning in FY 2009.

Project Scope
Expansion of dredge cell adjacent to existing dredge cell by construction of a new dike. Scope will also include development of a waste stack for flyash, bottom ash and gypsum within the existing perimeter dikes of the active ash disposal area.

Perform detailed analysis to determine the overall structural, environmental, and operational viability of continuing to raise and dredge to the existing dredge cells, considering the recent failure along Swan Pond road and the saturation of the lower dikes along the backwaters of the Emory river.

Perform engineering analysis and collect field data as required to develop a detailed design for maximizing the disposal capacity of fly ash, bottom ash and gypsum on the existing ash pond complex at the Kingston Fossil Plant while maintaining the required Free Water Volume. The detailed design should consider economic, structural, environmental and operational issues and impacts associated with long term ash disposal. The engineering suitability of ash currently produced at Kingston for storage in an engineered stack should be verified through testing (if this has not already been satisfactorily completed). A part II permit package is to be submitted to Environmental Affairs.

Scope will also include the design, materials procurement, and installation as necessary to support the engineering study findings.

Performance Measurement
Permitted disposal capacity for fly ash and bottom ash by FY 2007. Permitted disposal capacity for gypsum by FY 2009.

Other Options/Alternatives
Reduce or discontinue plant operations such that no ash is produced, or locate an existing off-site permitted disposal area and pay a tipping fee to haul all of Kingston's ash there.

Reason For Change
New project.

Capital Project Justification Form

Project Name	Project ID	Rev#
KIF--DEVELOP FLY ASH, GYPSUM & BOTTOM ASH DISPOSAL CAPACITY	KIF530	0

CSF: Achieve excellence in the Asset optimization and production processes.

News Release

N/A

Capital Project Justification Form

Project Name
KIF--DEVELOP FLY ASH, GYPSUM & BOTTOM ASH DISPOSAL CAPACITY

Project ID
KIF530

Rev#
0

CSF: Achieve excellence in the Asset optimization and production processes.

II. Project Economic Evaluation

COST

SUNK CAPITAL PROJECTS: $0
SUNK O&M PROJECTS: $0
REMAINING COST: $16,375
TOTAL COST: $16,375
ESTIMATE TYPE: Order of Magnitude

ECONOMIC INDICATORS

NPV: $8,799.0
PI: 1.865
IRR: 52.0
SIMPLE PAYBACK: 6
BASE YEAR: 2004

Year	Capital Projects	O&M Projects	Benefit	O&M Base	Environ. Cost
SUNK	0	0	0	0	
OUT YEARS	0	0	0	0	
2004	200	0	0	0	0
2005	75	0	0	0	0
2006	100	0	0	0	0
2007	8,000	0	5,000	0	0
2008	8,000	0	5,000	0	0
2009	0	0	5,000	0	0
2010	0	0	5,000	0	0
2011	0	0	5,000	0	0
2012	0	0	5,000	0	0
2013	0	0	5,000	0	0
2014	0	0	5,000	0	0
2015	0	0	5,000	0	0
2016	0	0	5,000	0	0
2017	0	0	0	0	0
2018	0	0	0	0	0
2019	0	0	0	0	0
2020	0	0	0	0	0
2021	0	0	0	0	0
2022	0	0	0	0	0
2023	0	0	0	0	0

Capital Project Justification Form

Project Name
KIF--DEVELOP FLY ASH, GYPSUM & BOTTOM ASH DISPOSAL CAPACITY

Project ID
KIF530

Rev#
0

CSF: Achieve excellence in the Asset optimization and production processes.

II. Project Economic Evaluation

Cost Assumptions

Risks

1. Engineering = $200k in FY 04,
   $75k in FY 05,
   $100k in FY 06.

   Based on similar projects.

2. Implementation (Develop by-product handling system.)= $8,000k in FY 07; $8,000k in FY 08.

   Conceptual estimate for turn-key system.

3. No significant marketing or utilization of ash or gypsum will take place.

   Waste production (cubic yards per year):
   Fly Ash = 410,000
   Bottom Ash = 90,000
   Gypsum = 750,000

   Based on historical data (ash) and similar projects (gypsum).

4. The existing dredge cells and ponds shall be utilized to the extent possible to obtain an additional ten years of disposal capacity.

   Support of plant business plan.

Benefit Assumptions

Risks

1. Haul fly ash and bottom ash offsite to an existing permitted disposal site @ $10/ton for 500,000 tons per year = $5,000k per year for ten years.

   Assumes a disposal site can be found within 30 miles of the plant which could handle 500,000 tons per year.