February 1, 2001

Send To:
Name: Ed McWhorter

Company:

Address:

Fax Number: 615-952-9044 Number of Pages: 13

Verification Number: ( )

Subject: KIF Coal Yard Runoff Pond drawings

From: **Tennessee Valley Authority**
Name: CHERIE MINGHINI

Organization: Fossil - Project & Discipline Engineering

Address: 11O1 Market Street - LP 2G-C
Chattanooga, TN 37402-2801

Fax Number: (423) 751-7094

Telephone Number: (423) 751-6375

Special Instructions:
These drawings were faxed in several sheets. If you have any comments or questions, please call me at (423)751-6375.

(SEE NOTE 18)

ISTING GRADE

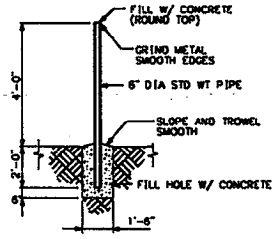
BRIC

ABRIC

(P)

NOTES:

1. GUARD POST TO BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER AND TWO COATS OF EXTERIOR HIGH GLOSS ENAMEL COLOR YELLOW TO MATCH FED STD 595 CHIP NO. 13538.
2. CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 360 OR 400.

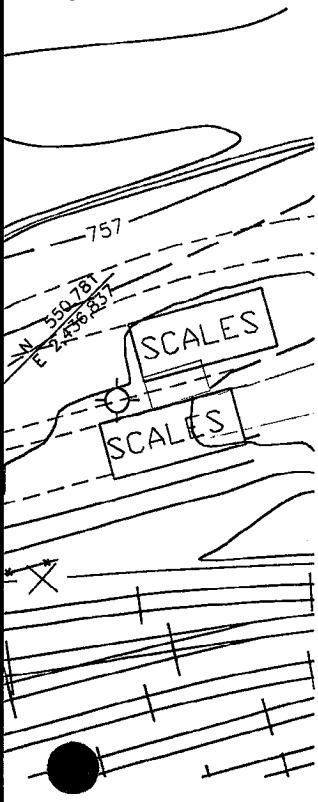


GUARD POST DETAIL
NOT TO SCALE

LEGEND

EXISTING		NEW
⊕	BENCH MARK	NA
750	GRADE CONTOUR	750
	GRAVEL ROAD	
	RAILROAD TRACK	NA
SD-15"	STORM SEWER	SD-15"
•	OVERHEAD ELECTRICAL UTILITY POLE	•
✧	LIGHT POLE	NA
	LIGHT TOWER	NA
	OVERHEAD ELECTRICAL UTILITY TOWER	NA
OE	OVERHEAD ELECTRICAL UTILITY LINE	NA
UE	UNDERGROUND ELECTRICAL UTILITY LINE	UE
NA	℄ DITCH	
X X	FENCE	NA
NA	SILT FENCE	S S
NA	RIP RAP	
× 430.5	SPOT ELEVATION	430.5
	TREE LINE	NA
NA	STORMWATER FORCE MAIN	FM-10
NA	GUARD POST	⊕

NOTES (CONT. FROM SK-01):
23. RELOCATE ELECTRIC PEDESTAL AS SHOWN. BURY ELECTRIC CABLE A MINIMUM OF 4 FT. BELOW PROPOSED GRADE.
24. DURING EXCAVATION OF NEW SPILLWAY, REMOVE EXISTING FENCE POSTS AND REPLACE WITH NEW POSTS THAT MATCH EXISTING. NEW FENCE POSTS SHALL BE EMBEDDED A MINIMUM OF 2FT. IN THE GROUND. AUGER OVERSIZE HOLE AND SET POSTS IN CONCRETE CONFORMING TO SECTION 360 OR 400.
25. ADD CROSSBARS BENEATH FABRIC AND SECURE TO POSTS USING HARDWARE CONFORMING TO TDOT STANDARD HIGHWAY SPECIFICATION 707. SECURE FABRIC TO CROSSBAR.
26. COMPLETE HORIZONTAL BEND IN PIPE PRIOR TO CHANGE IN VERTICAL ALIGNMENT FOR PIPE EMERGENCE ABOVE GROUND. PLACE THRUST BLOCKS BEFORE AND AFTER HORIZONTAL BEND. INSTALL THRUST BLOCKS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. THE MINIMUM BEND RADIUS FOR VERTICAL ALIGNMENT CHANGE IS 25 FT.
27. REMOVE ANY EXISTING TREES OR SHRUBS WITHIN THE COAL YARD THAT ARE UPSTREAM OF THE NEW SPILLWAY. CLEAR AND GRUB IN ACCORDANCE WITH SECTION 101.
28. AFTER EACH STORM EVENT, INSPECT THE SPILLWAY AREA AND REMOVE ANY DEBRIS UNDERNEATH THE FENCE THAT MAY OBSTRUCT FLOW.
29. REMOVE ANY ACCUMULATED SILT AND SEDIMENT THAT MAY ACCUMULATE WITHIN THE COAL YARD AT LEAST ANNUALLY. MAINTAIN AREA UPGRADIENT OF SPILLWAY FREE OF TREES AND SHRUBS.
30. THE WSE SHOULD BE MAINTAINED AT THE ELEVATION SHOWN BETWEEN STORM EVENTS. THE DEPTH TO THE BOTTOM SHOULD BE MAINTAINED AT EL 745' TO PREVENT ACCUMULATED SILT FROM ENTERING PUMP.



PRELIMINARY
(FOR PHASE I STUDY, 6/27/00 & 9/29/00)

R											
R 0											KIF 353
REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	REVWD	APPD	ISSD	PROJECT ID	AS CONST	DISCIPLINE INTERFACE

SCALE: NTS — EXCEPT AS NOTED

YARD

PHASE I STUDY DRAWING
COAL YARD PUMP DISCHARGE PIPE ROUTE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:

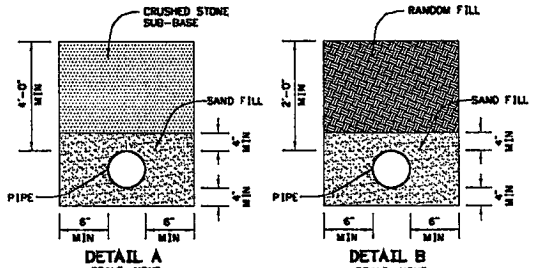
KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14	DATE	36	C	SK-02	R 8

PARSONS	B
TASK COMPLETED BY:	REV. NO.

PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY



DETAIL A
SCALE: NONE
TYPICAL BEDDING DETAIL FOR AREAS SUBJECT TO TRAFFIC

DETAIL B
SCALE: NONE
TYPICAL BEDDING DETAIL FOR AREAS NOT SUBJECT TO TRAFFIC

BEDDING NOTES:

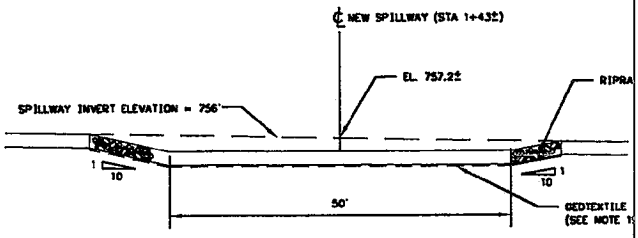
A. SAND FILL TO BE PLACED IN MAXIMUM 6" LIFTS WITH EACH LIFT RECEIVING A MINIMUM OF THREE PASSES WITH A PLATE COMPACTOR.

B. CRUSHED STONE SUB-BASE TO BE COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY (ASTM D1557).

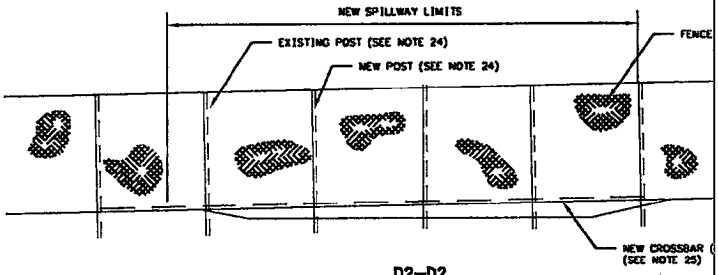
C. RANDOM FILL TO BE COMPACTED TO 90% OF MODIFIED PROCTOR DENSITY (ASTM D1557).

D. BOTTOM ASH MAY BE SUBSTITUTED FOR SAND FILL.

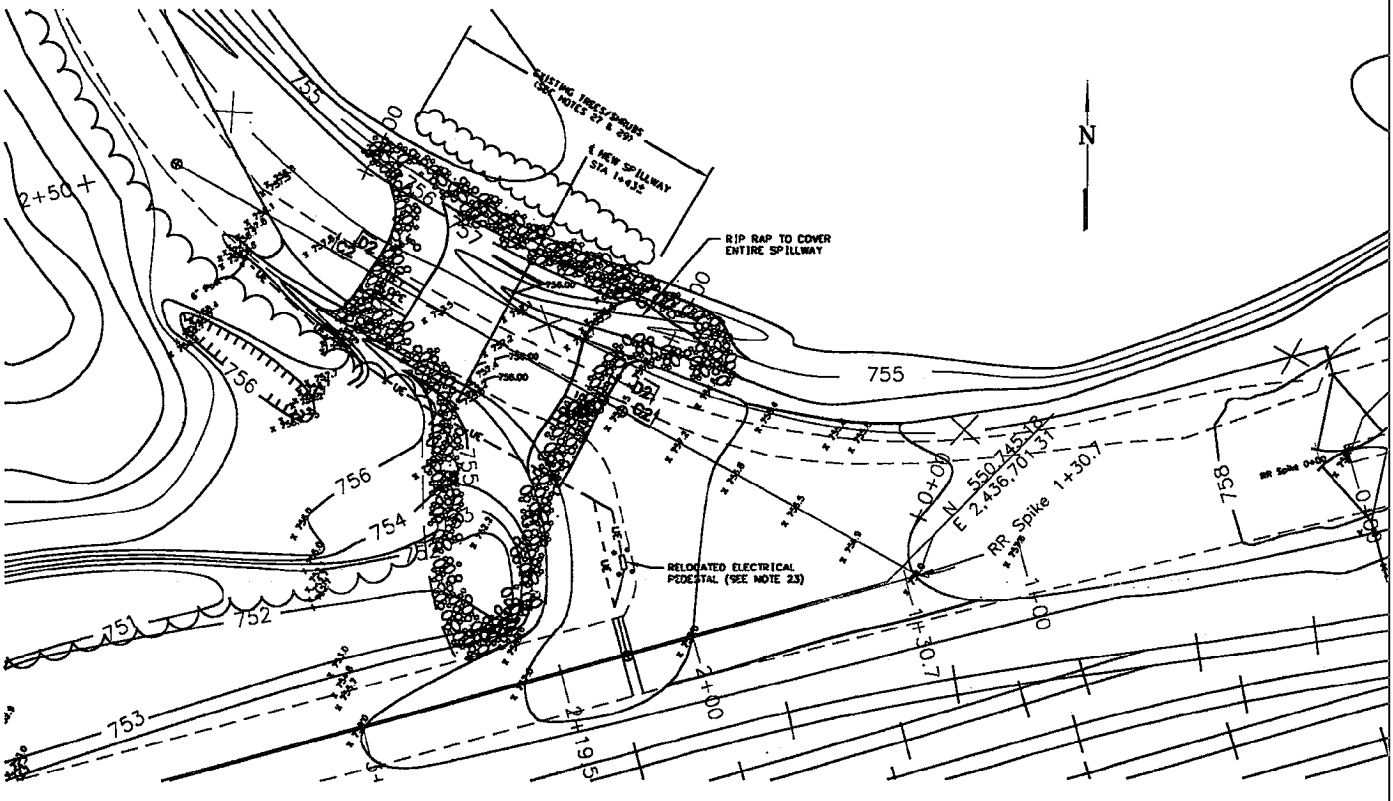
E. PIPING PLACED WITH CASING PIPE INSTALLED UNDERNEATH RAILWAY AND ROADWAY SHALL BE A MINIMUM OF 4.5' BELOW BASE OF RAIL.



C2–C2
SCALE: NONE



D2–D2
SCALE: NONE



PARTIAL PLAN
SCALE: 1"=20'

770

FIELD TO RE-GRADE TO DRAIN

770

GROUTED GUTTER – 230 LF (SEE NOTE 7)

PLACE APPROX. 12 SF OF RIPRAP AT END OF DITCH (NOTE 4)

770

780

GR

98' – 30" HDPE PIPE (NOTE 6)

GR

GR

GR

36" HDPE (NOTE 6)

790

780

TYPE 1 CONC ENDWALL – 60° SKEW INV EL 763± (102H301)

ACCESS ROAD

42" HDPE (NOTE 6)

PRECAST MANHOLE, TYP (NOTE 14)

80' – 24" HDPE PIPE (NOTE 6)

INV EL 763.7

770

W.S. EL 759.5

36" HDPE PIPE (NOTE 6)

HAUL ROAD

APPROXIMATE LIMITS OF STOCKPILE (±20' HIGH; STACKED ON 1½:1 to 2:1)

560' – 10" CORRUGATED PERFORATED PE (NOTE 11)

Pipeline

90° ELBOW, INV EL 761

APPROXIMATE LIMITS OF STOCKPILE (±15' HIGH; STACKED ON 1½:1 to 2:1)

95' – 10" CORRUGATED NON-PERFORATED PE (NOTE 11)

W.S. EL 760.42±

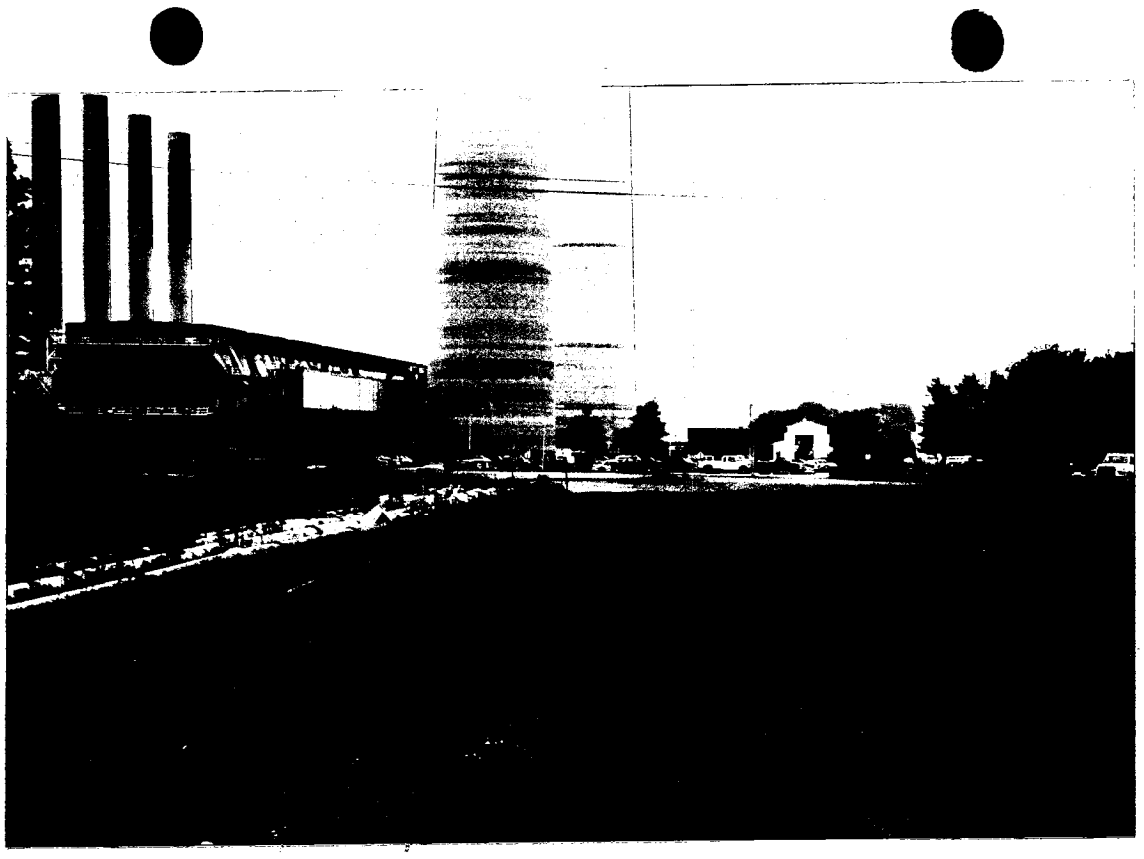
BOTTOM ASH DISCH. CHANNEL

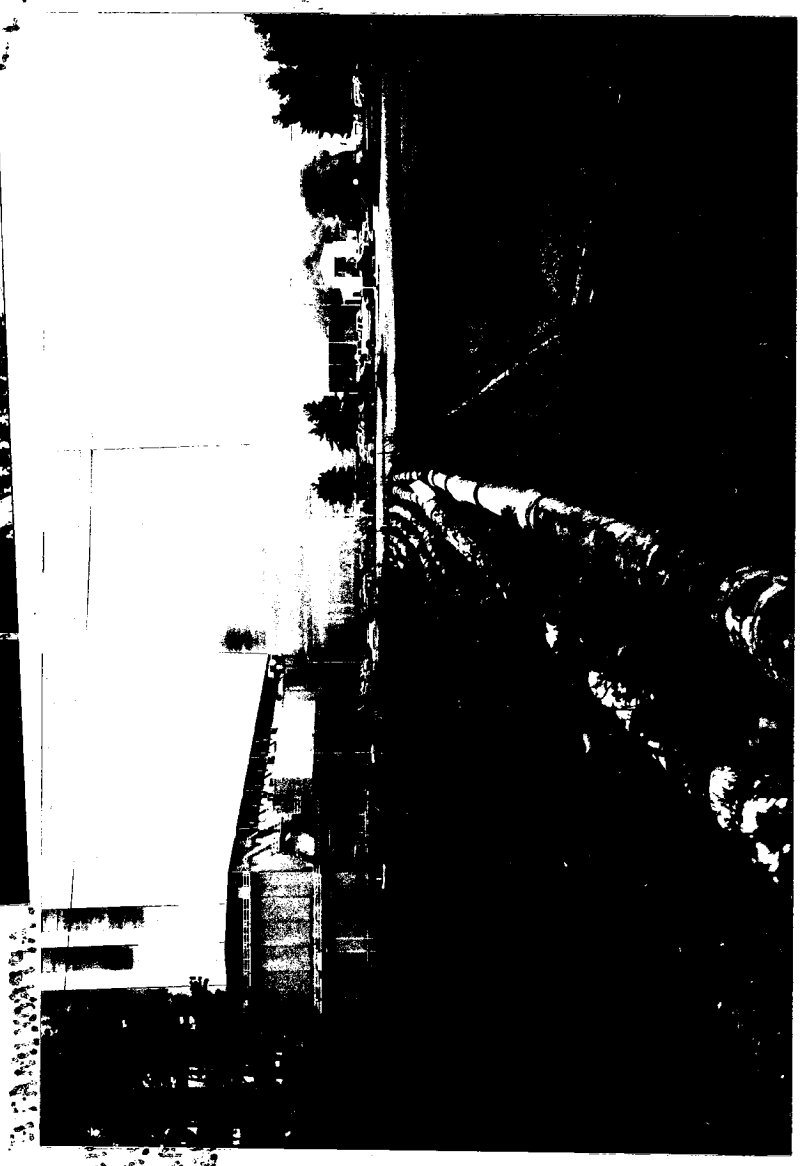
FLY ASH DISCH. CHANNEL

INV EL 760.5

PIPE

TVA-00009545





EROSION CONTROL

- Spoil pile shall be compacted and vegetation shall be established for erosion control purposes.

- Due to the high acidity of the soil, fertilizer and lime shall be applied as recommended by soil nutrient testing. Otherwise, fertilizer and lime shall be applied in accordance with section 580 of T-1 specifications as follows:

Lime	8 tons/acre
Fertilizer (6-12-12)	500 lb/acre
Fertilizer ureaform	200 lb/acre

- The area shall be seeded with the following mixture in accordance with section 580:

Kentucky 31 Fescue	60 lb/acre
White Clover	15 lb/acre
Annual Ryegrass	15 lb/acre

September 27, 2000

Send To:
Name: Larry Radford

Company: HED

Address:

Fax Number: 423-365-8705 Number of Pages: 2

Verification Number: ( )

Subject: Spoil limits

From: **Tennessee Valley Authority**
Name: CHERIE MINGHINI

Organization: Fossil - Project & Discipline Engineering

Address: 11O1 Market Street - LP 2G-C
Chattanooga, TN 37402-2801

Fax Number: (423) 751-7094

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Special Instructions:
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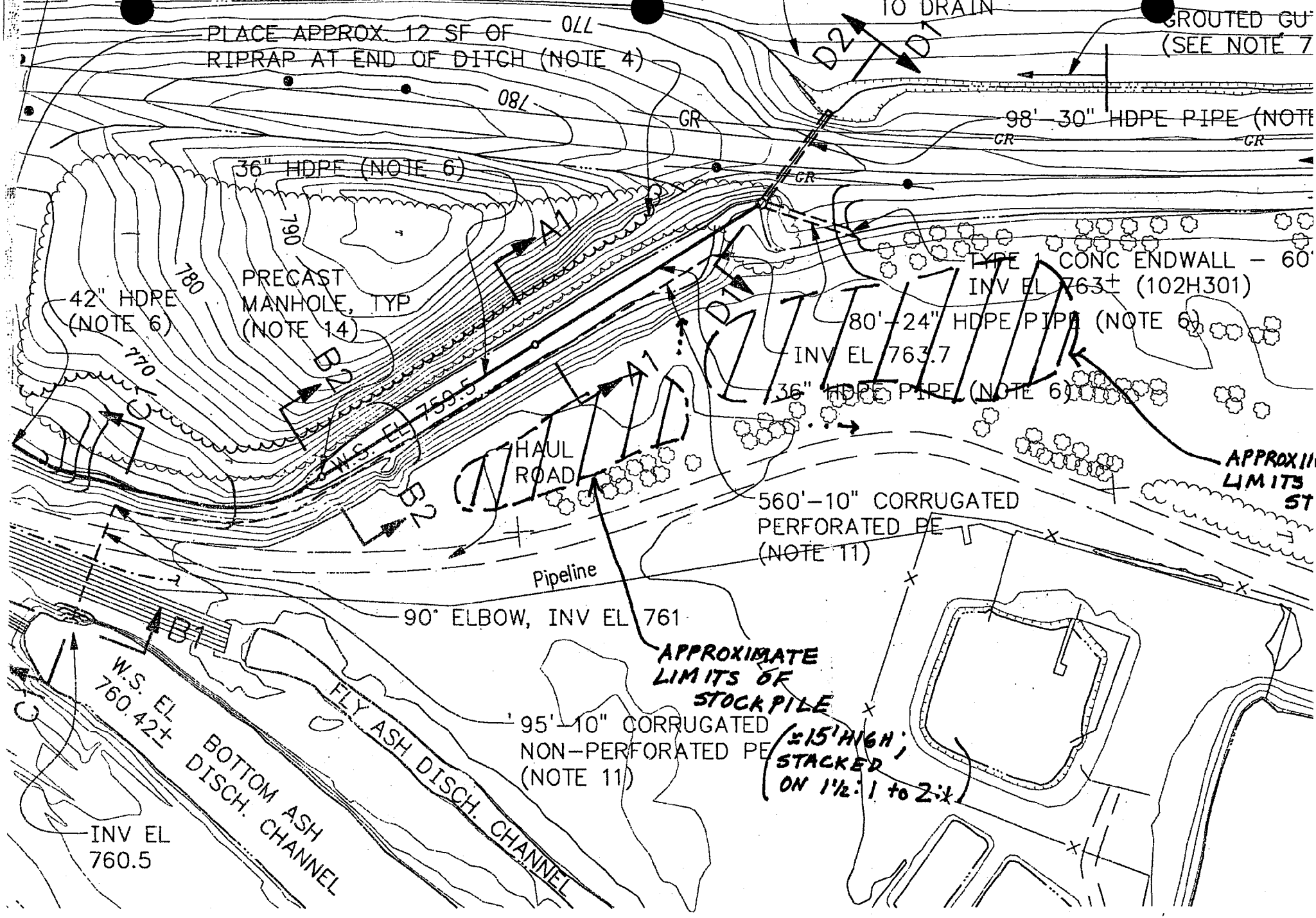


Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Wednesday, September 13, 2000 8:21 AM
To: 'cwrice5@tva.gov'
Cc: Richard L Brooks; 'cmminghini@tva.gov'
Subject: Pump settings for KIF Coal Yard Runoff

Sorry its taken me so long to respond, but I've taken a look at this within the last few days. I've added a pretty lengthy explaniation below to show how I've arrived at the recommended elevations for pump start and pump lag. I recommend that pump start at elevation 751.5, and pump lag at 752.5. I computed approximate removal times for this scenario, and the worst case is 2 days. I think this is reasonable, but would like Cheri to review this and concur, or provide her recommendation. Pump alarm elevation is really anybodys guess, and perhaps Harold should be consulted. I am not really sure what he wants to be notified for. Very intense storms will fill up the pond pretty fast, and on that basis an alarm could be set at a lower elevation (754), in order to warn someone that the pond is getting pretty high. After the spillway is built, water should spill at about 756. If the alarm is set at 756, water should already be spilling, but would tell someone that this is going on, in case someone wanted to go out there and inspect it. Pump shutoff should be set at elevation 750.5.

A detailed explaination is below for how I evaluated removal time based on pump start and pump lag. An alternative pump start and lag could be pump start el 751.5 and pump lag at 752. I am concerned that wave action could cause rapid pump lag start/stop, and for this reason, its probably better to have pump shut off one-half foot lower than pump start.

Call me if you have any questions.

Cheri, I recommend that the SK-01 be revised to show excavation matching the revised elevations contained herein. I'll try to get this to you by the end of September, unless you need it sooner.

Dan

After responding with Harold Catlett, I found out that the bottom of the pond is going to be excavated to 745. After adding 4 ft for barge draft (w/pumps attached), and allowing an additional 2 ft to keep the pump intakes off the bottom, and allowing for sedimentation, the nominal elevation of the pond will be at 751, essentially the same as now. I not sure what exactly caused the problems with the pumps earlier, but it may be a good idea to install some type of rock check dam out in the yard in an attempt to filter out some of the sediment before it settles in the area where the pumps will be. The site should also frequently measure the bottom elevation of the pond and remove sediment (especially after larger rainfall events), before accumulated sediment gets too high.

Anyway, the calc we did assume a wse of 745, instead of 751. The storage volume we assumed (based on the excavation shown on SK-01 is about 4.5 ac-ft. Therefore, I assumed a wse of 751, and assumed that the 4.5 ac-ft will be excavated between els 751-753. The total storage available should still be 45.38 ac-ft to impound enough water for the 100 yr storm event.

I looked at 2 scenarios -

1) Pump start 751.5 and pump lag at 752.
2) Pump start 751.5 and pump lag at 752.5.

The latter (case 2) I think is better, because I think with 1/2 foot between pump start and lag, wave action could cause both pumps to start, or cause the second pump to start/stop rapidly, and we don't want this to happen. Pump cycling should not exceed 15 starts per hour (4 min cycle), and this should not be a problem based on the analysis I did.

These calcs are simplified and are approximate.

Our calc determined a single pump operating point of 1410 gpm, and dual pump operating point of 1700 gpm. Because there is 6 ft less static head (we assumed wse at 745), I recomputed operating points of 1480 gpm and 1750 gpm respectively.

Using the pump start and lag for case 2, I did some rough estimations of removal time based on probable 1 inch and 1.5 inch storms (frequent storms), to see how long it would take one pump or combinations of pumps to remove accumulated runoff. The drainage area is 100 ac, and CN = 90, therefore I roughly calculated a volume for a 1 inch storm (w/o initial abstraction of 0.5 in) = 7.5 ac-ft and a 1 inch storm (w/ initial abstraction of 0.5 in) = 3.75 ac-ft. This roughly correlates to the revised storage volume between 751 and 752.5 (6.28 ac-ft). I also looked at a 1.5 inch storm (with and without abstraction). A 1.5 inch storm event will produce 11.25 ac-ft of runoff (w/o abstraction) and 7.5 ac-ft w/ abstraction).

For case 2, the time to de-water is summarized below.

For a very small storm that produces 1/2 foot runoff (wse = 751.5), it would take one pump 6.5 hrs to remove this.
If the storm produces enough runoff to raise the elevation to about 752.5, and the second pump would not cut on, it would take one pump 1 day (24 hrs) to remove this volume.

If a 1.5 inch storm produced 11.25 ac-ft of runoff, depending on storm intensity it would take one pump 2 days to empty this volume, or 2 pumps 1.5 days.

Based on storm frequencies we looked at, I think this a pretty good removal time.

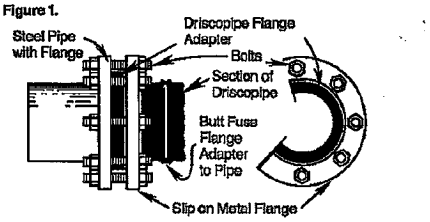
JOINING POLYETHYLENE PIPE

HEAT FUSION Polyethylene pipe is joined by butt fusion, socket fusion, or electrofusion. Extrusion welding has been used with some success to fabricate non-pressure, structural components. It is not recommended for joining pipe to be used in pressurized systems.

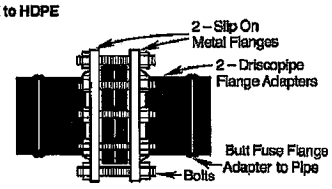
MECHANICAL JOINING Driscopipe pipe can be connected mechanically. Flange adapters with steel or ductile iron back-up rings, mechanical joint adapters, compression couplings, and other means are available for joining PE pipe. Each has its own set of advantages and limitations. The user should be aware of these limitations.

Flange adapters and slip-on back-up rings are available in many sizes. Generally, a PE adapter to a PE adapter does not require a gasket. However, large diameter, high pressure flange adapters may require a gasket. Gaskets are recommended when transitioning polyethylene flange adapters to other materials (steel, ductile iron, etc.). Sufficient torque should be applied evenly to the bolts to prevent leaks. Re-tightening of the bolts is recommended after the connection has set for a period of time (usually a few hours). Refer to Driscopipe Technical Note #33.

Figure 1.

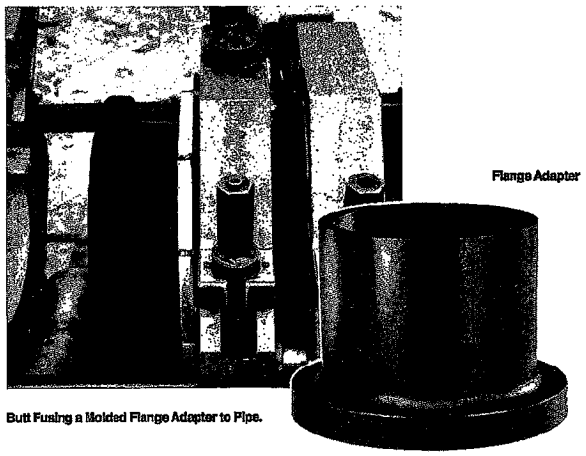


Joining Steel to HDPE



Joining HDPE to HDPE Without Permanent Fusion

Driscopipe products are joined to bell joint ductile iron pipe using a mechanical joint adapter. This adapter uses a gasket seal and is restrained by bolts. Due to the resilience of the gasket, retightening of the bolts is not required.



Butt Fusing a Molded Flange Adapter to Pipe.

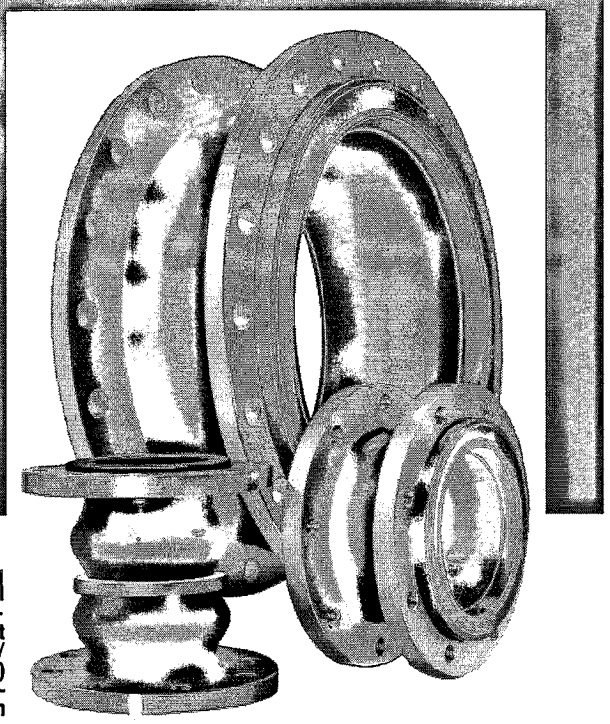
Compression type couplings with internal stiffeners are available in some sizes and are generally satisfactory when temperature changes within the system are small. When using compression couplings to join PE pipe, the "pull-out" resistance of the coupling must be considered. The pipe should be anchored if the expected tensile loading in the pipe exceeds the couplings capability under tensile loading.

Mechanical joining with bolt-on wrap-around clamps is generally not recommended as a permanent, long-term method of joining polyethylene pipe unless the connection is stabilized in some manner. Due to the magnitude of thermal expansion and contraction of polyethylene materials and its creep flow characteristics under load, it can be difficult to maintain a permanent leak-proof seal with certain mechanical wrap-around clamps. They have been used successfully in low pressure or non-pressure, non-critical applications when it is not feasible to flange or fuse the sections together. Heat shrinkable

PROCO™

SERIES 240/242

molded expansion joints



PROCO™ Series 240 and Series 242 Non-Metallic Expansion Joints are designed for tough demanding industrial applications, as found in: Air Conditioning-Heating and Ventilating Systems, Chemical-Petrochemical and Industrial Process Piping Systems, Power Generating Systems, Marine Services, Pulp & Paper Systems, Water-Wastewater-Sewage and Pollution Control Systems. Installed next to mechanical equipment or between the anchor points of a piping system, specify the PROCO™ 240 or 242 to: (1) Absorb Pipe/Movement/Stress, (2) Reduce System Noise, (3) Isolate Vibration, (4) Compensate Alignment/Offset, (5) Eliminate Electrolysis, (6) Protect Against Start-UP/Surge Forces. Our history in the manufacture of expansion joint products dates back to 1930. When you need an engineered rubber solution to a piping system problem, call PROCO.

Spherical Shapes-Stronger-More Efficient. Featuring an engineered molded style single or twin sphere designed bellows, the PROCO™ Series 240 and Series 242 are inherently stronger than the conventional hand-built "spool Arch" types. Internal pressure within a sphere is exerted in all directions, distributing forces evenly over a larger area The spherical design "flowing-arch" reduces turbulence, sediment build-up, thrust area and the effects of thrust on the piping system equipment when compared to the "high-arch" design of Hand Fabricated-Old Standard products.

Greater Movements Are Available with the PROCO™ Series 240 and Series 242 when compared to the movements of conventional hand-built products. Axial compression, elongation, deflection and angular movements in the system are more readily absorbed by spherical types. These products are more forgiving and thus easier to install in non-standard openings, caused by equipment shifting or settling. By precompressing or pre-extending the bellows to the required length, there will still be enough movement capabilities for operation. (See Tables 2 and 6.)

Easy Installation With Alignable Metallic Flanges. The floating metallic flanges freely rotate on the bellows, compensating for mating flange misalignment, thus speeding up installation time (see figures 1, 2, 3 & 4). Gaskets are also not required with the Series 240 or Series 242. Tapped Holes on flanges are standard for the series 240 and Series 242 designs (up to 12" I.D.) which eliminate the added cost of nuts for bolting requirements.

Less System Strain With Thin Wall Design. Manufactured by high pressure molding of elastomer and high-tensile fabric reinforcement, the Series 240 and Series 242 have a thinner wall section and lighter weight when compared to conventional hand-built products. Lower spring forces are therefore required, reducing piping/flange/equipment stress-strain-damage. PROCO™ Styles 240 A and C or Styles 242 A and C are acceptable for use with plastic piping systems where even lower deflection forces are required.

Specifications Met. The PROCO™ Series 240 and Series 242 are designed to meet or exceed the pressure, movement and dimensional rating of the "Spool" Arch Types as shown in the Rubber Expansion Joint Division, Fluid Sealing Association "Technical Handbook - Sixth Edition" Table V.

Absorbs Vibration-Noise-Shock. The PROCO™ quiet operating Series 240 and Series 242 are a replacement for "sound transmitting" metallic expansion joints. Sound loses energy traveling axially through the elastomer bellows. Water hammer pumping impulses and water-born noises are cushioned and absorbed by the molded lightweight thin-wall structure. Install the Series 240 or Series 242 in a system to enable isolated equipment to move freely on its vibration mountings; or to reduce vibration transmission when the piping section beyond the expansion joint is anchored or sufficiently rigid.

Flange Materials/Drilling. All PROCO™ Spherical 240 and 242 connectors are furnished complete with plated carbon steel flanges for corrosion protection and are tapped (up to 12" I.D.) to ANSI 150# standards (see Table 7 and Figures 3 & 4). Stainless steel flanges are also available on special order. Other drilling standards such as: ANSI 250/300#, British Standard 10, DIN and JIS are also available from stock and are listed in Table 7.

Chemical Service Capability At Minimal Cost. Expensive, exotic metal expansion joints for chemical service can be replaced with the PROCO™ Series 240 or Series 242. Molded with low cost chemical resistant elastomers such as Neoprene, Nitrile, Hypalon, EPDM and Chlorobutyl; insures an expansion joint is compatible with the fluid being pumped or piped. (See Table 1). Use the PROCO™ "Chemical/Rubber Guide" to specify an elastomer recommendation compatible for your requirement.

Wide Service Range With Low Cost. Engineered to operate up to 300 PSIG and 265°F, the PROCO™ Series 240 and Series 242 can be specified for a wide range of piping requirements. Compared to conventional hand-built "Spool Arch" types, you will invest less money when specifying the mass–produced, consistent high quality, molded single or twin sphere expansion joints.

Large Inventories Mean Same-Day Shipment. PROCO maintains the largest inventory of spherical expansion joints in the Americas. Every size listed is in stock on several elastomers and comes with a choice of drilling patterns. Shipment is based on customer need. PROCO can ship same day as order placement. In fact, when it comes to rubber expansion joints, **if PROCO doesn't have your requirement...nobody does!**

Information - Ordering - Pricing - Delivery. Day or night, weekends and holidays...the PROCO phones are monitored 24-hours round-the-clock. When you have a question, call us.

Toll free: ..... 800 / 344-3246 USA/CANADA
International Calls ..... 209 / 943-6088
Fax ..... 209 / 943-0242
Email ..... sales@procoproducts.com
Website ..... www.procoproducts.com

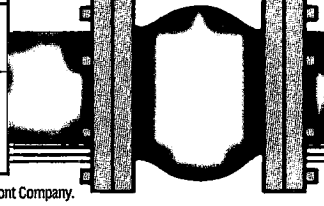
Weekday Office Hours: 5:30 a.m. - 5:15 p.m. (PST)

TABLE 1: Available Styles/Materials

For Specific Elastomer Recommendations, See: PROCO™ "Chemical To Elastomer Guide"

240-A	240-C	240-AVD,E,M	242-A,B,C	PROCOTM Material Code	Cover Elastomer	Tube Elastomer	Maximum Operating Temp. °F	Identifying Color Band/Label
		X	X	/BB	Butyl	Butyl	250°	Black
	X	X	X	/EE	EPDM	EPDM	250°	Red
	X			/EE-9	EPDM	EPDM	265°	Red
	X			/ET-9	EPDM	Teflon	265°	Red
	X			/HH	Hypalon	Hypalon	230°	Green
		X	X	/NH	Neoprene	Hypalon	230°	Green
	X			/NJ	Neoprene	FDA-Nitrile	230°	White
		X	X	/NN	Neoprene	Neoprene	230°	Blue
X	X	X	X	/NP	Neoprene	Nitrile	230°	Yellow
X	X			/NT	Neoprene	Teflon	230°	

NOTES:
1. Hypalon is a registered trademark of DuPont Dow Elastomers. Teflon is a registered trademark of the DuPont Company.
2. Expansion joint "cover" (outside) can be Hypalon painted on special order.
3. Products with Teflon "tube" (inside) are not recommended for vacuum service.
4. All elastomers include nylon reinforcing, except EE-9 which is steel cord.
5. All materials meet or exceed the Rubber Expansion Joint Division, Fluid Sealing Association requirements for Standard Class I and II. EE-9 also meets Special Class II. For more information see The FSA Technical Handbook, Table 1.
6. Materials NN, NP and NH meet all requirements of U.S.C.G.
7. Materials good for up to 300°F for pressures is PSI or less.



Protecting Piping And Equipment Systems From Stress/Motion

series 240 expansion joints

TABLE 2: 240 Series Expansion Joints • Sizes • Movements • Pressure • Flange Standards • Weights

Nominal Pipe Size I.D.	Neutral Length	PROCO Style Number	240 Capability: From Neutral Position					Pressure		Standard Flange Bolting Dimension					Weight/Pounds	
			Axial Compression Inches	Axial Extension Inches	±Lateral Deflection Inches	±Angular Deflection Degrees	Thrust Factor	Positive PSIG	Vacuum-Hg Hg	Flange O.D.	Bolt Circle	No. Hole	Bolt Hole Size	Bolthole Thread	Weight-Joint & Flanges	Weight-Control Unit Set
1	6.00	240-AV	0.600	0.375	0.500	37	4.43	225	28	4.25	3.13	4	—	1/2-13 UNC	3.6	3.3
1.25	3.74	240-D	3.120	0.188	0.312	17	6.34	235	26	4.63	3.5	4	0.500	—	4.6	3.3
	5.00	240-C	1.063	1.250	1.188	45		225	21				0.500	—	5.0	
	5.00	240-E	5.000	0.375	0.500	31		225	28				0.500	—	5.0	
	6.00	240-AV	5.000	0.375	0.500	31		225	28				—	1/2-13 UNC	5.0	
1.5	3.74	240-D	0.375	0.188	0.312	14	6.49	225	26	5.0	3.88	4	0.500	—	5.4	4.6
	4.00	240-M	0.375	0.188	0.312	14		225	26				0.500	—	5.5	
	5.00	240-C	1.063	1.250	1.188	45		235	18				0.500	—	5.1	
	5.00	240-E	0.500	0.375	0.500	27		225	26				0.500		6.0	
	6.00	240-AV	0.600	0.375	0.500	27		225	26				—	1/2-13 UNC	6.1	
2	4.00	240-M	0.375	0.188	0.312	11	7.07	225	26	6.0	4.75	4	0.625	—	8.3	6.3
	4.13	240-D	0.375	0.188	0.312	11		225	26				0.625	—	8.5	6.3
	5.00	240-C	1.063	1.250	1.188	45		235	18				0.625	—	7.1	6.3
	5.00	240-E	0.375	0.375	0.500	20		225	26				0.625	—	8.5	6.3
	6.00	240-A	1.188	1.188	1.188	45		235	18				0.625	—	7.1	6.3
	6.00	240-HW	0.500	0.375	0.500	20		300	26				0.625	—	11.0	7.6
	8.00	240-AV	0.600	0.375	0.500	20		225	26				—	5/8-11 UNC	12.3	7.6
2.5	4.00	240-M	0.375	1.188	0.375	8	11.05	225	26	7.0	5.5	4	0.625	—	12.0	7.6
	4.53	240-D	0.500	0.250	0.375	11		225	26				0.625	—	12.3	
	5.00	240-C	1.063	1.250	1.188	45		235	18				0.625	—	10.6	
	5.00	240-E	0.500	0.375	0.500	17		225	26				0.625	—	12	
	6.00	240-A	1.188	1.188	1.188	43		235	18				0.625	—	12	
	6.00	240-AV	0.600	0.375	0.500	17		225	26				—	5/8-11 UNC	12.3	
3	5.00	240-C	1.063	1.250	1.188	40	13.36	235	15	7.5	6.0	4	0.625	—	13.3	8.3
	5.00	240-E	0.500	0.375	0.500	14		225	26				0.625	—	14.0	8.3
	5.14	240-D	0.500	0.375	0.500	14		225	26				0.625	—	14.0	8.3
	6.00	240-A	1.188	1.188	1.188	38		235	15				0.625	—	13.9	8.3
	6.00	240-HW	0.500	0.375	0.500	14		300	26				0.625	—	17.5	8.3
	6.00	240-AV	0.600	0.375	0.500	14		225	26				—	5/8-11 UNC	14.0	8.3
	8.00	240-AV	0.600	0.375	0.500	14		225	26				—	5/8-11 UNC	15.0	8.7
3.5	6.00	240-AV	0.600	0.375	0.500	12	18.67	225	28	8.5	7.0	8	—	5/8-11 UNC	17.6	7.4
4	5.00	240-C	1.063	1.250	1.188	32	22.69	235	15	9.0	7.5	8	0.625	—	16.5	7.4
	5.00	240-E	0.750	0.500	0.500	14		225	26				0.625	—	17.0	7.4
	5.32	240-D	0.750	0.500	0.500	14		225	26				0.625	—	17.1	7.4
	6.00	240-A	1.188	1.188	1.188	30		235	15				0.625	—	17.5	7.4
	6.00	240-HW	0.750	0.500	0.500	14		300	26				0.625	—	26.0	7.4
	8.00	240-AV	0.750	0.500	0.500	14		225	26				—	5/8-11 UNC	18.3	7.4
	8.00	240-AV	0.750	0.500	0.500	14		225	26				—	5/8-11 UNC	19.3	7.8
5	5.00	240-C	1.063	1.250	1.188	27	30.02	235	10	10.0	8.5	8	0.750	—	20.3	8.3
	5.00	240-E	0.750	0.500	0.500	11		225	26				0.750	—	22.0	8.3
	6.00	240-A	1.188	1.188	1.188	25		235	10				0.750	—	21.8	8.3
	6.00	240-AV	0.750	0.500	0.500	11		225	26				—	3/4-10 UNC	22.8	8.3
	6.69	240-D	0.750	0.500	0.500	11		225	10				0.750	—	23.6	8.5
	8.00	240-AV	0.750	0.500	0.500	11		225	26				—	3/4-10 UNC	25.0	10.8
6	5.00	240-C	1.063	1.250	1.188	23	41.26	235	8	11.0	9.5	8	0.750	—	22.6	10.4
	5.00	240-E	0.750	0.500	0.500	9		225	26				0.750	—	26.0	10.4
	6.00	240-A	1.188	1.188	1.188	21		235	10				0.750	—	24.0	10.4
	6.00	240-HW	0.750	0.500	0.500	9		300	26				0.750	—	39.0	10.4
	6.00	240-AV	0.750	0.500	0.500	9		225	26				—	3/4-10 UNC	26.8	10.4
	7.09	240-D	0.750	0.500	0.500	9		225	26				0.750	—	29.0	10.6
	8.00	240-AV	0.750	0.500	0.500	9		225	26				—	3/4-10 UNC	29.1	10.8
8	5.00	240-C	1.063	1.188	1.188	17	63.62	235	8	13.5	11.75	8	0.750	—	35.5	13.4
	5.00	240-E	0.750	0.500	0.500	7		225	26				0.750	—	40.0	13.4
	6.00	240-A	1.188	1.188	1.188	16		235	8				0.750	—	38.5	13.4
	6.00	240-HW	0.750	0.500	0.500	7		300	26				0.750	—	70.0	13.4
	8.00	240-AV	0.750	0.500	0.500	7		225	26				—	3/4-10 UNC	40.8	13.4
	8.07	240-D	1.000	0.563	0.875	8		225	26				0.750	—	41.3	14.0
10	5.00	240-C	1.063	1.188	1.188	14	103.67	235	6	16.0	14.25	12	0.876	—	49.3	21.0
	5.00	240-E	1.000	0.625	0.750	7		225	26				0.875	—	66.0	21.0
	8.00	240-A	1.188	1.188	1.188	13		235	6				0.875	—	53.6	21.3
	8.00	240-AV	1.000	0.625	0.750	7		225	26				—	7/8-9 UNC	56.6	21.3
	9.00	240-AV	1.000	0.625	0.750	7		225	26				—	7/8-9 UNC	57.0	22.0
	9.45	240-D	1.000	0.625	0.875	7		225	26				0.875	—	58.5	22.0
	10.00	240-AV	1.000	0.625	0.750	7		225	26				—	7/8-9 UNC	60.5	25.5
12	5.00	240-C	1.063	1.250	1.188	12	137.89	235	6	19.0	17.0	12	0.750	—	73.4	26.5
	5.00	240-E	1.000	0.625	0.750	6		225	26				0.750	—	74.0	26.5
	8.00	240-A	1.188	1.188	1.188	11		235	6				0.750	—	80.0	27.0
	8.00	240-HW	1.000	0.625	0.750	6		300	26				0.750	—	100.0	27.0
	8.00	240-AV	1.000	0.625	0.750	6		225	26				—	3/4-8 UNC	83.0	27.0
	9.00	240-AV	1.000	0.625	0.760	6		225	26				—	3/4-8 UNC	88.0	27.0
	10.24	240-D	1.000	0.625	0.875	6		225	26				0.750	—	89.0	28.0
14	8.00	240-HW	1.000	0.625	0.750	5	182.65	225	26	21.0	18.75	12	1.000	—	162.0	28.0
	8.00	240-AV	1.000	0.625	0.750			150	26				—	1-8 UNC	115.0	28.0
	9.00	240-M	1.000	0.625	0.750			150	26				1.000	—	117.0	29.0
	10.43	240-D	1.000	0.625	0.875			150	26				1.000	—	120.0	29.0
16	8.00	240-C	2.063	1.063	1.188	8	240.53	145	6	23.5	21.25	16	1.000	—	136.0	26.8
	8.00	240-HW	1.000	0.625	0.750	4		225	26				1.000	—	166.0	26.8
	8.00	240-AV	1.000	0.625	0.750	4		125	26				—	1-8 UNC	165.0	26.8
	9.00	240-M	1.000	0.625	0.750	4		125	26				1.000	—	168.0	27.0
	10.43	240-D	1.000	0.625	0.975	4		125	26				1.000	—	170.0	27.0
18	8.00	240-HW	1.000	0.625	0.750	4	298.85	225	26	25.0	22.75	16	1.125	—	209.0	31.4
	8.00	240-AV	1.000	0.625	0.750			125	26				—	1 1/8-7 UNC	168.0	31.4
	9.00	240-M	1.000	0.625	0.750			125	26				1.125	—	169.0	33.1
	10.43	240-D	1.000	0.625	0.875			125	26				1.125	—	170.0	33.1
20	8.00	240-C	2.063	1.063	1.188	6	363.05	145	6	27.5	25.0	20	1.125	—	154.0	32.4
	8.00	240-HW	1.000	0.625	0.750	3		225	26				1.125	—	234.0	32.4
	8.00	240-AV	1.000	0.625	0.750	3		125	26				—	1 1/8-7 UNC	170.0	32.4
	9.00	240-M	1.000	0.625	0.750	3		125	26				1.125	—	173.0	34.1
	10.43	240-D	1.000	0.625	0.875	3		125	26				1.125	—	175.0	34.1
22	10.00	240-AV	1.000	0.625	0.750	3	433.74	115	26	27.5	25.0	20	—	1 1/4-7 UNC	210.0	34.5
24	8.00	240-C	2.063	1.063	1.188	5	510.70	145	6	32.5	29.5	20	1.250	—	214.0	44.0
	10.00	240-AV	1.000	0.625	0.750	3		110	26				—	1 1/4-7 UNC	265.0	45.5
	10.47	240-D	1.000	0.625	0.875	3		110	26				1.250	—	265.0	46.0
26	10.00	240-AV	1.000	0.625	0.750	3	593.98	110	25	34.25	31.75	24	—	1 1/4-7 UNC	270.0	46.5
28	10.00	240-AV	1.000	0.625	0.750	3	683.49	110	26	36.50	34.0	28	—	1 1/4-7 UNC	283.0	51.5
30	10.00	240-AV	1.000	0.625	0.750	2	778.31	110	25	38.75	36.0	28	—	1 1/4-7 UNC	295.0	57.0

Standard PROCO Style 240 AV Expansion Joints are shown in Bold Type for your convenience.

Notes:

1. To determine End-Thrust: Multiply Thrust Factor by Operating Pressure of System. This is End Thrust in P.S.I.G.
2. Pressure rating is based on 170°F operating temperature. The pressure rating is reduced slightly at higher temperatures.
3. Pressure shown are recommended "operating pressure". Test pressure is 1.5 times "operating pressure". Burst pressure is approximately 4 times "operating pressure".
4. Vacuum rating is based on neutral installed length, without external load. Products should not be installed "extended" on vacuum applications.
5. All expansion joints are furnished complete with flanges. Control units are recommended on applications where movements could exceed rated capabilities.
6. All dimensions are in inches. All weights are in pounds.
7. "HW" denotes Heavy Weight Construction.

control units

TABLE 3: Control Units/Unanchored

Control Units must be installed when pressures (test • design • surge • operating) exceed rating below.

Pipe Size	#240 P.S.I.G	#242 P.S.I.G.
1" thru 4"	180	135
5" thru 10"	135	135
12" thru 14"	90	90
16" thru 24"	45	45
26" thru 30"	35	35

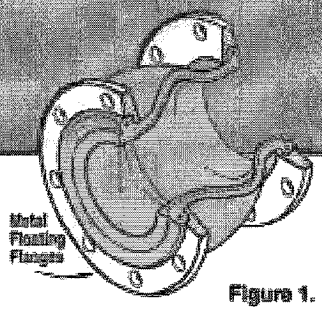


Figure 1.

Style 240
Single Sphere Connector

TABLE 4: Control Units

Style #491 — Add On Type

Pipe I.D.	Pipe Width	Rod Diameter	Maximum Surge of Test Pressure of System/PSIG — Number of Rods Required: 2	3	4
1	.375	.5	949	—	—
1¼	.374	.5	830	—	—
1½	.375	.5	510	—	—
2	.375	.63	661	—	—
2½	.375	.63	529	—	—
3	.375	.63	441	—	—
3½	.375	.63	365	547	729
4	.375	.63	311	467	622
5	.375	.63	235	353	470
6	.5	.63	186	278	371
8	.5	.75	163	244	326
10	.75	.88	163	244	325
12	.75	1.0	160	240	320
14	.75	1.0	112	167	223
16	.75	1.13	113	170	227
18	.75	1.13	94	141	187
20	.75	1.13	79	118	159
22	1.0	1.25	85	128	171
24	1.0	1.25	74	110	147
26	1.0	1.25	62	105	141
28	1.25	1.38	65	103	1.38
30	1.25	1.5	70	—	—

Notes:
1. Rod pressure ratings are based on metal conforming to F.S.A. standards and dimensions

TABLE 5: Special Construction Pressures

Pipe Size	#240 & #242 Heavyweight P.S.I.G
1" thru 2½"	300
5" thru 5"	300
6" thru 8"	300
10" thru 12"	300
14" thru 16"	225
18" thru 24"	225
26" thru 30"	200

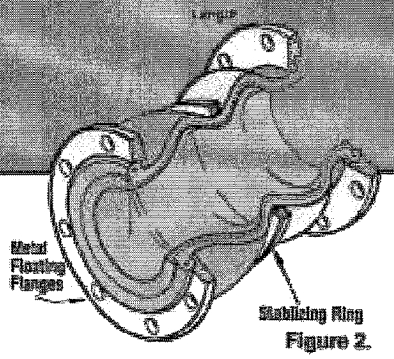
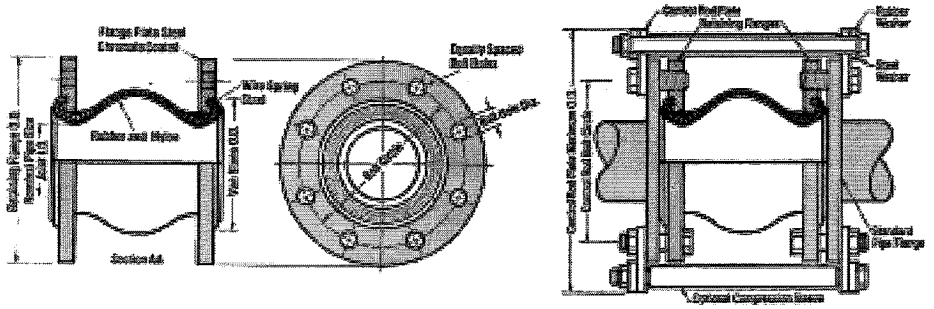


Figure 2.

Style 242
Twin Sphere Connector

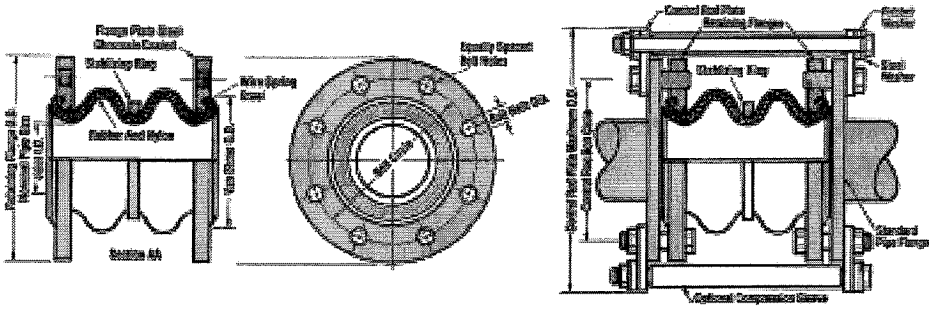
Style 240
Single Sphere Connector

Figure 3.



Style 242
Twin Sphere Connector

Figure 4.



Control Rod/Unit Applications. Control unit assemblies are designed to absorb static pressure thrust developed at the expansion joint. When used in this manner, control unit assemblies are an additional safety factor, minimizing possible failure of the expansion joint or damage to equipment. (See Table 4).

1. **Anchored Systems:** Control unit assemblies are not required in piping systems that are anchored on both sides of the expansion joint, provided piping movements are within the rated movements as shown in Tables 2 & 6.
2. **Unanchored Systems:** Control unit assemblies are always recommended in unanchored systems. Additionally, control unit assemblies must be used when maximum pressure exceeds the limit shown in Table 3, or the movement exceeds the rated movements as shown in Tables 2 & 6.
3. **Spring-Mounted Equipment:** Control unit assemblies are always recommended for spring-mounted equipment. Control units must be used when the maximum pressure is higher than the ratings shown in Table 3, or the movement as shown in Tables 2 & 6. Additionally, when control units are not used, the expansion joint must be installed "extended" in accordance with PROCO™ installation instructions.

Special Applications. Certain Style 240 (Single Sphere) and 242 (Twin Sphere) expansion joints are available in High-Pressure Designs. For specific pressures, see Table 5. Style designations are listed as 240-HW (sizes stocked in Table 2) and 242-HA, 242-HB & 242-HC (sizes stocked in Table 6.) The High-Pressure Design is recommended when the connector is to be installed into ANSI 250/300# piping systems.

series 242 expansion joints

Anchor

TABLE 6: 242 Series Expansion Joints - Sizes - Movements - Pressure - Flange Standards - Weights

Nominal Pipe Size I.D.	Neutral Length	PROCO Style Number	240 Capability: From Neutral Position					Pressure		Standard Flange Bolting Dimension					Weight/Pounds	
			Axial Compression Inches	Axial Extension Inches	±Lateral Deflection Inches	±Angular Deflection Degrees	Thrust Factor	Positive PSIG	Vacuum-ing Hg	Flange O.D.	Bolt Circle	No. Hole	Bolt Hole Size	BoltHole Thread	Weight-Joint & Flanges	Weight-Control Unit Set
1	10.0	242-C	2.000	1.188	1.750	45	4.43	225	26	4.25	3.13	4	0.500	—	5.2	3.6
1.25	7.0 7.0 10.0	242-A 242-HA 242-C	2.000	1.188	1.750	45	6.34	225 300 225	26	4.63	3.5	4	— 0.500 0.500	— — —	5.3 6.5 8.2	3.5 3.5 3.6
1.5	6.0 6.0 7.0 7.0 10.0	242-B 242-HB 242-A 242-HA 242-C	2.000	1.188	1.750	45	6.49	225 300 225 300 225	26	5.0	3.88	4	0.500 0.500 — 0.500 0.500	— — 1/2 - 11 UNC — —	6.1 7.6 6.8 8.3 7.7	4.6 4.6 4.8 4.8 5.1
2	6.0 6.0 7.0 7.0 10.0	242-B 242-HB 242-A 242-HA 242-C	2.000	1.188	1.750	45	7.07	225 300 225 300 225	26	6.0	4.75	4	0.625 0.625 — 0.625 0.625	— — 5/8 - 11 UNC — —	9.0 10.5 9.0 10.5 10.2	6.6 6.8 7.0 7.0 7.3
2.5	6.0 6.0 7.0 7.0 10.0	242-B 242-HB 242-A 242-HA 242-C	2.000	1.188	1.750	43	11.05	225 300 225 300 225	26	7.0	5.5	4	0.625 0.625 — 0.625 0.625	— — 5/8 - 11 UNC — —	12.9 15.3 13.3 15.8 14.5	7.6 7.6 8.0 8.0 8.4
3	7.0 7.0 9.0 10.0 12.0	242-A 242-HA 242-B 242-C 242-C	2.000	1.188	1.750	38	13.36	225 300 225 225 225	26	7.5	6.0	4	— 0.625 0.625 0.625 0.625	5/8 - 11 UNC — — — —	14.3 18.2 15.2 15.8 18.0	8.6 8.6 9.0 9.1 9.1
3.5	10.0	242-C	2.000	1.188	1.750	34	18.67	225	26	8.5	7.0	4	0.625	—	20.6	8.1
4	9.0 9.0 10.0 12.0	242-A 242-HA 242-C 242-C	2.000	1.375	1.562	34	22.69	225 300 225 225	26	9.0	7.5	8	— 0.625 0.625 0.625	5/8 - 11 UNC — — 3/4 - 10 UNC	20.3 25.4 21.3 22.0	8.0 8.0 8.2 8.2
5	9.0 9.0 10.0 12.0	242-A 242-HA 242-C 242-C	2.000	1.375	1.562	29	30.02	225 300 225 225	26	10.0	8.5	8	— 0.750 0.750 0.750	— — — —	24.5 31.4 25.5 26.0	8.3 8.3 9.1 9.1
6	9.0 9.0 10.0 12.0 14.0	242-A 242-HA 242-C 242-C 242-C	2.000	1.375	1.562	25	41.28	225 300 225 225 225	26	11.0	9.5	8	— 0.750 0.750 0.750 0.750	3/4 - 10 UNC — — — —	29.5 38.6 30.5 31.0 32.0	11.7 11.7 11.9 12.0 12.0
8	9.0 9.0 10.0 12.0 13.0 13.0 14.0	242-B 242-HB 242-C 242-C 242-A 242-HA 242-C	2.375	1.375	1.375	19	63.62	225 300 225 225 225 300 225	26	13.5	11.75	8	0.750 0.750 0.750 0.750 — 0.750 0.750	— — — — 3/4 - 10 UNC — —	42.3 55.4 43.4 44.0 43.8 57.5 46.0	14.5 14.5 15.0 15.2 15.4 15.4 16.0
10	12.0 12.0 13.0 13.0 14.0	242-B 242-HB 242-A 242-HA 242-C	2.375	1.375	1.375	15	103.87	225 300 225 300 225	26	16.0	14.25	12	8.750 8.750 — 8.750 8.750	— — 7/8 - 9 UNC — —	64.1 86.5 65.5 68.4 66.7	23.5 23.5 24.5 24.5 24.5
12	12.0 12.0 13.0 13.0 14.0	242-B 242-HB 242-A 242-HA 242-C	2.375	1.375	1.375	13	137.89	225 300 225 300 225	26	19.0	17.0	12	8.750 8.750 — 8.750 8.750	— — 7/8 - 9 UNC — —	94.0 110.0 95.0 110.0 99.1	30.0 30.0 31.0 31.0 31.0
14	12.0 13.75 13.75	242-C 242-A 242-HA	1.750	1.118	1.118	9	182.65	150 150 225	26	21.0	18.75	12	1.000 — 1.000	— 1 - 8 UNC —	110.0 112.0 144.0	30.5 32.0 32.0
16	12.0 12.0 13.75 13.75	242-C 242-HC 242-A 242-HA	1.750	1.118	1.118	8	240.63	125 225 125 225	26	23.5	21.25	16	1.000 1.000 — 1.000	— — 1 - 8 UNC —	124.0 160.0 132.0 170.2	28.8 28.8 30.8 30.8
18	12.0 13.75 13.75	242-C 242-A 242-HA	1.750	1.118	1.118	7 7	296.66	125 125 225	26	25.0	22.75	16	1.125 — 1.125	— 1 1/8 - 7 UNC —	138.0 146.0 181.0	35.1 36.1 36.1
20	12.0 13.75	242-C 242-A	1.750	1.118	1.118	7	363.05	125 125	26	27.5	25.0	20	1.125 —	— 1 1/8 - 7 UNC	172.0 182.0	35.0 35.5
22	12.0	242-C	1.750	1.118	1.118	6	433.74	115	26	29.5	27.25	20	1.125	—	181.0	35.6
24	12.0 13.75 13.75	242-C 242-A 242-HA	1.750	1.118	1.118	6	510.70	110 225	26	32.5	29.5	20	1.125 — 1.125	— 1 1/8 - 7 UNC —	190.0 220.0 266.2	47.0 48.0 48.0
26	12.0	242-C	1.750	1.118	1.118	5	593.96	110	26	34.25	31.75	24	1.125	—	243.0	52.0
28	12.0	242-C	1.750	1.118	1.118	5	683.49	110	26	36.5	34.0	28	1.125	—	259.0	61.0
30	12.0	242-C	1.750	1.118	1.118	4	779.31	110	26	38.75	36.0	28	1.125	—	270.0	62.0

242-A

Standard PROCO Style 242A Expansion Joints are shown in Bold Type for your convenience.

Notes:

1. **To determine End-Thrust: Multiply Thrust Factor by Operating Pressure of System. This is End Thrust in P.S.I.G.**
2. **Pressure rating is based on 170°F operating temperature. The pressure rating is reduced slightly at higher temperatures.**
3. **Pressure shown are recommended "operating pressure". Test pressure is 1.5 times "operating pressure". Burst pressure is approximately 4 times "operating pressure".**
4. **Vacuum rating is based on neutral installed length, without external load. Products should not be installed "extended" on vacuum applications.**
5. **All expansion joints are furnished complete with flanges. Control units are recommended on applications where movements could exceed rated capabilities.**
6. **All dimensions are in inches. All weights are in pounds.**
7. **"HA", "HB", and "HC" denote Heavy Weight Construction.**

Installation Note:
When attaching a beaded end expansion joint to a raised face flange, the use of a ring gasket is required to prevent metal flange face from cutting rubber bead on flange during installation.

Precompression Note:
Joint must be precompressed approximately 1/8' to 3/16" in order to obtain a correct installed face-to-face dimension.

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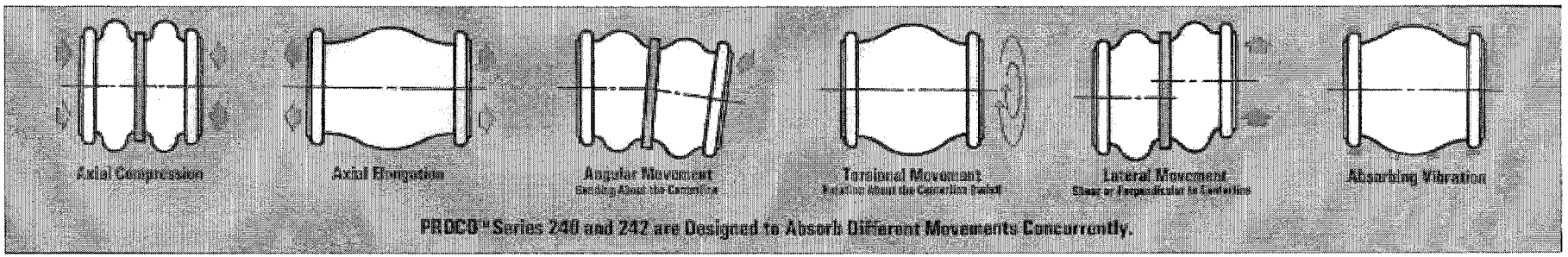
Drilling for series 240 and series 242 expansion joints

TABLE 7: Flange Drilling

Nom. Pipe Size Inch/ mm	American 125/150# Conforms to: ANSI B16.1 and B16.5						American 250/300# Conforms to ANSI B16.1 and B16.5					British Standard 10:1962 Conforms to B.S. 10 Table E					Metric Series Conforms to I.S.O. 2084-1974 Table NP10 Holes to I.S.O. /R-273					J.I.S. Standard B-2212 Conforms to J.I.S. 10Kg/cm				
	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Drilled Hole Size	Threaded Hole Size	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Hole size	Flange Thickness	Flange O.D.s	Bolt Circle	No. of Holes	Hole size	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Hole Size	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Hole size
1 25	0.55 14.0	4.25 108.0	3.13 79.4	4 4	0.62 15.9	1/2 - 13 UNC	0.63 16.0	4.88 124.0	3.5 88.9	4 4	0.75 19.1	0.59 15.0	4.5 114.0	3.25 82.6	4 4	0.62 15.9	0.63 16.0	4.53 115.0	3.35 85.0	4 4	0.55 14.0	0.59 15.0	4.92 125.0	3.54 90.0	4 4	0.75 19.0
1.25 32	0.55 14.0	4.63 108.0	3.5 88.9	4 4	0.62 15.9	1/2 - 13 UNC	0.63 16.0	5.25 133.0	3.88 98.4	4 4	0.75 19.1	0.59 15.0	4.75 121.0	3.44 87.3	4 4	0.62 15.9	0.63 16.0	5.51 140.0	3.94 85.0	4 4	0.71 18.0	0.59 15.0	5.31 125.0	3.94 100.0	4 4	0.75 19.0
1.5 40	0.55 14.0	5.0 127.0	3.88 98.4	4 4	0.62 15.9	1/2 - 13 UNC	0.63 16.0	6.12 156.0	4.50 114.3	4 4	0.88 22.2	0.59 15.0	5.25 133.0	3.88 98.4	4 4	0.62 15.0	0.63 16.0	5.91 150.0	4.33 110.0	4 4	0.71 18.0	0.59 15.0	5.51 140.0	4.13 105.0	4 4	0.75 19.0
2 50	0.63 16.0	6.0 152.0	4.75 120.7	4 4	0.75 19.1	5/8 - 11 UNC	0.71 18.0	6.50 165.0	5.00 127.0	8 8	0.75 19.1	0.63 16.0	6 152.01	4.5 114.3	4 4	0.76 19.1	0.71 18.0	6.50 165.0	4.92 125.0	4 4	0.71 18.0	0.63 16.0	6.10 155.0	4.72 120.0	4 4	0.75 19.0
2.5 65	0.71 18.0	7.0 178.0	5.5 139.7	4 4	0.75 19.1	5/8 - 11 UNC	0.71 18.0	7.5 191.0	5.88 149.2	8 8	0.88 22.2	0.71 18.0	6.5 165.0	5.0 127.0	4 4	0.75 19.1	0.71 18.0	7.25 185.0	5.71 145.0	4 4	0.71 18.0	0.71 18.0	6.69 175.0	5.51 140.0	4 4	0.75 19.0
3 80	0.71 18.0	7.5 191.0	6.0 152.4	4 4	0.75 19.1	5/8 - 11 UNC	0.79 20.0	8.25 210.0	6.62 168.2	8 8	0.88 22.2	0.71 18.0	7.25 184.0	5.75 146.1	4 4	0.75 19.1	0.79 20.0	7.87 200.0	6.3 160.0	8 8	0.71 18.0	0.71 18.0	7.28 185.0	5.91 150.0	8 8	0.75 19.0
3.5 90	0.71 18.0	8.5 216.0	7.0 177.8	8 8	0.75 19.1	5/8 - 11 UNC	0.79 20.0	9.0 229.0	7.25 184.2	8 8	0.88 22.2	0.71 18.0	8 203.0	6.5 165.1	8 8	0.75 19.1	— —	— —	— —	— —	— —	0.71 18.0	7.68 195.0	6.30 160.0	8 8	0.75 19.0
4 100	0.71 18.0	9.0 229.0	7.5 190.5	8 8	0.75 19.1	5/8 - 11 UNC	0.79 20.0	10.0 254.0	7.88 200.0	8 8	0.88 22.2	0.71 18.0	8.5 216.0	7.0 177.8	8 8	0.75 19.1	0.79 20.0	8.66 220.0	7.09 180.0	8 8	0.71 18.0	0.71 18.0	8.27 210.0	6.89 175.0	8 8	0.75 19.0
5 125	0.79 20.0	10.0 254.0	8.5 215.9	8 8	0.88 22.2	3/4 - 10 UNC	0.87 22.0	11.0 279.0	9.25 235.0	8 8	0.88 22.2	0.79 20.0	10.0 254.0	8.25 209.6	8 8	0.75 19.1	0.87 22.0	9.84 250.0	8.27 210.0	8 8	0.71 18.0	0.79 20.0	9.84 250.0	8.27 210.0	8 8	0.91 23.0
6 150	0.87 22.0	11.0 279.0	9.5 241.3	8 8	0.88 22.2	3/4 - 10 UNC	0.87 22.0	12.5 318.0	10.62 269.9	12 12	0.88 22.2	0.87 22.2	11.0 279.0	9.25 235.0	8 8	0.88 22.2	0.87 22.0	11.22 285.0	9.45 240.0	8 8	0.87 22.0	0.87 22.0	11.02 280.0	9.45 240.0	8 8	0.91 23.0
8 200	0.87 22.0	13.5 343.0	11.75 298.5	8 8	0.88 22.2	3/4 - 10 UNC	0.95 24.0	15.0 381.0	13.0 330.2	12 12	1.00 25.4	0.87 22.2	13.25 337.0	11.5 292.1	8 8	0.88 22.2	0.87 22.0	13.39 340.0	11.61 295.0	8 8	0.87 22.0	0.87 22.0	12.99 330.0	11.42 290.0	12 12	0.91 23.0
10 250	0.95 24.0	16.0 406.0	14.25 362.0	12 12	1.00 25.4	7/8 - 9 UNC	1.02 26.0	17.5 445.0	15.25 387.4	16 16	1.13 28.6	0.95 24.0	16.0 406.0	14.0 355.6	12 12	0.88 22.2	1.02 26.0	15.55 395.0	13.78 350.0	12 12	0.87 22.0	0.95 24.0	15.75 400.0	13.98 355.0	12 12	0.98 25.0
12 300	0.95 24.0	19.0 483.0	17.0 431.8	12 12	1.00 25.4	7/8 - 9 UNC	1.02 26.0	20.5 521.0	17.75 450.9	16 16	1.25 31.8	0.95 24.0	18.0 457.0	16.0 406.4	12 12	1.00 25.4	1.02 26.0	17.52 445.0	15.75 400.0	12 12	0.87 22.0	0.95 24.0	17.52 445.0	15.75 400.0	16 16	0.98 25.0
14 350	1.02 26.0	21.0 533.0	18.75 476.3	12 12	1.13 28.6	1 - 8 UNC	1.10 28.0	23.0 584.0	20.25 514.4	20 20	1.25 31.8	1.02 26.0	20.75 527.0	18.5 469.9	12 12	1.00 25.4	1.10 28.0	19.88 505.0	18.11 460.0	16 16	0.87 22.0	1.02 26.0	19.29 490.0	17.52 445.0	16 16	0.98 25.0
16 400	1.1 28.0	23.5 597.0	21.25 539.8	16 16	1.13 28.6	1 - 8 UNC	1.18 30.0	25.5 648.0	22.5 571.5	20 20	1.38 34.9	1.10 28.0	22.75 578.0	20.5 520.7	12 12	1.00 25.4	1.18 30.0	22.24 565.0	20.28 515.0	16 16	1.02 26.0	1.10 28.0	22.05 560.0	20.08 510.0	16 16	1.06 27.0
18 450	1.18 30.0	25.0 635.0	22.75 577.9	16 16	1.25 31.8	1 1/8 - 8 UNC	1.18 30.0	28.0 711.0	24.75 628.7	24 24	1.38 34.9	1.18 30.0	25.25 641.0	23.0 584.2	16 16	1.00 25.4	1.18 30.0	24.21 615.0	22.24 565.0	20 20	1.02 26.0	1.18 30.0	24.41 620.0	22.24 565.0	20 20	1.06 27.0
20 500	1.18 30.0	27.5 699.0	25.0 635.0	20 20	1.25 31.8	1 1/8 - 8 UNC	1.18 30.0	30.5 775.0	27.0 685.8	24 24	1.38 34.9	1.18 30.0	27.75 705.0	25.25 641.4	16 16	1.00 25.4	1.18 30.0	26.38 670.0	24.41 620.0	20 20	1.02 26.0	1.18 30.0	26.57 675.0	24.41 620.0	20 20	1.06 27.0
22 550	1.18 30.0	29.5 749.0	27.25 692.2	20 20	1.38 34.9	1 1/4 - 7 UNC	1.18 30.0	33.0 838.0	29.5 743.0	24 24	1.38 34.9	1.18 30.0	30.0 762.0	27.5 698.5	16 16	1.13 28.6	1.18 30.0	28.74 730.0	26.57 675.0	20 20	1.18 30.0	1.18 30.0	29.33 745.0	26.77 680.0	20 20	1.30 33.0
24 600	1.18 30.0	32.5 813.0	29.5 749.3	20 20	1.38 34.9	1 1/4 - 7 UNC	1.18 30.0	36.0 914.0	32.0 812.8	24 24	1.62 41.3	1.18 30.0	32.5 826.0	29.75 755.7	16 16	1.25 31.8	1.18 30.0	30.71 780.0	28.54 725.0	20 20	1.18 30.0	1.18 30.0	31.30 795.0	28.74 730.0	24 24	1.30 33.0
26 650	1.26 32.0	34.25 870.0	31.75 806.5	24 24	1.38 34.9	1 1/4 - 7 UNC	1.26 32.0	38.25 972.0	34.5 876.0	28 28	1.75 44.5	— —	— —	— —	— —	— —	1.26 32.0	32.87 835.0	30.71 780.0	24 24	1.18 30.0	1.26 32.0	33.27 845.0	30.71 780.0	24 24	1.30 33.0
28 700	1.26 32.0	36.5 927.0	34.0 863.6	24 24	1.38 34.9	1 1/4 - 7 UNC	1.26 32.0	40.75 1035.0	37.0 940.0	28 28	1.75 44.5	— —	— —	— —	— —	— —	1.26 32.0	35.24 895.0	33.07 840.0	24 24	1.18 30.0	1.26 32.0	35.63 905.0	33.07 840.0	24 24	1.30 33.0
30 750	1.26 32.0	38.75 984.0	36.0 914.4	28 28	1.38 34.9	1 1/4 - 7 UNC	1.26 32.0	43.0 1092.0	39.25 997.0	28 28	2.00 50.8	1.26 32.0	39.25 997.0	36.5 927.1	20 20	1.38 34.9	1.26 32.0	37.99 965.0	35.43 900.0	24 24	1.30 33.0	1.26 32.0	38.19 970.0	35.43 900.0	24 24	1.30 33.0



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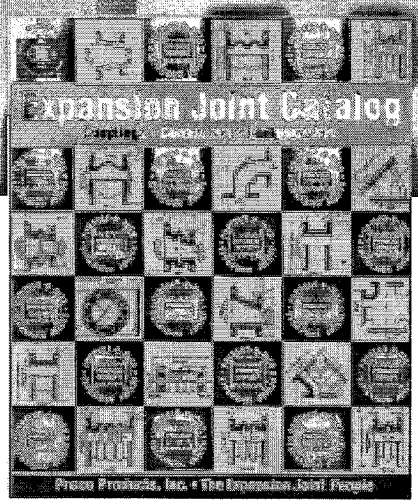

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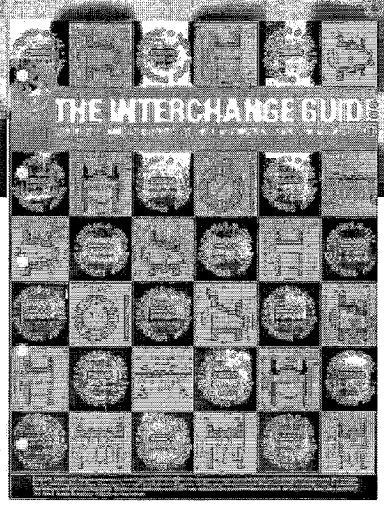

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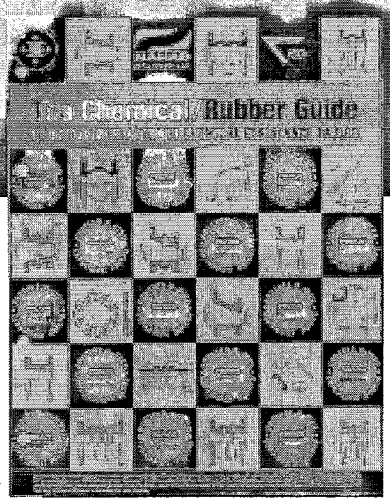

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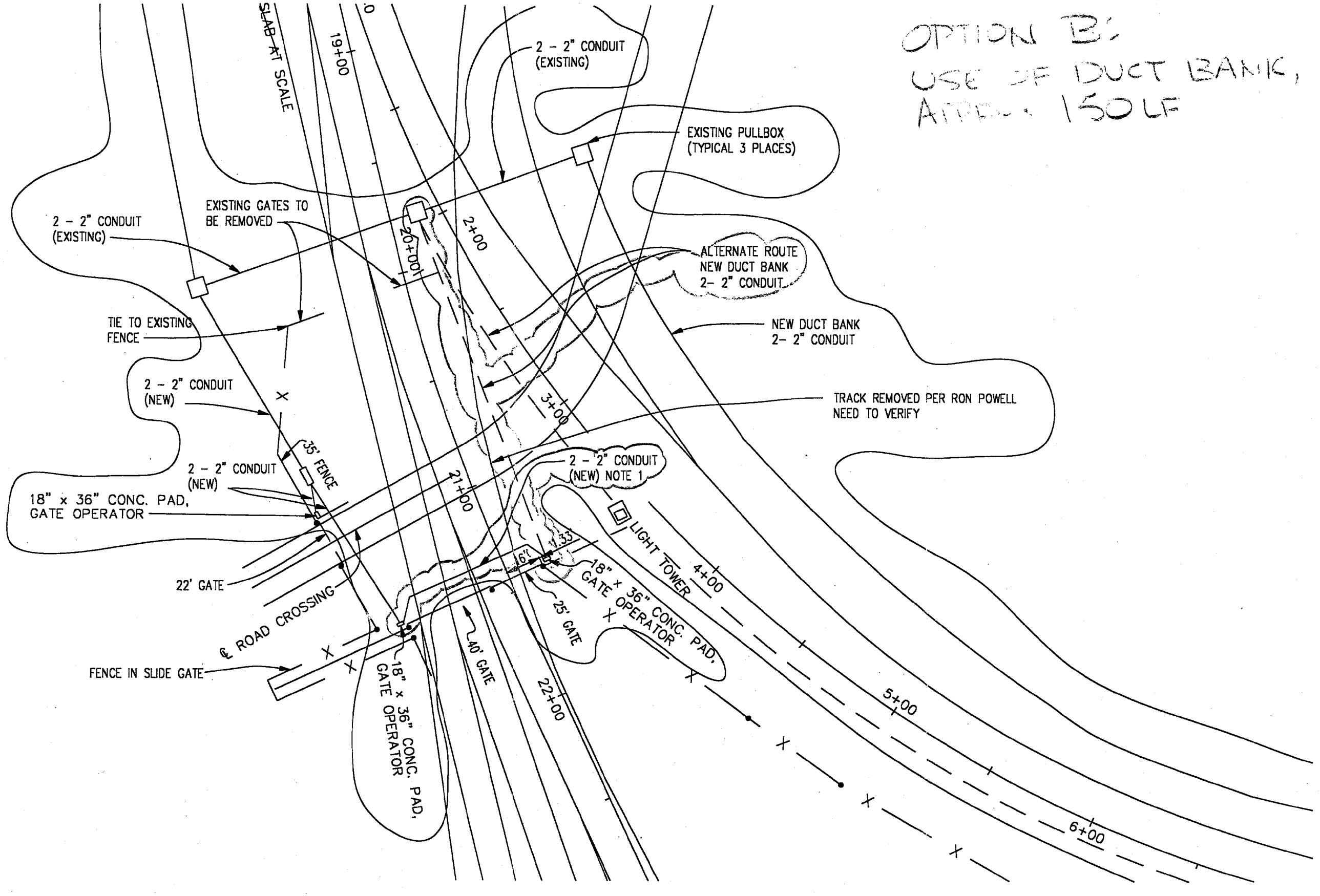
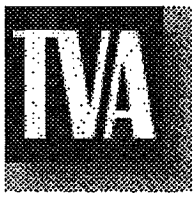
APPROX 150 LF





July 7, 2000

Send To:
Name: Larry Radford

Company: HED

Address: KIF

Fax Number: (865) 717-2517 Number of Pages: 2

Verification Number: (865) 717-2516

Subject: Ash Hole area

From: **Tennessee Valley Authority**
Name: CHERIE MINGHINI

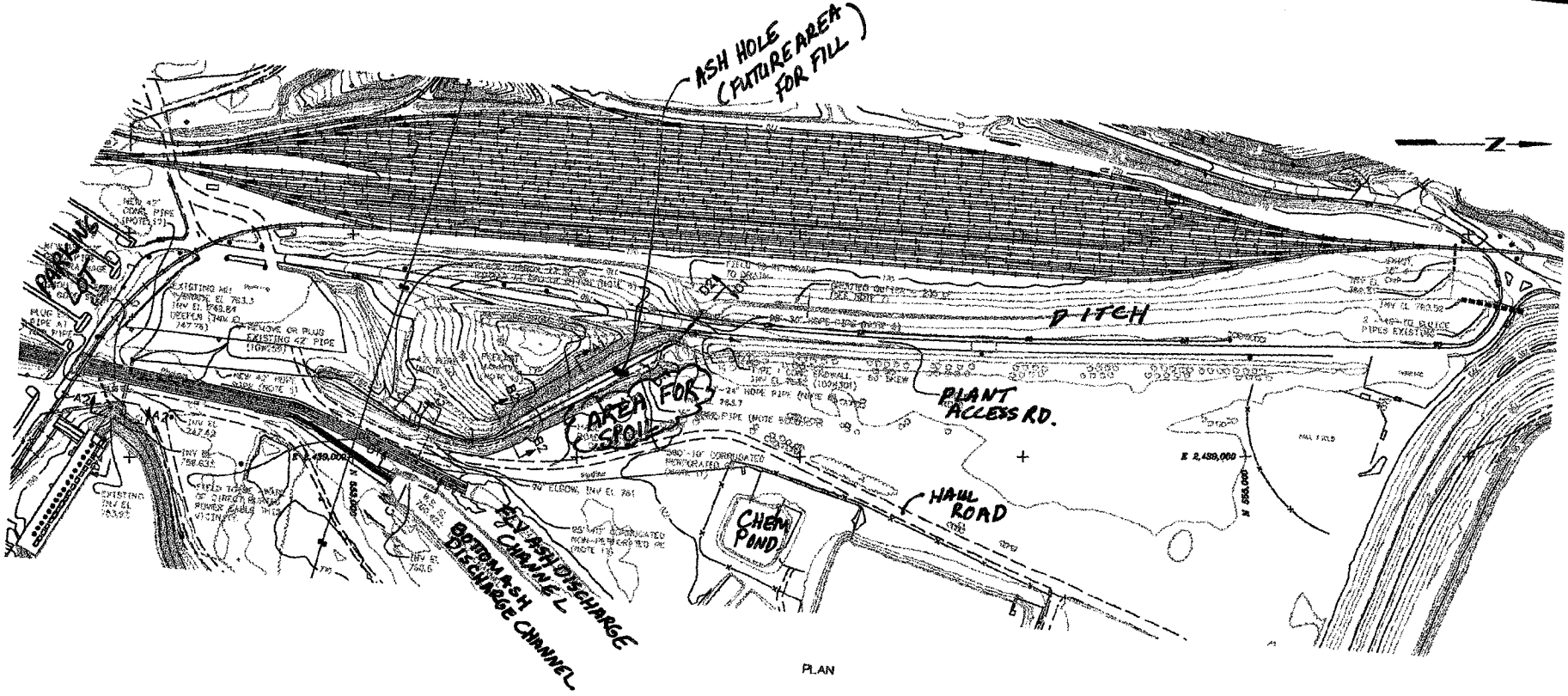
Organization: Fossil - Project & Discipline Engineering

Address: 11O1 Market Street - LP 2G-C
Chattanooga, TN 37402-2801

Fax Number: (423) 751-7094

Telephone Number: (423) 751-6375

Special Instructions:
If you have any questions, please call me at (423)751-6375.



PLAN

To: Rick Pemerton

From: Cherie Minghini, Fossil Engineering Services, LP 2G-C

Date: 7/6/00

Subject: KIF Coal Yard Runoff Pond Pipe Upgrade
Locating Underground Utilities

Attached you will find the pipe route (Drawing SK-01) which vicinity we would like utilities located within. This is basically the same route which was faxed to you by Lynn Petty for a budgetary quote on June 6, 2000. I also attached various TVA drawings in which utilities could possibly be identified as interferences.

We would like to set this up as soon as possible. Please contact me at (423)751-6375 to set up a date for this service or if you have any questions.

Thank you,

Cherie Minghini

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Tuesday, June 27, 2000 4:29 PM
To: Minghini, Cheri
Subject: FW: KIF Coal Yard Runoff Phase 1 Study and Dwgs


sk-02.dwg


sk-03.dwg


KIF Coal Yard Runoff CS Phase 1.doc

Remaining files

-----Original Message-----
From: Smith, Daniel R
Sent: Tuesday, June 27, 2000 3:54 PM
To: 'Minghini, Cheri'
Subject: KIF Coal Yard Runoff Phase 1 Study and Dwgs

Attached are 3 autocad files comprising the phase 1 sketches for the subject project. Also attached is a word file with the phase 1 report containing all quantities for construction of the pipeline,spillway, and coalyard excavation. Calculations are being completed and can be forwarded to you next week. Call me if you have any questions. 757-8088

Dan

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Tuesday, June 20, 2000 3:45 PM
To: Catlett, Harold; Minghini, Cheri
Cc: Timothy J Brown; Rice, Charles
Subject: KIF Coal Yard Runoff

Parsons is in the process of completing the Phase 1 drawings, and calculations. The phase 1 drawing is to be completed this week, and checked calculations will follow next week. I spoke to Charles Rice earlier today, and we discussed routing the power cable from the new coal handling facility maintenance building to the electrical control boxes for the pumps. Based on Charles' verbal description, I am showing a route for the cable to the existing building next to the pumps. However, this route will cross an area where we plan to do some excavation. The excavation is not very deep, and should not affect the power cable if the cable is buried 5 ft deep. However, I am concerned about future excavation, and recommend that if the cable follows the route shown on the civil phase 1 drawing, warning posts be erected to show the location of the electrical power cable. Also, I have shown a proposed alternate routing that should avoid the area to be excavated.

A couple of questions have arisen today during discussion with Charles and Tim Brown:
1) We discussed setting float levels to automatically shut off the pump. However, the pumps are sitting on a floating barge, and the barge will rise and fall with the water level. How will the float switches work?

2) We (Parsons) have assumed a water elevation of 745 (as a low water level when the pumps shut off). How much depth of water is needed to maintain enough water to start and stop the pumps without the pumps bottoming out or pumping heavily sedimented water? The water surface elevations by the surveyors have led us to believe that at least 1.5 ft of water is maintained.

3) How deep (below 745) can we excavate the low area of the coal yard pond?

Please advise.

Dan Smith

Minghini, Cherie M.

From: Settles, James T
Sent: Tuesday, June 20, 2000 6:05 PM
To: Minghini, Cherie M.
Subject: RE: KIF Coal Yard Runoff Pond Piping project

If you excavate the center of the pond ,take that material to the outside or perimeter area of the same pond.This would raise the elevation of pond wall and give you more volume. The area where HED hauled to is across the bridge going toward the barrow area.

James T. Settles
Kingston Fossil Plant
Heavy Equipment and Labor Foreman
(423) 717-2054

From: Minghini, Cherie M.
Sent: Tuesday, June 20, 2000 4:23 PM
To: Settles, James T
Subject: RE: KIF Coal Yard Runoff Pond Piping project

The outside edge where? And where is the area that HED hauled their material?

Thanks for the input,
Cherie

From: Settles, James T
Sent: Tuesday, June 20, 2000 6:44 AM
To: Minghini, Cherie M.
Subject: RE: KIF Coal Yard Runoff Pond Piping project

the material could be placed around the outside edge to form a dike

James T. Settles
Kingston Fossil Plant
Heavy Equipment and Labor Foreman
(423) 717-2054

From: Minghini, Cherie M.
Sent: Friday, June 16, 2000 1:41 PM
To: Settles, James T
Subject: KIF Coal Yard Runoff Pond Piping project

Jim-

We are planning on dredging the coal yard runoff pond area to englarge it in the near future to avoid future flooding. We need to determine where to put the material which we remove from the area. Lynn Petty thought that you may have some ideas on what to do with it. We have already committed to keeping it onsite. We could always put it in the dredge cells, but that would take up space. Are there any eroded areas or anything like that in which you could suggest on using this material?

Thanks,
Cherie Minghini
423-751-6375

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Thursday, June 08, 2000 1:17 PM
To: 'cmminghini@tva.gov'
Cc: Timothy J Brown
Subject: KIF Coal Yard Runoff - updated info and questions

I understand you will be out of the office until Friday. I will call you Monday to discuss some of the questions I have below.

We are continuing to work on the stormwater runoff portion of this project, and have some preliminary (unchecked) calculation results to share with you. Based on review of the recent field-run topo for the coal yard area (only), we've estimated approximately 58.2 ac-ft of storage available based on the existing contours. These results are preliminary and are subject to some modifications. We've looked at 3 storm events:

1) a 10 yr-24 hour storm. This requires 30.2 ac-ft of storage.
2) a 100 yr-24 hour storm. This requires 44.7 ac-ft of storage.
3) a 10 day storm event (not continuous); 10.08 inches of rainfall - requires 63.2 ac-ft of storage (el 757 assumed as the spillway elevation).

Because we've decided to go with a spillway, we may not need to excavate as much soil as previously thought. I set the elevation of the temporary spillway at 756.5, but depending on the required discharge from the spillway (to be determined), it may have to be slightly deeper. Since we've got all the topo tied in now, there may be other options to consider, than the drawing I gave you last week with the spillway cut at 756.5.

Some items/questions to consider in light of the 6/16 deadline for completion of Phase 1:

Last week you had requested a manhour estimate for us to complete phase 2. I haven't been able to provide you an answer yet, because the scope may still be evolving. I'll elaborate below.

1. We should be able to get the phase 1 Sketch (SK-01) to you by next Friday, complete with notes and excavation contours for the coal yard elevation, provided we agree on a spillway elevation.

2. The volume of excavation will obviously depend on where we set the spillway elevation. I would like to discuss some ideas on Monday regarding potential options and the impact on excavation volumes.

2. Spillway design. How much detail should we go into for the phase 1 submittal by this Friday? My understanding is that TVA wanted a sketch that could be constructed from. We were thinking in terms of a riprap spillway, but I spoke to Harold Catlett the other day, and he said he would perfer a concrete spillway. I consider the design of a permanent spillway beyond the scope of the original task, as discussed with you and Lynn Petty on May 15. Also, I didn't include quantities for a spillway (concrete or otherwise) in the cost estimate. Setting a spillway elevation and completing the calcs can be done by the end of next week, but detailing a concrete spillway (that would also have to consider traffic loads) by 6/16 won't be possible.

I'll call you on Monday.

Dan

Petty, Harold L.

From: Purkey, Ronald E.
Sent: Tuesday, June 27, 2000 10:02 AM
To: FPG FS&ES PROJ ENG CIVIL
Subject: FW: New BPO for Underground Utility Locating

fyi

From: DeRieux, John W.
Sent: Tuesday, June 27, 2000 8:29 AM
To: Ward, Charles P.; Dueker, Douglas L.; Kimsey, Barry A.; Purkey, Ronald E.
Subject: FW: New BPO for Underground Utility Locating

FYI

John DeRieux
423/751-3789

From: Gentry, Rebecca J.
Sent: Friday, June 23, 2000 1:31 PM
To: DeRieux, John W.; Hill, Gina D.; 'Wendell_C_Warnacut@parsons.com'
Subject: New BPO for Underground Utility Locating

A new blanket purchase order has been awarded to Underground Locators of Nashville, Inc. for underground utility locating for all fossil and hydro plants. The contract number is 00PFA-248416-001. The term of the contract is for one year beginning June 22, 2000, with an option to extend three additional one-year terms.

Upon receipt of a release, Underground Locators is to prepare a cost based on TVA sketches or drawings furnished with the release. This information is to be returned to the originator of the release. Underground Locators is not to perform any work until approval of the cost is received from the issuer of the release.

The rate is $110 per hour. The same rate of $110 per hour applies if any additional hours are required over the total cost quoted from viewing TVA sketches. The maximum additional billing is $440. This rate includes all labor, equipment rental, materials including paint and markers, mileage, insurance, and if necessary, all overnight lodging.

If you have any questions or need additional information, please call.

Becky Gentry
Contract Agent
TVA Procurement
Fossil Power Contracts - Engineering Support
Telephone 423-751-7248; Fax 423-751-4619
1101 Market Street (LP 3J), Chattanooga, TN 37402
Email: rjgentry@tva.gov

** FOR APPROVAL **

O. M. B. NO. 3316-0062

TENNESSEE VALLEY AUTHORITY
REQUEST FOR DELIVERY OF
MATERIALS UNDER PURCHASE ORDER

PRINT DATE: 07/12/00
RLSE NBR : 1422208
SUPP NBR : 0000

P. O. NBR: P-00PFA-248416-001
RD DATE: 07/12/00 RD AMOUNT:

EXPIRES: 06/21/01
2,040.00

PROJECT: KINGSTON FOSSIL PLANT

TO: UNDERGROUND LOCATORS OF
NASHVILLE, INC.
8235 OLD SPRINGFIELD HWY.
PO BOX 90740
NASHVILLE TN 37209

CONSIGN TO: JAMES E. LAWHON
TENNESSEE VALLEY AUTHORITY
KINGSTON FOSSIL PLANT
714 SWAN POND ROAD

HARRIMAN TN 37748

MARK:
(USE RLSE NBR
AND PROJECT ABOVE.)

INITIAL CPD: 07/14/00
FINAL CPD: 07/16/00

TECHNICAL CONTACT: CHERIE MINGHINI PHONE: 423/751/6375

MAIL INVOICE
FOR EACH PAYMENT TO:
TENNESSEE VALLEY AUTHORITY
** SEE ACCEPTANCE **
. TN 37402

F.O.B. : LABOR
TERMS : NET 30

SHIP BY: VNDR DELRY

INVOICE MUST SHOW TVA RELEASE NO., PURCHASE ORDER, DISCOUNT OF TERMS OF PAYMENT AND F.O.B. POINT APPLICABLE TO THIS P.O., ITEM NO., DESCRIPTION OF ARTICLE OR SERVICE, QUANTITY, UNIT PRICE AND TOTAL AMOUNT. ADDITIONAL DETAILS ARE PROVIDED IN THE TERMS OF PAYMENT CLAUSE IN THE P.O.

TVA, BY
REQUESTOR Lee A Nash
LEE A. NASH

APPROVAL
DIANNE W. DERIEUX

ITEM NO.	TVA ID	QUANTITY	UM	UNIT PRICE	EXTENDED AMT.
	BLANKET PURCHASE ORDER (BPO) FOR UNDERGROUND UTILITY LOCATING				
0001	B599	.0000		.00000	2,040.00
	LOCATE UNDERGROUND UTILITIES IN VICINITY OF NEW UNDERGROUND STORMWATER DISCHARGE PIPING INSTALLED				

** FOR APPROVAL **

REQUEST FOR DELIVERY
OF MATERIAL UNDER P.O.
CONTINUATION SHEET

ITEM NO.	TVA ID	QUANTITY	UM	UNIT PRICE	EXTENDED AMT.

AT KINGSTON FOSSIL PLANT.

LOCATION: 47000 KINGSTON FOSSIL PLANT

CC: STEVE BREWSTER, LP 2G-C
CHERIE MINGHINI, LP 2G-C
LYNN PETTY, LP 2G-C

CHERIE MINGHINI IS RESPONSIBLE FOR APPROVING THE INVOICE.

** FOR APPROVAL **

REQUEST FOR DELIVERY
OF MATERIAL UNDER P.O.
CONTINUATION SHEET

COST DISTRIBUTION

LINE/PCT		
0001 PCT: 100.00000000		
TOTAL : 0014RVD-25Z		2,040.00

*** END OF RELEASE P-00PFA-248416-001 RLSE 1422208 SUPP 0000 ***

FAX COVER

Send To:

Name: RICK PEMBERTON Date: 6-6-2K

Company: UNDERGROUND LOCATORS

Address:

Phone:

Fax: (615) 851-9664

Verification Number:

Number of pages (including cover): 2

Subject: KINGSTON PIPE ROUTE

From: Tennessee Valley Authority

Name: LYNN PETTY

Organization:

Address:

Phone: (423) 322-2741 (CELL) 423-751-6704 (OFFICE)

Fax: (423) 751-7094

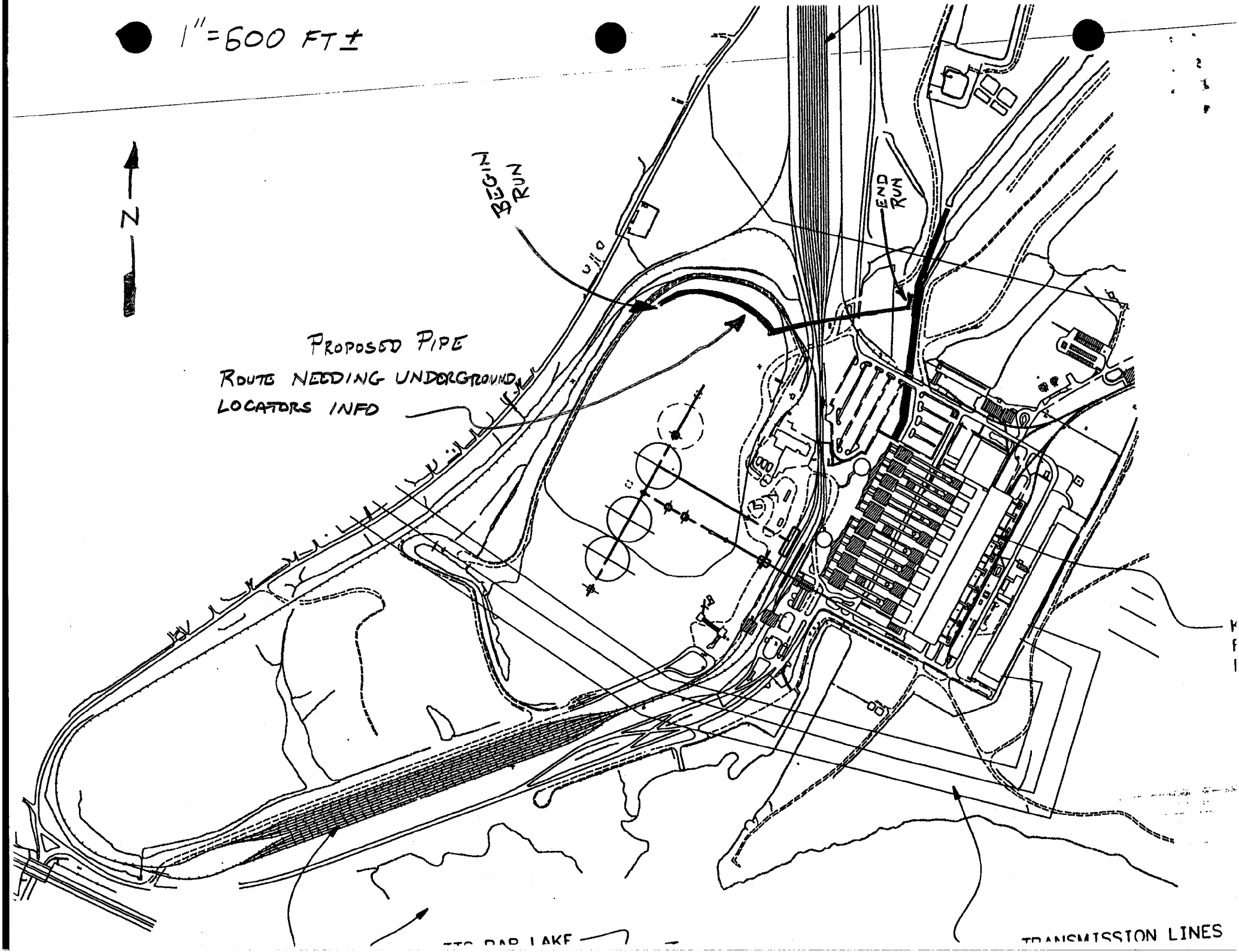
Verification Number:

Special Instructions: NEED BUDGETARY ESTIMATE

THANKS

Important! If you do not receive all pages, call us back immediately.

TVA 15536 (4-98)



PRESIDENT
JAMES R. PEMERTON

UNDERGROUND LOCATORS
OF
NASHVILLE, INC.
P.O. Box 90740
NASHVILLE, TN 37209

TELEPHONE:
615-851-0210

June 7, 2000

Mr. Lynn Petty
TVA Kingston Fossil Plant
Steam Plant Road
Kingston, TN 37763

RE: **Locating Underground Utilities**
TVA-Kingston Fossil Plant-Pipe Route Project

Dear Mr. Petty:

The following is a cost estimate as you requested per our conversation June 6, 2000. The property at the TVA Kingston Fossil Plant Site was surveyed for locating existing underground utilities based on the fax and drawings received. The type of locating equipment that will be used for this project is a Metrotec 810 (an instrument that induces a radio frequency on the utility that is being located). The cost for the locating of these facilities will be $1600, unless additional time is required after visiting the site (all charges included in this quote). I propose to locate the utilities starting on date that is agreed upon. This involves the marking of the facilities on the ground with paint or flags where required. We have a 24" locate variation on either side of the utility that is marked. We follow the same guidelines as listed in the Tennessee Underground Damage Prevention Act. We will locate to the best of our ability all the utilities in the areas listed above. For your information, location of non metallic facilities are of questionable accuracy and, at your request, I will attempt to the best of my ability to locate non metallic facilities; however, **(UNDERGROUND LOCATORS OF NASHVILLE, INC. EXPRESSLY DISCLAIMS ANY AND ALL LIABILITY AND RESPONSIBILITY FOR INCORRECT FACILITY LOCATIONS)**. The reason for this disclaimer is that the equipment tends to locate the utility at the shallowest level and could possibly miss a utility if in close proximity of the other that is deeper.

This cost quoted is guaranteed 30 days and is subject to change according to more efficient drawings, site visit indicating additional work required, inclement weather, requirements of TVA, or should excavation remove markings. If additional locate visits are needed after we have finished with the project, additional cost will be added. An additional charge of $100 per hour will be charged if project takes longer than estimated (not to exceed 4 additional hours).

We look forward to being of service to you. If you have any questions or wish to discuss, please do not hesitate to call me at 615/851-0210 (office), 615/943-7292 (mobile) and 615/851-9664 (fax).

Sincerely,

James R. Pemerton

James R. Pemerton
President

July 11, 2000

Send To:
Name: Rick Pemerton

Company: Underground Locators of Nashville, Inc.

Address:

Fax Number: (615) 851-9664 Number of Pages: 2

Verification Number: (615) 851-0210

Subject: KIF Coal Yard Runoff Pond Piping project

From: Tennessee Valley Authority
Name: CHERIE MINGHINI

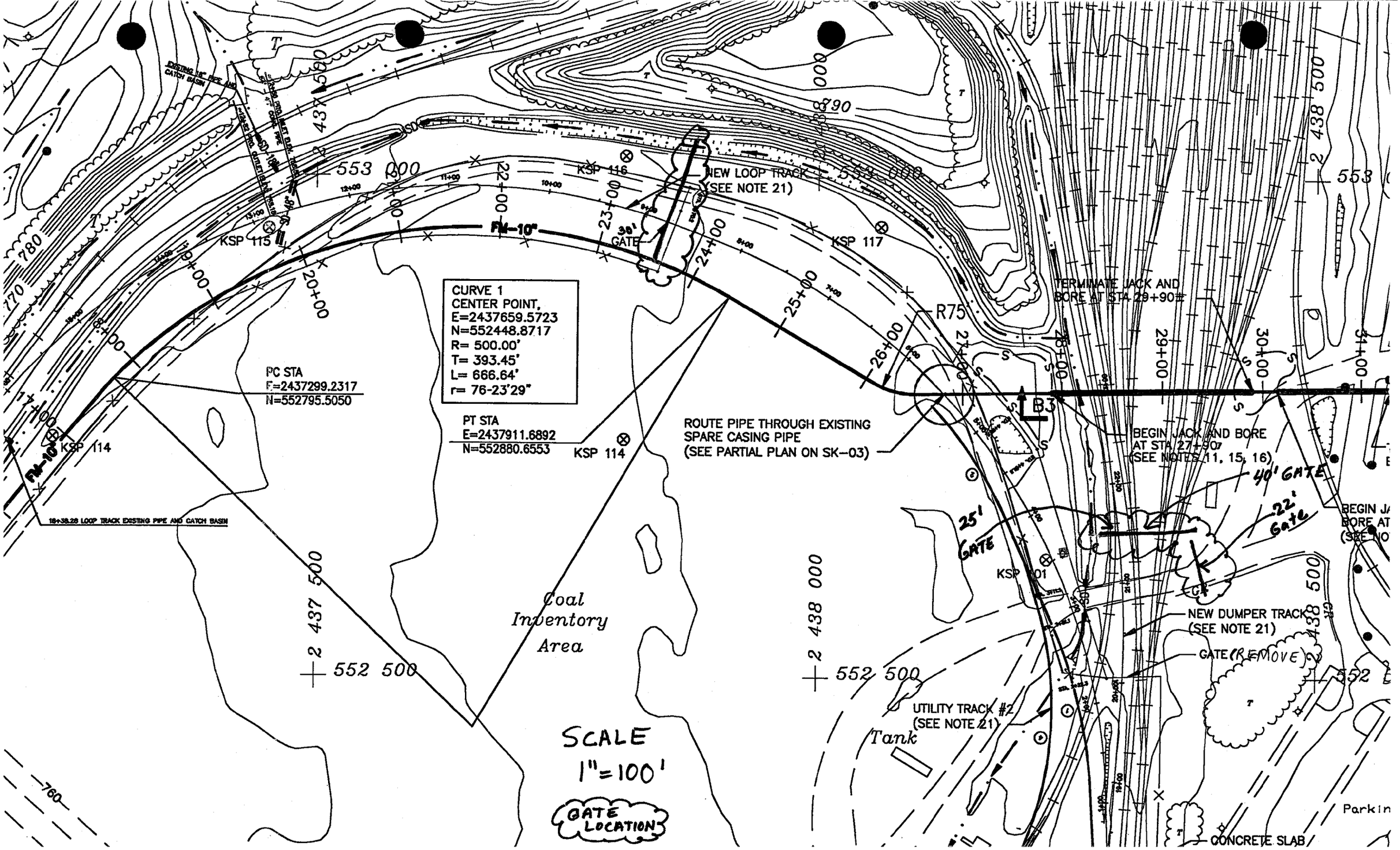
Organization: Fossil - Project & Discipline Engineering

Address: 1101 Market Street - LP 2G-C
Chattanooga, TN 37402-2801

Fax Number: (423) 751-7094

Telephone Number: (423) 751-6375

Special Instructions:
Attached are the additional areas at the locations of the gates that will require underground locating. A representative from the plant and myself will meet you at 2pm EST at KIF. Thanks. If you have any questions, please call me at (423)751-6375.



Petty, Harold L.

From: Petty, Harold L.
Sent: Tuesday, June 06, 2000 8:42 AM
To: Minghini, Cherie M.
Cc: Purkey, Ronald E.
Subject: KIF - Coal Yard Pond - Emergency Spillway

Cherie:

I faxed the plan to Catlett yesterday and followed up with a phone call this morning to make sure he understood it. We went over a few of the details. He said he would handle it as soon as he could. He suspected it would be the first of next week when he finished it since they are shaking out the new unloader.

Thanks,

Lynn

June 2, 2000

Send To:
Name: Harold Catlett

Company: KIF

Address:

Fax Number: (865) 717-2042 Number of Pages: 3

Verification Number: (865) 717-2041

Subject: Temporary overflow spillway

From: **Tennessee Valley Authority**
Name: CHERIE MINGHINI

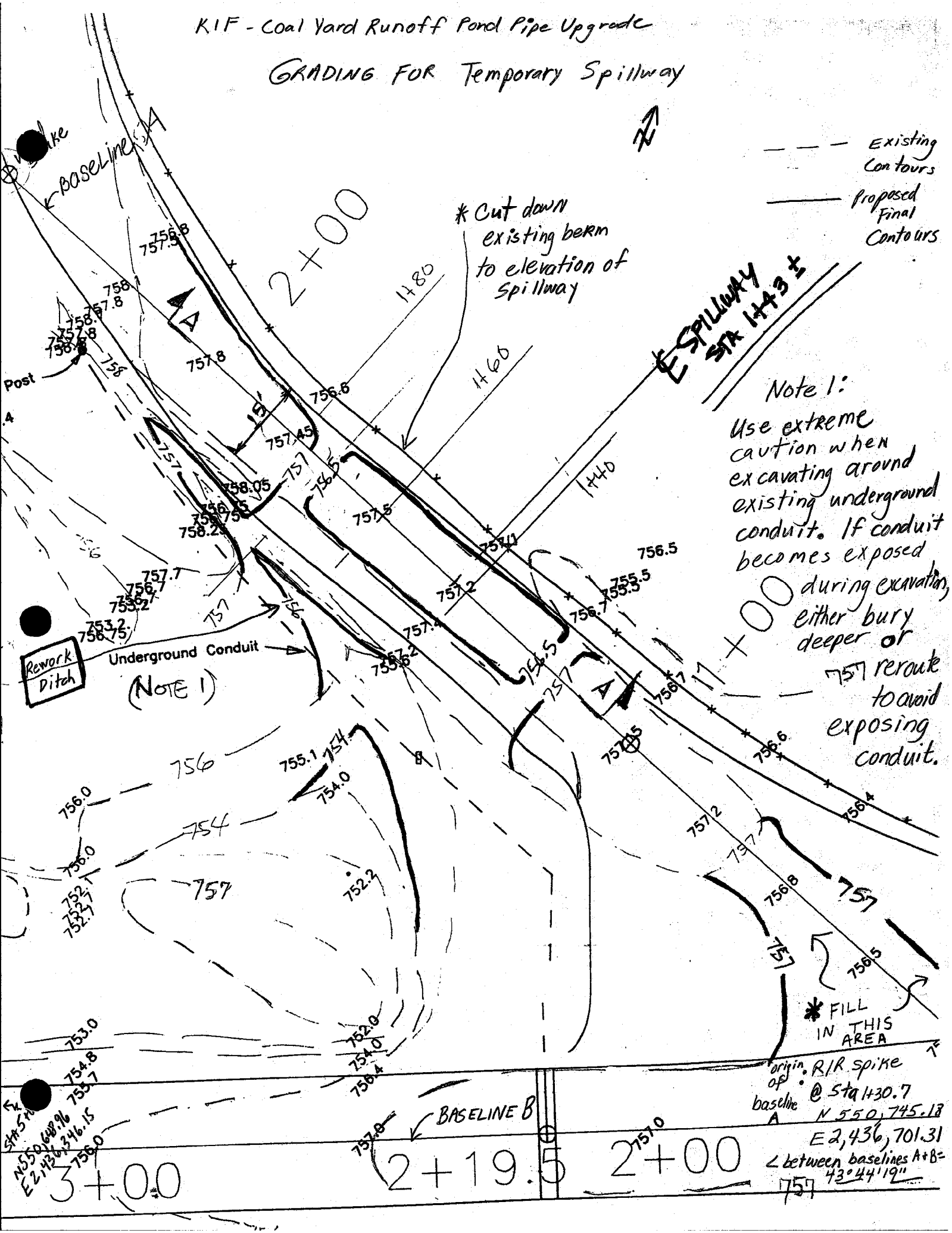
Organization: Fossil - Project & Discipline Engineering

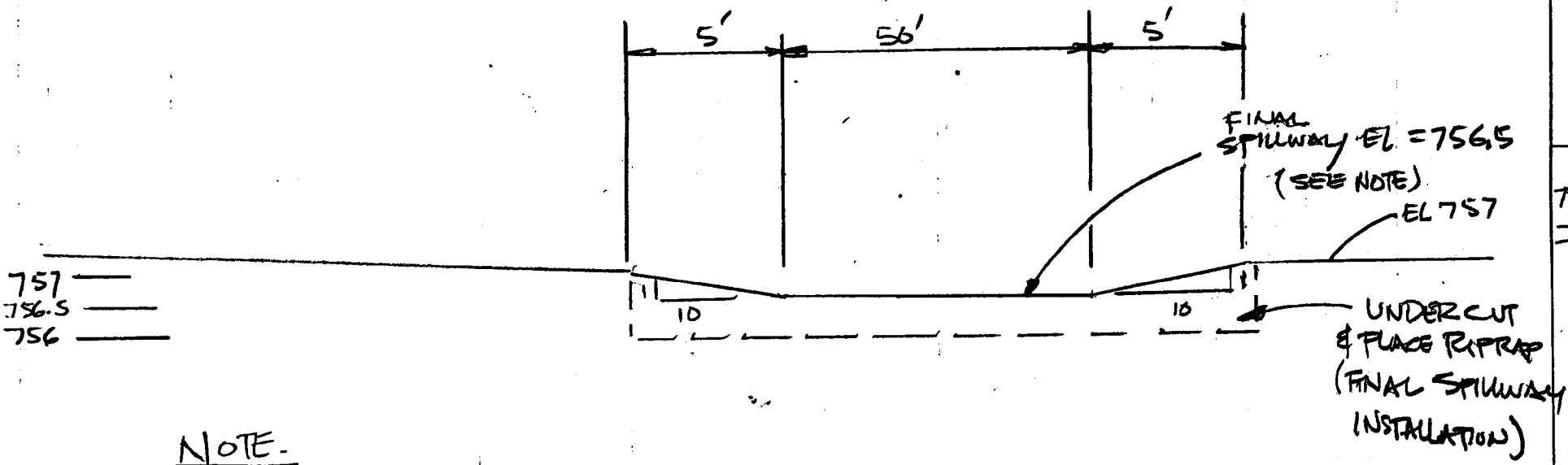
Address: 1101 Market Street - LP 2G-C
Chattanooga, TN 37402-2801

Fax Number: (423) 751-7094

Telephone Number: (423) 751-6375

Special Instructions:
If you have any questions, please call me at (423)751-6375.


KIF - Coal Yard Runoff Pond Pipe Upgrade
GRADING FOR Temporary Spillway
N
Existing Contours
Proposed Final Contours
* Cut down existing berm to elevation of Spillway
E SPILLWAY STA 1+43 ±
Note 1:
Use extreme caution when excavating around existing underground conduit. If conduit becomes exposed during excavation, either bury deeper or reroute to avoid exposing conduit.
Rework Ditch
Underground Conduit
(NOTE 1)
BASELINE A
BASELINE B
2+00
1+80
1+60
1+40
1+00
3+00
2+19.5
2+00
* FILL IN THIS AREA
origin of baseline A: R/R spike @ Sta 1+30.7
N 550,745.18
E 2,436,701.31
∠ between baselines A+B = 43°44'19"
Post
Ex. Sta Sta
N550,648.96
E2,436,346.15



NOTE-

FOR TEMPORARY SPILLWAY INSTALLATION, GRADE EXISTING GROUND TO FINAL GRADE SHOWN.

FOR FINAL SPILLWAY INSTALLATION, UNDERCUT & PLACE RIPRAP AS SHOWN. (RIPRAP SPECIFICATION TO BE PROVIDED LATER).

SECTION A-A

NTS

TEMPORARY SPILLWAY INSTALLATION

TVA

K1F

COAL YARD DRAIN OVERFLOW

6/1/00

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Friday, June 02, 2000 11:31 AM
To: 'cmminghini@tva.gov'
Subject: KIF Coal yard runoff - temporary spillway

A couple of things I forgot to mention yesterday regarding the spillway:

1. Some of the spot shot elevations taken around the fence line show an existing berm. The berm appears to be lower than the road, but may be higher than the proposed spillway elevation. The berm should be cut down at or lower than the elevation of the spillway.

2. I recommend that the pedestal and conduit be moved to a different location. The pedestal will be subject to flow in the event the spillway discharges. The pedestal could be moved closer to the asphalt road and needs to be at a higher elevation. If the conduit is buried deeper (at a depth beneath the proposed riprap - probably 5 feet deep in the vicinity of the spillway), it shouldn't be exposed during discharge.

3. The fence in the vicinity of the spillway could become clogged with debris during discharge, and cause water to back up. I may be able to come up with a temporary solution to that on monday.

Dan

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Wednesday, May 31, 2000 4:30 PM
To: Minghini, Cheri
Cc: Bryan Burt
Subject: KIF Coal Yard Pipe Upgrade - Bill of material

KIF Coal Yard Pipe Reroute BM.doc

Cheri, Attached in Word format is a table with the Bill of Material for the pipe only. Did not have time to evaluate thrust blocks.

Bryan Burt will send drawing via separate email.

Dan

1 BILL OF MATERIAL - KIF Coal Yard Pipe Upgrade

The Bill of Material is listed in Table 1.

TABLE 1

Item	Quantity	Units	Comments
Relocate existing survey monuments in coal yard			
Underground utility survey	1	LS	Assume start a sta 19+00 to Sta 39+00 @ 4 ft width. Acreage = 0.2 ac
HDPE Pipe 10 in nom dia SDR 17	3900	LF	ASTM D3350, cell classification 345444C, PE3408
18 in dia Casing pipe (Jack & Bore #1); min wall thickness = 0.313 in.	200	LF	Casing pipe shall have a minimum yield strength of 35,000 psi
18 in dia Casing pipe (Jack & Bore #2); min wall thickness = 0.313 in.	115	Lf	Casing pipe shall have a minimum yield strength of 35,000 psi
If single Jack and Bore is performed, the overall length =	340	LF	
Trench excavation (2 ft deep from station 0+00 to Sta 19+00 ±)	430	BCY	Assume trench width = 2 ft & 3 ft deep
Trench excavation (2 ft deep from Sta 19+00 to station 35+00 ±)	660	BCY	Assume trench width = 2 ft x 5.5 ft deep
Backfill (either sand or bottom ash up to 4 in above pipe (Sta 0+00 to Sta 19+00)	220	BCY	Assume one-half the trench excavation volume. Remaining backfill will utilize excavated mat'l
Backfill (either sand or bottom ash up to 4 in above pipe (Sta 19+00 to Sta 39+00)	270	BCY	Assume 40 % of excavation volume. Remainder of backfill shall be crushed stone or bottom ash.
Warning tape	3500	LF	Place above buried pipe for future identification
Allowance for Utility relocation			To be by estimator
Cleanouts (Saddle reducing laterals - 10 x 10 x 6)	4	ea	See note 1

Notes:

1. Saddle reducing laterals (for use as cleanouts) may not be available - contact vendor. Saddle reducing laterals will reduce the allowable pressure for the pipe, and requires further evaluation.

To: Larry Radford

From: Cherie Minghini, Fossil Engineering Services, LP 2G-C

Date: 5/31/00

Subject: KIF Coal Yard Runoff Pond Pipe Upgrade
Cost Estimate Request - Phase IIIA

A cost estimate is requested for a portion of construction for the above-referenced project. The project will be split up into two portions. Phase IIIA will consist of installing the 10" HDPE pipeline from the coal yard runoff pond to the ash pond and disassembling the existing abandoned pump platform for salvage.

Enclosed are the following:

1. Two preliminary prints of Drawing SK-01.
2. A narrative scope of the work.
3. Phase IIIA bill of material.
4. A draft copy of the EDR for the entire job.

Please contact me at 751-6375 if you have any questions.

Thank you,

Cherie Minghini

Cherie Minghini

cc: Ron Purkey, LP 2G-C
Clark Morris, LP 5E-C

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND PIPE UPGRADE
SCOPE OF WORK
PHASE IIIA

Background:

The existing coal yard runoff pond system can not handle a significant rainfall event and could cause the new coal handling reclaim facility to flood. Over the years, heavy rains have washed coal fines from the storage area into the pond. Storage has decreased to about 20% of the original volume. The existing fiberglass discharge piping and electrical power feed is deteriorated beyond repair, permanently severed, and is no longer usable. The existing pump controls do not work and the pumps are powered on and off manually.

The project will consist of installation of a new discharge pipeline to the ash pond. The coal yard pond will be dredged to original capacity and enlarged. An overflow spillway will be constructed. New electrical power feed, pump float switches, and warning enunciator will be installed to the existing pumps.

The construction of this project will be divided into two parts - Phase IIIA and IIIB. Phase IIIA will include installation of the pipeline from the coal yard runoff pond to the ash pond and removal and disposal of the existing pump platform.

Phase IIIA Scope of work:

- Install 3900 LF of 10" SDR 17 HDPE pipe following the attached pipe route from the coal yard runoff pond to the ash pond.
- Perform underground utility survey and allow for possible utility relocation.
- Perform either a single or double jack and bore (location on drawing). Single boring under railroad tracks and plant road can be accomplished with 340 LF of 18"steel casing pipe. If two bores are required, they will be 200 LF (under railroad tracks) and 115 LF (under plant road) respectively.
- Place warning tape above buried pipe for future identification.
- Remove and dispose of existing abandoned pump platform.
- All disturbed areas shall be returned to original condition (i.e., parking lot, gravel roadways, etc.).
- Disturbed areas not to be paved shall be seeded and mulched to re-establish vegetation.

1 BILL OF MATERIAL - KIF Coal Yard Pipe Upgrade - Phase IIIA

The Bill of Material is listed in Table 1.

TABLE 1

Item	Quantity	Units	Comments
Underground utility survey	1	LS	Assume start at sta 19+00 to Sta 39+00 @ 4 ft width. Acreage = 0.2 ac
HDPE Pipe 10 in nom dia SDR 17	3900	LF	ASTM D3350, cell classification 345444C, PE3408
18 in dia Casing pipe (Jack & Bore #1); min wall thickness = 0.313 in.	200	LF	Casing pipe shall have a minimum yield strength of 35,000 psi
18 in dia Casing pipe (Jack & Bore #2); min wall thickness = 0.313 in.	115	Lf	Casing pipe shall have a minimum yield strength of 35,000 psi
If single Jack and Bore is performed, the overall length =	340	LF	
Trench excavation (3 ft deep from station 0+00 to Sta 19+00 ±)	430	BCY	Assume trench width = 2 ft & 3 ft deep
Trench excavation (5.5 ft deep from Sta 19+00 to station 35+00 ±)	660	BCY	Assume trench width = 2 ft x 5.5 ft deep
Backfill (either sand or bottom ash up to 4 in above pipe (Sta 0+00 to Sta 19+00)	220	BCY	Assume one-half the trench excavation volume. Remaining backfill will utilize excavated mat'l
Backfill (either sand or bottom ash up to 4 in above pipe (Sta 19+00 to Sta 39+00)	270	BCY	Assume 40 % of excavation volume. Remainder of backfill shall be crushed stone or bottom ash.
Warning tape	3500	LF	Place above buried pipe for future identification
Allowance for Utility relocation			To be by estimator
Cleanouts (Saddle reducing laterals - 10 x 10 x 6)	4	ea	See note 1

Notes:

1. Saddle reducing laterals (for use as cleanouts) may not be available - contact vendor. Saddle reducing laterals will reduce the allowable pressure for the pipe, and requires further evaluation.

DRAFT

F&HP ENVIRONMENTAL DECISION RECORD

Plant/Project Title KIF Coal Yard Runoff Pond Pipe Upgrade

EDR Tracking Number _____ Project Number KIF 353

I. ASSESSMENT OF POTENTIAL ENVIRONMENTAL CONDITIONS

A. Does the project:	Yes	No	Unknown
1. Result in the generation of any new effluents or changes in effluents during construction or after operation begins (this may mean air emissions such as open burning, fugitive dust, conveyor transfer point emissions, sandblasting, organic fumes; vents from tanks, or any other discharge to the atmosphere); wastewater such as contaminated runoff, process wastewater or sewage; or solid waste such as bulky scrap waste, ash, waste not routinely generated, etc.)?	X		
2. Result in modification of equipment with environmental permit?		X	
3. Result in addition to or modification to potable water system?		X	
4. Involve work in water (stream, lakes, wetlands, or floodplain)?	X		
5. Involve excavation in previously undisturbed areas?		X	
6. Require sedimentation and erosion control measures?	X		
7. Involve any materials handling which by its nature might be hazardous (such as asbestos, PCBs, organic solvents, sandblasting waste, etc.)?		X	
8. Require onsite bulk storage of fuels or other liquids?		X	
9. Involve removals or modification of equipment greater than 50 years old?		X	
10. Involve any public controversy?		X	
11. Result in unusual generation of noise?		X	
12. Involve any structures greater than 200 feet tall?		X	
13. Involve any radioactive materials?		X	
14. Result in significant impacts on transportation?		X	
15. Involve changes in site land use or changes which are incompatible with adjacent land use?		X	
16. Result in significant visual impacts?		X	
17. Does contract or project require TVA Board approval?		X	

B. Discussion The existing coal yard runoff pond system can not handle a significant rainfall event and could cause the new coal handling reclaim facility to flood. This project will consist of installing a new 10" HDPE discharge pipe to the ash pond. The coal yard pond will be dredged to original capacity and enlarged. An overflow spillway ditch will be constructed. A new power feed, pump float switches, and warning enunciator will be installed to the existing pumps.

C. Concurrence with Part I

Project Engineer	*Date*	*Plant Program Administrator (Environmental)*	*Date*

If "Yes" or "Unknown" is checked above, go to Part II. If all questions are answered "No" or if all "Yes" answers are covered by a generic EDR, this project is a Categorical Exclusion pursuant to Section _____ of TVA Instruction IX ENVIRON-MENTAL REVIEW and Parts II and III are not required.

5.2

*Attach project scope.

TVA 30494A [8/95]

II. IDENTIFICATION OF ENVIRONMENTAL EFFECTS AND REQUIREMENTS

Effect Categories	POTENTIAL EFFECTS*						REQUIREMENTS*					INFORMATION SOURCE OR DOCUMENTATION (NOTE NAME OF TECHNICAL MEDIA PERSON PROVIDING INPUT OR REFERENCE DOCUMENT) ADDITIONAL MATERIAL MAY BE ATTACHED. THIS COLUMN SHOULD BE COMPLETED FOR EACH APPLICABLE CATEGORY.
	NONE	AIR	ADVERSE	CONSTRAINT	BENEFICIAL	UNKNOWN	NONE	MONITORING	CONTROL	PERMIT	PLAN	
WASTE STREAM GENERATION OR ALTERATION												
Air		X							X			BMPs-Water truck as needed
Stormwater/SPCC/BMP		X							X			BMPs; Revise SPCC as needed
Wastewater	X						X					
Solid waste		X							X			Proper disposal of coal fines/excavated earth onsite
Asbestos	X						X					
Hazardous waste	X						X					
PCBs	X						X					
SITE AND LAND DEVELOPMENT												
Changes in site land-use	X						X					
Compatible with adjacent land uses	X						X					
Erosion/sedimentation		X							X			Stormwater BMPs (silt fences, hay bales, etc.)
Stream Modification	X						X					
Historic, cultural, and archeological resources	X											
IMPACTS ON COMMUNITY												
Noise	X						X					
Transportation	X						X					
NATURAL FEATURES												
Groundwater	X						X					
Surface water		X							X			BMPs; revise IPP as needed
Floodplains	X						X					
Wetlands	X						X					
Prime farmland	X						X					
Unique natural features	X						X					
Aquatic Ecology	X						X					
Terrestrial Ecology	X						X					
Protected Species	X						X					
Sensitive Habitat	X						X					
Visual	X						X					
OTHER												

*One or more of these categories may be checked. At least one in each group ***must*** be checked.

ADDITIONAL INFORMATION: _____

F&HP ENVIRONMENTAL DECISION RECORD

EDR Tracking Number _____ Project Number KIF 353

III. LEVEL OF NEPA REVIEW DETERMINATION *(Check One)*

(X) Categorical Exclusion pursuant to Section 5.2 .1 . TVA Instruction IX ENVIRONMENTAL REVIEW (conditions and/or commitments listed below).

( ) Environmental Assessment Required

( ) Environmental Impact Statement Required

Project conditions or commitments related to environmental protection.
(Additional material may be attached)
Stormwater BMPs (silt fences, hay bales, etc.) shall be utilized for sediment/erosion control when construction exposes earth. BMPs (water truck) shall be used as necessary to control dusting during pond excavation. The IPP/SPCC plans will be revised as needed to reflect conditions. On-site solid waste disposal of coal fines/excavated earth will be handled in accordance with TVA procedures. Abandoned pump platform shall be removed and disposed of in accordance with TVA procedures.

Environmental permits for project and required schedule:
Permits - none

Signature, Plant Program Administrator (Environmental)

Date

Signature, Project Engineer

Date

Signature, Advanced Production Technology and Regulatory Integration

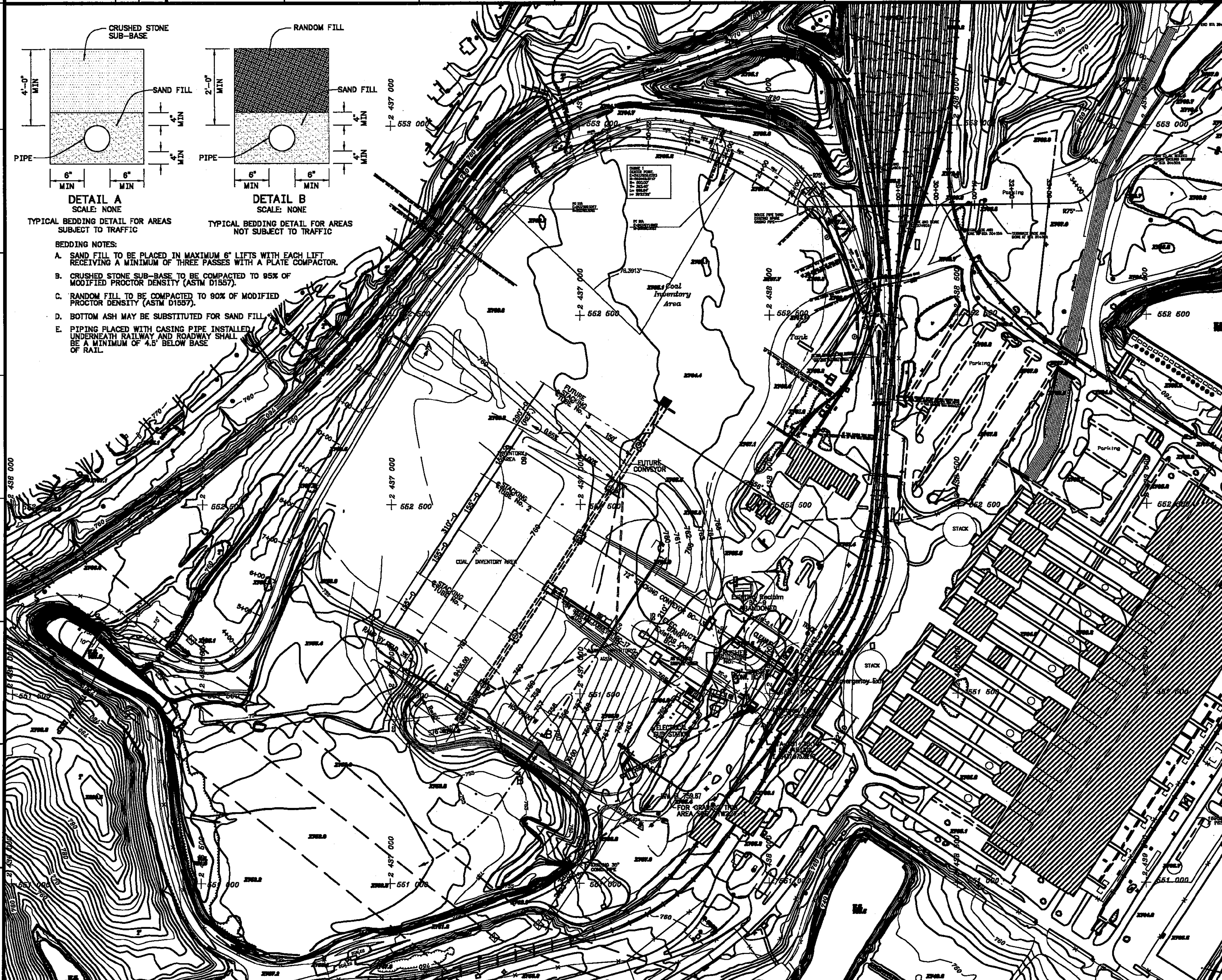
Date

Attachments: Yes ( ) No (X) (If yes, number of pages) _____

cc (with any attachments): (To be distributed after ENV AFF approval)

Cherie Minghini, LP 2G-C	Project Engineer (Original)
William H. Ross, BRF-1A-CTT	Plant/Region Environmental Engineer
Greg Askew, WT 8C-K	Manager, National Environmental Policy Act, Environmental Management
Chip Diamond, LP 5D-C	Advanced Production Technology and Regulatory Integration

TVA 30494A [8/95]



PRELIMINARY
(FOR PHASE I COST ESTIMATE ONLY)

SCALE: 1"=100' EXCEPT AS NOTED

YARD

PHASE I STUDY DRAWING
COAL YARD PUMP DISCHARGE PIPE ROUTE

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14 | 36 | C | SK-01 | R A

PLOT FACTOR:1
W_TVA

C.A.D. DRAWING DO NOT ALTER MANUALLY

PARSONS
TASK COMPLETED BY:

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SAFE DAM ACT
LAWS RELATING TO CONSTRUCTION, INSPECTION, REPAIR AND SAFETY OF DAMS AND RESERVOIRS
TITLE 58, CHAPTER 4 OF THE REVISED STATUTES

This act shall be known and may be cited as the "Safe Dam Act." The Commissioner of Environmental Protection shall, by rule, establish a periodic dam safety inspection and reporting procedure, on an annual or longer term basis, for the owner of any dam meeting the criteria contained in R.S. 58:4-1. The owner shall have a professional engineer inspect the dam and prepare and submit a report containing such information as the Commissioner may require, concerning the safety of said dam and appurtenant structures. Every dam which raises the waters of any stream more than 70 feet above its usual mean low-water height or which impounds more than 10,000 acre-feet of water shall be inspected on an annual basis by a professional engineer retained by the owner, in the company of a professional engineer assigned from the Department of Environmental Protection.

58:4-1 (a). No municipality, corporation or person shall, without the consent of the Commissioner of Environmental Protection, hereafter in this chapter designated as the Commissioner, build any reservoir or construct any dam, or repair, alter or improve existing dams on any river or stream in this State or between this and any other such state which will raise the waters of such river or stream more than five feet above their usual mean low-water height. No municipality, corporation or person shall, without the consent of the commissioner, build any reservoir or construct any dam, or repair, alter or improve existing dams in the pinelands area, as designated by subsection a. of section 10 of P.L. 1979, c. 111 (C. 13:18A-11), which will raise the waters of any river or stream more than eight feet above the surface of the ground where the drainage area above the dam or reservoir is more than one square mile in extent and where the water surface created by the dam or reservoir is more than 100 acres in extent. The Commissioner may investigate and take appropriate action regarding any dam or reservoir about which he has a security or safety concern. With respect to dams and reservoirs located on lands utilized for agricultural or horticultural purposes within the pinelands area, the Commissioner's actions shall be undertaken after consultation with the Secretary of Agriculture.

58:4-1 (b). The commissioner shall not require a permit for the repair of any dam used for agricultural purposes within special agricultural production area designated pursuant to N.J.A.C. 7:50-5.14 in the pinelands area (cf: P.L.1985, c.33, s.1)

58:4-2. Every municipality, corporation or person, before constructing any reservoir or dam subject to the provisions of this chapter shall apply to the Commissioner for the approval of the plans of such reservoir or dam, which approval the Commissioner may grant with such modifications, limitations or changes as in his judgement may be necessary for the protection of life and property.

Send to
Dan Smith
& Tim Brown

58:4-3. Every municipality, corporation or person owning and maintaining or having control of any reservoir or dam shall, upon written request therefor, furnish to the Commissioner as full, true and particular description of the reservoir or dam as may be practicable, and shall, when so requested by the Commissioner cause to be such surveys, plans and drawings of the reservoir or dam as may be necessary to give sufficient information for the determination of its safety as may be required by the Commissioner.

58:4-4. Upon written application by any person owning or representing property liable to be injured or destroyed by the breaking of any reservoir or dam, or upon application by the mayor or governing body of any municipality on account of possible danger of loss of life or of injury to any property within the municipality from the breaking of any reservoir or dam, or without such complaint whenever the Commissioner shall choose, he shall forthwith thoroughly inspect such reservoir or dam.

58:4-5. If, in the judgement of the commissioner, any reservoir or dam is not sufficiently strong to resist the pressure of water upon it or there is reasonable cause to believe that danger to life or property may be anticipated from the reservoir or dam, or if for any other cause the commissioner shall determine the reservoir or dam to be unsafe or improperly maintained, the commissioner shall determine whether the water in the reservoir or above the dam shall be drawn off in whole or in part, and what alterations, additions and repairs are necessary to be made to the reservoir or dam to make it safe and properly maintained. The commissioner shall forthwith in writing order the owner or person having control of the reservoir or dam to cause the alterations, additions and repairs to be made within the time to be limited in the order. The commissioner also may order the water in the reservoir or above the dam to be drawn off in whole or in part as the commissioner may determine.

The commissioner shall not approve the decommissioning of a reservoir or dam until the commissioner has provided 30 days prior notice and the commissioner has complied with the provisions of R.S. 58:4-10 as applicable. The notice of the proposed decommissioning shall be published at least 30 days prior to the decommissioning of the reservoir or dam in at least one newspaper of general circulation in the municipality in which the reservoir or dam is located. The commissioner shall have the right to enter upon any and all properties for the purpose of obtaining information about the safety and proper maintenance of any reservoir, dam or appurtenant structures located therein.

58:4-6. If the owner or person having control of any reservoir or dam shall not forthwith comply with any order of the Commissioner made as provided in Section 58:4-5 of this Title or shall not prosecute the work, when commenced, with reasonable expedition, the Commissioner may direct the Attorney General to proceed in the name of the State to enforce its order in a court of competent jurisdiction. Action may be brought against the person controlling or owning the reservoir or dam, and the court may make such order and judgement in the premises as will effectually secure the persons interested from danger of loss from the breaking of the reservoir or dam complained of. The court may proceed in the action in a summary manner or otherwise. Any person who violates the provisions of this chapter shall be liable to a penalty of not more than $5,000.00 for each offense. If the violation is of a continuing nature, each day during which it continues shall constitute an additional, separate and distinct offense.

58:4.7. Repealed

58:4-8. The Commissioner may, when provided with sufficient funds, employ personnel for the inspection of existing reservoirs and dam and the supervision of the erection of new reservoirs and dams in this State or between this and any other state so that said structures may be built with due regard for the safety of property and life which might be endangered by improper construction thereof.

58:4-9. Where a reservoir or dam has been in existence 20 years and the owners of land along the shores above the dam or on the reservoir have made or shall have made permanent improvements on the land or where the shores have become a populated community, depending upon the permanency of the condition created, or where the reservoir or dam has become a valuable resource for the quality of life in the municipality in which the reservoir or dam is located, and a petition signed by a majority of the landowners along the shore of any pond formed by the reservoir or dam, or by any number of residents of the municipality in which the reservoir or dam is located, or by the governing body of the municipality, protesting against the removal of the reservoir, water or dam or the decommissioning of the reservoir or dam has been filed with the commissioner, the owner or owners of the reservoir or dam shall not, without the consent of the commissioner, tear down, destroy or abandon the reservoir or dam, or, except for the purpose of making necessary repairs, withdraw the water below the usual low-water mark, or maintain the water at the reduced level.

58:4-10. When a petition has been filed protesting against the removal of any reservoir, water or dam or against the decommissioning of any reservoir or dam as provided in R.S. 58:4-9, the commissioner shall hold a public hearing, upon 30 days notice to all parties interested, and following prior notice published 30 days before the hearing in at least one newspaper of general circulation in the municipality in which the reservoir or dam is located. Following this public hearing, the commissioner may make a determination concerning the removal of the reservoir, water or dam or decommissioning of the reservoir or dam and may then establish and fix a permanent low-water mark. Should it appear that the maintenance of the reservoir or dam would be an undue burden upon the owner thereof, the commissioner shall enter into negotiations with the landowners interested around the reservoir or above the dam, the governing body of the municipality in which the reservoir or dam is located, and any other parties to the petition filed with the commissioner protesting against the removal of the reservoir, water or dam or the decommissioning of the reservoir or dam, for the purpose of determining how and by whom the expenses of maintenance shall be paid.

Last Revision January 10, 1996

Larry Radford → Sapp Pay for removing it

Minghini, Cherie M.

From: Weaver, Steve C.
Sent: Monday, May 22, 2000 10:54 AM
To: Petty, Harold L.
Cc: Minghini, Cherie M.; Smith, H. Michael; Purkey, Ronald E.
Subject: RE: I/A summary - KIF353

Lynn.
I am back if you want to get together to discuss. As you may recall, Clark increased the benefits when he increased the costs on the CPJ, and the original IA Summary has original benefits. Yes, the original benefits can not justify the new increased costs. Seems like Clark assumed a catastrophe in about year 3 in the amt of $3,000,000 +/-, in the mtg. you and I had with him, and with the way things happen, it is a good assumption.
Steve

From: Petty, Harold L.
Sent: Thursday, May 18, 2000 2:32 PM
To: Weaver, Steve C.
Cc: Minghini, Cherie M.; Smith, H. Michael; Purkey, Ronald E.
Subject: I/A summary - KIF353

Steve:

I was talking with Clark Morris a little while ago. An issue has come up regarding the I/A summary.

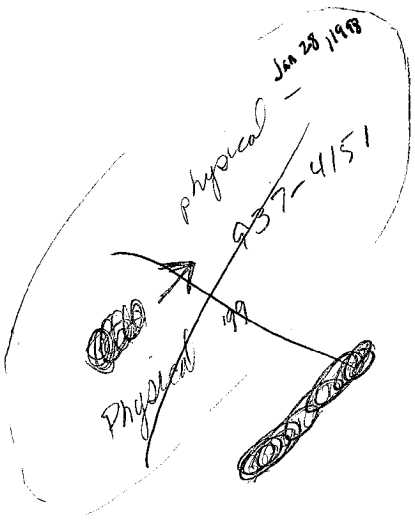
If someone reads it cold turkey, they get the idea that for $42K per year we could continue renting the pump and the pipe and never have to do the permanent fix. I think what is really meant is $42K would get us the rest of this FY. There are certainly a lot more costs (and risks) that need to be brought forward.

Exposure of temporary dredge pipe above ground subject to damage from heavy equipment
Cost of personnel on standby to turn pump on.
Blocked drainage pipes (due to being used as temporary sleeves) could cause washout of railroad track or pavement damage on access road(s).
Single Diesel Pump (no back-up in case of mechanical failure)

Let's you, me, Cherie, and Mike talk about this,

Thanks,

Lynn



Petty, Harold L.

To: Brewster, Steve E.
Cc: Minghini, Cherie M.
Subject: RE: COAL YARD POND PROJECT

Steve:

Spent just about all day yesterday on Kingston - N/S Contract with Mark Hasting, Gary Quinn, and Environmenmtal Affairs, and others. All in response to a question and comment by Nathan. I think it is on the road to recovery now; but that is a different story, will tlak to you later on that.

The latest is it will be a seperate project. Cherie Minghini will be the PE. We are going back to FPEP in June. FPEP package will be for study money, partial design money, and partial construction money for the pipe portion of the project. A second FPEP package will go up later for the remainder of the project which will tap into next year's money. We are actually working phase 1 now using Clark Morris money.

Here is my understanding for the power.

Catlett is handling the power cable from the electrical room to the south end of the reclaim tunnel; I truly don't know the time frame for this but I assume it will be this summer. Power from the reclaim tunnel to the pumps will likely be October due to cash flow.

From: Brewster, Steve E.
Sent: Friday, May 26, 2000 9:05 AM
To: Petty, Harold L.
Subject: COAL YARD POND PROJECT

Lynn,

What's the latest, your project or mine ? If yours, what kind of time frame for installation, particularly power cable for the pumps ?

See 'ya,
Steve

Minghini, Cherie M.

From: Petty, Harold L.
Sent: Thursday, May 18, 2000 2:32 PM
To: Weaver, Steve C.
Cc: Minghini, Cherie M.; Smith, H. Michael; Purkey, Ronald E.
Subject: I/A summary - KIF353

Steve:

I was talking with Clark Morris a little while ago. An issue has come up regarding the I/A summary.

If someone reads it cold turkey, they get the idea that for $42K per year we could continue renting the pump and the pipe and never have to do the permanent fix. I think what is really meant is $42K would get us the rest of this FY. There are certainly a lot more costs (and risks) that need to be brought forward.

Exposure of temporary dredge pipe above ground subject to damage from heavy equipment
Cost of personnel on standby to turn pump on.
Blocked drainage pipes (due to being used as temporary sleeves) could cause washout of railroad track or pavement damage on access road(s).
Single Diesel Pump (no back-up in case of mechanical failure)

Let's you, me, Cherie, and Mike talk about this,

Thanks,

Lynn

May 23, 2000

Send To:
Name: Dan Smith

Company:

Address:

Fax Number: (423) 266-0922 Number of Pages: 2

Verification Number: (423) 757-8088

Subject: Railroad sleeve req'ments

From: Tennessee Valley Authority
Name: CHERIE MINGHINI

Organization: Fossil - Project & Discipline Engineering

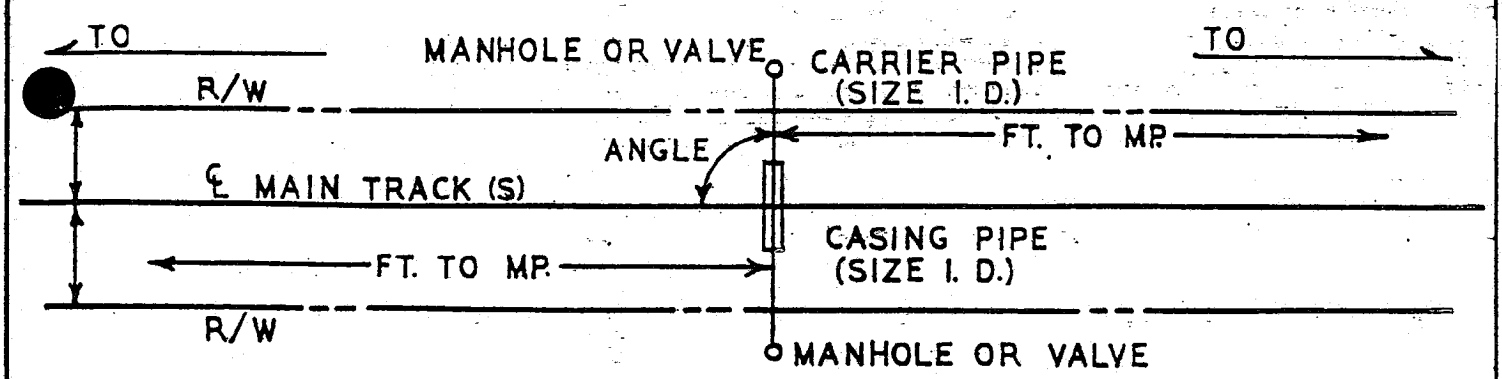
Address: 1101 Market Street - LP 2G-C
Chattanooga, TN 37402-2801

Fax Number: (423) 751-7094

Telephone Number: (423) 751-6375

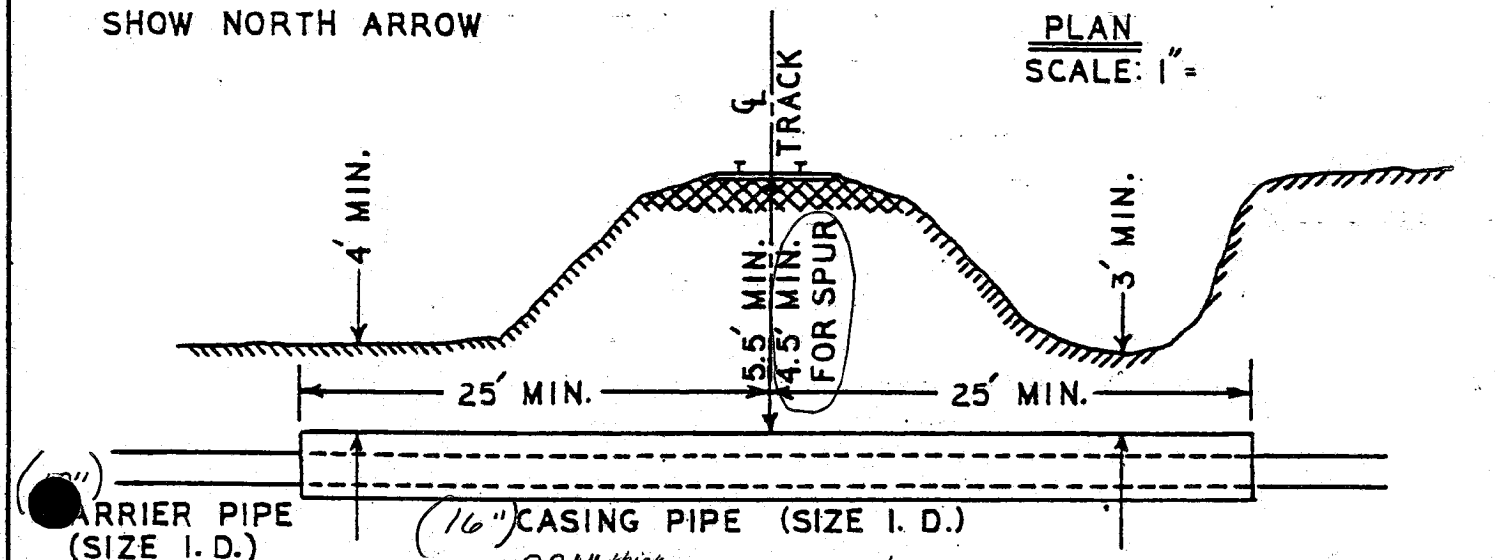
Special Instructions:
The information was basically taken from AREA (Vol. 1 Ch. 1 Section 5.2) requirements. I couldn't xerox, so I wrote some of the information in. If you have any questions or comments, please call me.

SAMPLE COPY



SHOW NORTH ARROW

PLAN
SCALE: 1" =



.281" thick min. steel casing

PROFILE

↳ 4" greater than O.D. of carrier pipe

NOTE: Applicant's Plan should reflect Actual Field Conditions.

Pipe Line and Crossing to be installed and maintained in accordance with latest approved AMERICAN RAILWAY ENGINEERING ASSOCIATION'S "Specifications for Pipelines for Conveying Flammable and Non-flammable Substances".

	Carrier Pipe	Casing Pipe
Contents to be handled		
Outside diameter		
Pipe material		
Specifications and Grade		
Wall thickness		
Actual working pressure		
Type of joint		
Coating		
Method of installation		

Vents: No. _____ Size _____ Hgt. above ground _____

Seal: Both ends _____ One end _____

Bury: Base of rail to top of casing _____ ft. _____ in.

Bury: (Not beneath tracks) _____ ft. _____ in.

Bury: (Roadway ditches) _____ ft. _____ in.

Cathodic protection:

Type, size and spacing of insulators or supports.

NORFOLK SOUTHERN

OPERATING COMPANY

OFFICE OF CHIEF ENGINEER - DESIGN & CONSTRUCTION
ATLANTA, GA

City, State
Name of Applicant
Distance to Nearest Milepost

PX

KIF
Coal YRD
Pond
Piping

5-17-00

Site walkdown notes

- 6" discharge out of pumps (go to 10"? will pumps handle? new check valve)

Spillway to ditch? safety overflow

Electrical runs along ditch to box 3 across road

Charles Rice –
cable downgrade –
due to pumps — let Harold know so he can run cable

will have to excavate around — do we need to keep?

monuments - Jim Huber (from map stone)

New piping – all the way to discharge channel * in bad shape

~~Sleeve~~ @ main plant road ~~3~~ new track (Try to use) X - 2 new sleeves → NS

- will not be able to use existing at rail due to new track
- Find sleeve before end of month so we can locate it on drawing

New track not shown on drwg
106 W201
203
106 W204

Float switches? Elevations?

LOCALITY MAP

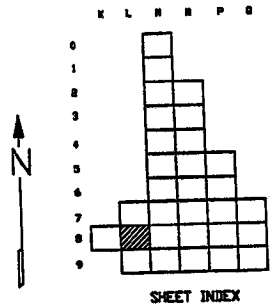
THIS MAP WAS COMPILED FROM AERIAL PHOTOGRAPHY DATED NOVEMBER 30, 1993 BY TENNESSEE VALLEY AUTHORITY USING PHOTOGRAMMETRIC METHODS ON THE G-8 STEREOPLOTTER/MICROSTATION DIGITAL COMPILATION SYSTEM.

THIS MAP IS AVAILABLE IN A COMPUTER READABLE FORMAT.
TOPOGRAPHY WAS PREVIOUSLY COMPILED USING MANUAL PHOTOGRAMMETRIC METHODS AND AERIAL PHOTOGRAPHY DATED JULY 1964.
THIS MAPPING WAS REVISED ON MAP SHEET NUMBER 35 NS 4615 SW XX, WHERE XX IS SHEET NUMBER FOLLOWING THE SAME INDEX AND FORMAT AS USED IN THIS MAP SERIES.

CONTROL BY USGS AND TVA
LOCATED ON USGS 7.5' QUADRANGLES, HARRIMAN, TN (123-NE) AND (130-NW)

500-FOOT GRID TICKS BASED ON TENNESSEE RECTANGULAR COORDINATE SYSTEM, 1927 NORTH AMERICAN DATUM (NAD)

A LEGEND OF SYMBOLS AND LINE TYPES USED ON THIS MAP IS AVAILABLE FROM TVA MAPS AND SURVEYS, 1101 MARKET STREET, MR 2A, CHATTANOOGA, TN 37402-2801



SHEET INDEX

TOPOGRAPHY

KINGSTON STEAM PLANT
PROPOSED CONVEYOR ROUTE
ROCKWOOD TENNESSEE

TENNESSEE VALLEY AUTHORITY

Minghini, Cherie M.

From: Weaver, Steve C.
Sent: Thursday, May 11, 2000 2:33 PM
To: Morris, Benton C.
Cc: Galyon, Roy J.; Davis, Victor W.; Minghini, Cherie M.
Subject: RE: KIF - COAL YARD RUNOFF POND PIPING UPGRADE

Clark,
It's not that simple, the settlement will not be uniformly distributed across the entire length of the 4200 feet of pipe. Settlement will happen, but lumps, or piles, of settlement will form causing the flow to become unstable and the pipe will eventually clog. It is almost impossible for anyone to tell you when and where the pipe will clog, but with our luck it will be in the most difficult location to get to. However, the first or second bend, or significant change is where the clog would most likely happen, but could occur anywhere. If pipes were periodically flushed or had a pig ran through them to clean them out, the number of stopped up pipes would dramatically decrease. I know once the pipe is buried it will be forgotten. However, we have been optimistic, since HED took over the yard systems, about getting them properly repaired and maintained.

To answer your question, the velocity will be around 3 ft. per second after the slurry is in the pump discharge pipe. This velocity is not sufficient to maintain suspension of the solids, settlement will happen, it will move some across the bottom of the pipe until friction becomes greater or the settlement hits a bend. Clogging will either happen here or move downstream to a point where it can move no more, and then the pipe will clog.

If you want to take the risk and use the 14 inch diameter pipe, that is your decision. Their are ways to clean out the pipe. Another alternative - You could buy Scott a portable diesel pump, for emergency use, and have him to test it periodically by connecting it the 4200 ft long discharge pipe and flush it out. The portable pump should create a velocity of at least 7 feet per second to re-entrain the settlement.

I'm here to support you, let me know if you have any questions.
Thanks, Steve

From: Morris, Benton C.
Sent: Thursday, May 11, 2000 12:10 PM
To: Weaver, Steve C.
Cc: Galyon, Roy J.; Davis, Victor W.
Subject: RE: KIF - COAL YARD RUNOFF POND PIPING UPGRADE

Will sediment not close pipe to 10" then we will have adequate flow to keep solids suspended?

From: Weaver, Steve C.
Sent: Wednesday, May 10, 2000 8:48 AM
To: Morris, Benton C.
Cc: Minghini, Cherie M.; Davis, Victor W.
Subject: KIF - COAL YARD RUNOFF POND PIPING UPGRADE

Clark,
Upon further review I no longer want to use the existing dredge pipe for the permanent coal yard runoff pond discharge pipe. Yesterday after meeting with you, in which I said the existing pipe would work, we confirmed the pipe is 14 inches in diameter with an inside diameter of 12.352 inches for new pipe. The velocity with one 1200 GPM submersible pump running is 3.21 feet per second. The minimum velocity to keep solids suspended is 5 feet per second. So if we use the existing pipe it will eventually clog, but there is no way to say when it will clog. Even with both pumps running the flow is still below 5. Will discuss at your convince.

THANK YOU

Steve Weaver
Yard Systems Engineer
Fossil Engineering Services
(423) 751-3536

Fax (423) 751-6116

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Wednesday, May 17, 2000 5:50 PM
To: 'cmminghini@tva.gov'
Cc: Timothy J Brown; 'jhcatlet@tva.gov'; 'hlpetty@tva.gov'
Subject: KIF meeting notes

A summary of items from our meetings yesterday (in Chattanooga) and at the site today. If either of you have any questions, comments, or clarifications, please respond.

Dan

Meeting in Chattanooga (Tuesday May 16), Cheri Minghini (TVA) and Dan Smith (Parsons)

1. Cheri provided rainfall data (electronic format) for station 0712. A hard copy summary of data from station 10250 was also provided (listing max rainfall from 1994). Parsons would like data from both stations if available.

2. Discussed preliminary pond size (based on 6.6 inch storm event [100 yr storm for KIF]) with Cheri (based on watershed size and runoff coefficients TVA had used earlier). A pond for this event would be quite large (> 50 ac-ft). This may exceed safe dam act thresholds.

3. The maximum elevation for the water in the pond should not exceed el. 758.

4. Discussed potential pipe routing, and planned to meet at KIF Wednesday at 10 am. TVA is going to buy new 10 HDPE pipe (DR 17). Costs per ft (delivered, but not installed) were $6.78/ft and $7.11/ft. This means that the existing Flygt electric pumps will be used.

5. Confirmed deliverable dates: May 31 for sketches showing pipe routing, and June 15 for drawing depicting the excavation contours for the pond (along with a calculation).

Wednesday, Meeting at KIF (Cheri Minghini and Harold Catlett - TVA), and (Tim Brown and Dan Smith - Parsons).

1. Harold conducted at site tour. Potential routes for the HDPE pipe were looked at.

2. The existing pumps (Flygt C-3201 w/ 462 impeller) will be placed on the existing barge. A 6 in dia stainless steel pipe attached each pump will wye into a single 6 in dia ss line with check valve. A flexible hose will connect to the ss line and to the new HDPE line. It is desirable to bypass existing piping contained inside a building, and attach to the new HDPE line. TVA wants to know if the existing SS pipe configuration can continue to be used, or if the pipe sizes need to be enlarged to allow optimal operation of the system. Parsons will look into this, as it may affect cost if larger pipe (and check valve) were needed.

Parsons will need to know the bottom depth of the pond when dredged, and the minimum depth of water needed to operate the pumps (Harold will provide).

3. There are 3 existing survey monuments in the coal yard, where excavation is likely to achieve greater pond volume. Cheri will discuss with surveyors regarding the impact of elimination/relocation of these monuments.

4. If the max elevation (not to be exceeded) is 758, the Kelsh topo shows spot elevations of 757.2 (LP elevation) where the contractor access road is located (southern perimeter of the coal yard). Therefore, the maximum elevation (by default) may the the elevation of the road. In the past (before construction of the new coal handling facility), the water elevation in the coal yard has exceeded the elevation of the road.

Parsons presented an idea regarding pond function. The road could be depressed along a portion of its length to form a spillway in the event some storm event (greater than the design storm event) were to cause water to rise higher than anticipated. This would allow an additional margin of safety regarding storage, but would allow water from the coal yard to bypass the NPDES permitted outfall. Parsons needs direction from TVA on whether this would be a desirable approach. If this approach is deemed viable, Parsons may need to confirm elevations in the area where a spillway would be placed.

Get back to Charles Rice

5. In all likelihood, the size of the pond would exceed safe dam act limitations, based on a quick review of the regulations by Parsons. Parsons does not expect that embankments will be needed to impound water, rather excavation will increase the storage volume for the existing area within the coal yard. The issue of whether the safe dam act would apply needs to be investigated, and Parsons recommends that TVA Environmental Affairs look into this issue and provide direction to Parsons as needed.

6. Harold said that a new electrical line will cross the coal yard to the electrical equipment to be activitated for supplying power to the pumps. Parsons will need to coordinate with the TVA electrical engineer in Chattanooga for specifics of the route and burial depth, when looking at excvation within the coal yard.

7. The preferred route for the HDPE pipe would be outside the coal yard fence until it would pass beneath a new rail siding through an existing sleeve (the sleeve used by the existing 14 in HDPE pipe). From there it would pass beneath existing (and a new) rail line through a new sleeve to be jacked beneath these rail lines. From there it would undergo a change in direction (long radius) and pass beneath the plant road and existing rail line (new sleeve). From there it would follow the alignment of the existing above-ground fiberglass line parallel with ash sluce lines to the fly ash discharge pond. The existing fiberglass line will be replaced by new 10 in dia HDPE line.

8. Harold provided drawing numbers 106W201, 203, 204, and 205 for the new rail siding located within the existing rail siding.

Get P&P's HLP

9. Harold said that TVA would like to have cleanouts installed along the pipeline. Dan said that the cleanouts can be provided by the pipe supplier, and wyes fabricated on pipe spools are available. There may be some additional welding of butt joints, but the cost increase should be minimal. Dan though that cleanouts should be provided at changes of direction, and about an 800 ft maximum spacing.

10. Crossings beneath the rail lines should follow NS requirements. Lynn Petty has these. Harold thought that the casing pipe should be at least 40 inches beneath the top of rail.

11. Parsons had looked at the pump and length of pipe. A quick (approximate) calculation for a 10 inch pipe revealed that one pump would operate at 1200 gpm. At that rate, and the large size of the pond (potentially larger than 50 ac-ft), up to 10 days may be needed to dewater the pond (if filled to the maximum volume). Parsons will start the drainage calculations and first determine the watershed size and runoff characteristics and forward to TVA for review, prior to performing calculations. Parsons will review the data supplied by TVA and look at probable storm events (either single events or a series of smaller events over a longer period - possibly up to 10 days) for TVA to review also prior to completion of detailed calculations.

12. Parsons will start constuction of the pipe routing map next week, and will incorporate the field run topo as it becomes available (expected early next week).

Minghini, Cherie M.

From: Weaver, Steve C.
Sent: Thursday, May 11, 2000 2:34 PM
To: Minghini, Cherie M.
Subject: FW: KIF - COAL YARD DRAINAGE BASIN - ELECTRICAL

FYI

From: Sims, Scott T.
Sent: Monday, March 20, 2000 7:39 PM
To: Weaver, Steve C.
Cc: Wheatley, Thomas E.; Davis, Victor W.; Morris, Benton C.; Brewster, Steve E.; Masterson, Ronald C.
Subject: RE: KIF - COAL YARD DRAINAGE BASIN - ELECTRICAL

I still think we can go with Option 3. The previous feed to the pumps traveled a similar distance, and the voltmeters read no less than 480V. Plus, it is my understanding that in addition to the conduit from the MCC to the south maintenance building, the project has provided a 480V breaker dedicated for these pumps. So now we need to pull cable the entire length. That which is buried can have a dedicated crossing, concrete, or both. $125 should cover it. I agree that "now" is the time to do this work, but I do not have the O&M funds to proceed with this project and must wait for funding to become available, if that means continuing to rent the diesel pump and discharge piping. I'm open for suggestions (and donations).

From: Weaver, Steve C.
Sent: Monday, March 20, 2000 11:36 AM
To: Sims, Scott T.
Cc: Wheatley, Thomas E.; Davis, Victor W.; Morris, Benton C.
Subject: RE: KIF - COAL YARD DRAINAGE BASIN - ELECTRICAL

Scott,

This email has been requested by Tom Wheatley, and it regards the electrical portion of the Coal Yard Runoff Pond Piping Upgrade Proposed Project. Tom asked the question "Is it possible to install the new electrical feed now, as the existing power feed has now been lost permanently?" The only way I know is that you Clark give up something now to pay for it, but this is your and Clark's decision, and you should talk to Clark. Please note the only source now to de-water the pond is the rented diesel pump.

Since Tom called I have been over in the electrical section talking about our original conceptual estimate used in the CPJ. You may recall I used $125,000 for the electrical portion only. The Option 3 below is what we have been discussing; however, the Phase 1 Engineering Study has not been done yet, it has been requested.

When this amount ($125,000) was established, plans there was going to be power available at the Rotary Plow Maint. Bldg for the pumps, and we were going to reimburse SBrewster for running this power for us. Since then this power has not been provided; however, SBrewster provided conduit only from the Motor Control Center (MCC) to the Rotary plow Maint. Bldg. for our use to run power. From this point, we planned to run direct burial cable to the existing coal yard runoff pond pumps, a distance of about 1,200 feet. Because of the uncertainty, at that time, about pan scraper traffic, some additional funding was included to cover either making a designated crossing for heavy equipment, or pouring about a 12 inch thick layer of concrete over the top of the direct burial cable. The engineering preferred method is to make a designated crossing. This morning there was some anxiety over pouring concrete until the civils review and make a recommendation, which should be part of the Phase 1 Study.

The electrical scope of work now includes:

- Provide new power cable from MCC to pumps
- Provide a safe route from Rotary Plow Maint. Building to pumps

The original amount of $125,000 was derived as follows:

- $60,000 for 1,200 ft. of direct burial cable
- $15,000 to pour 12 inch concrete layer over top of it
- $50,000 to reimburse SBrewster

The electrical's say if 4160V is available we should run it and install a transformer at the pumps. For comparison purpose this is about $8,000 more (see option 4). The benefits are much less line loss, smaller cables.

I hope this helps, if you need additional information let me know.

From: Sims, Scott T.
Sent: Friday, May 28, 1999 1:00 PM
To: Weaver, Steve C.
Cc: Foster, William A. Jr.
Subject: RE: KIF - COAL YARD DRAINAGE BASIN - ELECTRICAL
Importance: High

Let's go with option 3.

From: Weaver, Steve C.
Sent: Monday, May 24, 1999 2:04 PM
To: Sims, Scott T.
Cc: Brewster, Steve E.
Subject: KIF - COAL YARD DRAINAGE BASIN - ELECTRICAL

Scott,
Regarding a new electrical power supply to the submersible pumps for subject pond, we have some preliminary **electrical costs and options only.** Options 1 through 4 are for running power from the future rotary plow maintenance building to the existing pumps. Steve Brewster is providing power to this point. If approved, this project may reimburse Steve's budget for running the power to the building.

The following costs are the installed costs. Will you review these options and let me know which one you and the plant prefer:

- OPTION 1 480 volt 200 amps, Ductbank, 4 ea., 3" steel conduits encased in reinforced concrete, hand holds at every 250 ft, 1200 ft. & cable
  $240/ft = $288,000

- OPTION 2 4160 volt 32 amps, Ductbank 2 steel conduits encased in reinforced concrete, hand holes at every 250 ft, 1200 ft. & cable & transformer
  NOTE - This **assumes** 4160 is available.
  $189/ft = $226,800

- OPTION 3 480 volt 200 amps, Direct Burial Cable, 1200 ft., with shield and armour, bury 5 ft. deep
  $49/ft = $58,800

- OPTION 4 4160 volt 32 amps Direct Burial Cable, 1200 ft., with shield and armour, bury 5 ft. deep plus transformer
  NOTE - This **assumes** 4160 is available.
  $58/ft = $69,600

- OPTION 5 Outside utility electrical source, from Swan Pond Lake Road. We do not know if this is a viable option and assume TVA would have to pay for the overhead power lines and power poles. The plant would pay a monthly power bill.

We should have the piping costs soon and will proceed with completing CPJ. If you can please let me know by next Tuesday (6/1/99) which electrical option we should include in the CPJ.

THANKS,
Steve Weaver
Systems Engineer-Yard Systems
Fossil Engineering Services
(423) 751-3536
Fax (423) 751-6116

Weaver, Steve C.

From: Sims, Scott T.
Sent: Wednesday, May 05, 1999 2:52 PM
To: Weaver, Steve C.
Subject: FW: COAL YARD DRAINAGE PUMPS
Importance: High
Sensitivity: Private

From: Sims, Scott T.
Sent: Friday, March 19, 1999 9:31 AM
To: Minghini, Cherie M.
Cc: Horton, E. Conyers III; Radford, Larry D.; Brewster, Steve E.; Morris, Benton C.
Subject: COAL YARD DRAINAGE PUMPS
Importance: High
Sensitivity: Private

These two 6" pumps are each rated at 1200 gpm @ 90' of head. Only one pump is used at a time because of the conditions I mentioned before (electrical feed, discharge piping).

Scott

S.T. Sims
Production Supervisor
Kingston Fossil Plant
714 Swan Pond Road
Harriman, TN 37748
(423) 717-2061

Meeting w/ Steve Weaver & Lynn Petty
5/8/00

5/8/00
Harold Catlett
went out &
measured it.
Said it is almost
1" thick
(good!)

100 psi pipe

2 Pumps @ 90' head
w/ one discharge line

Need:
≤ 50 psi

If pipe is worn to
about ½": should
be able to handle 50-65 psi
worst case

∴ CAN use existing dredge pipe

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DATE: 5/24

To: Steve Weaver Company

Fax Number: 751-6116

From: Katy McClellan [ ] Nashville [X] Knoxville

No. of Pages to Follow: 1

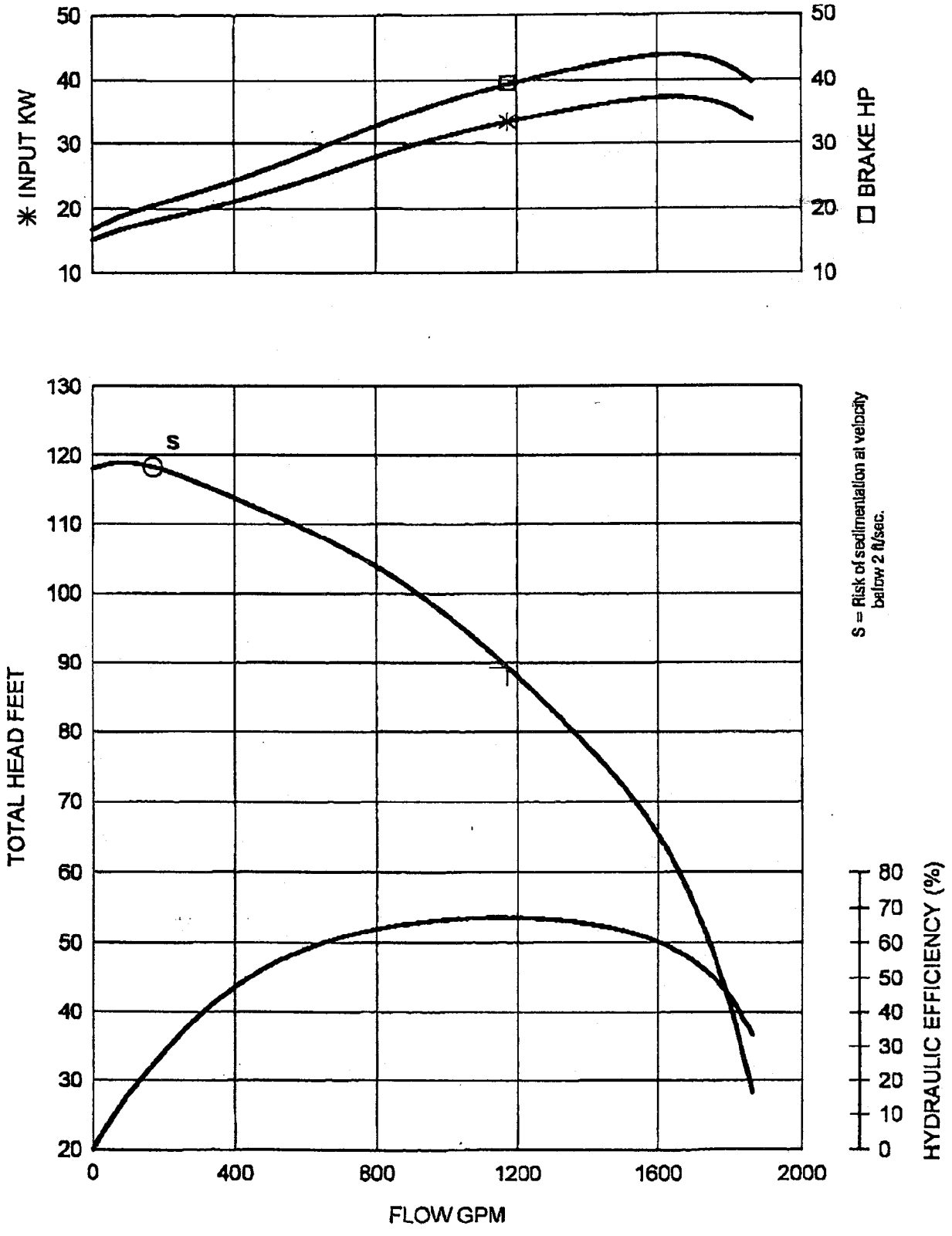
RE:

Message:

curve for Flygt 3201, 462 impeller
currently in for repair

1024 Harrison Street Nashville, TN 37203 615-256-0112 Fax 615-256-2427
121 Sutherland Avenue Knoxville, TN 37919 423-523-9300 Fax 423-544-1400

CONFIG.		C-3201 462 Impeller	SECTION	PAGE
HP/HS			3	9
PHASE	VANES		SUPERSEDES	ISSUED
3	3		2/88	6/94



KIF COAL YARD RUNOFF POND

EXISTING SUBMERSIBLE PUMP

DRAULIC DATA

to Feet (Head) of Water
lb/sq in.

(39.2°F)

Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head
62.67	209	482.79	261	602.91	365	843.15
64.98	210	485.10	262	605.22	370	854.70
67.29	211	487.41	263	607.53	375	866.25
69.60	212	489.72	264	609.84	380	877.80
71.91	213	492.03	265	612.15	385	899.35
74.22	214	494.34	266	614.46	390	900.90
75.53	215	496.65	267	616.77	395	912.45
78.84	216	498.96	268	619.08	400	924.00
81.15	217	501.27	269	621.39	405	931.55
83.46	218	503.58	270	623.70	410	947.10
85.77	219	505.89	271	626.01	415	958.65
88.08	220	508.20	272	628.32	420	970.20
90.39	221	510.51	273	630.63	425	981.75
92.70	222	512.82	274	632.94	430	993.30
95.01	223	515.13	275	635.25	435	1004.85
97.32	[illegible]	517.44	276	637.56	440	1016.40
99.63	[illegible]	519.75	277	639.87	445	1027.95
10.94	[illegible]	522.06	278	642.18	450	1039.50
04.25	[illegible]	524.37	279	644.49	455	1051.05
06.56	228	526.68	280	646.80	460	1062.60
08.87	229	528.99	281	649.11	465	1074.15
11.18	230	531.30	282	651.42	470	1085.70
13.49	231	533.61	283	653.73	475	1097.25
15.80	232	535.92	284	656.04	480	1108.80
18.11	233	538.23	285	658.35	485	1120.35
20.42	234	540.54	286	660.66	490	1131.90
22.73	235	542.85	287	662.97	495	1143.45
25.04	236	545.16	288	665.28	500	1155.00
27.35	237	547.47	289	667.59	525	1212.75
29.66	238	549.78	290	669.90	550	1270.50
31.97	239	552.09	291	672.21	575	1328.25
34.28	240	554.40	292	674.52	600	1386.00
36.59	241	556.71	293	676.83	625	1443.75
38.90	242	559.02	294	679.14	650	1501.50
41.21	243	561.33	295	681.45	675	1559.25
43.52	244	563.64	296	683.76	700	1617.00
45.83	245	565.95	297	686.07	725	1674.75
48.14	246	568.62	298	688.38	750	1732.50
50.45	247	570.57	299	690.69	775	1790.25
52.76	248	572.88	300	693.00	800	1848.00
55.07	249	575.19	305	704.55	825	1905.75
57.38	250	577.50	310	716.10	850	1963.50
59.69	251	579.81	315	727.65	875	2021.25
62.00	252	582.12	320	739.20	900	2079.00
64.31	253	584.43	325	750.75	925	2136.75
66.62	254	586.74	330	762.30	950	2194.50
68.93	255	589.05	335	773.85	975	2252.25
71.24	256	591.36	340	785.40	1000	2310.00
73.55	257	593.67	345	796.95	1500	3465.
75.86	258	595.98	350	808.50	2000	4620.
78.17	259	598.29	355	820.15	3000	6930.
80.48	260	600.60	360	831.60		

WATER DATA

Pressure, Feet (head) of Water to Lb per Sq In.

lb/sq in. = .4331 × ft

Based on water at its greatest density (39.2°F.)

Feet Head	Pressure Pounds per Square Inch	Feet Head	Pressure Pounds per Square Inch	Feet Head	Pressure Pounds per Square Inch	Feet Head	Pressure Pounds per Square Inch	Feet Head	Pressure Pounds per Square Inch	Feet Head	Pressure Pounds per Square Inch
1	0.43	54	23.39	107	46.34	160	69.31	213	92.20	285	123.45
2	0.86	55	23.82	108	46.78	161	69.74	214	92.69	290	125.62
3	1.30	56	24.26	109	47.21	162	70.17	215	93.13	295	127.78
4	1.73	57	24.69	110	47.64	163	70.61	216	93.56	300	129.95
5	2.16	58	25.12	111	48.08	164	71.04	217	93.99	305	132.12
6	2.59	59	25.55	112	48.51	165	71.47	218	94.43	310	134.28
7	3.03	60	25.99	113	48.94	166	71.91	219	94.86	315	136.46
8	3.46	61	26.42	114	49.38	167	72.34	220	95.30	320	138.62
9	3.89	62	26.85	115	49.81	168	72.77	221	95.73	325	140.79
10	4.33	63	27.29	116	50.24	169	73.20	222	96.16	330	142.95
11	4.76	64	27.72	117	50.68	170	73.64	223	96.60	335	145.12
12	5.20	65	28.15	118	51.11	171	74.07	224	97.03	340	147.28
13	5.63	66	28.58	119	51.54	172	74.50	225	97.46	345	149.45
14	6.06	67	29.02	120	51.98	173	74.94	226	97.90	350	151.61
15	6.49	68	29.45	121	52.41	174	75.37	227	98.33	355	153.78
16	6.93	69	29.88	122	52.84	175	75.80	228	98.76	360	155.94
17	7.36	70	30.32	123	53.28	176	76.23	229	99.20	365	158.10
18	7.79	71	30.75	124	53.71	177	76.67	230	99.63	370	160.27
19	8.22	72	31.18	125	54.15	178	77.10	231	100.0	375	162.45
20	8.66	73	31.62	126	54.58	179	77.53	232	100.49	380	164.61
21	9.09	74	32.05	127	55.01	180	77.97	233	100.93	385	166.78
22	9.53	75	32.48	128	55.44	181	78.40	234	101.36	390	168.94
23	9.96	76	32.92	129	55.88	182	78.84	235	101.70	395	171.11
24	10.39	77	33.35	130	56.31	183	79.27	236	102.23	400	173.27
25	10.82	78	33.78	131	56.74	184	79.70	237	102.66	425	184.10
26	11.26	79	34.21	132	57.18	185	80.14	238	103.09	450	195.0
27	11.69	80	34.65	133	57.61	186	80.57	239	103.53	475	205.77
28	12.12	81	35.08	134	58.04	187	81.0	240	103.96	500	216.58
29	12.55	82	35.52	135	58.48	188	81.43	241	104.39	525	227.42
30	12.99	83	35.95	136	58.91	189	81.87	242	104.83	550	238.25
31	13.42	84	36.39	137	59.34	190	82.30	243	105.26	575	249.09
32	13.86	85	36.82	138	59.77	191	82.73	244	105.69	600	259.90
33	14.29	86	37.25	139	60.21	192	83.17	245	106.13	625	270.73
34	14.72	87	37.68	140	60.64	193	83.60	246	106.56	650	281.56
35	15.16	88	38.12	141	61.07	194	84.03	247	106.99	675	292.40
36	15.59	89	38.55	142	61.51	195	84.47	248	107.43	700	303.22
37	16.02	90	38.98	143	61.94	196	84.90	249	107.86	725	314.05
38	16.45	91	39.42	144	62.37	197	85.33	250	108.29	750	324.88
39	16.89	92	39.85	145	62.81	198	85.76	251	108.73	775	335.72
40	17.32	93	40.28	146	63.24	199	86.20	252	109.16	800	346.54
41	17.75	94	40.72	147	63.67	200	86.63	253	109.59	825	357.37
42	18.19	95	41.15	148	64.10	201	87.07	254	110.03	850	368.20
43	18.62	96	41.58	149	64.54	202	87.50	255	110.46	875	379.03
44	19.05	97	42.01	150	64.97	203	87.93	256	110.89	900	389.86
45	19.49	98	42.45	151	65.40	204	88.36	257	111.32	925	400.70
46	19.92	99	42.88	152	65.84	205	88.80	258	111.76	950	411.54
47	20.35	100	43.31	153	66.27	206	89.21	259	112.19	975	422.35
48	20.79	101	43.75	154	66.70	207	89.66	260	112.62	1000	433.18
49	21.22	102	44.18	155	67.14	208	90.10	261	113.06	1500	649.7
50	21.65	103	44.61	156	67.57	209	90.53	262	113.49	2000	866.3
51	22.09	104	45.05	157	68.0	210	90.96	270	116.96	3000	1,299.5
52	22.52	105	45.48	158	68.43	211	91.39	275	119.12		
53	22.95	106	45.91	159	68.87	212	91.83	280	121.29		

10

CAMERON HYDRAULIC DATA

Pressure, Lb per Sq In. to Feet (Head) of Water
ft = 2.31 × lb/sq in.

Based on water at its greatest density (39.2°F)

Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head	Pressure Pounds Per Square Inch	Feet Head
1	2.31	53	122.43	105	242.55	157	362.67	209	482.79	261	602.91	365	843.15
2	4.62	54	124.74	106	244.86	158	364.98	210	485.10	262	605.22	370	854.70
3	6.93	55	127.05	107	247.17	159	367.29	211	487.41	263	607.53	375	866.25
4	9.23	56	129.36	108	249.48	160	369.60	212	489.72	264	609.84	380	877.80
5	11.55	57	131.67	109	251.79	161	371.91	213	492.03	265	612.15	385	899.35
6	13.86	58	133.98	110	254.10	162	374.22	214	494.34	266	614.46	390	900.90
7	16.17	59	136.29	111	256.41	163	375.53	215	496.65	267	616.77	395	912.45
8	18.48	60	138.60	112	258.72	164	378.84	216	498.96	268	619.08	400	924.00
9	20.79	61	140.91	113	261.03	165	381.15	217	501.27	269	621.39	405	931.55
10	23.10	62	143.22	114	263.34	166	383.46	218	503.58	270	623.70	410	947.10
11	25.41	63	145.53	115	265.65	167	385.77	219	505.89	271	626.01	415	958.65
12	27.72	64	147.84	116	267.96	168	388.08	220	508.20	272	628.32	420	970.20
13	30.03	65	150.15	117	270.27	169	390.39	221	510.51	273	630.63	425	981.75
14	32.34	66	152.46	118	272.58	170	392.70	222	512.82	274	632.94	430	993.30
15	34.65	67	154.77	119	274.89	171	395.01	223	515.13	275	635.25	435	1004.85
16	36.96	68	157.08	120	277.20	172	397.32	224	517.44	276	637.56	440	1016.40
17	39.27	69	159.39	121	279.51	173	399.63	225	519.75	277	639.87	445	1027.95
18	41.58	70	161.70	122	281.82	174	410.94	226	522.06	278	642.18	450	1039.50
19	43.89	71	164.01	123	284.13	175	404.25	227	524.37	279	644.49	455	1051.05
20	46.20	72	166.32	124	286.44	176	406.56	228	526.68	280	646.80	460	1062.60
21	48.51	73	168.63	125	288.75	177	408.87	229	528.99	281	649.11	465	1074.15
22	50.82	74	170.94	126	291.06	178	411.18	230	531.30	282	651.42	470	1085.70
23	53.13	75	173.25	127	293.37	179	413.49	231	533.61	283	653.73	475	1097.25
24	55.44	76	175.56	128	295.68	180	415.80	232	535.92	284	656.04	480	1108.80
25	57.75	77	177.87	129	297.99	181	418.11	233	538.23	285	658.35	485	1120.35
26	60.06	78	180.18	130	300.30	182	420.42	234	540.54	286	660.66	490	1131.90
27	62.37	79	182.49	131	302.61	183	422.73	235	542.85	287	662.97	495	1143.45
28	64.68	80	184.80	132	304.92	184	425.04	236	545.16	288	665.28	500	1155.00
29	66.99	81	187.11	133	307.23	185	427.35	237	547.47	289	667.59	525	1212.75
30	69.30	82	189.42	134	309.54	186	429.66	238	549.78	290	669.90	550	1270.50
31	71.71	83	191.73	135	311.85	187	431.97	239	552.09	291	672.21	575	1328.25
32	73.92	84	194.04	136	314.16	188	434.28	240	554.40	292	674.52	600	1386.00
33	76.23	85	196.35	137	316.47	189	436.59	241	556.71	293	676.83	625	1443.75
34	78.54	86	198.66	138	318.78	190	438.90	242	559.02	294	679.14	650	1501.50
35	80.85	87	200.97	139	321.09	191	441.21	243	561.33	295	681.45	675	1559.25
36	83.16	88	203.28	140	323.40	192	443.52	244	563.64	296	683.76	700	1617.00
37	85.47	89	205.59	141	325.71	193	445.83	245	565.95	297	686.07	725	1674.75
38	87.78	90	207.90	142	328.02	194	448.14	246	568.62	298	688.38	750	1732.50
39	90.09	91	210.21	143	330.33	195	450.45	247	570.57	299	690.69	775	1790.25
40	92.40	92	212.52	144	332.64	196	452.76	248	572.88	300	693.00	800	1848.00
41	94.71	93	214.83	145	334.95	197	445.07	249	575.19	305	704.55	825	1905.75
42	97.02	94	217.14	146	337.26	198	457.38	250	577.50	310	716.10	850	1963.50
43	99.33	95	219.45	147	339.57	199	459.69	251	579.81	315	727.65	875	2021.25
44	101.64	96	221.76	148	341.88	200	462.00	252	582.12	320	739.20	900	2079.00
45	103.95	97	224.07	149	344.19	201	464.31	253	584.43	325	750.75	925	2136.75
46	106.26	98	226.38	150	346.50	202	466.62	254	586.74	330	762.30	950	2194.50
47	108.57	99	228.69	151	348.81	203	468.93	255	589.05	335	773.85	975	2252.25
48	110.88	100	231.00	152	351.12	204	471.24	256	591.36	340	785.40	1000	2310.00
49	113.19	101	233.31	153	353.43	205	473.55	257	593.67	345	796.95	1500	3465.
50	115.50	102	235.62	154	355.74	206	475.86	258	595.98	350	808.50	2000	4620.
51	117.81	103	237.93	155	358.05	207	478.17	259	598.29	355	820.15	3000	6930.
52	120.12	104	240.24	156	360.36	208	480.48	260	600.60	360	831.60		

Minghini, Cherie M.

From: Petty, Harold L.
Sent: Monday, May 08, 2000 9:16 AM
To: Weaver, Steve C.
Cc: Minghini, Cherie M.
Subject: RE: KIF353

Steve:

This is just another example what happens when a CPJ is completed before the Phase I study is done. We should never be locked into a cost before a study is completed. I am more comfortable with the 1000K than I am the 400K but the study should be done before a cost is etched in stone.

Thanks,

Lynn

From: Weaver, Steve C.
Sent: Monday, May 08, 2000 8:10 AM
To: Petty, Harold L.
Cc: Minghini, Cherie M.
Subject: RE: KIF353

Lynn/Cherie

I understand the $1,000K is what we worked out, just nervous about the approved funding being less than this amount, and what we could do to minimize an anticipated cost overrun. However, I am sure we all share this concern.

Have I mentioned I have some digital pictures that you are both welcome to have, just let me know. Also, if I have already transmitted the pictures to you, please disregard.
Thanks, Steve

From: Petty, Harold L.
Sent: Monday, May 08, 2000 7:57 AM
To: Weaver, Steve C.
Cc: Minghini, Cherie M.
Subject: RE: KIF353

Steve:

We have not requested an estimate from the partner yet. That would come late in Phase I after sufficient sketches, scope, specs, etc. are available. The cost raise mentioned in the lower part of the e-mail is the cost increase you, me, and Clark worked out based on ALF and other experiences.

Lynn

From: Weaver, Steve C.
Sent: Monday, May 08, 2000 7:54 AM
To: Petty, Harold L.
Cc: Davis, Victor W.; Brewster, Steve E.
Subject: FW: KIF353

Lynn,

Please see below. Have you requested a cost estimate from the construction partner? Also, if the construction partner's estimate is considerably higher than our TVA Cost Estimating Section's Estimate, have you considered going out for bids? Let me know if I can help.
Steve

From: Brewster, Steve E.
Sent: Saturday, May 06, 2000 1:03 PM
To: DeRieux, John W.; Sims, Scott T.
Cc: Wheatley, Thomas E.; Weaver, Steve C.
Subject: FW: KIF353

FYI

Steve E. Brewster

Project Engineer

From: Nale, Leslie W.
Sent: Friday, May 05, 2000 11:53 PM
To: Smith, H. Michael
Cc: Hickey, Vanessa I.; Morris, Benton C.; Brewster, Steve E.; Burris, Nathan W.; Cowser, Daniel J.; Newsom, Patrick A.; Fulmer, J. Allen
Subject: RE: KIF353

Project Review Board reviewed and agreed with this project at $400k because of the potential damage to the new facility. They did not want to approve it for FY01 because they felt the project should not wait until next year with the blend facility scheduled to be completed this summer. Their recommendation was to add the scope to the blend facility project and implement as soon as possible.

Please let me know if I can be of assistance.
Leslie Nale

Manager, Resource Planning
FPG - Business Services

LP 5A-C
phone (423)751-7858
beeper 1800-283-0028, 2073
cell (423) 322-3097

From: Smith, H. Michael
Sent: Friday, May 05, 2000 1:59 PM
To: Nale, Leslie W.; Fulmer, J. Allen
Cc: Hickey, Vanessa I.; Morris, Benton C.
Subject: KIF353

Leslie/Allen,
There is one yard project on the deferral list that needs to be reconsidered.
KIF353 Coal Yard Pump Discharge Piping. The need for this project was made apparent a few months ago when this area flooded, filling the Blend Facility construction area with water submerging some of our construction equipment. The cost also has increased from 400k to 1000k based on actual costs incurred at Allen Fossil Plant. This project was to be a stand alone project and not part of the Coal Blend Facility Project.

Thanks,

H. Michael Smith
Chattanooga, Tn. 37402
Phone (423) 751-6226
E-Mail hmsmith2@tva.gov

Minghini, Cherie M.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Monday, May 08, 2000 7:19 AM
To: Minghini, Cherie M.
Cc: Petty, Harold L.
Subject: RE: KIF Coal Yard Drainage Pond

Thanks for the info.
I'll go ahead and order the topo sheets.

Dan

-----Original Message-----
From: Minghini, Cherie M. [mailto:cmminghini@tva.gov]
Sent: Friday, May 05, 2000 4:00 PM
To: Smith, Daniel R
Cc: Petty, Harold L.
Subject: KIF Coal Yard Drainage Pond

I pulled our drainage calculations from the previous Coal Yard Runoff Pond project. It appears that there is approximately 5,795,280 sf of drainage area (we used a runoff coefficient of .7 for this area) and an additional drainage area of 293,250 sf in the railroad track area (we used a runoff coefficient of .5 for this area) which all drains to the pond. I am not sure how this has changed since 1994 (obviously the addition of the blender/unloader). These drainage areas were calculated based on Kelsh topo sheets:

461K530 M-8
M-7
M-6
L-7
L-8

and the Harriman Quad Map.

Hopefully this will help give you an idea of what we are looking at, but you will probably want to relook at this. Call me if you have any questions at 751-6375.

Thanks,

Cherie M. Minghini, P.E.
Tennessee Valley Authority
Project & Discipline Engineering
(423) 751-6375

KINGSTON FOSSIL PLANT

KIF353
COAL YARD RUNOFF POND DISCHARGE PIPE UPGRADE

PRELIMINARY ENGINEERING KICK-OFF MEETING AGENDA
April 13, 2000 2:00 PM
Utility Building

1. Introductions and establishment of the JPT

2. History - (Handout) Preliminary I/A Summary

3. Where we are now

   (PDE/Preliminary Engineering)
   Preliminary Engineering FY00
   Probable Phase 2 and Phase 3 Funding for FY01
   Strong Possibility that Phase 2 could happen this summer.

4. Needs:

   Scope, Schedule, and Budget for Preliminary Engineering

As a reminder here are the deliverables from the Preliminary Engineering Phase:

a. A preliminary engineering design of the project that includes:
   - detailed scope of the final design (phase 2) activities
   - conceptual scope of the implementation (phase 3) activities
   - identification of long-lead procurements
   - completion of an environmental review checklist
   - identification of required permitting
   - identification of the benefits expected from the proposed design
   - parameters to be measured or tested to verify the benefits
   - identification of the implementation resources (manpower by craft) estimated to perform the work

b. A summary level project schedule identifying major project activities and milestones.
c. A total project cost estimate.
d. A Project Justification (PJ) form.

5. Review of the I/A Summary (Accept, reject, or modify)

6. Handout of drawings

7. Questions:

   Identify the point where the upgraded pipe ends?
   Demolition of abandoned equipment; abandonment of existing pipe?
   Locate where spoil or excavated material should go.
   Other questions?

8. Assignments & Schedule

9. Walkdown

Petty, Harold L.

From: Petty, Harold L.
Sent: Friday, April 07, 2000 11:48 AM
To: Sims, Scott T.; Catlett, James H; Rice, Charles W.; 'Smith, Daniel R.'; Weaver, Steve C.; Price, Dan; Smith, H. Michael
Cc: Purkey, Ronald E.; Davis, Victor W.
Subject: Kingston - KIF353 - Coal Yard Runoff Pond

A Preliminary Engineering (formerly called Phase I Study) kick-off meeting is planned for the subject project. This meeting will be held Thursday, April 13, 2000 at 2:00 PM. We will meet in the Utility Building and follow-up with a walkdown.

Thank You,

Lynn Petty

H. L. Petty, PE
LP 2G-C
(423) 751-6704
fax (423)751-7094

Petty, Harold L.

From: Weaver, Steve C.
Sent: Wednesday, April 12, 2000 11:26 AM
To: Petty, Harold L.
Subject: More KIF Pictures

These pictures were taken in March, 1999:


Pic00002.jpg


Pic00003.jpg


Pic00004.jpg


Pic00005.jpg


Pic00006.jpg


Pic00007.jpg


Pic00008.jpg


Pic00009.jpg


Pic00010.jpg


Pic00011.jpg


Pic00012.jpg


Pic00013.jpg


Pic00014.jpg


Pic00015.jpg


Pic00016.jpg


Pic00017.jpg


Pic00018.jpg


Pic00019.jpg


Pic00020.jpg


Pic00021.jpg

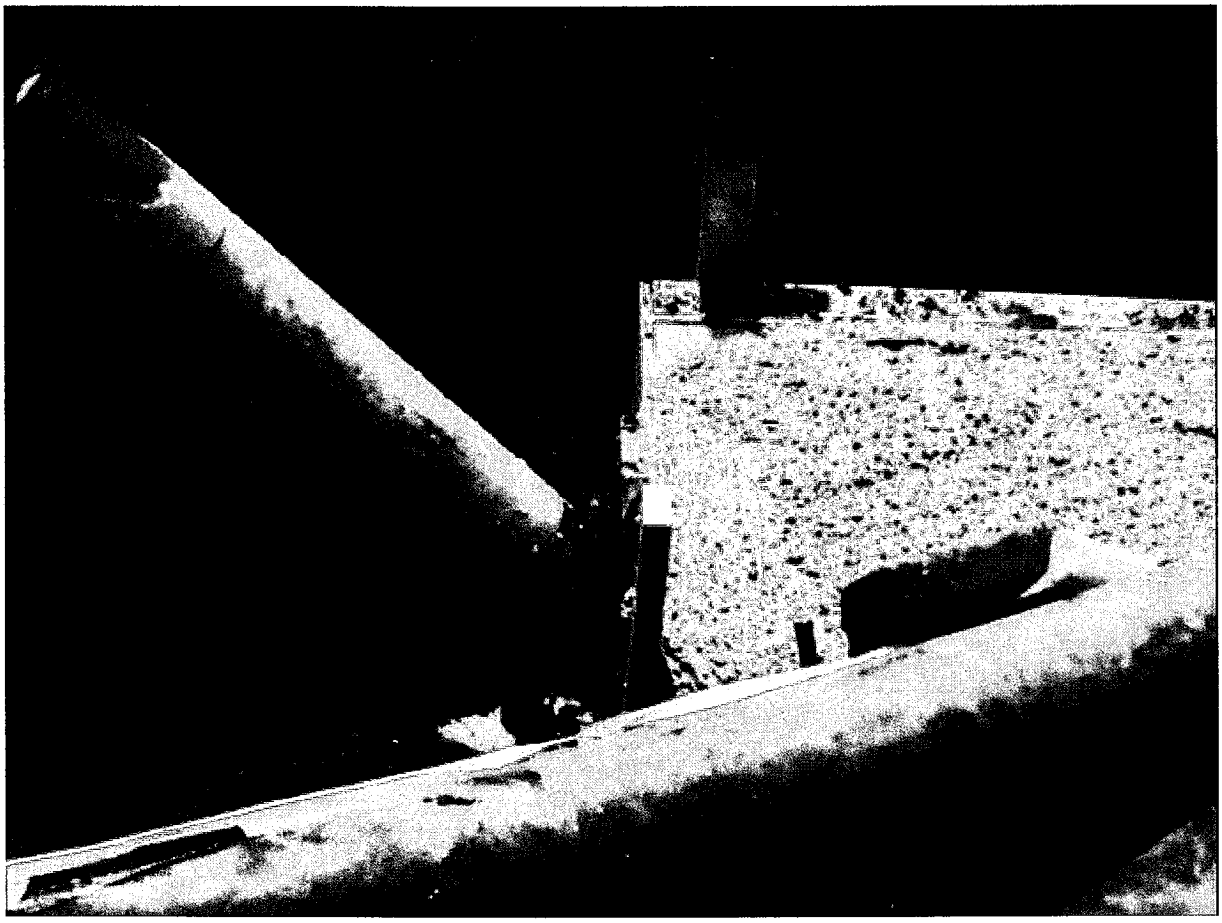

Pic00022.jpg

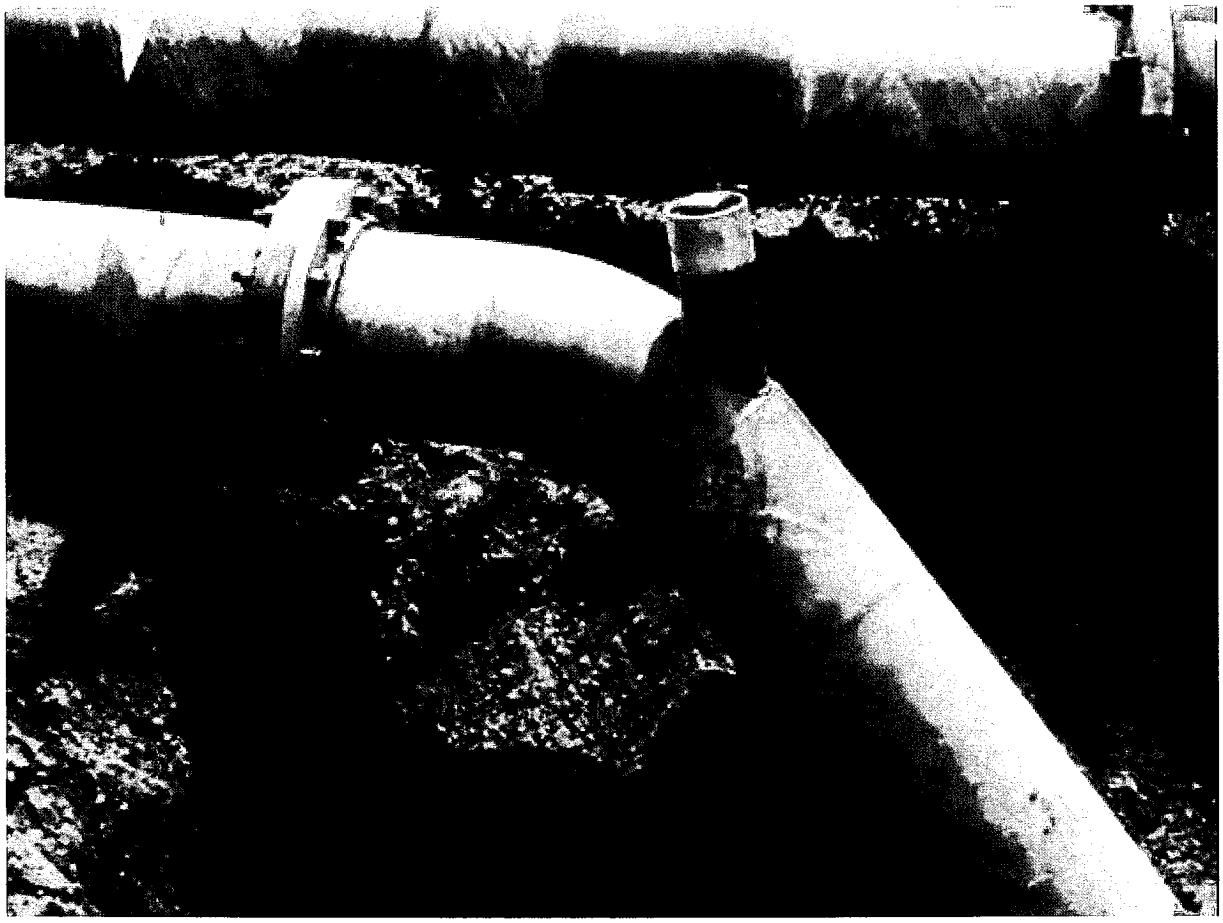
Lynn,
Of particular interests are pictures 15 through 18. These are of the existing underground piping under the main plant road. Initial discussions on this portion of new piping was to include a sleeve as the existing piping does not have a sleeve. Also, Scott replaced the elbows only on each end of this underground portion, but not the piping. At the interface on each end of this piping, a large of amount of concrete was poured to ensure they remain connected.

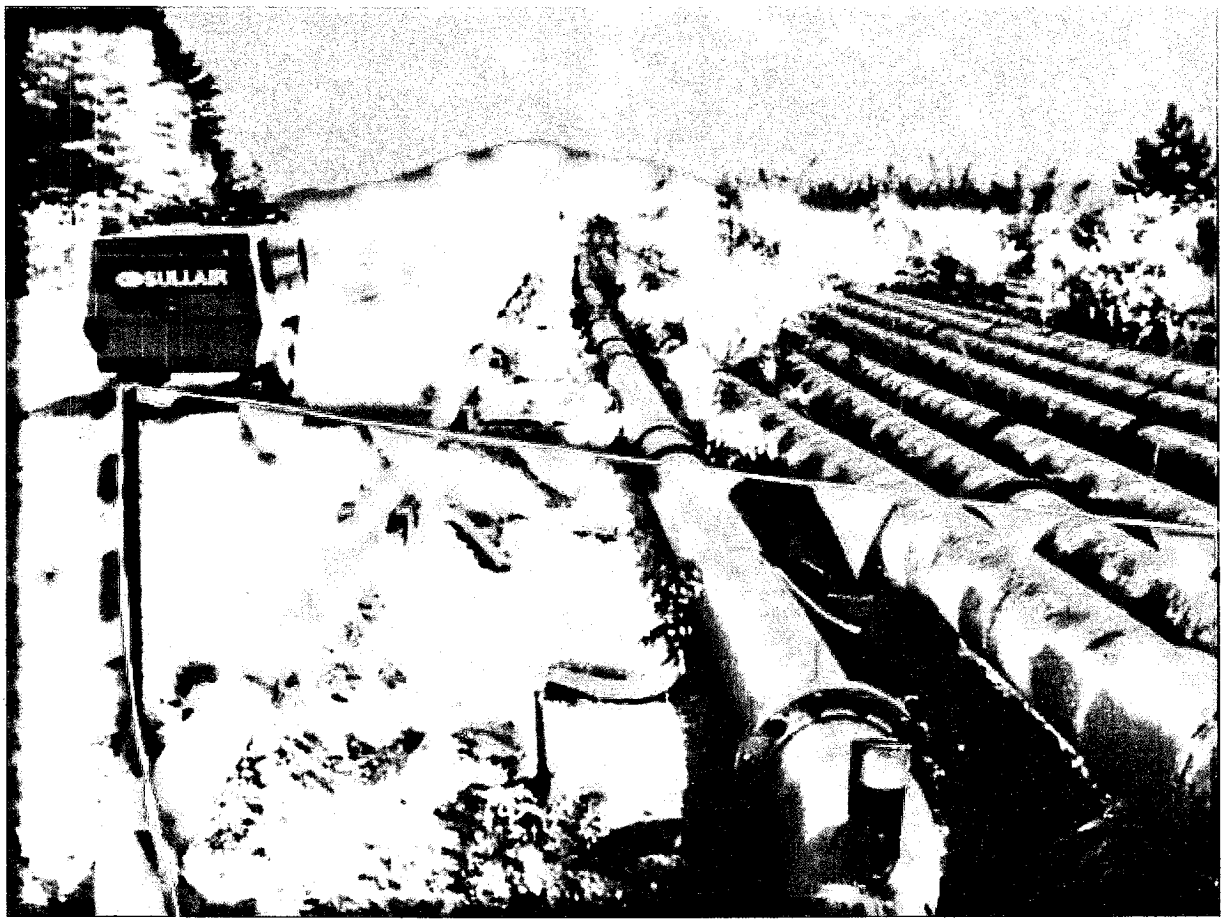
This picture was taken on March 21, 2000:

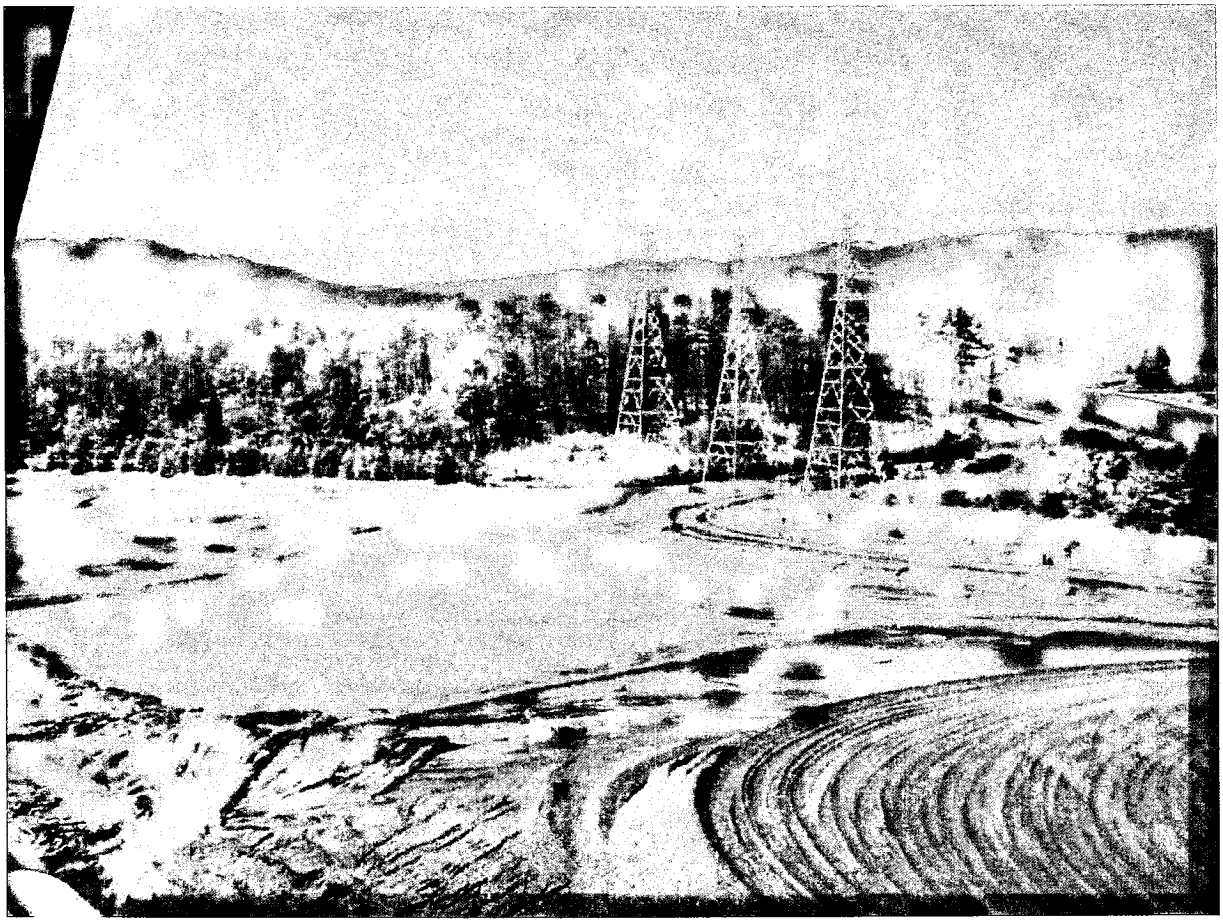

Pic00013.jpg

THANK YOU
Steve Weaver
Yard Systems Engineer
Fossil Engineering Services
(423) 751-3536
Fax (423) 751-6116






SULLAIR



Petty, Harold L.

To: Smith, Daniel R.
Cc: Dueker, Douglas L.
Subject: Kingston Fossil Plant - Coal Yard Runoff Pond Piping Upgrade

Dan:

As we discussed last week there may be a need for Mechanical Engineering support on the project. The project is primarily civil (pipeline) and electrical (controls and power) but we may need some Mechanical input to make sure we do not cycle the pumps into an early burnout. Please include Parson's Mechanical support in your scoping for this project.

Thanks,

Lynn

CAPITAL PROJECT JUSTIFICATION FORM

PROJECT NAME	PROJECT ID
KIF--COAL YARD PUMP DISCHARGING PIPING	KIF353 Rev#: 1

I. PROJECT DESCRIPTION

ORGANIZATION

OWNER: FPG

LEAD: Yard Operations

LOCATION

LOC: Kingston Fossil Plant

TECHNICAL CONTACT

NAME: Steve Weaver

PHONE: (423)751-3536

PROJECT CATEGORY

CATEGORY: ECONOMIC / REVENUE

PROGRAM CODE: No Program

START DATE:

IN-SERVICE DATE:

PROBLEM DEFINITION/REASON FOR IMPROVEMENT

Coal yard drainage basin overflows its banks during moderate rains of 1.75 inches/24 hrs. The water flows onto the coal starage area which will fill up the new underground coal live pile reclaim structure. The potential for this magnitude of rain is on the average 4.75 times per year, based on historical data. Settlement has reduced the capacity by at least 80%. Only one of the two pumps can be run at one time due to the deteriorated discharge piping. Power feeds are unreliable. Flooding in the new reclaim tunnels can occur shutting off the coal supply until dewatered. This flooding will damage the new motors, variable speed drive electronic circuitry, belt scales, and limit switches.

PROJECT SCOPE

Dredge pond to original storage capacity and enlarge pond to maximize capacity. Install a new 10 inch HDPE discharge pipe from pumps to ash pond (4200ft.), sleeve under railroad tracks and plant road. Install pump float switches for auto start/stop. Install a new power feed from new electrical equipment room through new reclaim tunnel, and a direct burial armored cable from end of tunnel to the pumps. Cable will be buried 5 feet deep and sleeved at road crossings.

IMPACT/CONSEQUENCES OF DELAY

Possible derating of all 9 units at Kingston and possible damage to coal handling equipment.

PROJECT PERFORMANCE MEASUREMENT

Will eliminate the possibility of flooding related damage to new coal handling equipment. Reduce/eliminate environmental impacts of pond overflow into river.

CAPITAL PROJECT JUSTIFICATION FORM

PROJECT NAME	PROJECT ID
KIF--COAL YARD PUMP DISCHARGING PIPING	KIF353 Rev#: 1

II. PROJECT ECONOMIC EVALUATION

COST	
SUNK CAPITAL PROJECTS:	$0
SUNK O&M PROJECTS:	0
SUNK O&M BASE:	0
REMAINING COST:	$400
TOTAL COST:	$400
ESTIMATE TYPE:	Conceptual

ECONOMIC INDICATORS	
NPV:	576.0
PI:	2.66
IRR:	59.0%
PAYBACK:	4
BASE YEAR:	2000

	SUNK
Capital Projects:	0
O&M Projects:	0
Benefit:	0
O&M Base:	0

	OUT YEARS
Capital Projects:	0
O&M Projects:	0
Benefit:	0
O&M Base:	0

Year:	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Capital Projects:	0	1000 ~~400~~	0	0	0	0	0	0	0	0
O&M Projects:	0	0	0	0	0	0	0	0	0	0
Benefit:	0	149	149	149	149	149	149	149	149	149
O&M Base:	0	0	0	0	0	0	0	0	0	0
Year:	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Capital Projects:	0	0	0	0	0	0	0	0	0	0
O&M Projects:	0	0	0	0	0	0	0	0	0	0
Benefit:	149	149	149	149	149	149	149	149	149	149
O&M Base:	0	0	0	0	0	0	0	0	0	0

CAPITAL PROJECT JUSTIFICATION FORM

PROJECT NAME	PROJECT ID
KIF--COAL YARD PUMP DISCHARGING PIPING	KIF353 Rev#: 1

II. PROJECT ECONOMIC EVALUATION (continued)

COST ASSUMPTIONS

COST ASSUMPTIONS **RISKS**

BENEFIT ASSUMPTIONS

BENEFIT ASSUMPTIONS **RISKS**

CAPITAL PROJECT ECONOMIC ANALYSIS INPUT
KINGSTON FOSSIL PLANT
UNITS 1-4

PROJECT NAME	UNIT	PROJECT ID	ANALYSIS DATE
Coal Yard Drainage Piping & Power Feed			

PREPARED BY:					
NAME :		LOCATION :		PHONE :	

BENEFIT INPUT SECTION

Prior Years Cost ($000'S): 0

FISCAL YEAR	HEAT RATE IMPRVMNT BTU/KWH	EFOR FORCED OUTAGE HOURS	EFOR FORCED DERATING MW	EFOR FORCED DERATING HRS	EFOR MWHL	O&M SAVINGS IN ($ 000'S)	STATION SERVICE SAVINGS IN KWH	OTHER BENEFITS SAVINGS IN ($ 000'S)	OUTAGE REDCTNS OUTAGE HRS REDUCED	PROJECT COST ($000'S)
1999	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	600	0	0	0	1000
2002	0	0	0	0	0	600	0	0	0	0
2003	0	0	0	0	0	3000	0	0	0	0
2004	0	0	0	0	0	1000	0	0	0	0
2005	0	0	0	0	0		0	0	0	0
2006	0	0	0	0	0		0	0	0	0
2007	0	0	0	0	0		0	0	0	0
2008	0	0	0	0	0		0	0	0	0
2009	0	0	0	0	0		0	0	0	0
2010	0	0	0	0	0		0	0	0	0
2011	0	0	0	0	0		0	0	0	0
2012	0	0	0	0	0		0	0	0	0
2013	0	0	0	0	0		0	0	0	0
2014	0	0	0	0	0		0	0	0	0
2015	0	0	0	0	0		0	0	0	0
2016	0	0	0	0	0		0	0	0	0
2017	0	0	0	0	0		0	0	0	0
2018	0	0	0	0	0		0	0	0	0
2019	0	0	0	0	0		0	0	0	0
2020	0	0	0	0	0		0	0	0	0

Contingency included in Project Estimate ($000'S): 0

CALCULATION AND BENEFIT VALUE SECTION

FISCAL YEAR	HEAT RATE BENEFIT IN ($ 000'S)	EFOR MWH IMPROVE IN ($ 000'S)		EFOR UNIT EFOR IMPACT	EFOR SYSTEM EFOR IMPACT	O&M SAVINGS IN ($ 000'S)	STATION SERVICE SAVINGS IN ($ 000'S)	OTHER BENEFITS SAVINGS IN ($ 000'S)	OUTAGE REDCTNS SAVINGS IN ($ 000'S)	BENEFIT VALUE* IN ($ 000'S)
1999	0	0		0.00%	0.000%	0	0	0	0	0
2000	0	0		0.00%	0.000%	0	0	0	0	0
2001	0	0		0.00%	0.000%	600	0	0	0	600
2002	0	0		0.00%	0.000%	600	0	0	0	600
2003	0	0		0.00%	0.000%	3,000	0	0	0	3,000
2004	0	0		0.00%	0.000%	1,000	0	0	0	1,000
2005	0	0		0.00%	0.000%	0	0	0	0	0
2006	0	0		0.00%	0.000%	0	0	0	0	0
2007	0	0		0.00%	0.000%	0	0	0	0	0
2008	0	0		0.00%	0.000%	0	0	0	0	0
2009	0	0		0.00%	0.000%	0	0	0	0	0
2010	0	0		0.00%	0.000%	0	0	0	0	0
2011	0	0		0.00%	0.000%	0	0	0	0	0
2012	0	0		0.00%	0.000%	0	0	0	0	0
2013	0	0		0.00%	0.000%	0	0	0	0	0
2014	0	0		0.00%	0.000%	0	0	0	0	0
2015	0	0		0.00%	0.000%	0	0	0	0	0
2016	0	0		0.00%	0.000%	0	0	0	0	0
2017	0	0		0.00%	0.000%	0	0	0	0	0
2018	0	0		0.00%	0.000%	0	0	0	0	0
2019	0	0		0.00%	0.000%	0	0	0	0	0
2020	0	0		0.00%	0.000%	0	0	0	0	0

ECONOMIC INDICATORS

NPV @ 15% :	2305	IRR :	270.59
PI @ 15% :	4.048	PAYBACK in YEARS :	0
5 YEAR PI @ 15% :	3.3905039		

DEFERRAL EVALUATION

NPV of Deferral @ 15% :	0
When deferred for :	Deferral not considered

kif1_r7.xls 04/10/2000

Petty, Harold L.

From: Daniel R Smith[SMTP:Daniel.R.Smith@parsons.com]
Sent: Tuesday, April 11, 2000 1:51 PM
To: Petty, Harold L.
Cc: Richard L Brooks
Subject: RE: Kingston Fossil Plant - Coal Yard Runoff Pond Piping Upgrade

Thanks for reminding me. I will coordinate with Richard as needed for Phase 1 and 2 support.

Dan

-----Original Message-----
From: Petty, Harold L. [mailto:hlpetty@tva.gov]
Sent: Tuesday, April 11, 2000 1:50 PM
To: Smith, Daniel R
Cc: Dueker, Douglas L.
Subject: Kingston Fossil Plant - Coal Yard Runoff Pond Piping Upgrade

Dan:

As we discussed last week there may be a need for Mechanical Engineering support on the project. The project is primarily civil (pipeline) and electrical (controls and power) but we may need some Mechanical input to make sure we do not do anything that would cycle the pumps into an early burnout. Please include Parson's Mechanical support in your scoping for this project.

Thanks,

Lynn