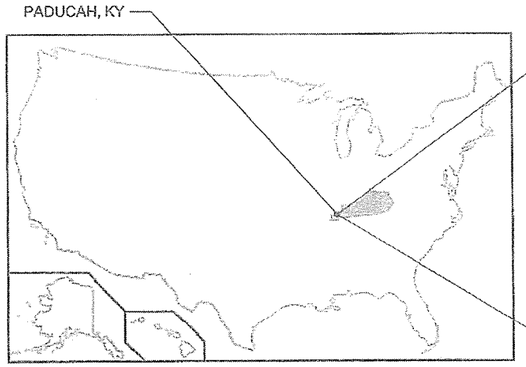
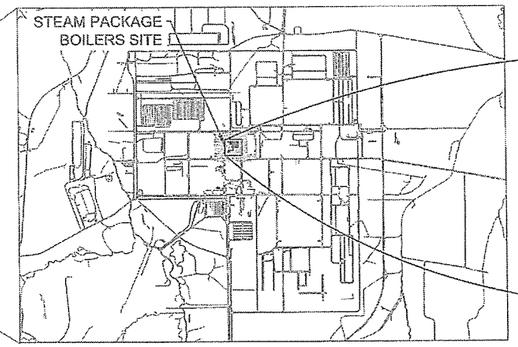
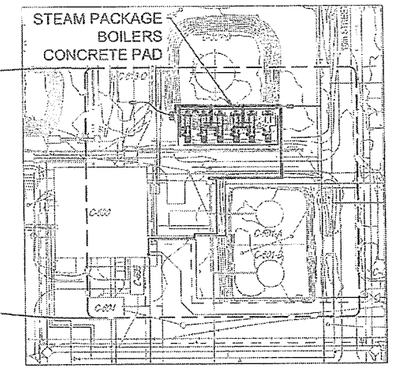
STEAM PACKAGE BOILERS AND PERMITS

U.S. DEPARTMENT OF ENERGY PADUCAH GASEOUS DIFFUSION PLANT







STEAM PACKAGE BOILERS SITE AREA

Scale: 1" = 100'

DRAWING INDEX

DISCIPLINE	DWG #	DESCRIPTION
GENERAL	G7DC60000A001	TITLE AND INDEX SHEET
	G7DC60000A002	LEGENDS AND ABBREVIATIONS
	G7DC60000A003	PIPE AND FITTINGS TABLES
PROCESS	J7DC60000A001	PROCESS FLOW DIAGRAM – SYSTEM OVERVIEW
	J7DC60000A002	PIPING AND INSTRUMENTATION DIAGRAM I – BOILERS AND SUMP
	J7DC60000A003	PIPING AND INSTRUMENTATION DIAGRAM II – STEAM SUPPLY
	J7DC60000A004	PIPING AND INSTRUMENTATION DIAGRAM III – UTILITIES
CIVIL	C7DC60000A001	C–600 AREA PACKAGE BOILERS DEMOLITION PLAN
	C7DC60000A002	C–600 AREA PACKAGE BOILERS CONCRETE PAD GRADING PLAN
	C7DC60000A003	CONCRETE PAD – SECTIONS AND DETAILS
MECHANICAL	M7DC60000A001	GENERAL ARRANGEMENT PLAN OF PACKAGE BOILER PAD
	M7DC60000A002	STEAM AND UTILITIES PIPING – PLAN
	M7DC60000A003	STEAM AND UTILITIES PIPING AT BOILER PAD – PLAN
	M7DC60000A004	STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS I
	M7DC60000A005	STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS II
	M7DC60000A006	STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS III
	M7DC60000A007	STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS IV
	M7DC60000A008	STEAM PIPING – OVERALL ISOMETRIC
	M7DC60000A009	STEAM PIPING – ELEVATION AND DETAILS I
	M7DC60000A010	STEAM PIPING – ELEVATION AND DETAILS II
	1 M7DC60000A011	STEAM PIPING – STEAM TRAP DETAILS
	M7DC60000A012	*RESERVED*
	M7DC60000A013	SANITARY WATER SUPPLY LINE – ELEVATION AND DETAILS
	M7DC60000A014	NATURAL GAS AND FUEL OIL PIPING – ELEVATION AND DETAILS
	M7DC60000A015	*RESERVED*
	M7DC60000A016	SUMP PIPING – ELEVATION AND DETAILS
	M7DC60000A017	PRECAST CONCRETE SUMP DETAILS
	M7DC60000A018	SUMP MECHANICAL LAYOUT AND PIPING
	M7DC60000A019	*RESERVED*
	M7DC60000A020	FUEL OIL STORAGE TANK PIPING SECTIONS DEMOLITION DETAILS
	M7DC60000A021	VALVE TABLE I
	M7DC60000A022	VALVE TABLE II
	M7DC60000A023	EQUIPMENT TABLE
	1 M7DC60000A024	OVERALL PIPING DEMOLITION PLAN
	M7DC60000A025	PIPING DEMOLITION DETAIL I
	M7DC60000A026	PIPING DEMOLITION DETAIL II
ELECTRICAL	E7DC60000A001	ELECTRICAL ONE LINE
	E7DC60000A002	POWER LAYOUT FROM 605 TO PORTABLE BOILERS – PLAN
	E7DC60000A003	ELECTRICAL AND COMMUNICATION – CONDUITS PLAN
	E7DC60000A004	ELECTRICAL AND COMMUNICATION – DETAILS FOR SINGLE TRAILER
	E7DC60000A005	ELECTRICAL AND COMMUNICATION – CONDUITS ELEVATION AND DETAILS
	E7DC60000A006	ELECTRICAL AND COMMUNICATION – CONDUIT DETAILS
	1 E7DC60000A007	CONDUIT / WIRE SCHEDULE
	E7DC60000A008	SUMP PUMP MAIN ENCLOSURE ELECTRIC
	E7DC60000A009	*RESERVED*
	E7DC60000A010	*RESERVED*
	E7DC60000A011	*RESERVED*
	E7DC60000A012	HEAT TRACE RUNS (PLAN)
	E7DC60000A013	HEAT TRACE DETAILS
	E7DC60000A014	INSTRUMENT TABLE
	E7DC60000A015	CONCRETE PAD EQUIPMENT GROUNDING PLAN
	E7DC60000A016	OIL TANK LEVEL ALARM SYSTEM WIRING DIAGRAM AND MISC. DETAILS
	E7DC60000A017	OIL TANK LEVEL ALARM SYSTEM C–601–D TANK WIRING AND SCHEMATICS
	1 E7DC60000A018	FUEL OIL 500 GAL DAY TANK IMMERSION HEATER SCHEMATIC
	E7DC60000A019	FUEL OIL MAIN ENCLOSURE LAYOUT PUMP SKID
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STRUCTURAL	S7DC60000A001	CONCRETE PAD PIPE SUPPORT LOCATION PLAN
	S7DC60000A002	PIPING AND CONDUIT SUPPORTS SECTIONS AND DETAILS
	S7DC60000A003	UTILITY BRIDGE AND FOUNDATION DETAILS
	S7DC60000A004	PIPING AND CONDUIT SUPPORTS SILENCER SUPPORT DETAILS
	S7DC60000A005	UTILITY BRIDGE DETAIL SHEET 1
	S7DC60000A006	UTILITY BRIDGE DETAIL SHEET 2
	S7DC60000A007	UTILITY BRIDGE DETAIL SHEET 3
	S7DC60000A008	UTILITY BRIDGE AND EQUIPMENT ANCHOR DETAIL SHEET 4

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN LICENSED PROFESSIONAL ENGINEER 4/16/15

DATE: 4/06/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	PROJ ENGR	DAP ENGR	CHIEF ENGR MGR.	PROJ MGR	DEPT MGR
2	6/11/15	ELECTRICAL & MISC. SHEETS UPDATED/ADDED	TDN	KK	KK	TS	JBJ	DRG	MJH
1	4/6/15	C.F.C – STRUCTURAL SHEET INDEX UPDATED	TDN	KK	KK	TS	JBJ	DRG	MJH
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDN	KK	KK	TS	JBJ	DRG	MJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: TITLE AND INDEX SHEET

EDDS CAD FILENAME	BUILDING	PLANT	CLASS
G7DC60000A001 – TITLE.DWG	C–600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	G7DC60000A001	2

GENERAL EQUIPMENT

GEAR PUMP

SUMP PUMP

MISCELLANEOUS

DWG.E — LINE BREAK OR RESUMPTION POINT

ABBREVIATIONS

DPT – DISCONNECT POINT
EXTG – EXISTING
FO – FUEL OIL
FO-R – FUEL OIL RETURN
FO-S – FUEL OIL SUPPLY
HDR – HEADER
LO – LOCK OPEN
NBI – NATIONWIDE BOILERS
NG – NATURAL GAS
OPT – OPTIONAL
1 RGS – RIGID GALVANIZED STEEL
TDH – TOTAL DYNAMIC HEAD
TPT – TIE POINT
UG – UNDERGROUND
XFMR – TRANSFORMER

GENERAL PIPING

CONCENTRIC REDUCER OR INCREASER
ECCENTRIC REDUCER OR INCREASER
CAP
HOSE CONNECTION
FLANGED JOINT
BLANK FLANGE
BLIND FLANGE
SAMPLE CONNECTION
ATMOSPHERIC VENT
BASKET STRAINER OR BAG FILTER
DUPLEX STRAINER
EXPANSION JOINT
FLEX HOSE
STEAM TRAP
Y STRAINER
ORIFICE
INSULATED
INSULATED & HEAT TRACED
XX XX PIPE MATERIAL CHANGE
FOREIGN MATERIAL EXCLUSION CAP/INSERT
SLOPE

VALVE NOTATION

VALVE BODIES

OPEN		CLOSED
	ANGLE	
	BALL	
	BUTTERFLY	
	DIAPHRAGM	
	GATE	
	GLOBE	
	NEEDLE	
	PINCH	
	PLUG	
	BACKFLOW PREVENTER	
	CHECK	
	THREE WAY	

SELF-ACTIVATED PRESSURE DEVICES

BACK PRESSURE REGULATOR
PRESSURE REDUCING REGULATOR
SAFETY RELIEF VALVE

POWER ACTUATED VALVES

CONTROL VALVE
M — MOTOR-OPERATED
S — SOLENOID VALVE
PISTON-OPERATED

INSTRUMENT SYMBOLS AND IDENTIFICATION

INSTRUMENT FOR SINGLE MEASURED VARIABLE AND ANY NUMBER OF FUNCTIONS. INSTRUMENT IS FIELD MOUNTED

INSTRUMENT IS MOUNTED IN FRONT OF LOCAL PANEL.

ELECTRIC CONTROLS

HS — HAND SWITCH
HOA — HAND-OFF-AUTO SWITCH
AI — ALARM INDICATOR
REMOTE OR BLIND INDICATOR/CONTROLLER
CENTRAL PLC OR CONTROL ROOM INDICATOR/CONTROLLER/RECORDER OR ANNUNCIATION POINT
CONNECTION TO PROCESS OR INSTRUMENT INPUT
ELECTRICAL SIGNAL OR INTERNAL SYSTEM LINK

INSTRUMENT NUMBER IDENTIFICATION

PI-101
- UNIQUE IDENTIFIER
- SERIES ASSIGNMENT
  - 1 – STEAM
  - 2 – NATURAL GAS
  - 3 – FUEL OIL
  - 4 – SANITARY WATER
  - 5 – WASTE WATER
- FUNCTIONAL IDENTIFIER
  - 1 DPIS – DIFFERENTIAL PRESSURE INDICATING SWITCH
  - FE – FLOW ELEMENT
  - FI – FLOW INDICATOR
  - FIT – FLOW INDICATING TRANSMITTER
  - FSL – FLOW SWITCH LOW
  - LIT – LEVEL INDICATING TRANSMITTER
  - LSH – LEVEL SWITCH HIGH
  - LSHH – LEVEL SWITCH HIGH HIGH
  - LSL – LEVEL SWITCH LOW
  - LSLL – LEVEL SWITCH LOW LOW
  - PI – PRESSURE INDICATOR
  - PIT – PRESSURE INDICATING TRANSMITTER
  - TI – TEMPERATURE INDICATOR

EQUIPMENT NUMBER IDENTIFICATION

PB-01
- SEQUENCE NUMBER
- EQUIPMENT IDENTIFIER
  - PB – PACKAGE BOILER
  - PMP – PUMP
  - STR – STRAINER
  - TR – TRAP
  - TK – TANK

VALVE NUMBER IDENTIFICATION

BA-101
- SEQUENCE NUMBER
- VALVE TYPE IDENTIFIER
  - AN – ANGLE
  - BA – BALL
  - BF – BUTTERFLY
  - BFP – BACKFLOW PREVENTER
  - CH – CHECK
  - CV – CONTROL
  - DI – DIAPHRAGM
  - GA – GATE
  - GL – GLOBE
  - 1 MO – MOTOR OPERATED
  - NE – NEEDLE
  - 1 SO – SOLENOID
  - PI – PINCH
  - PL – SAFETY RELIEF
  - RV – PLUG

PIPE IDENTIFICATION

04-040-CS
- PIPE MATERIAL
  - CPVC – CHOLRINATED POLYVINYL CHLORIDE
  - CS – CARBON STEEL
  - GS – GALVANIZED STEEL
  - HDPE – HIGH DENSITY POLYETHYLENE
- PIPE SCHEDULE
- PIPE SIZE (NOMINAL DIAMETER IN INCHES)

DISCONNECT POINT/TIE POINT NUMBER IDENTIFICATION

DPT-01
- SEQUENCE NUMBER
- DISCONNECT POINT

TPT-01
- SEQUENCE NUMBER
- TIE POINT

ELEVATION/SECTION & DETAIL KEY

LETTER OR NUMBER OF ELEVATION/SECTION OR DETAIL
TAKEN DRAWING ON WHICH ELEVATION/SECTION OR DETAIL IS
SHOWN DRAWING ON WHICH ELEVATION/SECTION OR DETAIL IS

LPE

STATE OF KENTUCKY — TODD J. STRUTHMANN — 16255 — LICENSED PROFESSIONAL ENGINEER — 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	CHECK BY	ENGR	MGR ENGR	CONTROL MGR	PMC MGR	QAM MGR
1	8/11/15	INSTR. & VALVE NUMB. ID AND ABBREVIATION UPDATED	TGB	RF	NN	TE	JCH	DKB	LCV
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGB	RF	NN	TE	JCH	DKB	RJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: LEGENDS AND ABBREVIATIONS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
G7DC60000A002 – LEGEND.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	G7DC60000A002	1

Table 1 Equipment - Pipe					
System	Material Description	Size (inch)	Quantity	Units	Plan Sheet Reference
Steam	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	6	330	ft	M7DC60000A002, M7DC60000A003, M7DC60000A004
Steam	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	10	200	ft	M7DC60000A002, M7DC60000A003, M7DC60000A004
Steam	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	12	500	ft	M7DC60000A002, M7DC60000A003, M7DC60000A004
Fuel Oil Supply	ASTM A106, Grade B, Type Seamless, Carbon Steel, Schedule 80	2	730	ft	M7DC60000A002, M7DC60000A003
Fuel Oil Return	ASTM A106, Grade B, Type Seamless, Carbon Steel, Schedule 80	1	240	ft	M7DC60000A003
Water Supply (Below Grade)	HDPE: PE3408/3608 resin conforming to ASTM D 3350 and cell classification of 345464C and is listed with the Plastic Pipe Institute, SDR11 rated at 160 psi, Black with UV stabilizer	6	250	ft	M7DC60000A002, M7DC60000A003
Water Supply (above grade)	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	6	30	ft	M7DC60000A010
Water Supply	A106 Grade B, seamless galvanized carbon steel, Schedule 40.	2	440	ft	M7DC60000A002, M7DC60000A003
Hot Water Drain	ASTM A106, Grade B, Type Seamless, Carbon Steel, Schedule 80	8	200	ft	M7DC60000A003
Hot Water Drain	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	6	330	ft	M7DC60000A003
Sump Discharge (Below Grade)	HDPE: PE3408/3608 resin conforming to ASTM D 3350 and cell classification of 345464C and is listed with the Plastic Pipe Institute, SDR11 rated at 160 psi, Black with UV stabilizer	3	90	ft	M7DC60000A003
Sump Discharge (Above Grade)	Chlorinated polyvinyl chloride (CPVC), Type IV, Grade 1, with a Cell Classification of 23447 as defined in ASTM D1784, Schedule 80	3	60	ft	M7DC60000A015
Natural Gas Supply	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	3	390	ft	M7DC60000A002
Natural Gas Supply	ASTM A53 Grade B, Type E or S Carbon Steel, Standard Weight, beveled end	4	210	ft	M7DC60000A002
Bollards	ASTM A500 Round Carbon Steel	4	110	ft	M7DC60000A017, M7DC60000A014

Table 2 Equipment - Fittings				
Description	Material Description	Size (inch)	Quantity	Units
Elbows	Steel, ASTM A234, Grade B, WPB, same schedule as adjoining pipe, long radius	>2		ea
Flanges	Forged steel weld neck, ASME B16.5, ASTM A105, 150 psi pressure class.	2.5	2	ea
Flanges	Forged steel weld neck, ASME B16.5, ASTM A105, 150 psi pressure class.	3	16	ea
Flanges	Forged steel weld neck, ASME B16.5, ASTM A105, 150 psi pressure class.	4	4	ea
Flanges	Forged steel weld neck, ASME B16.5, ASTM A105, 150 psi pressure class.	6	46	ea
Flanges	Forged steel weld neck, ASME B16.5, ASTM A105, 150 psi pressure class.	10	14	ea
Reducers	Welded joints: ASTM A234, Grade B, WPB, standard weight	6x10	5	ea
Reducers	Welded joints: ASTM A234, Grade B, WPB, standard weight	10x12	3	ea
Reducers	Welded joints: ASTM A234, Grade B, WPB, standard weight	12x6	6	ea
Reducers	Welded joints: ASTM A234, Grade B, WPB, standard weight	10x16	1	ea
Tees	Steel, ASTM A234, Grade B, WPB, same schedule as adjoining pipe, long radius	>2		ea
Weldolet	Welded joints: ASTM A234, Grade B, WPB, standard weight	3	1	ea

Table 3 Subcontractor Supplied Materials - Fittings/Miscellaneous				
Description	Material Description	Size (inch)	Quantity	units
Flanges	Forged steel socket weld, ASME B16.5, ASTM A105, 150 psi pressure class	<1.75	As Required	
Flanges	Forged steel socket weld, ASME B16.5, ASTM A105, 150 psi pressure class	2	As Required	
Elbows	Forged steel, ASME A105, 3000 psi with socket welded ends.	≤ 2	As Required	
Tees	Forged steel, ASME A105, 3000 psi with socket welded ends.	≤ 2	As Required	
Gaskets	Flexitallic style LS, 304 SS, spiral would w/Flexicarb filler, 1/8" thick.	all	As Required	
Bolts	A-307 carbon steel hex head bolt and heavy hex nut, Class 2 tolerance	all	As Required	
Demolition	end caps, fittings, blind flanges	all	As Required	
Concrete Pad	materials, concrete	all	As Required	
Concrete for Support Structures	includes all labor materials (e.g., fill, bedding, resteel, cement) to create pad	all	As Required	
Support Structures	includes all labor materials (e.g., pipe bridge, supports, hangars etc.) and equipment to create structures	all	As Required	
Tools of the Trade	welding rods, flux, etc.	all	As Required	
Conduit Fittings	all fittings for electrical conduit	all	As Required	
Pipe Hangers	Black Insulated Hanger	all	As Required	
Flexible Connectors (Concentric Reducer)	EPDM arch, 250oF operating temperature, ANSI 150 lb flanges, 165 PSIG max pressure (General Rubber Maxi-Joint 1101CR or equal)	2 - 4	2	ea
Modular Seal	EPDM seals, stainless steel or corrosion inhibited hardware, -40oF - 250oF operating temperature (Link-Seal LS-475-C-12 or equal)	Links to fit 8-inch pipe	1	ea
Flexible Sealant	Preformed butyl joint sealant between precast concrete vault sections (ASTM C-990)	3/4 (min)	Length to fit	

NOTES

1. THE SUBCONTRACTOR SHALL PROVIDE ALL THE LABOR MATERIALS AND EQUIPMENT NECESSARY TO PERFORM THE WORK. PIPE AND FITTINGS LISTED IN TABLES 1 AND 2 WILL BE FURNISHED BY OTHERS. THE SUBCONTRACTOR IS RESPONSIBLE FOR REVIEWING THE PLANS AND SPECIFICATIONS TO CONDUCT THE WORK AND IDENTIFYING WHETHER THE QUANTITIES ARE SUFFICIENT TO COMPLETE THE WORK. IF THE SUBCONTRACTOR DETERMINES DIFFERENCES, THEY ARE REQUIRED TO HIGHLIGHT THOSE DIFFERENCES DURING THE BIDDING PROCESS.
2. THE SUBCONTRACTOR SHALL PROVIDE: ALL MATERIAL ITEMS NOT SPECIFIED IN TABLES 1 AND 2 TO COMPLETE THE WORK WHICH INCLUDES BUT IS NOT LIMITED TO: QUICK CONNECTIONS, PIPE BRIDGE MATERIALS, FLANGES, ELBOWS AND TEES FOR 2 INCHES AND SMALLER PIPE, WELDING MATERIALS, PIPE SUPPORTS, BOLTS, NUTS, GASKETS, AND PAINT/COATINGS.
3. THE SUBCONTRACTOR SHALL PROVIDE ALL LABOR TO PERFORM THE WORK INCLUDED IN THE PLANS AND SPECIFICATIONS.
4. THE ITEMS LISTED IN TABLE 3 ARE FOR THE SUBCONTRACTORS REFERENCE WHILE PREPARING THEIR BID AND MAY NOT BE ALL INCLUSIVE.

LPE

STATE OF KENTUCKY TODD J STRUTTMANN LICENSED PROFESSIONAL ENGINEER 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	BY	CK	EN	TS	KU	KG	KM
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDF	DN	BK		LCH		

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

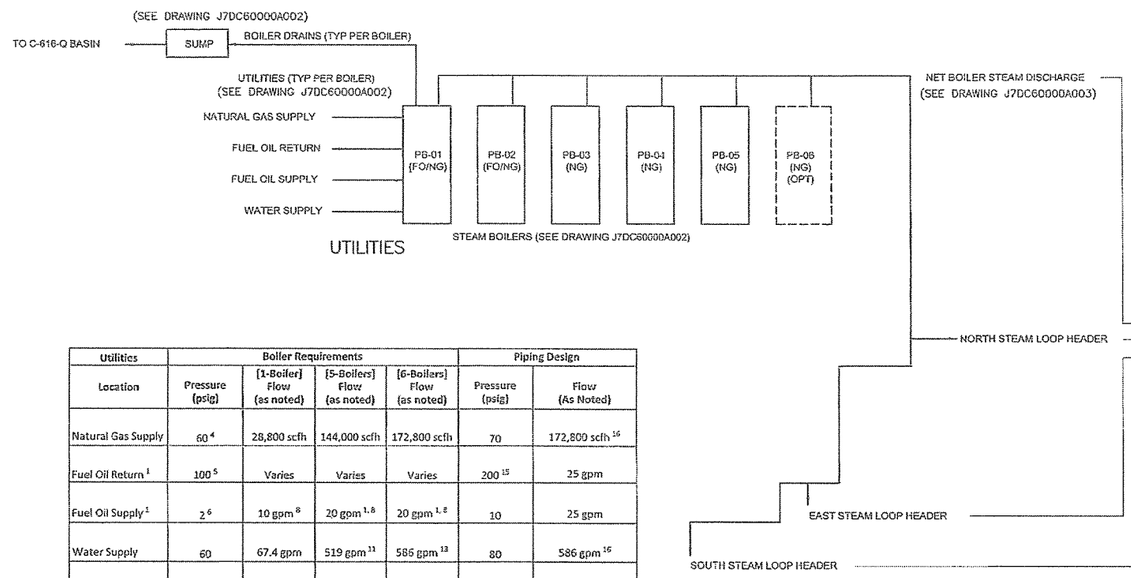
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
PIPE AND FITTINGS TABLES

RECS CAD FILENAME	BUILDING	PLANT	CLASS
G7DC60000A003 - PIPE AND FITTINGS TABLES.DWG	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
NOT TO SCALE	G7DC60000A003	0



GENERAL NOTES

THE BOILERS ARE RATED AT A NOMINAL 22,500 PPH OF SATURATED STEAM AT 100 PSIG. THE DESIGN IS 0% CONDENSATE RETURN, WHICH YIELDS A NET BOILER DISCHARGE OF 19,130 PPH AT 100 PSIG. THE VALUES IN TABLES ARE BASED ON NET BOILER DISCHARGE WITH 0% CONDENSATE RETURN.

DESIGN PROVIDES PROVISIONS FOR INSTALLATION OF AN OPTIONAL 6TH BOILER IF REQUIRED FOR FUTURE STEAM NEEDS.

STEAM DESIGN CONDITIONS

Steam Design Conditions – 5 Boilers							
	Max Demand	System Conditions with Max South Demand		System Conditions with Max East Demand		System Conditions with Max North & South Demand	
Location	Flow (#/hr)	Flow (#/hr)	Pressure (Psi)	Flow (#/hr)	Pressure (Psi)	flow (#/hr)	Pressure (Psi)
Net Boiler Discharge	96,000	96,000	106	96,000	104	96,000	105
North Steam Loop Header	19,000	0	104	0	103	19,000	103
East Steam Loop Header	67,000	29,000	102	67,000	100	10,000	102
South Steam Loop Header	67,000	67,000	100	29,000	100	67,000	100
Total		96,000		96,000		96,000	

Steam Design Conditions -- 6 Boilers							
	Max Demand	System Conditions with Max South Demand		System Conditions with Max East Demand		System Conditions with Max North & South Demand	
Location	Flow (#/hr)	Flow (#/hr)	Pressure (Psi)	Flow (#/hr)	Pressure (Psi)	flow (#/hr)	Pressure (Psi)
Net Boiler Discharge	115,000	115,000	108	115,000	105	115,000	107
North Steam Loop Header	23,000	0	105	0	103	23,000	105
East Steam Loop Header	80,000	35,000	103	80,000	100	12,000	103
South Steam Loop Header	80,000	80,000	100	35,000	101	80,000	100
Total		115,000		115,000		115,000	

Utilities	Boiler Requirements				Piping Design	
Location	Pressure (psig)	[1-Boiler] Flow (as noted)	[5-Boilers] Flow (as noted)	[6-Boilers] Flow (as noted)	Pressure (psig)	Flow (As Noted)
Natural Gas Supply	60 [4]	28,800 scfh	144,000 scfh	172,800 scfh	70	172,800 scfh [16]
Fuel Oil Return [1]	100 [5]	Varies	Varies	Varies	200 [15]	25 gpm
Fuel Oil Supply [1]	2 [6]	10 gpm [8]	20 gpm [1, 8]	20 gpm [1, 8]	10	25 gpm
Water Supply	60	67.4 gpm	519 gpm [11]	586 gpm [13]	80	586 gpm [16]
Boiler Drains	0	210 gpm [9]	320 gpm [12]	348 gpm [14]	10	348 gpm [16]
C-616-Q Basin	NA	NA	NA	NA	10	150 gpm
Compressed Air [1, 2]	105, 145 [7]	25, 25 cfm [7]	25, 25 cfm [7]	25, 25 cfm [7]	NA [2]	NA [2]
Propane [1, 3]	8	NA [3]	NA [3]	NA [3]	NA [3]	NA [3]

1--Boilers PB-01 & PB-02 only.
2--Compressed air used for fuel atomization, supplied by boiler vendor furnished portable compressor skids.
3--Propane used for fuel oil pilot, supplied by portable 20# tank.
4--Supply pressure from site to boiler's 1st stage regulator.
5--Fuel oil return based on boiler's on board booster pump rating data.
6--Fuel oil supply min requirement, max is 5 psig to not over pressurize pump seals.
7--Compressed air requirement for PB-01 and PB-02 respectively.
8--Fuel oil consumption is 200 gph. On board booster pump is rated at 10 gpm with 100% recirc.
9--Softener backwash + cooled continuous blowdown, + cooled bottom blowdown (25 + 2.6 + 182) gpm.
10--Sump pump rating.
11--(5)-Normal makeup water + (1) cooled continuous blowdown makeup (5 x (67.4) + 182) gpm.
12--(5)-Softener backwash + (5)-cooled continuous blowdown, + (1)-cooled bottom blowdown (5 x (25 + 2.6) + 182) gpm.
13--(6)-Normal makeup water + (1) cooled continuous blowdown makeup (6 x (67.4) + 182) gpm.
14--(6)-Softener backwash + (6)-cooled continuous blowdown, + (1)-cooled bottom blowdown (6 x (25 + 2.6) + 182) gpm.
15--On board fuel oil pump discharge relief valve setting.
16--Header flow.

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN LICENSED PROFESSIONAL ENGINEER 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	DSGN'D BY	CHKD BY	APPD BY	CONT ENGR	PROJ ENGR	SAFETY	ALN
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCM	KJC	KJC	TS	JGU	RDS	ALH	

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

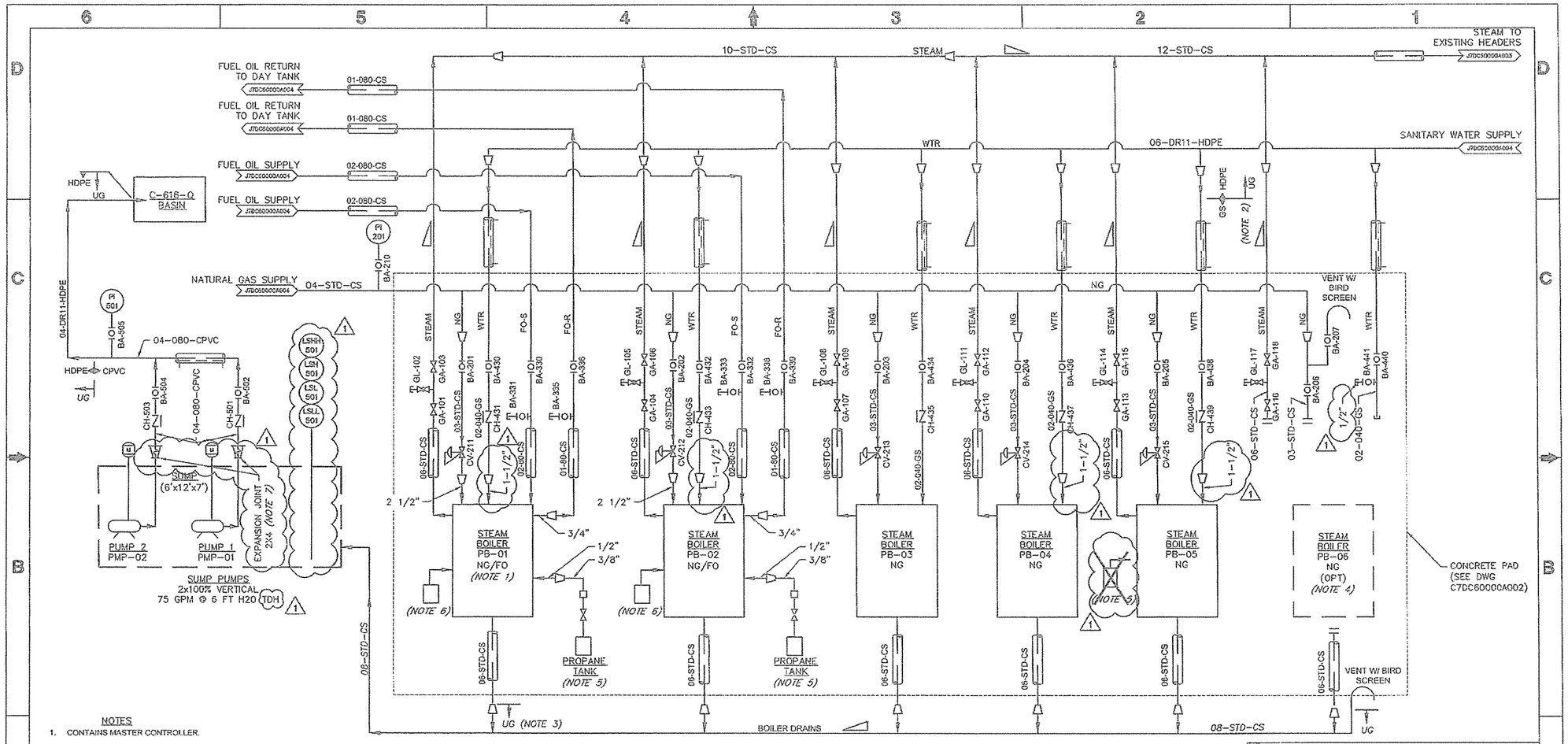
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: PROCESS FLOW DIAGRAM – SYSTEM OVERVIEW

RDCS CAD FILENAME	BUILDING	PLANT	CLASS
J7DC60000A001 – PFD.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	J7DC60000A001	0



NOTES

1. CONTAINS MASTER CONTROLLER.
2. TYPICAL FOR ALL WTR STREAMS TO BOILERS.
3. TYPICAL FOR ALL BOILER DRAINS.
4. OPTIONAL 6TH BOILER PROVISIONS PROVIDED FOR FUTURE STEAM NEEDS IF REQUIRED.
5. 20# PROPANE TANK W/ ATTACHED SHUT-OFF VALVE, 8# REGULATOR, AND 3/8"x5'-0" LONG CONNECTION HOSE W/ MALE THREADED END.
6. PORTABLE AIR COMPRESSOR SKIDS, FO BOILERS ONLY. TO FIT UNDER BOILER TRAILER FORWARD OF STAIRS. COMPRESSOR AND 1" INTERCONNECTING PIPING, VALVES, AND ELECTRICAL CONNECTION SUPPLIED BY BOILER VENDOR, INSTALLED BY SUBCONTRACTOR.
7. DO NOT INSULATE AND HEAT TRACE EXPANSION JOINTS.

GENERAL NOTES

SEE DWG G7D60000A002 FOR SYMBOLS AND ABBREVIATIONS

ALL STREAMS TO AND FROM BOILER PB-01 ARE TYPICAL FOR ALL BOILERS, EXCEPT FUEL OIL STREAMS, WHICH ARE TYPICAL FOR BOILERS PB-01 AND PB-02 ONLY.

USE NBI NG VALVING TO VENT/PURGE.

BOILER WATER SUPPLY CONNECTIONS ARE 1-1/2", EXCEPT PB-03 (NBI BOILER B-525) WHICH IS 2".

UNLESS OTHERWISE NOTED ON THIS DRAWING, ALL CONNECTIONS FOR INSTRUMENTS ARE 1/2", ALL STEAM BLEEDS AND DRAINS ARE 1", AND ALL FUEL OIL DRAINS ARE 1/2".

LPE

STATE OF KENTUCKY — TODD J. STRUTTMANN — LICENSED PROFESSIONAL ENGINEER

DATE: 3/19/15
PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	DRAWN CHK	ENGR SUPR	PROD ENGR	CONF CTRL MGR	PKG ENGR	CATE MGR
1	6/11/15	AS BUILT PER VENDOR DRAWINGS	TGW	NK	KR	TS	JBJ	RDS	KLH
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGW	NK	KR	TS	JBJ	RDS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

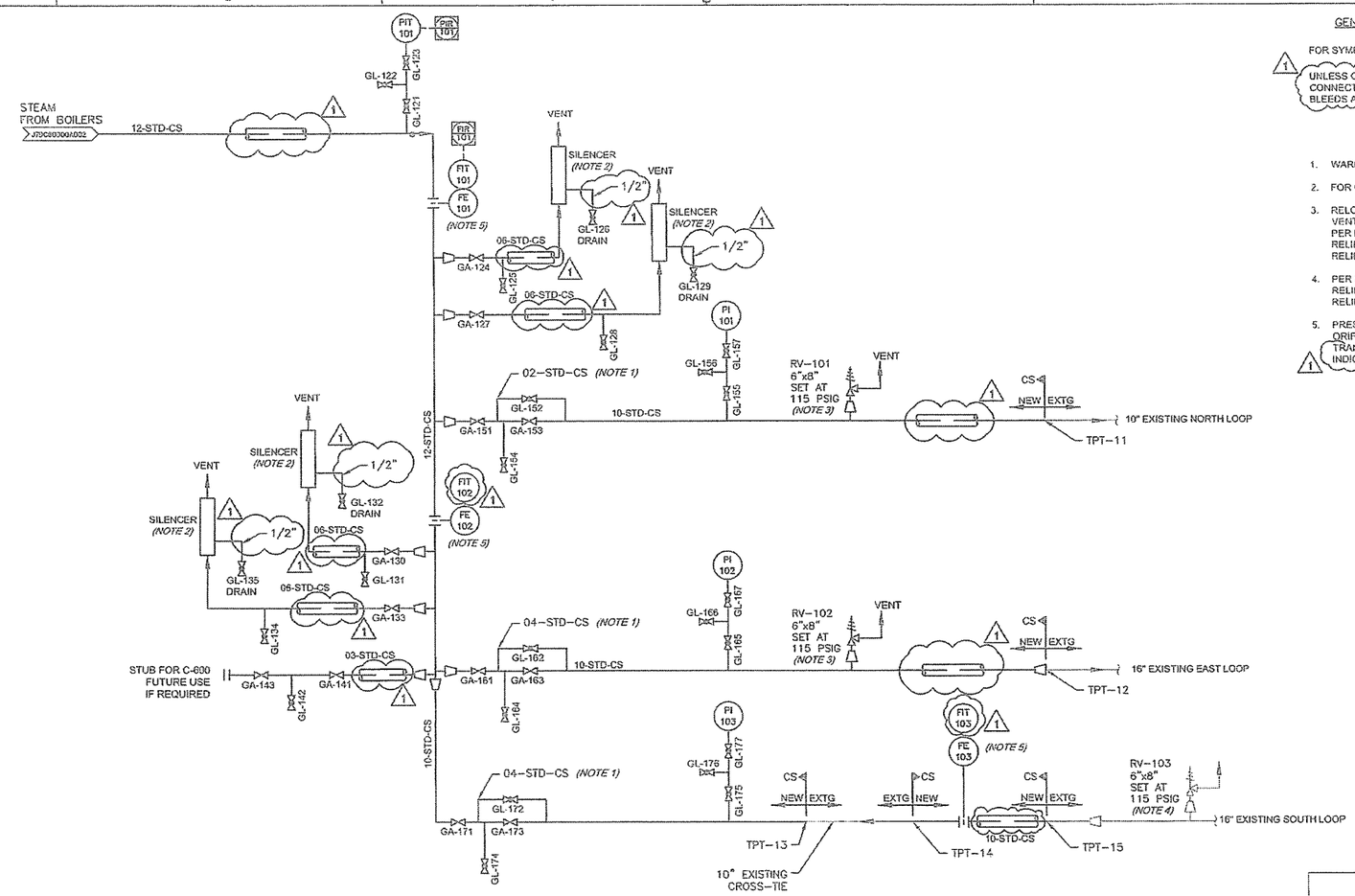
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: PIPING AND INSTRUMENTATION DIAGRAM I – BOILERS & SUMP

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
J7DC60000A002 – P&ID 1.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	J7DC60000A002	1



GENERAL NOTES

FOR SYMBOLS AND ABBREVIATIONS SEE DWG G7DC60000A002.

1. UNLESS OTHERWISE NOTED ON THIS DRAWING, ALL CONNECTIONS FOR INSTRUMENTS ARE 1/2", AND ALL STEAM BLEEDS AND DRAINS ARE 1".

NOTES

1. WARMING BYPASS
2. FOR COMMISSION TESTING
3. RELOCATED EXISTING STEAM LOOP SAFETY RELIEF VALVE AND VENT PIPE.
   PER DWG M5E16876-A-REV3:
   RELIEF CAPACITY-70,000 LB/HR
   RELIEF SETTING - 115 PSIG.
4. PER DWG M5E16876-B-REV2:
   RELIEF CAPACITY-70,000 LB/HR
   RELIEF SETTING - 115 PSIG.
5. PRESSURE AND TEMPERATURE COMPENSATED COMPACT ORIFICE FLOW METER ASSEMBLY. FIT-102 AND 103 HAVE TRANSMITTING CAPABILITIES, BUT ARE BEING USED FOR LOCAL INDICATION ONLY.

LPE

STATE OF KENTUCKY — TODD J. STRUTSMANN — LICENSED PROFESSIONAL ENGINEER

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DWN CHK	PROJ ENGR	LEAD CHECK	CONF CHK/ MGR SRVY	PAD MGR	EXPT MGR
1	6/11/15	PIPE INSULATION, FIT 102/103, PIPE SIZE 1/2" CALLOUT							
0	3/20/15	CERTIFIED FOR CONSTRUCTION							

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: PIPING AND INSTRUMENTATION DIAGRAM II – STEAM SUPPLY

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
11 – J7DC60000A003 – P&ID 2.DWG	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
NOT TO SCALE	J7DC60000A003	1

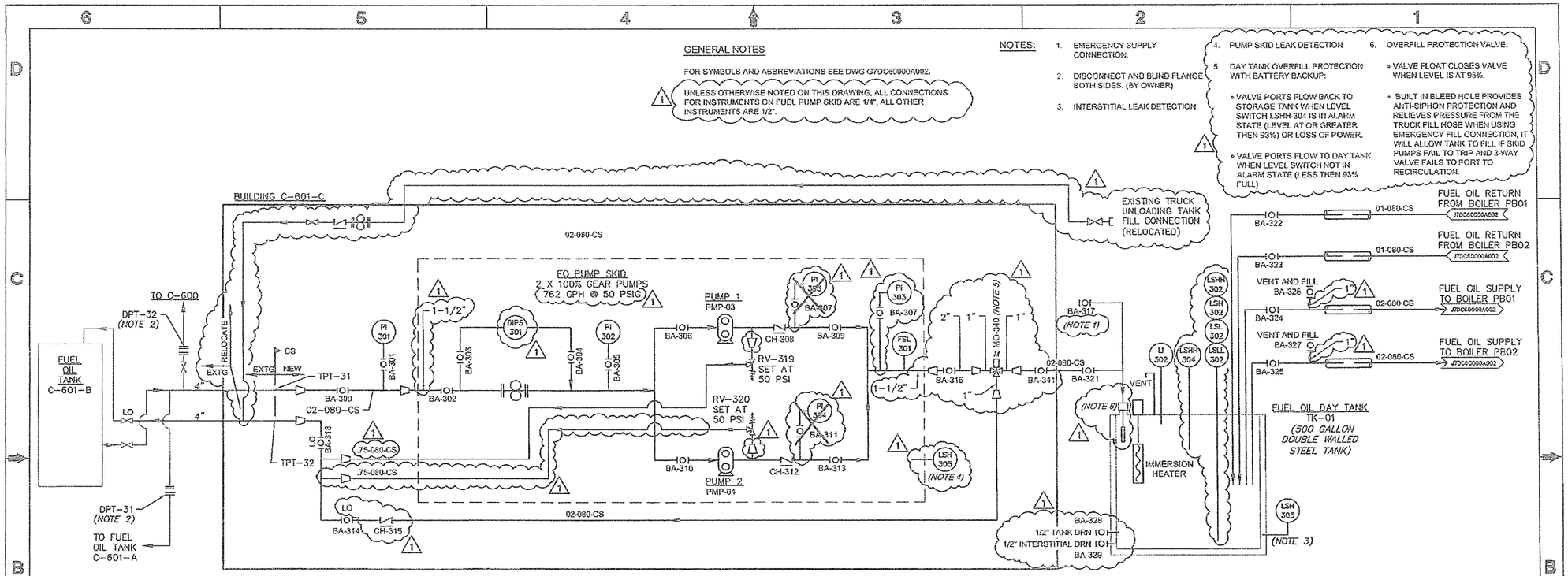
GENERAL NOTES

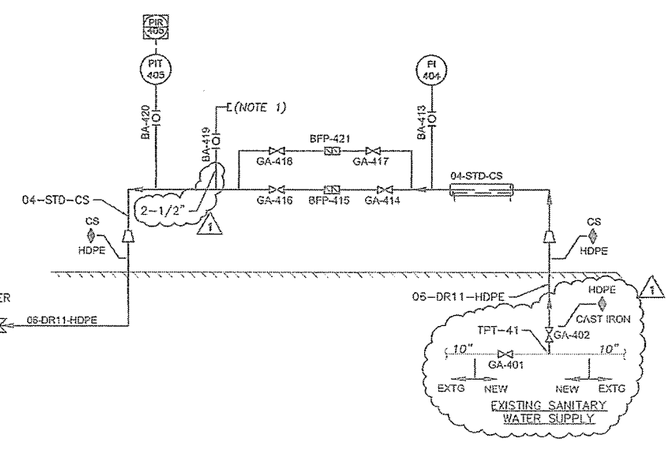
FOR SYMBOLS AND ABBREVIATIONS SEE DWG G7DC60000A002.

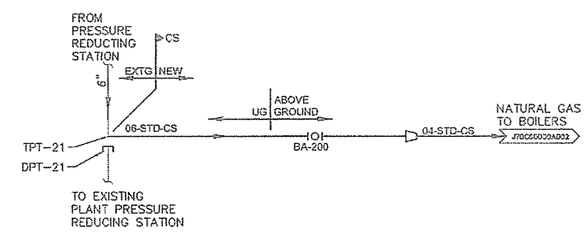
1. UNLESS OTHERWISE NOTED ON THIS DRAWING, ALL CONNECTIONS FOR INSTRUMENTS ON FUEL PUMP SKID ARE 1/4", ALL OTHER INSTRUMENTS ARE 1/2".

NOTES:

1. EMERGENCY SUPPLY CONNECTION.
2. DISCONNECT AND BLIND FLANGE BOTH SIDES. (BY OWNER)
3. INTERSTITIAL LEAK DETECTION
4. PUMP SKID LEAK DETECTION
5. DAY TANK OVERFILL PROTECTION WITH BATTERY BACKUP:
   - VALVE PORTS FLOW BACK TO STORAGE TANK WHEN LEVEL SWITCH LSHH-304 IS IN ALARM STATE (LEVEL AT OR GREATER THEN 93%) OR LOSS OF POWER.
   - VALVE PORTS FLOW TO DAY TANK WHEN LEVEL SWITCH NOT IN ALARM STATE (LESS THEN 93% FULL)
6. OVERFILL PROTECTION VALVE:
   - VALVE FLOAT CLOSES VALVE WHEN LEVEL IS AT 95%.
   - BUILT IN BLEED HOLE PROVIDES ANTI-SIPHON PROTECTION AND RELIEVES PRESSURE FROM THE TRUCK FILL HOSE WHEN USING EMERGENCY FILL CONNECTION, IT WILL ALLOW TANK TO FILL IF SKID PUMPS FAIL TO TRIP AND 3-WAY VALVE FAILS TO PORT TO RECIRCULATION.







REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	ENGR BY	LEAD ENGR	MANF ENGR	PRJ MGR	ASSL MGR
1	6/11/15	MISC. CHANGES, REVISIONS, AND FUEL OIL UPDATES	TGW	KC	KK	TS	JEM	RGS	KGH
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGW	KC	KK	TS	JEM	RGS	KGH

DRAWING REVISIONS

LPE

STATE OF KENTUCKY — TODD J. STRUTTMANN — LICENSED PROFESSIONAL ENGINEER — 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

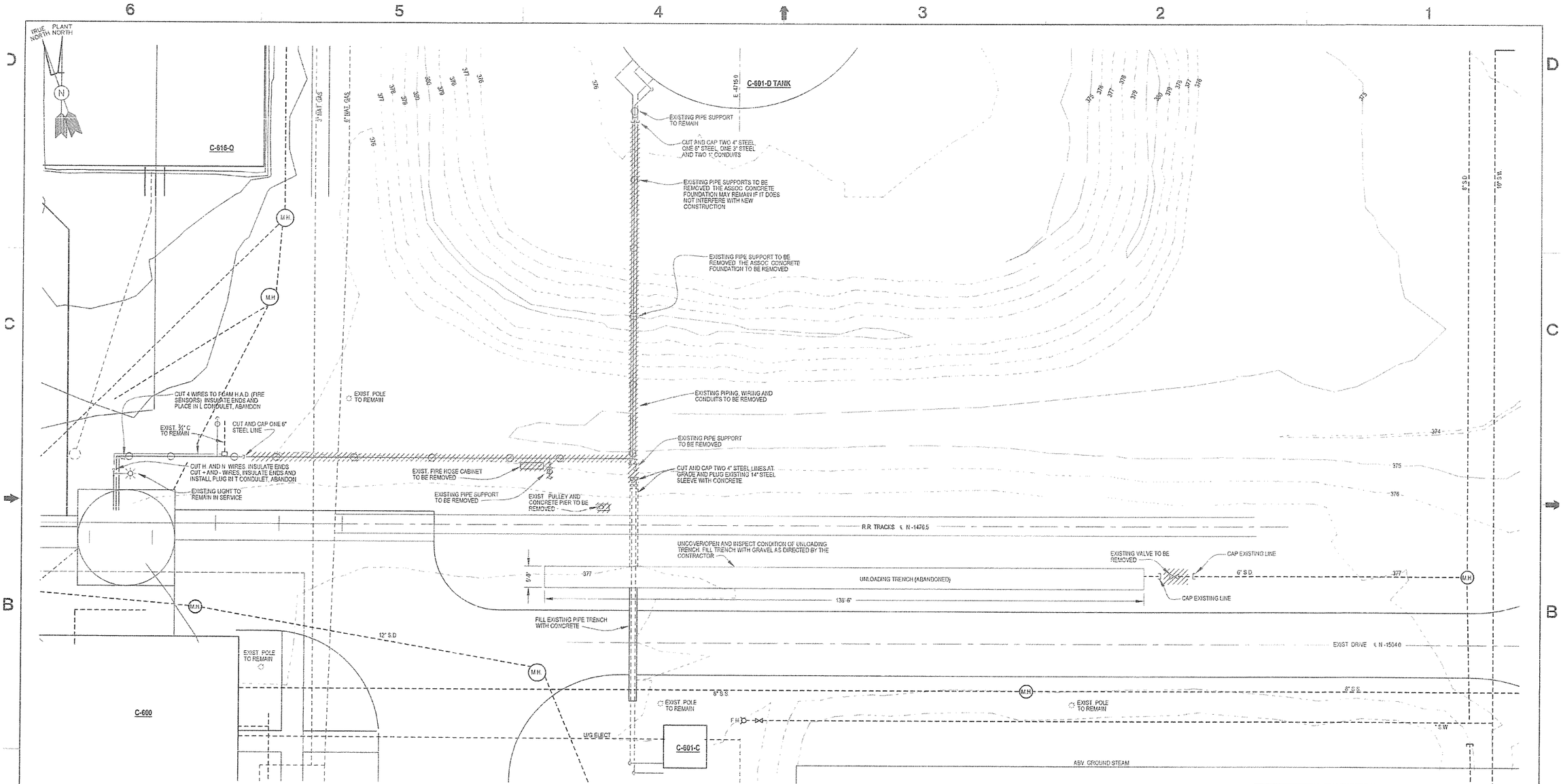
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: PIPING AND INSTRUMENTATION DIAGRAM III – UTILITIES

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
12 – J7DC60000A004 – PaID 3.DWG	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
NOT TO SCALE	J7DC60000A004	1



DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

C-600 AREA PACKAGE BOILERS CONCRETE PAD GRADING PLAN	C7DC60000A002
C-600 AREA PACKAGE BOILERS CONCRETE PAD SECTIONS & DETAILS	C7DC60000A003
REFERENCE DRAWINGS	DRAWING NO.

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN
SECTION AND DETAIL KEY

NOTES:

1. RETAIN STEEL PIPE SUPPORT STRUCTURES REMOVED FOR RE-USE
2. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL POWER DISCONNECT/DEMOLITION OF CONDUIT (E-E-14135-A, E-E-13816-B)
3. OBTAIN AN EXCAVATION/PENETRATION PERMIT PRIOR TO START OF ANY EXCAVATION/PENETRATION ACTIVITIES
4. THE DEMOLITION SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS SECTIONS 024100 DEMOLITION AND 261000 - DEMOLITION WORK RESULTS FOR ELECTRICAL

LPE

REGISTERED PROFESSIONAL ENGINEER J. KEITH THORN 16309 KENTUCKY

04/08/15

DATE

PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONT CTRL/ NUCL SFTY	FAC MGR	ENVIR MGR
0	4/23/15	ISSUED FOR CONSTRUCTION							

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

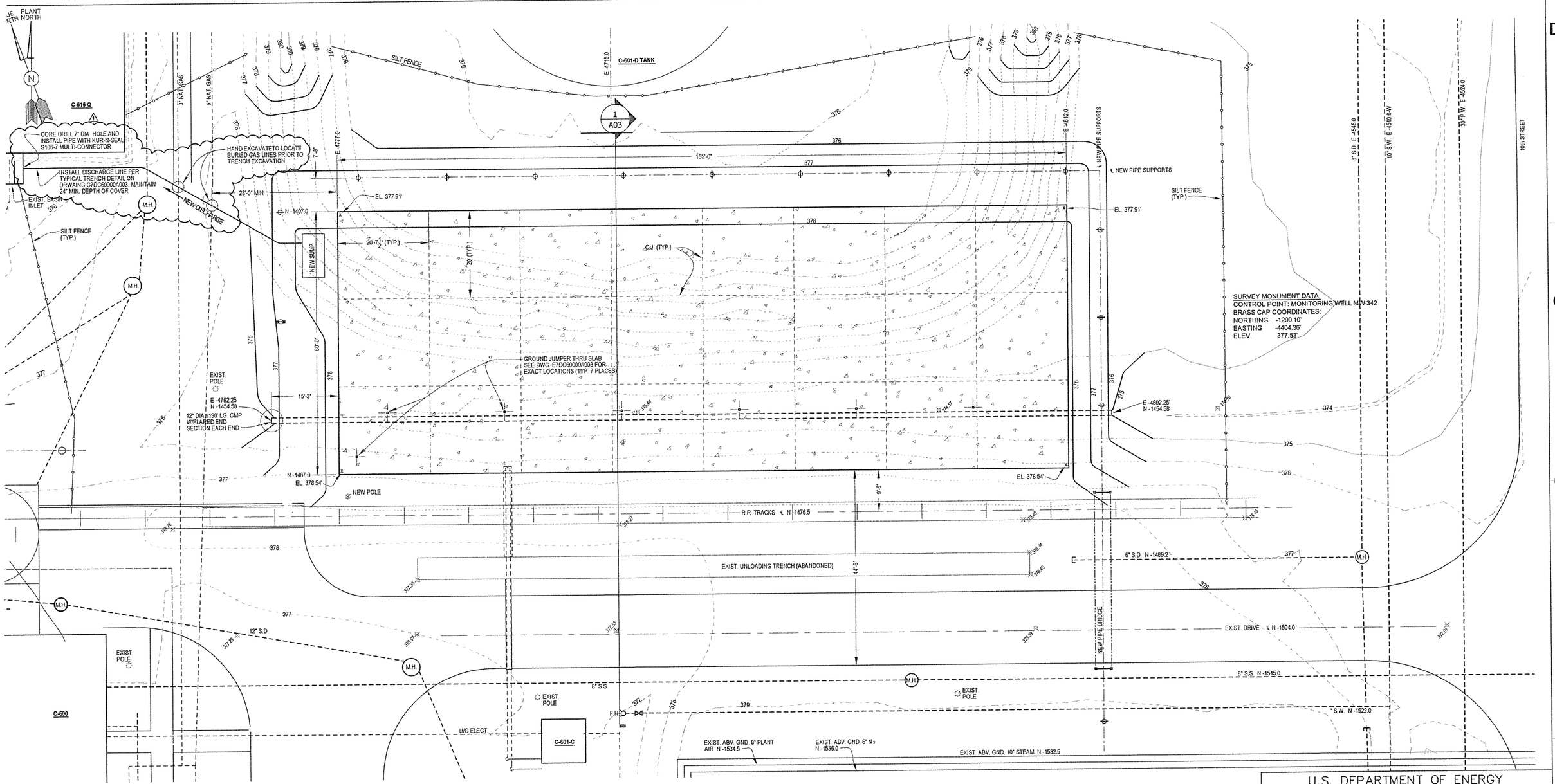
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS DEMOLITION PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
C7DC60000A001 rev0.dwg	C-600	PGDP	U

SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		C7DC60000A001	0



GRADING PLAN

SCALE: 1/20" = 1'-0"

REFERENCE DRAWINGS	DRAWING NO.
C-600 AREA PACKAGE BOILERS CONCRETE PAD DEMOLITION PLAN	C7DC60000A001
C-600 AREA PACKAGE BOILERS CONCRETE PAD SECTIONS & DETAILS	C7DC60000A003
C-600 AREA PACKAGE BOILERS CONCRETE PAD GROUNDING PLAN	E7DC60000A015

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

SECTION NUMBER OR DETAIL LETTER

DRAWING ON WHICH SECTION OR DETAIL IS TAKEN

DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

GENERAL NOTES:

1. OBTAIN EXCAVATION/PENETRATION PERMIT FROM CONTRACTOR PRIOR TO START OF ANY EXCAVATION/PENETRATION ACTIVITIES.
2. SITE CLEARING SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 311000 - SITE CLEARING.
3. EARTHWORK SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 312000 - EARTH MOVING.
4. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 0321313 - CONCRETE PAVING.
5. SEEDING SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 329200 - TURF AND GRASSES.
6. TEMPORARY SILT FENCE SHALL CONFORM TO SECTION 827 OF THE KTC STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - 2012.

LPE

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DATE

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ HAZL SFTY	FAC MGR	E&TS MGR
1		ISSUED FOR CONSTRUCTION	KTW	JAG	JAG	JAG	JBJ	JRL	KLH
0	2/23/2015	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	--	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC

managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

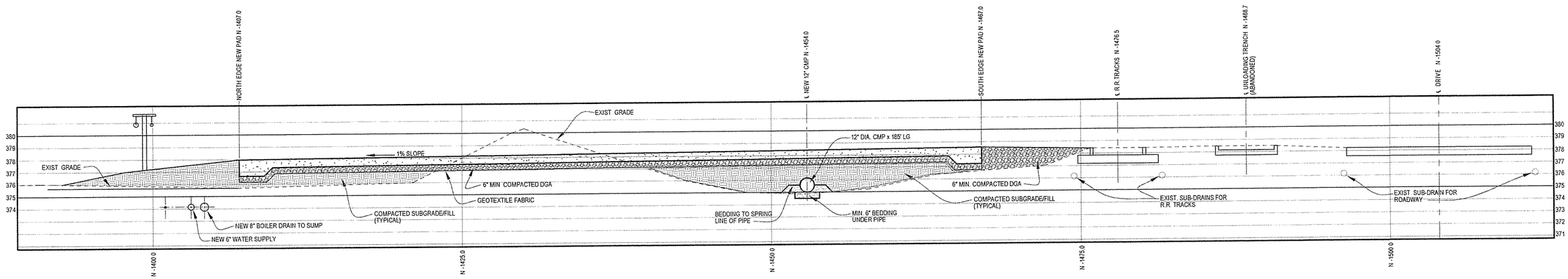
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
CONCRETE PAD
GRADING PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
C7DC60000A002 rev1.dwg	C-600	PGDP	U

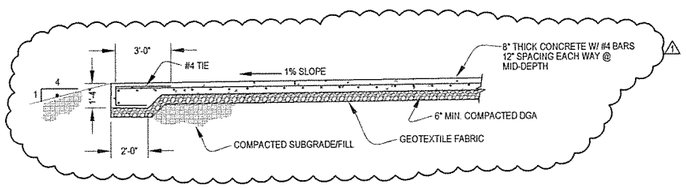
SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		C7DC60000A002	1



SECTION 1

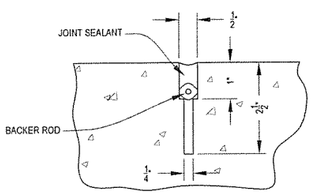
SCALE: 1/4" = 1'-0"

A02 | A03



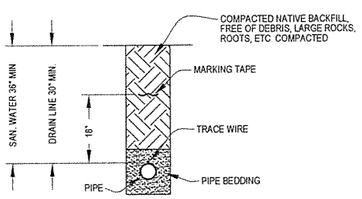
TYPICAL SECTION THROUGH CONCRETE PAD

SCALE: 1/4" = 1'-0"



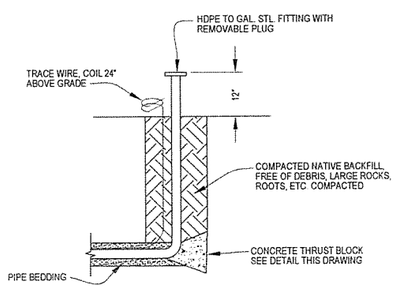
TYPICAL SAWCUT CONTROL JOINT (C.J.)

SCALE: 1/2" = 1"



TYPICAL PIPE TRENCH DETAIL

SCALE: NONE



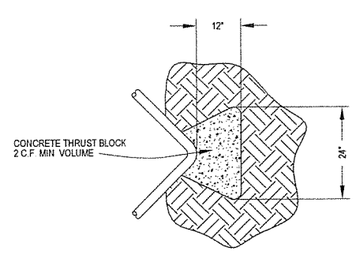
TYPICAL U.G. PIPE TERMINATION DETAIL - SAN. WATER LINE

SCALE: NONE

C-600 AREA PACKAGE BOILERS CONCRETE PAD DEMOLITION PLAN	C7DC60000A001
C-600 AREA PACKAGE BOILERS CONCRETE PAD GROUNDING PLAN	E7DC60000A015
REFERENCE DRAWINGS	DRAWING NO.

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

SECTION AND DETAIL KEY



TYPICAL THRUST BLOCK DETAIL - SAN. WATER LINE

SCALE: NONE

NOTES:

1. OBTAIN EXCAVATION/PENETRATION PERMIT FROM CONTRACTOR PRIOR TO START OF ANY EXCAVATION/PENETRATION ACTIVITIES.
2. DENSE GRADED AGGREGATE SHALL CONFORM TO SECTION 805 OF THE KTC STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - 2012.
3. PIPE BEDDING MATERIAL SHALL CONFORM TO SECTION 804 OF THE KTC STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - 2012.
4. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 0321313 - CONCRETE PAVING.
5. WOVEN GEOTEXTILE FABRIC SHALL BE US FABRICS US 270 OR CONTRACTOR ACCEPTED ALTERNATE.
6. JOINT SEALANT SHALL BE W.R. MEADOWS POURTHANE NS NON-SAG POLYURETHANE JOINT SEALANT OR CONTRACTOR ACCEPTED ALTERNATE.
7. BACKER ROD SHALL BE W.R. MEADOWS KOOL-ROD OR CONTRACTOR ACCEPTED ALTERNATE.
8. CURING COMPOUND SHALL BE W.R.MEADOWS 1600-WHITE WATER BASED CONCRETE CURING COMPOUND OR CONTRACTOR ACCEPTED ALTERNATE.
9. TRACER WIRE SHALL BE #14 AWG COPPER CABLE, RATED FOR DIRECT BURIAL.
10. MATERIALS AND EXECUTION OF EARTHWORK AND SUBGRADE PREPARATION SHALL CONFORM TO SPECIFICATION 312000 - EARTH MOVING.

LPE

STATE OF KENTUCKY J. KEITH THORN 18209 LICENSED PROFESSIONAL ENGINEER 04/08/15

--/--/--

DATE

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	EA/S MGR
1		ISSUED FOR CONSTRUCTION	KTW	NB		NB	SBT	JKU	Klh
0	2/23/2015	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	--	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

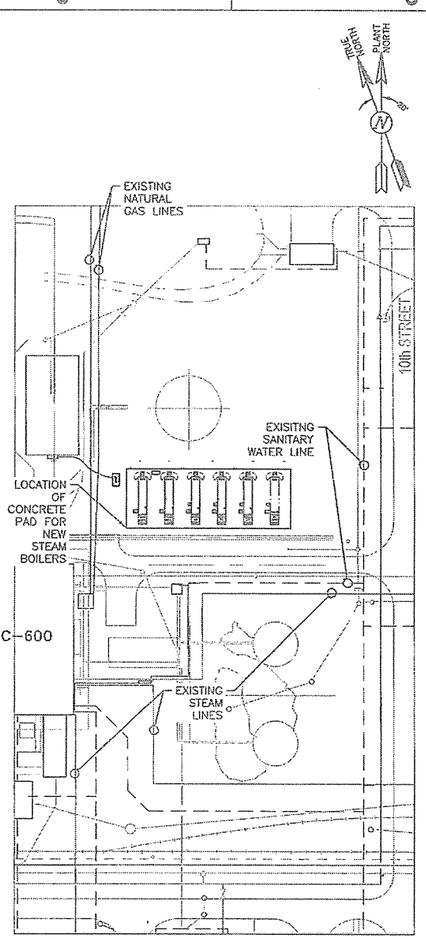
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: C-600 AREA PACKAGE BOILERS CONCRETE PAD SECTIONS AND DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
C7DC60000A003 rev1.dwg	C-600	PGDP	U

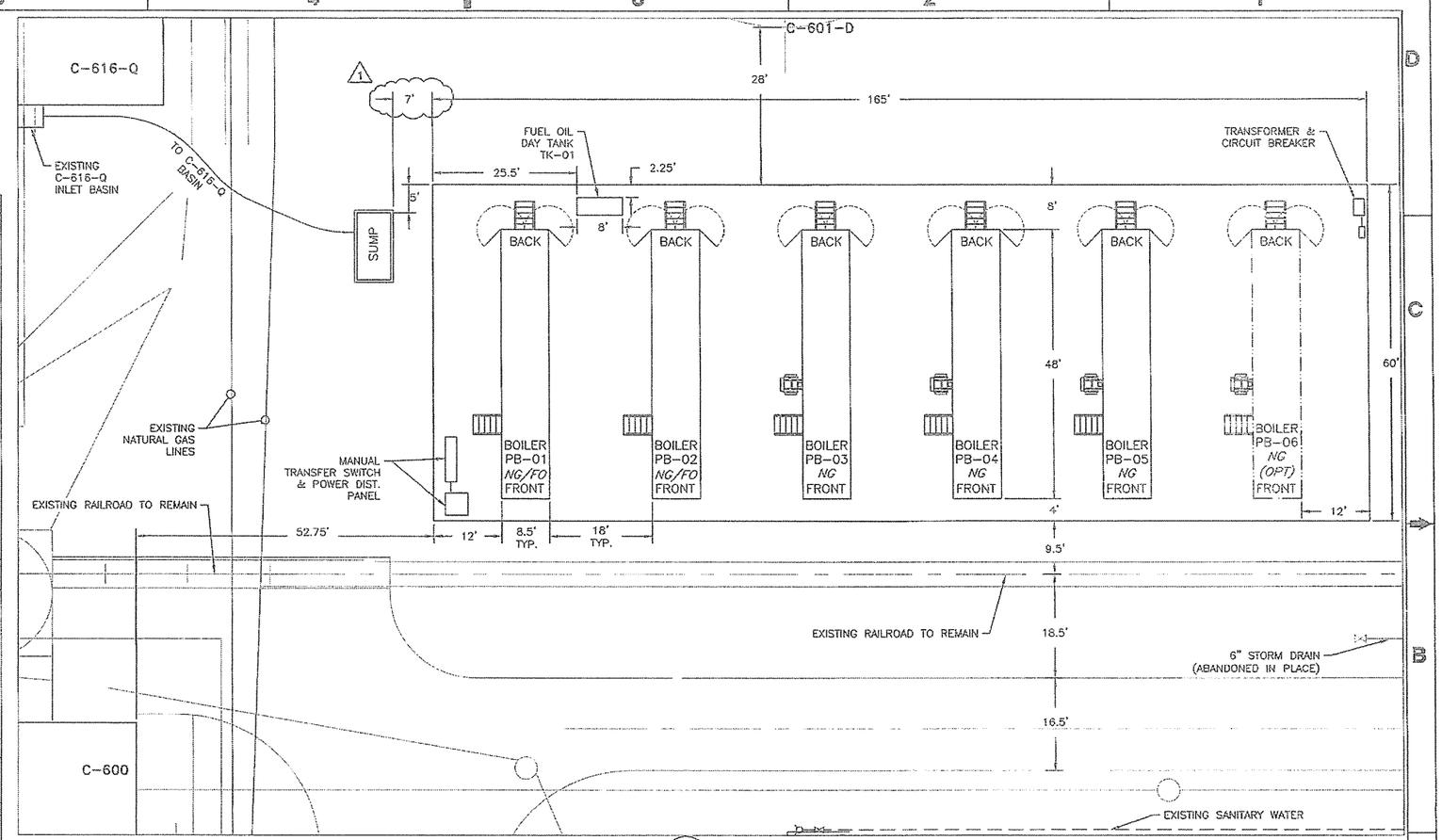
SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		C7DC60000A003	1



1 MA001 PAD LOCATION AND EXISTING UTILITIES

SCALE : 1" = 60'

0 30' 60' 90' 120'



2 MA001 PAD DIMENSIONS AND GENERAL ARRANGEMENT

SCALE : 1" = 10'

0 5' 10' 15' 20'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN LICENSED PROFESSIONAL ENGINEER

DATE: 3/19/15 PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD CHK	PROJ ENGR	MANG ENGR	ENGR STDS MGR	FAC MGR	NFG MGR
1	6/11/15	CORRECTED SCALE / MOVED SUMP							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	KH	KH	TS	JCM	RCS	MJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

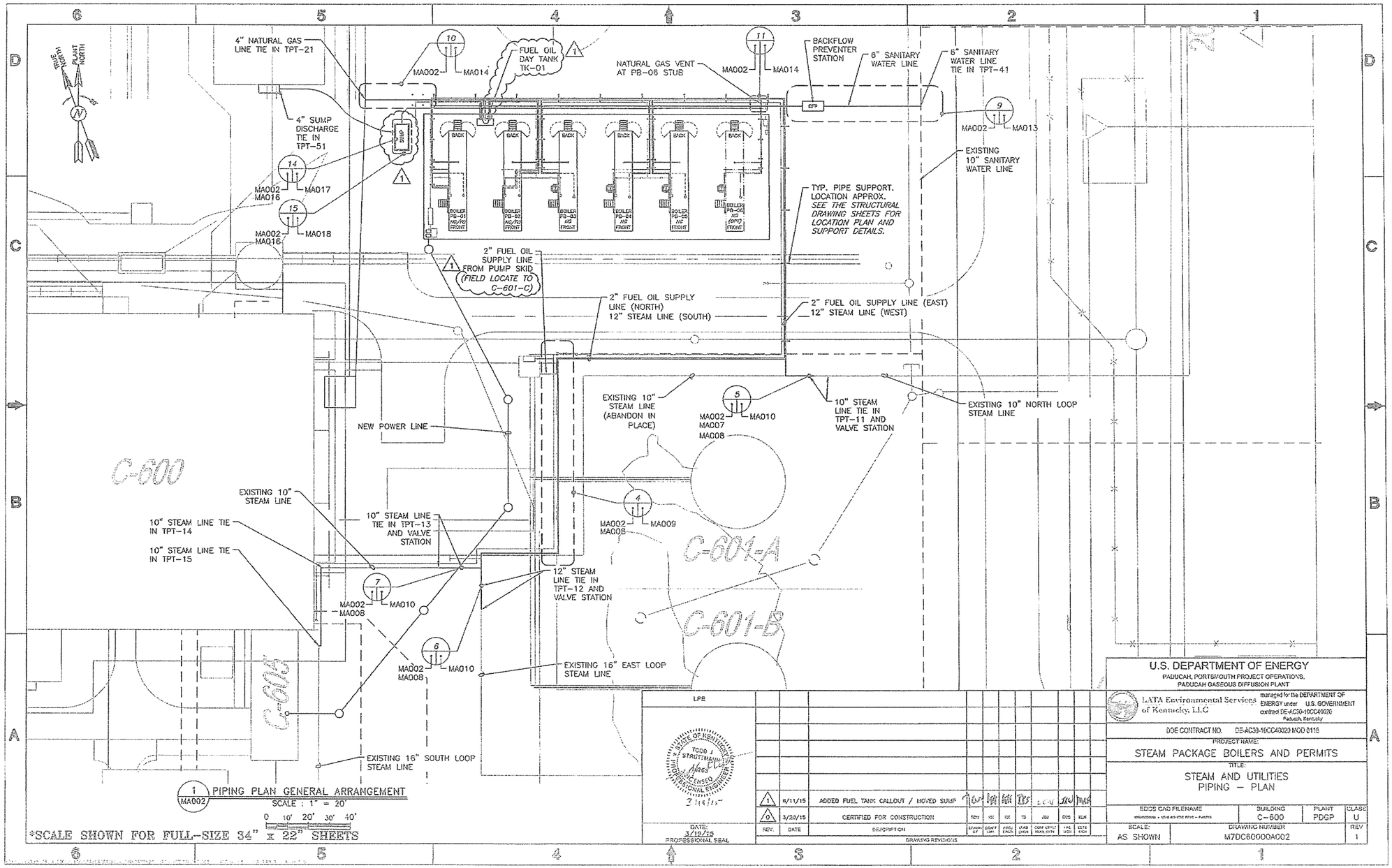
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: GENERAL ARRANGMENT PLAN OF PACKAGE BOILER PAD

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A001	1



REV.	DATE	DESCRIPTION	DRAWN BY	CHK'D BY	PROJ ENGR	MFG ENGR	CONF CTRL MGR	PAC MGR	ESTS MGR
1	6/11/15	ADDED FUEL TANK CALLOUT / MOVED SUMP	TGW	KH	KH	TBS	JCW	JAW	MAF
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGW	KH	KH	TB	JBJ	EDS	KLH

DRAWING REVISIONS

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN 26263 LICENSED PROFESSIONAL ENGINEER

3/19/15

DATE: 3/19/15 PROFESSIONAL SEAL

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: STEAM AND UTILITIES PIPING – PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A002	1

C-616-Q

4" NATURAL GAS LINE TIE IN TPT-21

EXISTING C-616-Q INLET BASIN

TO C-616-Q BASIN

MA003 — MA016

FUEL OIL DAY TANK TK-01

PIPE SUPPORT (TYPICAL)

C-601-D

STEAM AND UTILITY PIPES

8" BOILER DRAIN TO SUMP (BURIED)

6" SANITARY WATER SUPPLY (BURIED)

MA003 — MA006

BACKFLOW PREVENTER STATION (ABOVE GROUND)

BFP

6" SANITARY WATER LINE (BURIED)

6" SANITARY WATER LINE TIE IN TPT-41

SUMP

BACK

STEAM

STEAM (TYP)

NG

FO

WTR

BOILER DRAIN (TYP)

BOILER PB-01 NG/FO FRONT

BOILER PB-02 NG/FO FRONT

BOILER PB-03 NG FRONT

BOILER PB-04 NG FRONT

BOILER PB-05 NG FRONT

BOILER PB-06 NG (OPT) FRONT

MA008

MA003 — MA008 — MA007

EXISTING 10" SANITARY WATER

TYP. PIPE SUPPORT. LOCATION APPROX. *SEE THE STRUCTURAL DRAWING SHEETS FOR LOCATION PLAN AND SUPPORT DETAILS.*

EXISTING NATURAL GAS LINES

EXISTING RAILROAD TO REMAIN

MA003 — MA004 MA005

EXISTING RAILROAD TO REMAIN

6" STORM DRAIN (ABANDONED IN PLACE)

2" FUEL OIL SUPPLY LINE (EAST) 12" STEAM LINE (WEST)

MA003 — MA014

C-600

C-601-C

2" FUEL OIL SUPPLY LINE (NORTH) 12" STEAM LINE (SOUTH) (FIELD LOCATE TO C-601-C)

EXISTING SANITARY WATER

MA003 — MA008 — MA007

10" STEAM LINE TIE IN TPT-11 AND VALVE STATION

EXISTING 10" NORTH LOOP (ABANDON IN PLACE)

EXISTING 4" FUEL OIL LINE FROM FUEL OIL TANK C-601-B

EXISTING 4" FUEL OIL FILL LINE TO FUEL OIL TANK C-601-B

1 / MA003 STEAM AND UTILITIES PIPING AT PAD

SCALE : 1" = 10'

0 5' 10' 15' 20'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY — TODD J. STRUTTMANN — PROFESSIONAL ENGINEER — LICENSED

3/19/15

DATE 3/19/15 PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	Drawn BY	Grafx Chk	Phys Chk	Lead Engr	Const Rep / Nuclear Safety	Pub Rel	Ests Mgr
1	6/11/15	ADD TK-01 TO FO TANK OUTLOUT, CORRECTED SLOPE, NOWED SUMP	TJS	KK	KK	TJS	LCV		
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDS	KK	KK	VE	JSM	RCS	SLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

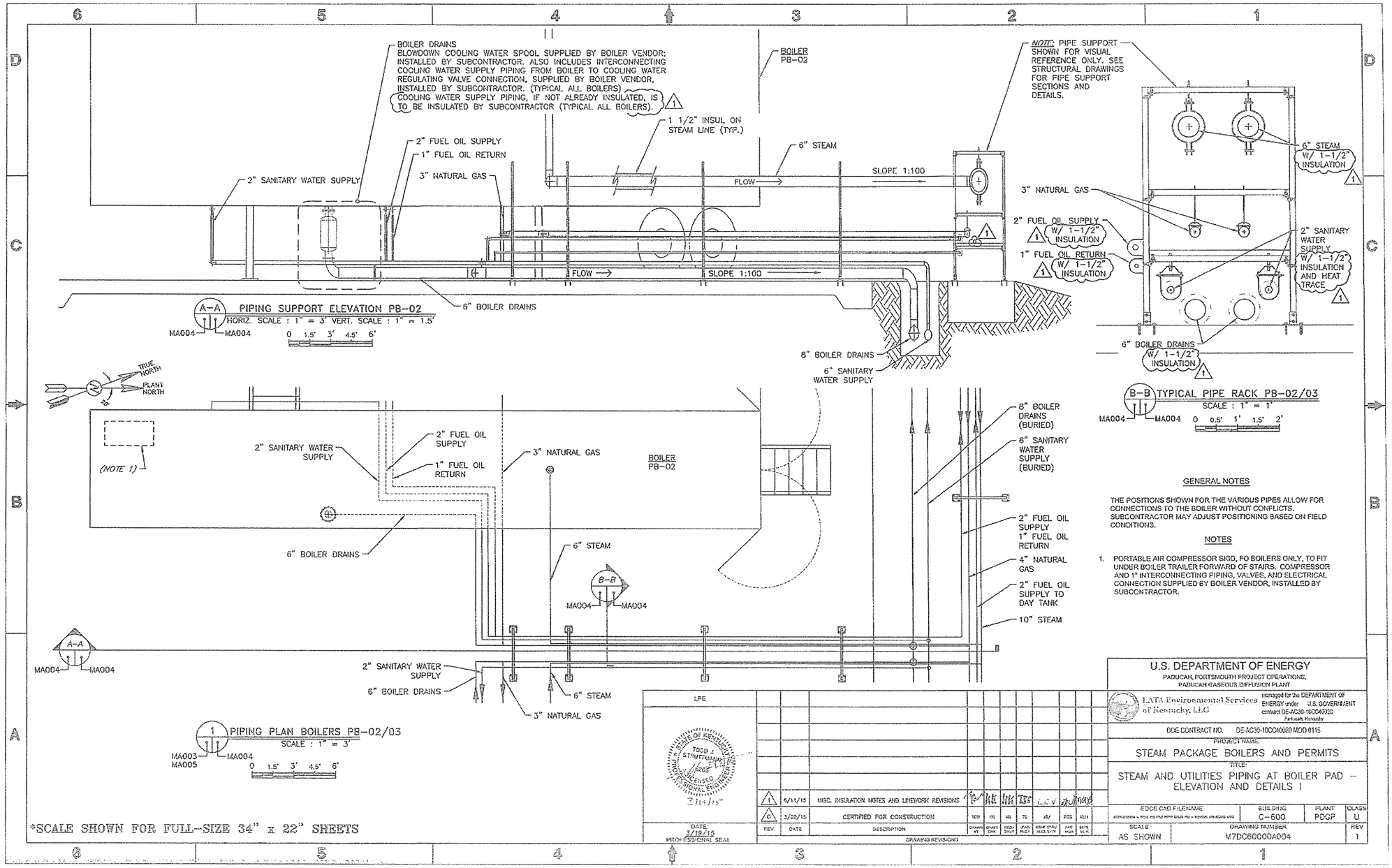
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: STEAM AND UTILITIES PIPING AT BOILER PAD - PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A003	1



GENERAL NOTES

THE POSITIONS SHOWN FOR THE VARIOUS PIPES ALLOW FOR CONNECTIONS TO THE BOILER WITHOUT CONFLICTS. SUBCONTRACTOR MAY ADJUST POSITIONING BASED ON FIELD CONDITIONS.

NOTES

1. PORTABLE AIR COMPRESSOR SKID, FO BOILERS ONLY, TO FIT UNDER BOILER TRAILER FORWARD OF STAIRS. COMPRESSOR AND 1" INTERCONNECTING PIPING, VALVES, AND ELECTRICAL CONNECTION SUPPLIED BY BOILER VENDOR, INSTALLED BY SUBCONTRACTOR.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

DATE: 3/18/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DWG'S CHK	PROJ ENGR	LEAD PROJ	CONT ENGR SUBS. ENGR	FAC MGR	SAFS MGR
1	6/11/15	MISC. INSULATION NOTES AND LINEWORK REVISIONS	TCW	HN	HN	TS	ABJ	RGS	KLH
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	HN	HN	TS	ABJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

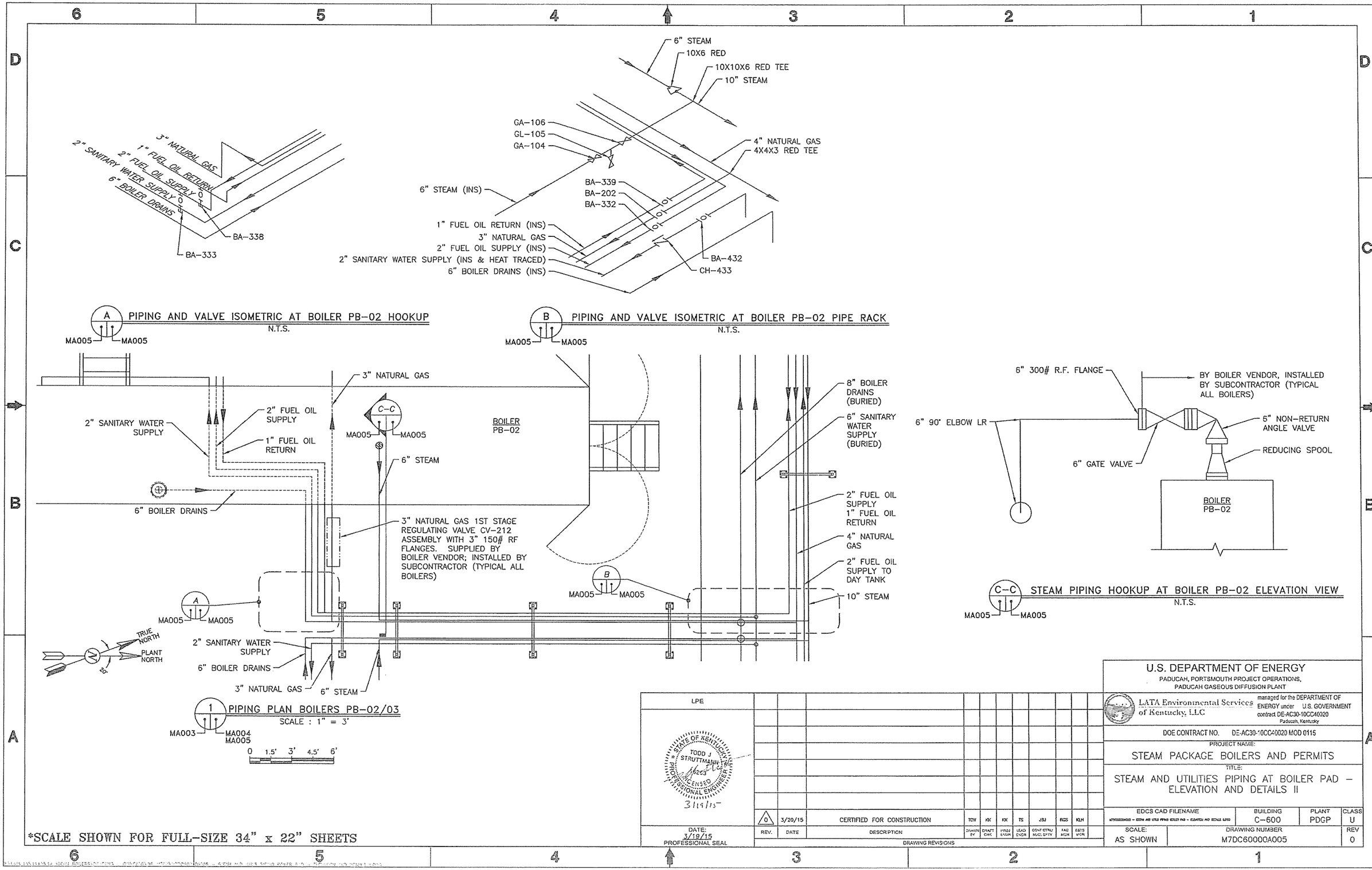
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS I

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A004	1



*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
TODD J STRUTTMANN
16263
LICENSED
PROFESSIONAL ENGINEER
3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONT CTRL MGR SFTY	FAC MGR	EQTS MGR
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	KK	KK	TS	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

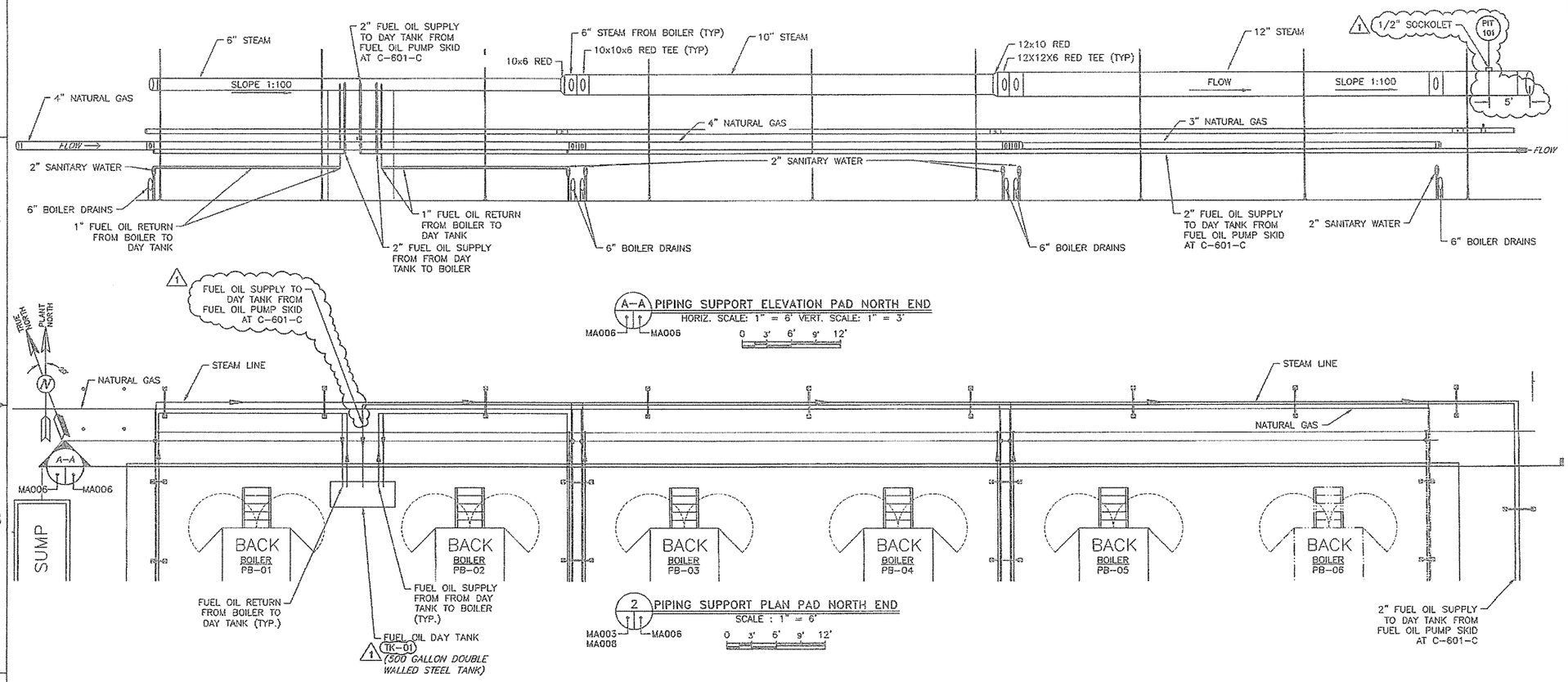
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS II

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A005	0



*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY — TODD J. STRUTTMANN — LICENSED PROFESSIONAL ENGINEER

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAWN CHK	PROJ ENGR	ASSOC ENGR	CONSTRUCT MGR/SUPT	PAD MGR	DATE VER
1	6/11/15	PIT 101 ADDED/ADDITIONAL FUEL TANK INFO	TGW	KSC	KSC	TS	JSU	TGS	FLR
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGW	KSC	KSC	TS	JSU	TGS	FLR

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

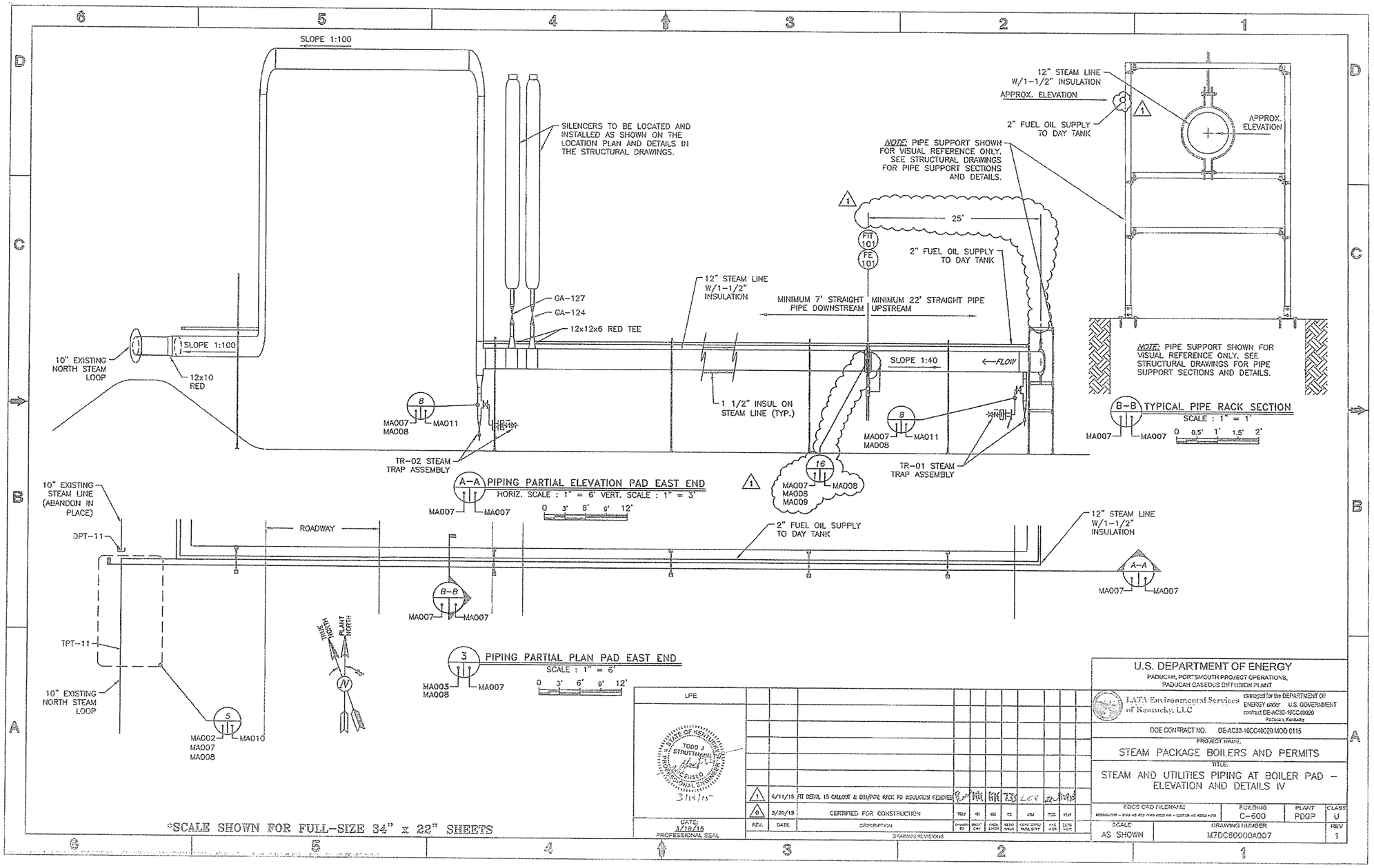
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS III

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
U:\DOCUMENTS - STEAM AND UTILITIES PIPING PAD - CONTRACT NO 10CC40 0115	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC600000A006	1



REV.	DATE	DESCRIPTION	DRAWN BY	DESIGN CHK	PROJ ENGR	REPRO CHECK	CONC DWG/ MODEL ENTRY	PROC MOD	DATA MOD
1	6/11/15	FIT DETAIL IS CALLOUT & DIM/PIPE RACK FO INSULATION REMOVED							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCLT	KEI	KDC	TS	JRM	TCDS	KLM

DRAWING REVISIONS

UPE

STATE OF KENTUCKY TODD J. STRUTTMANN LICENSED PROFESSIONAL ENGINEER
3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-10CC40020 Paducah, Kentucky

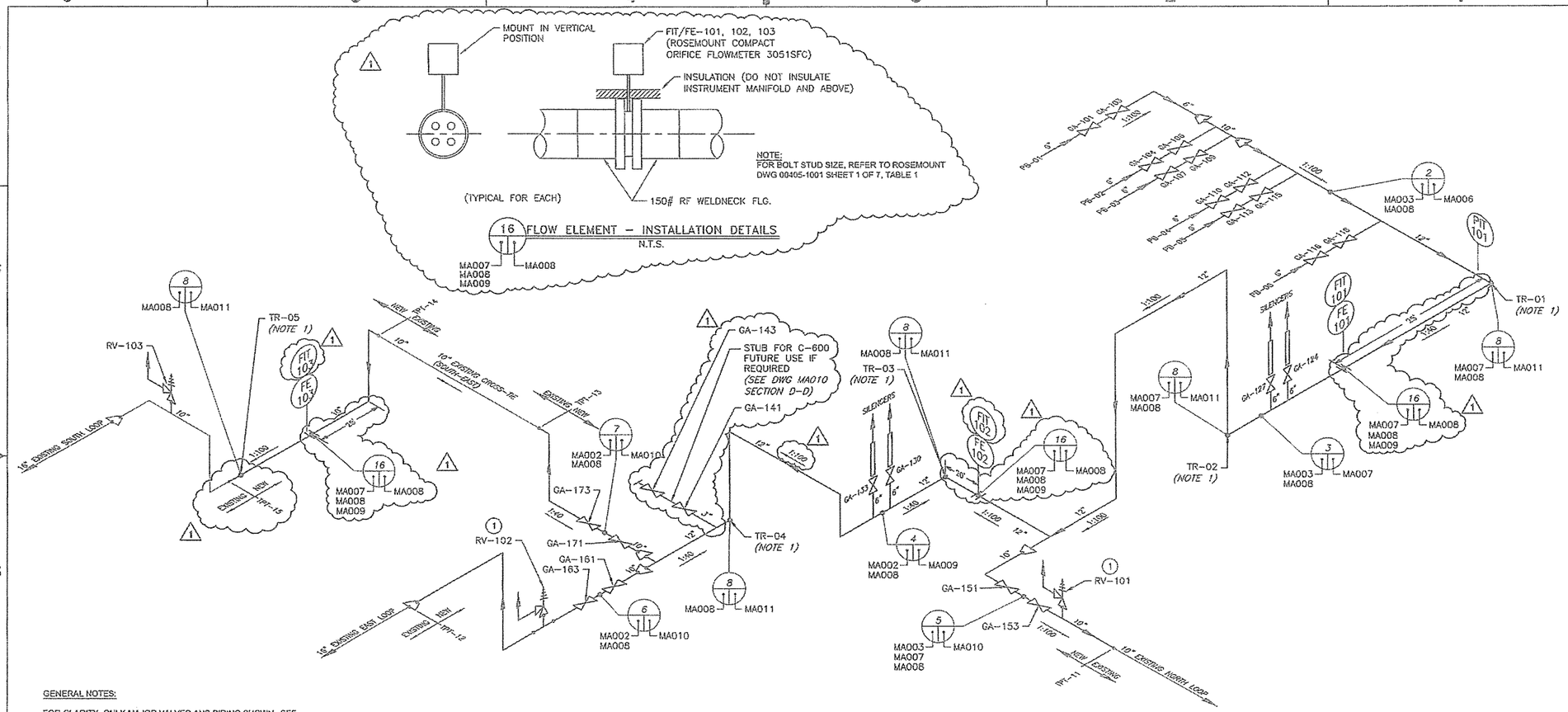
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: STEAM AND UTILITIES PIPING AT BOILER PAD – ELEVATION AND DETAILS IV

RDCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A007	1



1 MA008 STEAM PIPING ISOMETRIC
N.T.S.

GENERAL NOTES:

FOR CLARITY, ONLY MAJOR VALVES AND PIPING SHOWN. SEE DETAIL CALL OUTS FOR MORE DETAIL.

LINE SLOPES FOR NEW PIPING:
1:100 IN DIRECTION OF FLOW
1:40 AGAINST DIRECTION OF FLOW

T= TRAP STATION

FLOW ELEMENTS TO BE LOCATED WITH A MIN. OF 22 FT UPSTREAM AND 7 FT DOWNSTREAM OF STRAIGHT PIPING WITH NO FITTINGS.

(1) RELOCATED FROM EXISTING LOOPS

NOTES:

1. MINIMUM BOTTOM OF STEAM PIPE ELEVATION SHALL BE 36 INCHES FROM GRADE AT TRAP LOCATION TO ALLOW FOR TRAP ASSEMBLY.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J. STRUTHMANN 16003 LICENSED PROFESSIONAL ENGINEER 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DWFT CHK	ENGR ENGR	MAG ENGR	CONT STRU MECH INTC	PKG MGR	PATS MGR
1	6/11/15	RE DCI 16 & CHLOUTS, C-603 FUT. USE STUB, IPT-15 FIXED	TGV	KK	KK	TS	JBJ	PCS	RJH
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGV	KK	KK	TS	JBJ	PCS	RJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

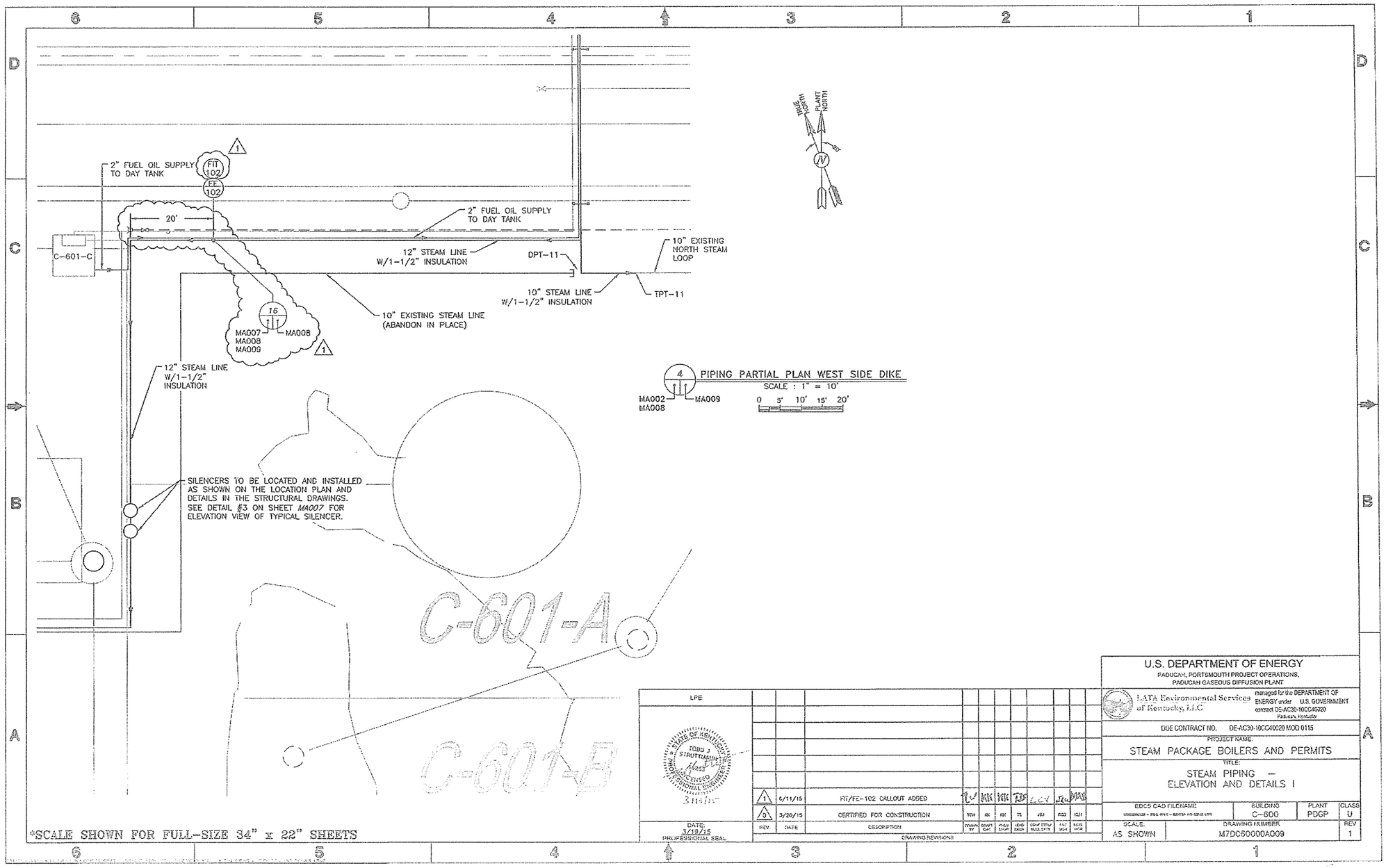
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
STEAM PIPING – OVERALL ISOMETRIC

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A008	1



*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN LICENSED PROFESSIONAL ENGINEER 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	DSGNR CHK	PHSE ENGR	DISC ENGR	CONF SYSV RUCS SYSV	FAC MGR	SUB MGR
1	6/11/15	FIT/FE-102 CALLOUT ADDED	TLV	MK	MK	TS	LCV	JEW	MAS
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDW	RK	RK	TL	JBJ	RGG	TJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

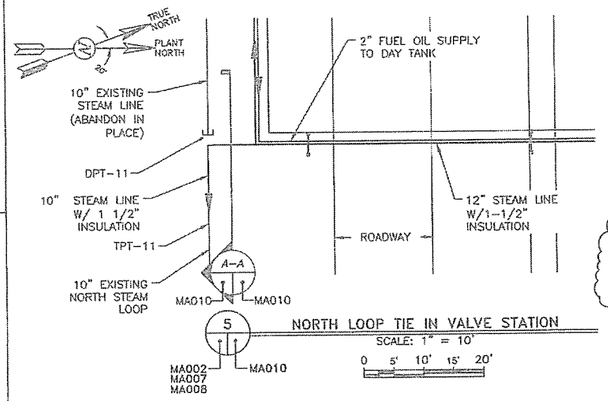
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

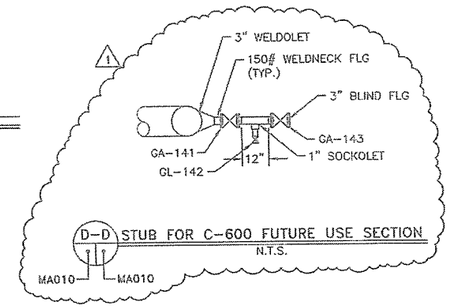
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

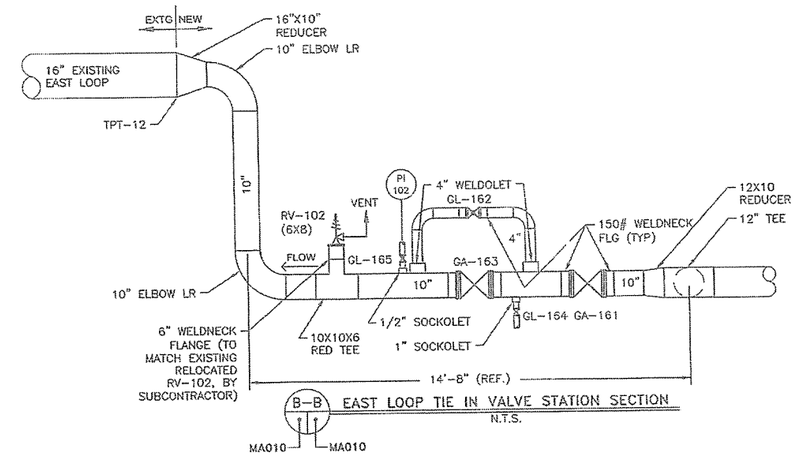
TITLE:
STEAM PIPING — ELEVATION AND DETAILS I

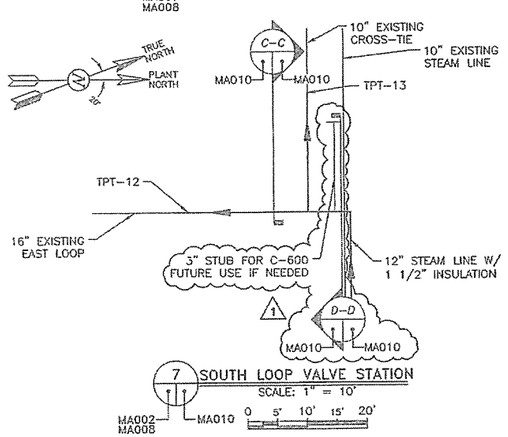
EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

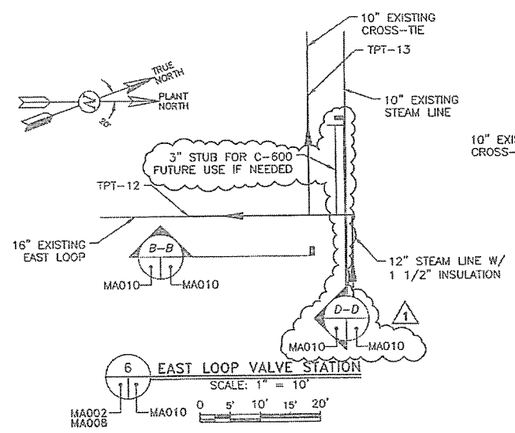
SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A009	1

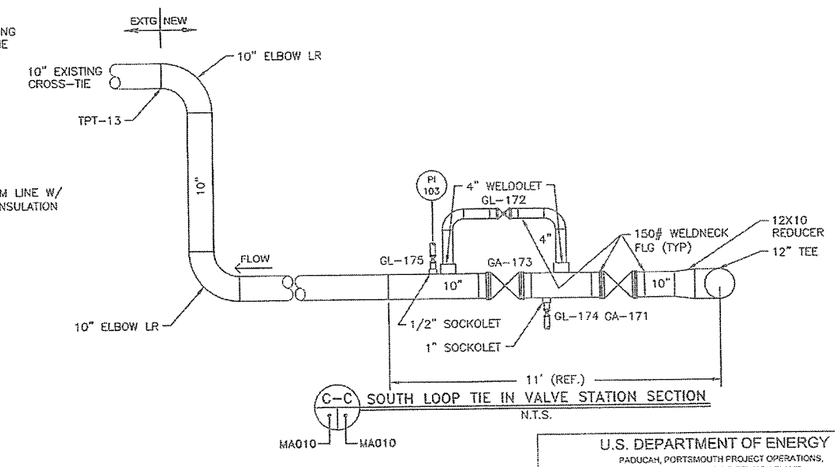


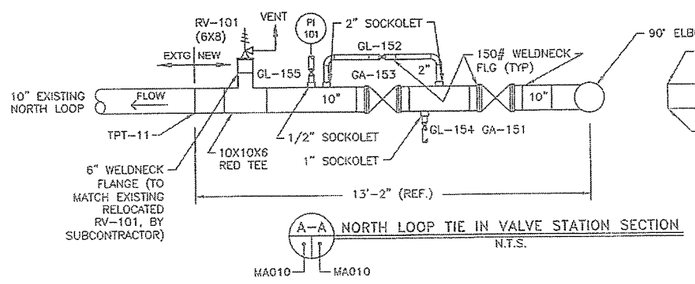


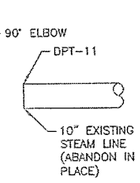












*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	PROJ ENGR	EQUIP ENGR	LEAD ENGR	FIG MGR	ESTD MGR
1	6/11/15	ADDED 3" STUB FOR C-600 FUTURE USE	TW	MK	MK	DS	CCV	TC	MAB
0	3/20/15	CERTIFIED FOR CONSTRUCTION	SDV	AJC	RDS	TS	JBD	RDS	RLM

DRAWING REVISIONS

LPE

STATE OF KENTUCKY TODD J. STRUTHMANN 22269 LICENSED PROFESSIONAL ENGINEER 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

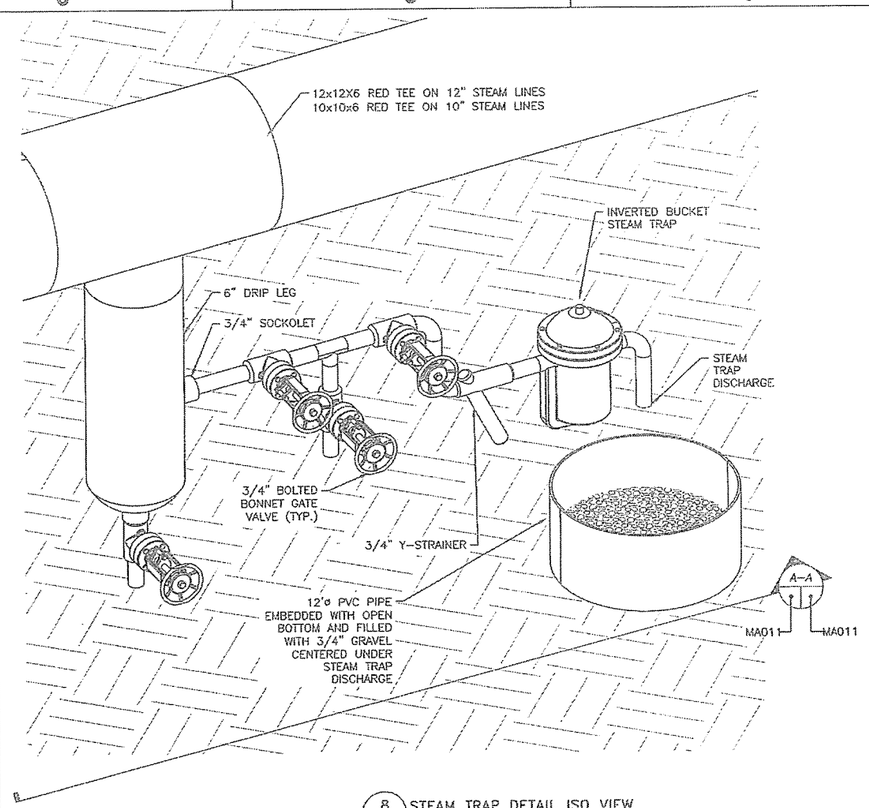
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

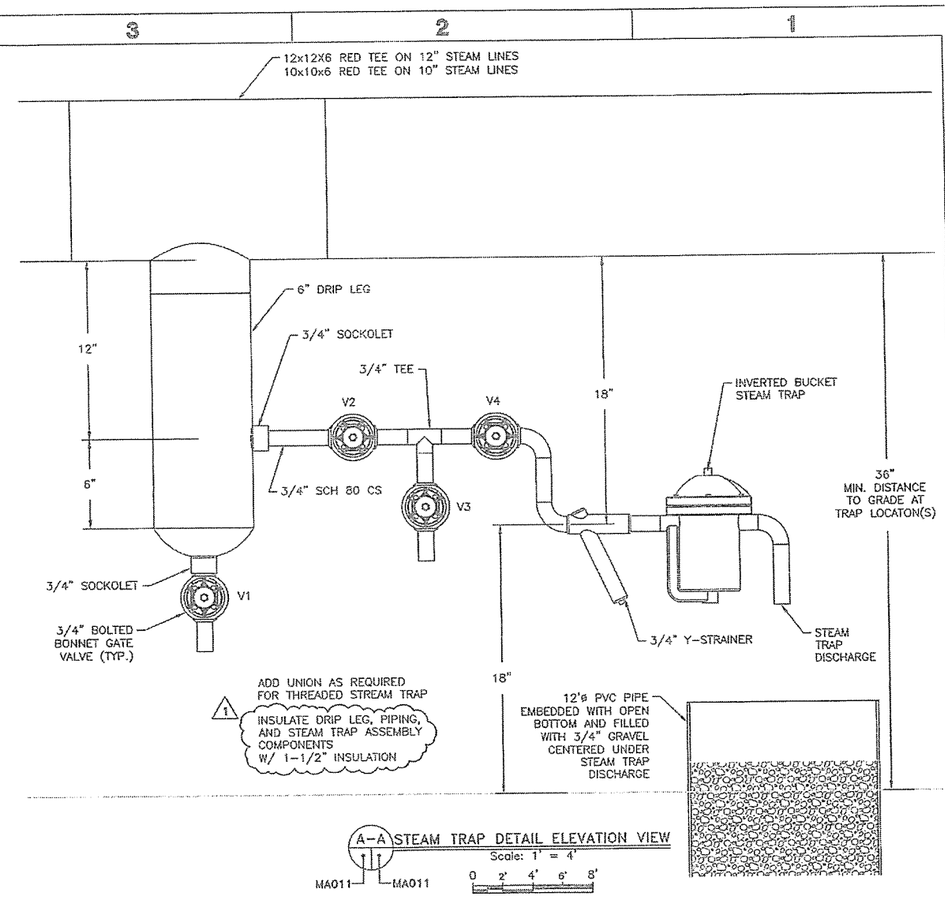
TITLE:
STEAM PIPING – ELEVATION AND DETAILS II

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A010	1



8 STEAM TRAP DETAIL ISO VIEW
Scale: 1" = 4'
MA007
MA008
MA011
0 2' 4' 6' 8'



A-A STEAM TRAP DETAIL ELEVATION VIEW
Scale: 1" = 4'
MA011
MA011
0 2' 4' 6' 8'

Steam Trap Assembly					
Trap No.	V1	V2	V3	V4	Strainer
TR-01	GA-180	GA-181	GA-182	GA-183	STR-01
TR-02	GA-184	GA-185	GA-186	GA-187	STR-02
TR-03	GA-188	GA-189	GA-190	GA-191	STR-03
TR-04	GA-192	GA-192	GA-192	GA-192	STR-04
TR-05	GA-196	GA-196	GA-196	GA-196	STR-05

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
TODD J. STRUTTMANN
LICENSED PROFESSIONAL ENGINEER
3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	DES ENGR	CONT STRU NAS ENTY	PAC MGR	SAIC MGR
1	6/11/15	ADDED INSULATION NOTE					LCV		
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDW	KK	KK	TS	JDU	RRD	MJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

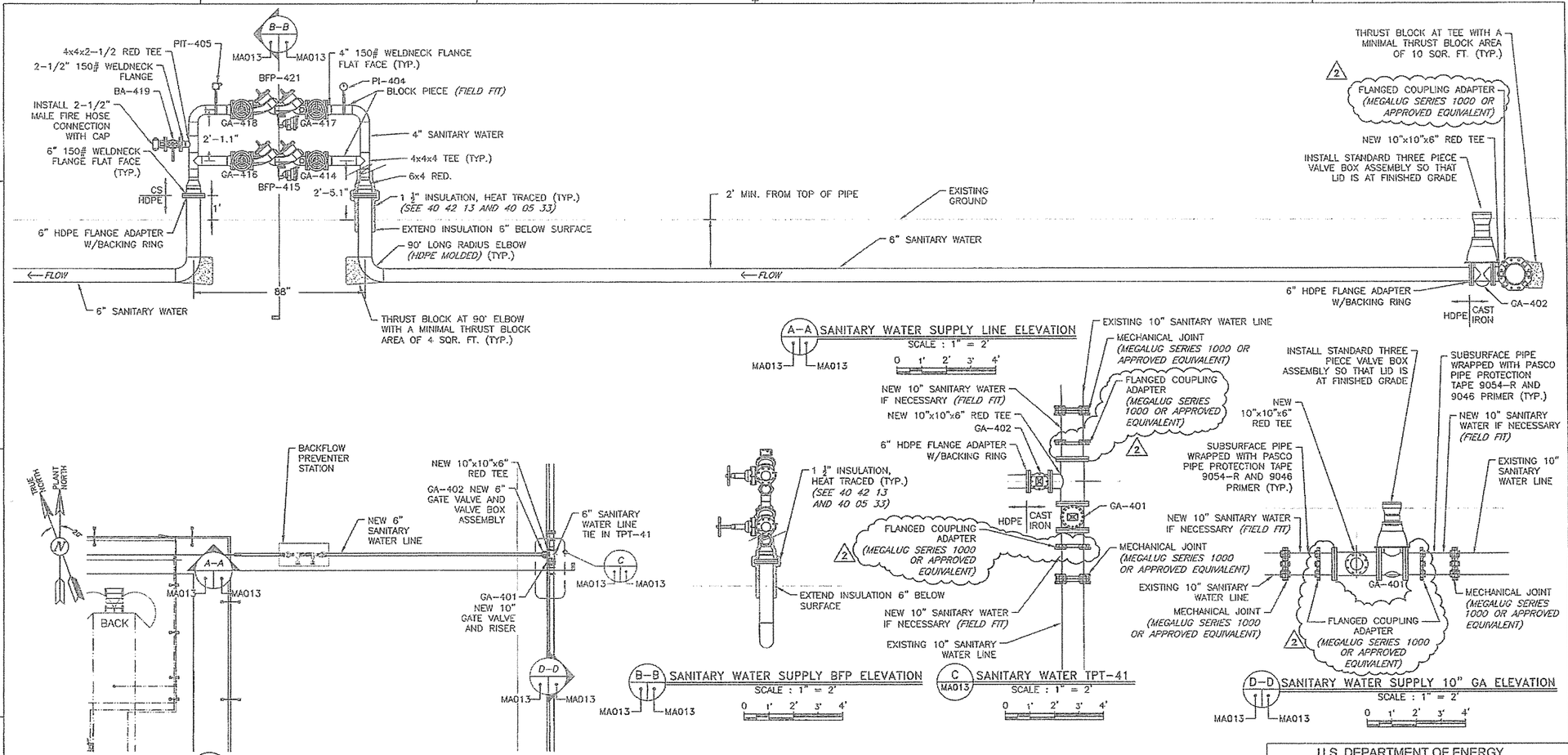
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
STEAM PIPING –
STEAM TRAP DETAILS

ECCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A011	1



GENERAL NOTES:

1. SUBCONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING SUBSURFACE CAST IRON PIPE, FITTINGS, AND ALL NECESSARY HARDWARE.
2. VALVES FURNISHED BY OTHERS (SEE MA022).

*SCALE SHOWN FOR FULL–SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY — TODD J. STRITTMATTER — 16263 — LICENSED PROFESSIONAL ENGINEER

DATE: 3/26/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKT CHK	PROJ ENGR	LEAD PLCR	CONT ENGR/ NUCL ENGR	ENG MGR	ENGS MGR
2	6/11/15	ADDED FLANGED COUPLING ADAPTER	TCW	MH	MH	TS	LCV	JLEWIS	
1	3/25/15	CERTIFIED FOR CONSTRUCTION	TCW	KK	KK	TS	JGH	EKS	HJH
0	3/20/15	ISSUED FOR BID	TCW	KK	KK	TS	JGH	EKS	HJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

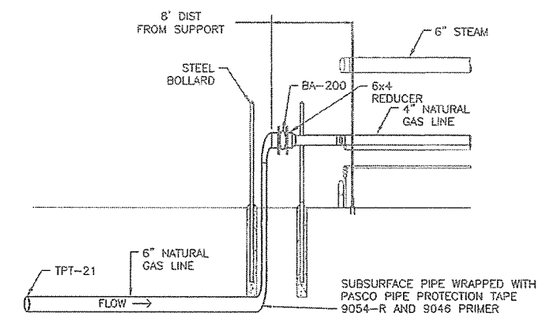
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

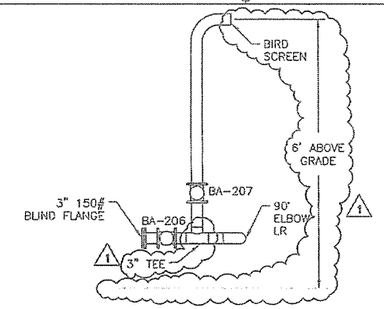
TITLE: SANITARY WATER SUPPLY LINE – ELEVATION AND DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C–600	PDGP	U

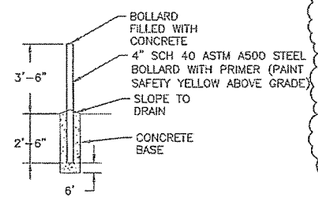
SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A013	2



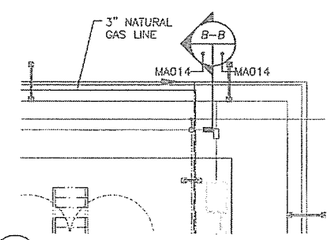
A-A NATURAL GAS ELEVATION PAD NORTH END
HORIZ. SCALE: 1" = 6' VERT. SCALE: 1" = 3'
MA014 MA014 0 3' 6' 9' 12'



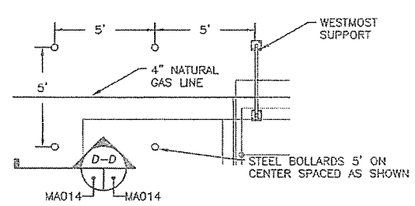
B-B NATURAL GAS VENT AT PB-06 STUB PLAN
SCALE: 1" = 16'
MA003 MA014 0 3' 6' 9' 12'



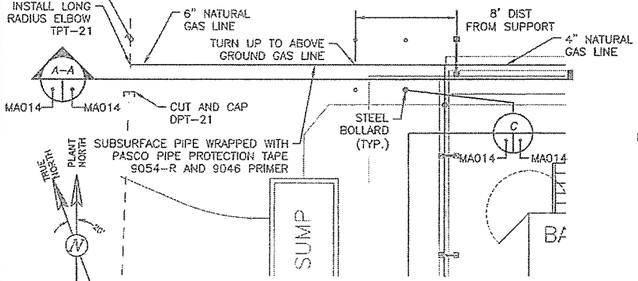
D-D STEEL BOLLARD ELEVATION DETAIL
SCALE: 1" = 3'
MA014 MA014 0 1.5' 3' 4.5' 6'



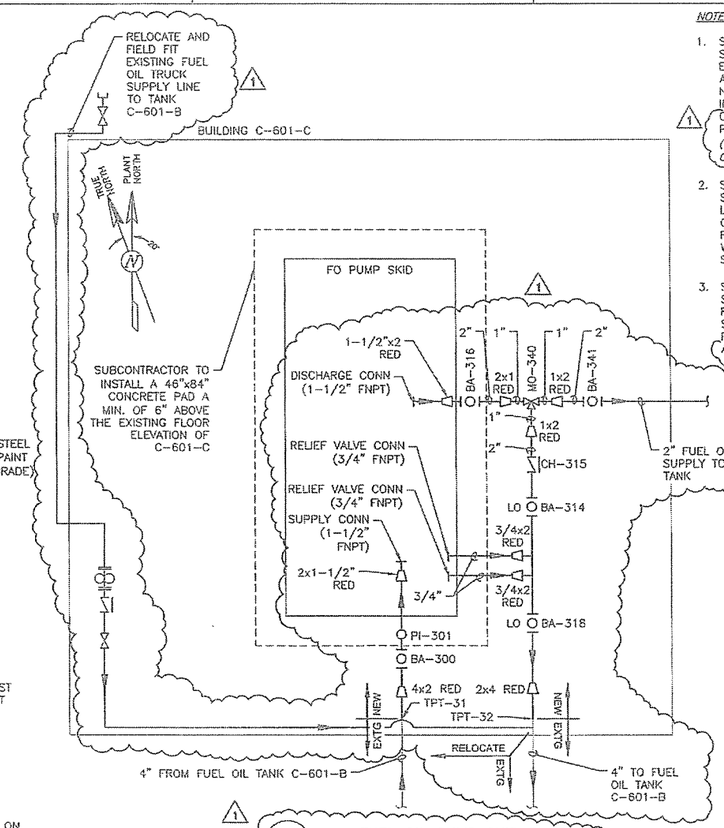
11 NATURAL GAS VENT AT PB-06 STUB PLAN
SCALE : 1" = 6'
MA002 MA014 0 3' 6' 9' 12'



C NATURAL GAS BOLLARD LAYOUT PLAN
SCALE: 1" = 3'
MA014 MA014 0 1.5' 3' 4.5' 6'



10 NATURAL GAS PLAN PAD NORTH END
SCALE : 1" = 6'
MA002 MA014 0 3' 6' 9' 12'



12 FUEL OIL PUMP SKID PLAN
SCALE : N.T.S.
MA003 MA014

NOTE:

1. SUBCONTRACTOR SHALL REMOVE EXISTING PUMP AND PIPING NECESSARY TO INSTALL AND CONNECT FUEL OIL PUMP SKID *(FURNISHED BY OTHERS)*.
2. SUBCONTRACTOR SHALL COORDINATE LOCATION OF NEW CONCRETE PAD FOR FUEL OIL SKID WITH FIELD SUPERINTENDENT.
3. SUBCONTRACTOR SHALL INSTALL FUEL OIL PUMP SKID AND CONNECT PIPING. FIELD FIT AS NEEDED.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J STRUTTMANN LICENSED PROFESSIONAL ENGINEER

DATE: 3/19/15
PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	GRAPHICS	SAFETY QA/C	FIELD ENGR	LEAD ENGR	CONF CTRL MGR/ OPTY	PAD MGR	DATE MGR
1	6/11/15	CORRECTED GRADE ON B-B/REVISED DET. 12							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	JDC	FJC	TS	JDM	RDC	KJM

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

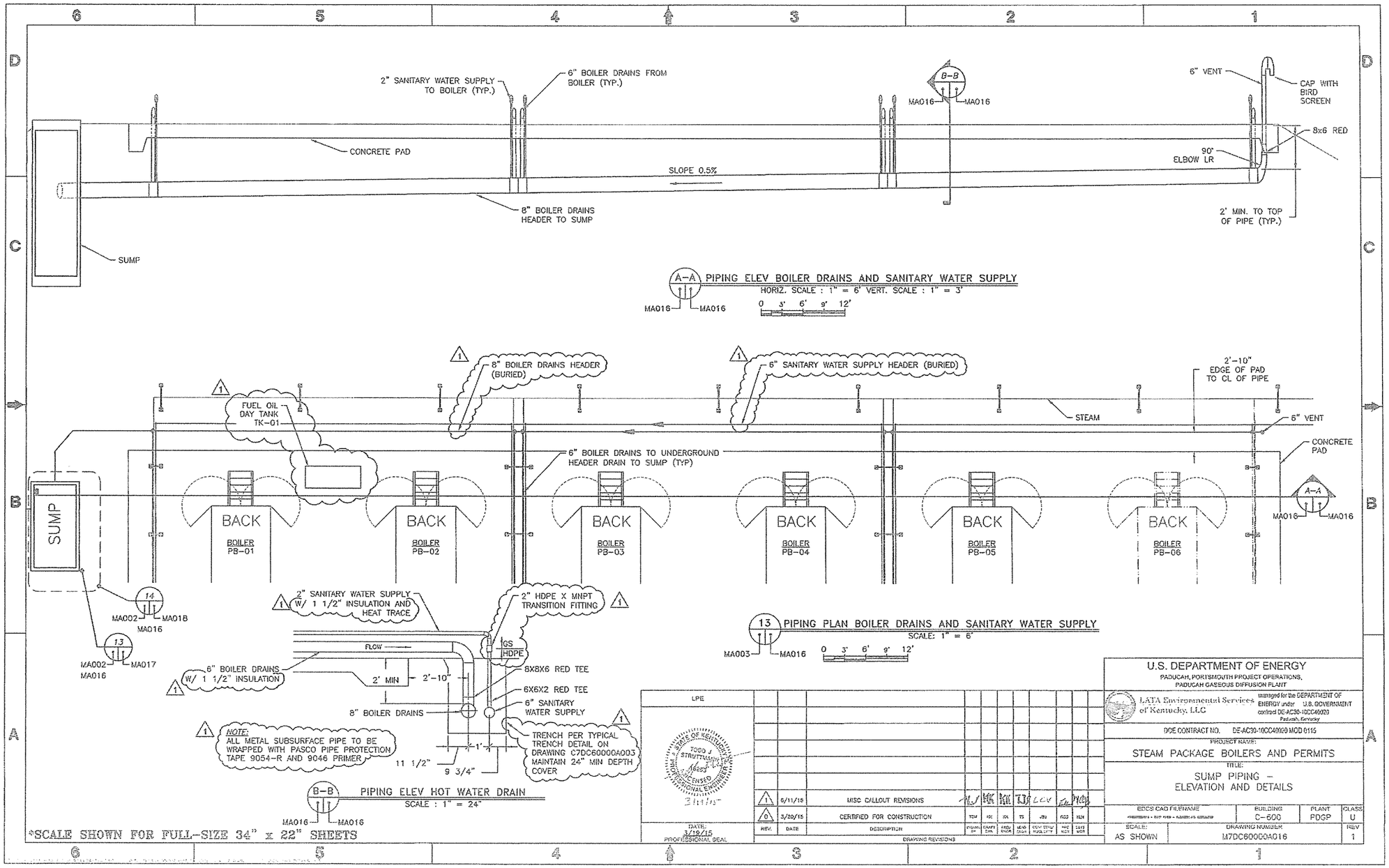
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
NATURAL GAS AND FUEL OIL – PIPING ELEVATIONS DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A014	1



REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APPD BY	MGR	CHKD BY	APPD BY	MGR	CHKD BY	APPD BY
1	6/11/15	MISC CALLOUT REVISIONS									
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCM	KK	KK	TS	JBJ	RGG	RGH		

DRAWING REVISIONS

LPE

STATE OF KENTUCKY TODD J STRUTTMANN 16653 LICENSED PROFESSIONAL ENGINEER 3/11/15

DATE: 3/19/15
PROFESSIONAL SEAL

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

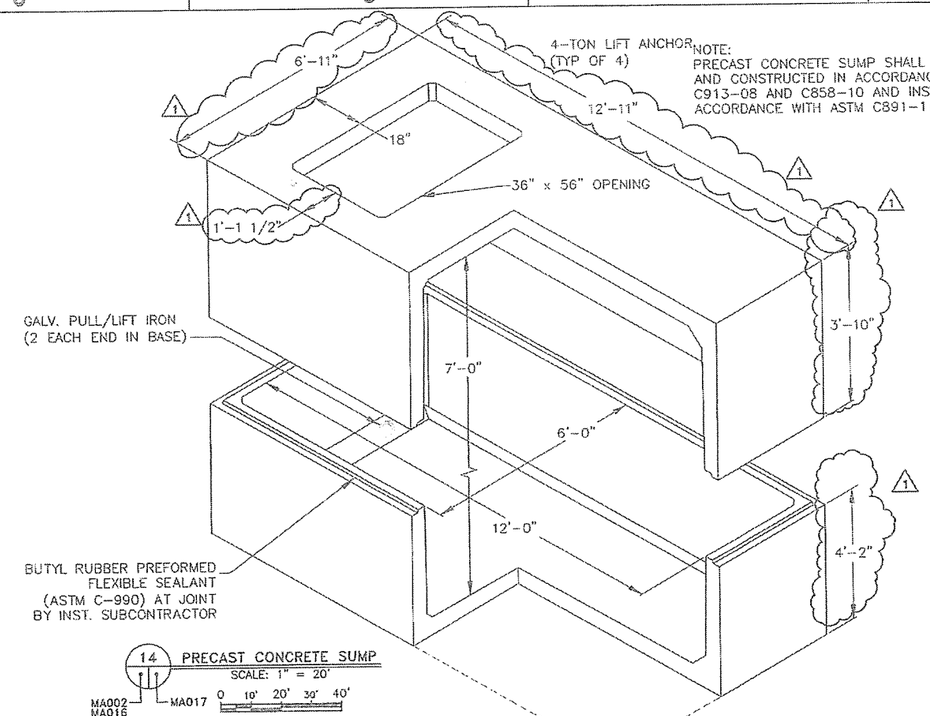
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
SUMP PIPING – ELEVATION AND DETAILS

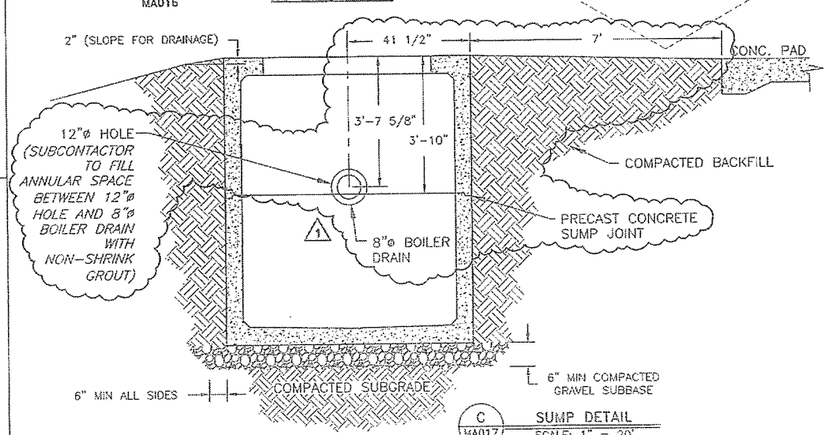
EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A016	1

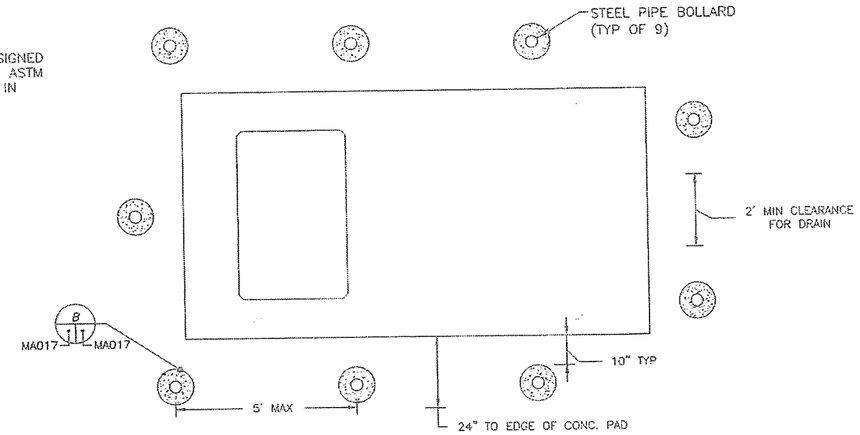


NOTE:
PRECAST CONCRETE SUMP SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ASTM C913-08 AND C858-10 AND INSTALLED IN ACCORDANCE WITH ASTM C891-11.

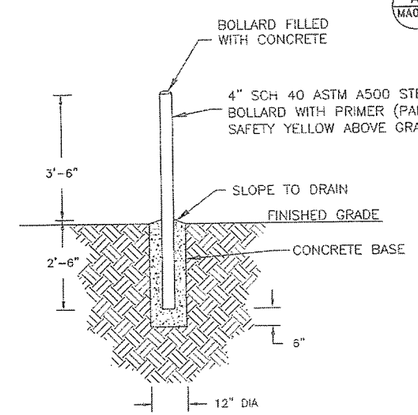
14 PRECAST CONCRETE SUMP
SCALE: 1" = 20'
MA002 MA016 — MA017
0 10' 20' 30' 40'



C MA017 SUMP DETAIL
SCALE: 1" = 20'



A MA017 STEEL BOLLARD SETTING PLAN
SCALE: 1" = 20'



B MA017 BOLLARD DETAIL
SCALE: 1" = 20'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY — TODD J. STRUTHMANN — 16203 — LICENSED PROFESSIONAL ENGINEER
3/18/15

DATE: 3/18/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	SHAPE CHK	FIELD CHK	LEAD DESIGN	DESIGN MGR	PROJ MGR	CATEG MGR
1	6/11/9	AS-BUILT REVISIONS TO PRECAST CONC SUMP	TGU	MK	KB	DS	LCV	JM	MAB
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TGU	MK	DS	TS	JCM	RGS	MJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

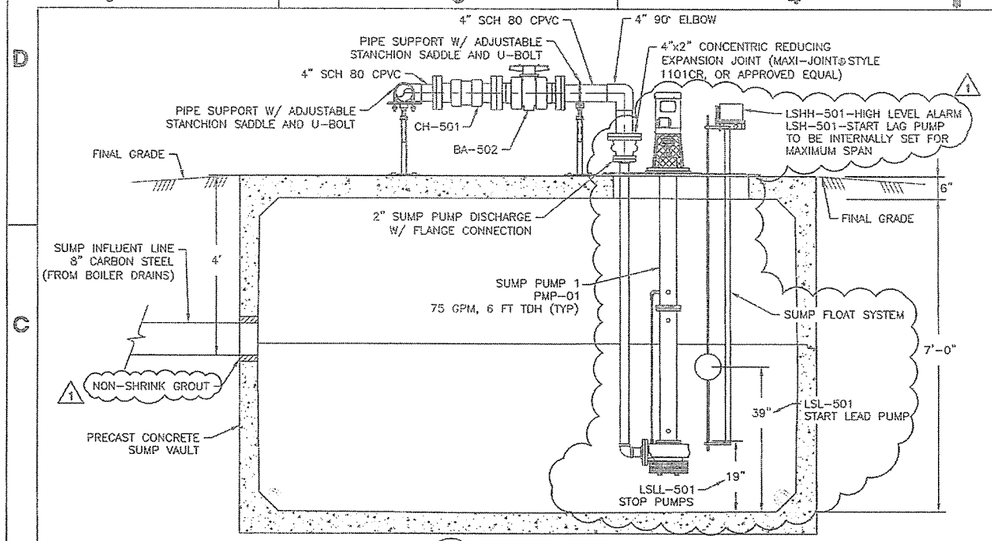
LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

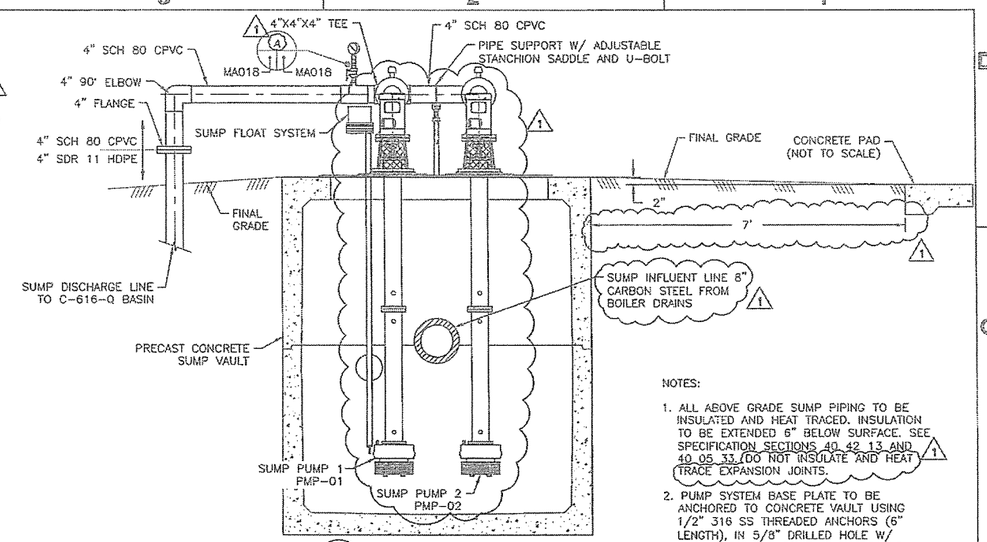
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
PRECAST CONCRETE SUMP DETAILS

EDOS CAD FILENAME	BUILDING	PLANT	CLASS
M7DC60000A017 - PRECAST CONC SUMP DETAILS.DWG	C-600	PDGP	U
SCALE: AS SHOWN	DRAWING NUMBER M7DC60000A017		REV 1



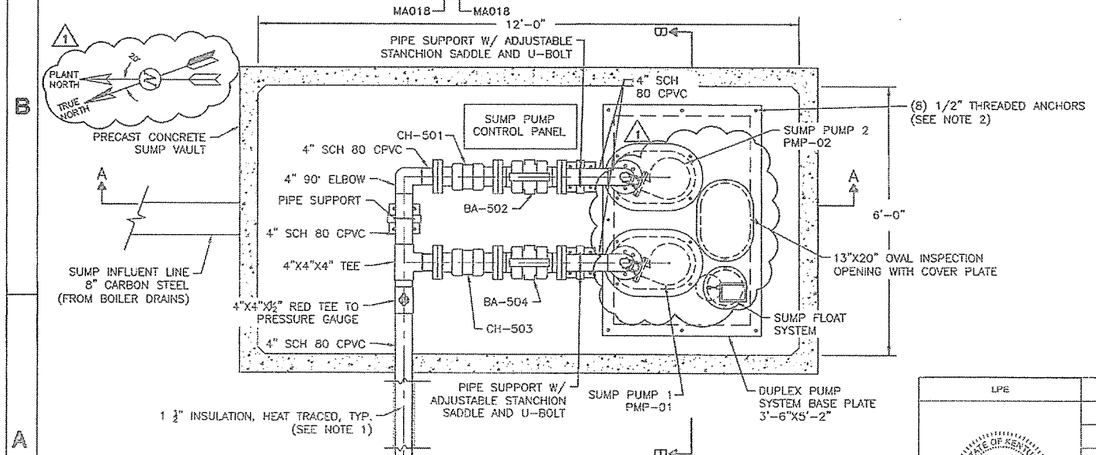
A-A SUMP PROFILE VIEW
SCALE : 1" = 16"
MA018 MA018



B-B SUMP CROSS-SECTION VIEW
SCALE : 1" = 16"
MA018 MA018

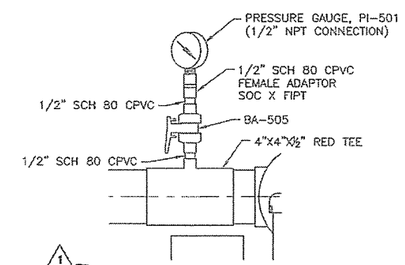
NOTES:

1. ALL ABOVE GRADE SUMP PIPING TO BE INSULATED AND HEAT TRACED. INSULATION TO BE EXTENDED 6" BELOW SURFACE. SEE SPECIFICATION SECTIONS 40 42 13 AND 40 05 33. DO NOT INSULATE AND HEAT TRACE EXPANSION JOINTS.
2. PUMP SYSTEM BASE PLATE TO BE ANCHORED TO CONCRETE VAULT USING 1/2" 316 SS THREADED ANCHORS (6" LENGTH), IN 5/8" DRILLED HOLE W/ EPOXY RESIN ADHESIVE. WASHERS AND NUTS TO BE 316 SS. PIPE STANDS TO BE ANCHORED IN A SIMILAR FASHION WITH APPROPRIATELY SIZED ANCHORS.



14 SUMP PLAN VIEW DETAIL
SCALE : 1" = 16"
MA002 MA016 MA018

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS



A PRESSURE GAUGE DETAIL
SCALE : 1" = 5"
MA018 MA018

REV.	DATE	DESCRIPTION	DRAWN BY	DWGT CHK	PROJ ENGR	LEAD DISCIP	DISC SPVR/ MGR	PROG MGR	DATE APPR
1	6/11/15	REVISED PUMP & FLOAT SYSTEM							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	DK	PL	TS	KEJ	RCS	RJH

DRAWING REVISIONS

LPE

STATE OF KENTUCKY TODD J. BRUTTAMESSO 17263 LICENSED PROFESSIONAL ENGINEER
3/20/15

DATE: 3/20/15
PROFESSIONAL SEAL

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT control DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

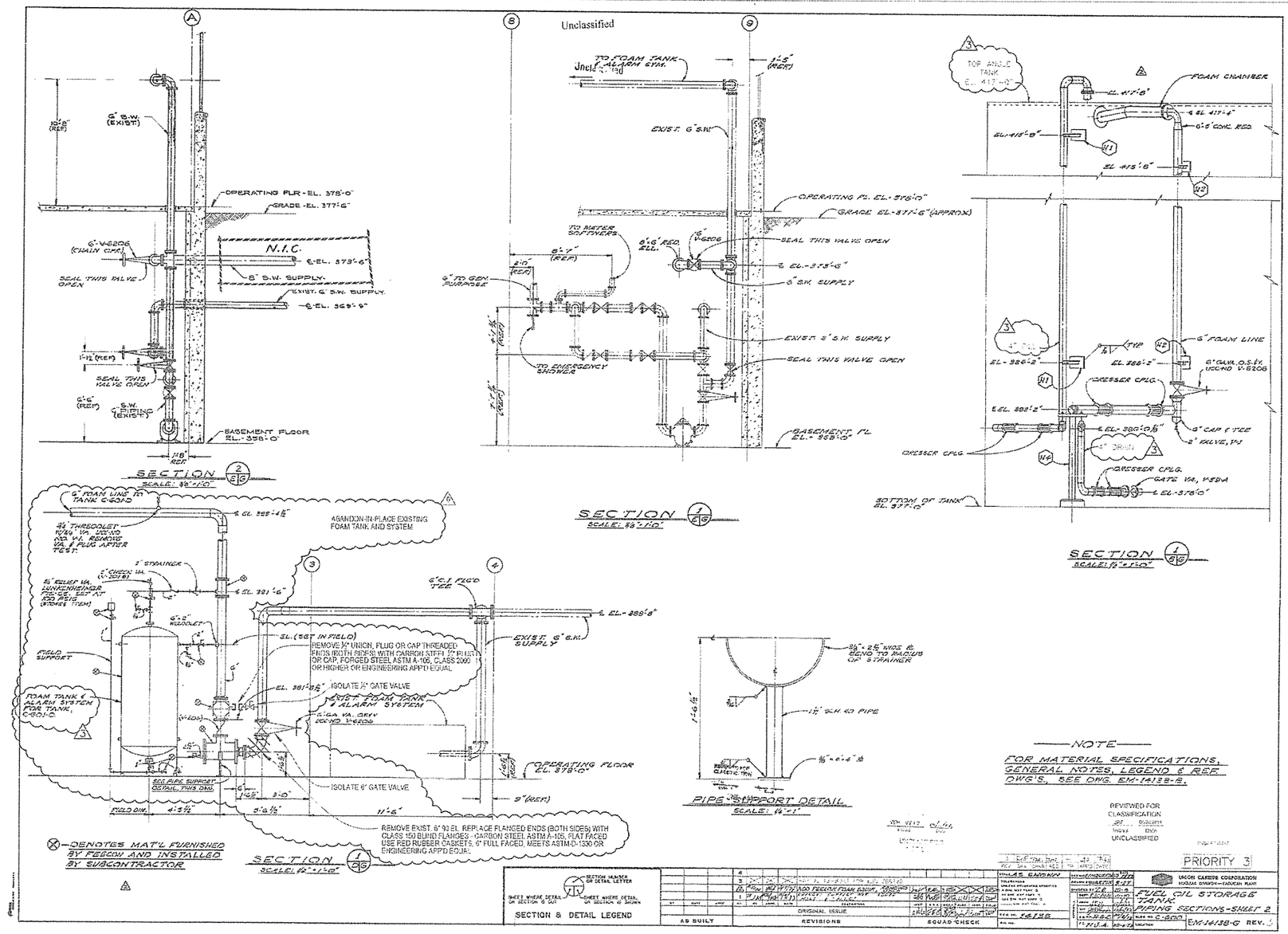
PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: SUMP MECHANICAL LAYOUT AND PIPING

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A018	1

Unclassified



REFERENCE DRAWINGS	DRAWING NO.

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SECTION NUMBER OR DETAIL LETTER — DRAWING ON WHICH SECTION OR DETAIL IS TAKEN — DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

PE

DATE

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONT SPEC/ DWG SPT	FAC MGR	DCS MGR
0	3/18/15	ISSUED FOR CONSTRUCTION	KGM	BGH	JDS	BGH	JBJ		

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky LLC

managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME
STEAM PACKAGE BOILERS AND PERMITS

TITLE
C-600 AREA PACKAGE BOILERS
FUEL OIL STORAGE TANK PIPING SECTIONS
DEMOLITION DETAILS

EDMS CAD FILENAME	BUILDING	PLANT	CLASS
M7DC60000A020 rev0.dwg	C-600	PGDP	U

SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		M7DC60000A020	0

Valve ID	Process System	Description	Valve Type	Nominal Dimension	Pressure Rating/ Class	End Connection	Body material	Seat material	Operator	Manufacturer	Model Number	Comment	Sheet Reference
GA - 101	Steam	Boiler steam, isolation block upstream -- PB-01	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
RV - 101	Steam	Safety Releif -- North Loop	Safety Relief	6 x 8 Inch	150 CL	Flange	Existing	Existing	Existing	Existing	Existing	Existing	J7DC60000A003
GL - 102	Steam	Boiler steam, bleed valve -- PB-01	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A002
RV - 102	Steam	Safety Releif -- East Loop	Safety Relief	6 x 8 Inch	150 CL	Flange	Existing	Existing	Existing	Existing	Existing	Existing	J7DC60000A003
GA - 103	Steam	Boiler steam, isolation block downstream -- PB-01	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
RV - 103	Steam	Safety Releif -- South Loop	Safety Relief	6 x 8 Inch	150 CL	Flange	Existing	Existing	Existing	Existing	Existing	Existing	J7DC60000A003
GA - 104	Steam	Boiler steam, isolation block upstream -- PB-02	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GL - 105	Steam	Boiler steam, bleed valve -- PB-02	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A002
GA - 106	Steam	Boiler steam, isolation block downstream -- PB-02	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GA - 107	Steam	Boiler steam, isolation block upstream -- PB-03	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GL - 108	Steam	Boiler steam, bleed valve -- PB-03	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A002
GA - 109	Steam	Boiler steam, isolation block downstream -- PB-03	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GA - 110	Steam	Boiler steam, isolation block upstream -- PB-04	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GL - 111	Steam	Boiler steam, bleed valve -- PB-04	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A002
GA - 112	Steam	Boiler steam, isolation block downstream -- PB-04	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GA - 113	Steam	Boiler steam, isolation block upstream -- PB-05	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GL - 114	Steam	Boiler steam, bleed valve -- PB-05	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A002
GA - 115	Steam	Boiler steam, isolation block downstream -- PB-05	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GA - 116	Steam	Boiler steam, isolation block upstream -- PB-06	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GL - 117	Steam	Boiler steam, bleed valve -- PB-06	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A002
GA - 118	Steam	Boiler steam, isolation block downstream -- PB-06	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A002
GL - 121	Steam	Header steam, instrument isolation -- PIT-101	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 122	Steam	Header steam, instrument isolation bleed -- PIT-101	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 123	Steam	Header steam, instrument isolation -- PIT-101	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 124	Steam	Silencer Vent steam, HSO	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 125	Steam	Silencer Vent steam, drain	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 126	Steam	Silencer, Drain	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 127	Steam	Silencer Vent steam, HSO	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 128	Steam	Silencer Vent steam, drain	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 129	Steam	Silencer, Drain	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 130	Steam	Silencer Vent steam, HSO	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 131	Steam	Silencer Vent steam, drain	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 132	Steam	Silencer, Drain	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 133	Steam	Silencer Vent steam, HSO	Gate	6 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 134	Steam	Silencer Vent steam, drain	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 135	Steam	Silencer, Drain	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 141	Steam	Tie-in steam, isolation block upstream -- C-600 future	Gate	3 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 142	Steam	Tie-in steam, bleed -- C-600 future	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 143	Steam	Tie-in steam, isolation block downstream -- C-600 future	Gate	3 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GA - 151	Steam	Tie-in steam, isolation block upstream -- North Loop	Gate	10 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 152	Steam	Tie-in steam, Warm-up Bypass -- North Loop	Globe	2 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0074C-02TY		J7DC60000A003
GA - 153	Steam	Tie-in steam, isolation block downstream -- North Loop	Gate	10 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 154	Steam	Tie-in steam, bleed -- North Loop	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 155	Steam	Tie-in steam, instrument isolation -- North Loop PI-101	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 156	Steam	Header steam, instrument isolation bleed -- PI-101	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 157	Steam	Header steam, instrument isolation -- PI-101	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 161	Steam	Tie-in steam, isolation block upstream-- East Loop	Gate	10 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 162	Steam	Tie-in steam, Warm-up Bypass -- East Loop	Globe	4 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0074C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GA - 163	Steam	Tie-in steam, isolation block downstream -- East Loop	Gate	10 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 164	Steam	Tie-in steam, bleed -- East Loop	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 165	Steam	Tie-in steam, instrument isolation -- East Loop PI-102	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 166	Steam	Header steam, instrument isolation bleed -- PI-102	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 167	Steam	Header steam, instrument isolation -- PI-102	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 171	Steam	Tie-in steam, isolation block upstream -- South Loop	Gate	10 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 172	Steam	Tie-in steam, Warm-up Bypass -- South Loop	Globe	4 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0074C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GA - 173	Steam	Tie-in steam, isolation block downstream -- South Loop	Gate	10 Inch	150 CL	Flange	CS-WCB	CoCr alloy	Hand	Velan	F-0064C-02TY	13Cr (410 or CA15) Wedge/Disc Surface	J7DC60000A003
GL - 174	Steam	Tie-in steam, bleed -- South Loop	Globe	1 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 175	Steam	Tie-in steam, instrument isolation -- South Loop PI-103	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 176	Steam	Header steam, instrument isolation bleed -- PI-103	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GL - 177	Steam	Header steam, instrument isolation -- PI-103	Globe	0.5 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2074B-02TY		J7DC60000A003
GA - 180	Steam	Steam trap drip leg drain -- TR-01	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 181	Steam	Steam trap isolation -- TR-01	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 182	Steam	Steam trap isolation bleed -- TR-01	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 183	Steam	Steam trap isolation -- TR-01	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 184	Steam	Steam trap drip leg drain -- TR-02	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 185	Steam	Steam trap isolation -- TR-02	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 186	Steam	Steam trap isolation bleed -- TR-02	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 187	Steam	Steam trap isolation -- TR-02	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 188	Steam	Steam trap drip leg drain -- TR-03	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 189	Steam	Steam trap isolation -- TR-03	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 190	Steam	Steam trap isolation bleed -- TR-03	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 191	Steam	Steam trap isolation -- TR-03	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 192	Steam	Steam trap drip leg drain -- TR-04	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 193	Steam	Steam trap isolation -- TR-04	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 194	Steam	Steam trap isolation bleed -- TR-04	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 195	Steam	Steam trap isolation -- TR-04	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 196	Steam	Steam trap drip leg drain -- TR-05	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 197	Steam	Steam trap isolation -- TR-05	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
GA - 198	Steam	Steam trap isolation bleed -- TR-05	Gate	0.75 Inch	800 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011

NOTES

ALL EQUIPMENT AS LISTED (OR ENGINEER APPROVED EQUIVALENT) ARE FURNISHED BY OTHERS.
HSO – HAND SHUT OFF

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
TODD J STRUTTMANN
20263
LICENSED PROFESSIONAL ENGINEER
3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD DISC	CONF CTRL NUCL SFTY	FAC MGR	CAES MGR
1	5/11/15	UPDATED TABLE							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	KK	KK	TS	JRM	RES	SLM

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: VALVE TABLE I

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A021	1

Valve ID	Process System	Description	Valve Type	Nominal Dimension	Pressure Rating/ Class	End Connection	Body material	Seat material	Operator	Manufacturer	Model Number	Comment	Sheet Reference
GA - 199	Steam	Steam trap isolation -- TR-05	Gate	0.75 Inch	600 CL	Threaded	CS-A105	CoCr alloy	Hand	Velan	S-2054B-02TY		M7DC60000A011
BA - 200	Natural Gas	NG supply Header, HSO	Ball	6 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A004
BA - 201	Natural Gas	Boiler NG supply, HSO -- PB-01	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A002
BA - 202	Natural Gas	Boiler NG supply, HSO -- PB-02	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A002
BA - 203	Natural Gas	Boiler NG supply, HSO -- PB-03	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.33, CSA compliant	J7DC60000A002
BA - 204	Natural Gas	Boiler NG supply, HSO -- PB-04	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A002
BA - 205	Natural Gas	Boiler NG supply, HSO -- PB-05	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A002
BA - 206	Natural Gas	Boiler NG supply, HSO -- PB-06	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A002
BA - 207	Natural Gas	Boiler NG supply, Header Vent	Ball	3 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-100-01	ASME B16.38, CSA compliant	J7DC60000A002
CV - 211	Natural Gas	Boiler NG supply, pressure regulator, 1st stage -- PB-01	Pressure Regulator	3 Inch	150 CL	Flange	--	--	--	Fisher	1098-EGR	Vendor Supplied - NBI	J7DC60000A002
CV - 212	Natural Gas	Boiler NG supply, pressure regulator, 1st stage -- PB-02	Pressure Regulator	3 Inch	150 CL	Flange	--	--	--	Fisher	1098-EGR	Vendor Supplied - NBI	J7DC60000A002
CV - 213	Natural Gas	Boiler NG supply, pressure regulator, 1st stage -- PB-03	Pressure Regulator	2 Inch	150 CL	Flange	--	--	--	Fisher	1098-EGR	Vendor Supplied - NBI	J7DC60000A002
CV - 214	Natural Gas	Boiler NG supply, pressure regulator, 1st stage -- PB-04	Pressure Regulator	3 Inch	150 CL	Flange	--	--	--	Fisher	1098-EGR	Vendor Supplied - NBI	J7DC60000A002
CV - 215	Natural Gas	Boiler NG supply, pressure regulator, 1st stage -- PB-05	Pressure Regulator	3 Inch	150 CL	Flange	--	--	--	Fisher	1098-EGR	Vendor Supplied - NBI	J7DC60000A002
BA - 300	Fuel Oil	Main FO supply, Pump Skid Inlet Connection, HSO	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 301	Fuel Oil	Main FO supply, Instrument isolation -- PI-301	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 302	Fuel Oil	Main FO Supply, Pump Skid Inlet, HSO	Ball	1.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 303	Fuel Oil	Main FO supply, Instrument isolation -- DPIS-301	Ball	0.25 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 304	Fuel Oil	Main FO supply, Instrument isolation -- DPIS-301	Ball	0.25 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 305	Fuel Oil	Main FO supply, Instrument isolation -- PI-302	Ball	0.25 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 306	Fuel Oil	Main FO supply, HSO -- PMP-03	Ball	1.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 307	Fuel Oil	Main FO supply, Instrument isolation -- PI-303	Ball	0.25 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
CH - 308	Fuel Oil	Main FO supply, check -- PMP-03	Check	1.5 Inch	125 SWP	Threaded	Bronze	--	--	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 309	Fuel Oil	Main FO supply, HSO -- PMP-03	Ball	1.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 310	Fuel Oil	Main FO supply, HSO -- PMP-04	Ball	1.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
CH - 312	Fuel Oil	Main FO supply, check -- PMP-04	Check	1.5 Inch	125 SWP	Threaded	Bronze	--	--	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 313	Fuel Oil	Main FO supply, HSO -- PMP-04	Ball	1.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 314	Fuel Oil	Main FO supply, HSO--Pump Skid Redirc to Storage Tank	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
CH - 315	Fuel Oil	Main FO supply, check--Pump Skid Redirc to Storage Tank	Check	2 Inch	200 CWP	Threaded	Bronze	PTFE	--	Nibco	T-413-Y		J7DC60000A004
BA - 316	Fuel Oil	Main FO Supply, Pump Skid Discharge Connection, HSO	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 317	Fuel Oil	Main FO supply, HSO, Emergency Supply	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 318	Fuel Oil	Main FO supply, Pump Skid Bypass, HSO	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
RV - 319	Fuel Oil	Main FO supply, Pump Skid PMP-03, Safety Relief	Safety Relief	0.75 Inch	300 psi @ 406F	Threaded	Bronze	--	--	Kunkle	Model 20	Vendor Supplied - FO Pump Skid	J7DC60000A004
RV - 320	Fuel Oil	Main FO supply, Pump Skid PMP-04, Safety Relief	Safety Relief	0.75 Inch	300 psi @ 406F	Threaded	Bronze	--	--	Kunkle	Model 20	Vendor Supplied - FO Pump Skid	J7DC60000A004
BA - 321	Fuel Oil	Main FO supply, Day Tank Fill, HSO	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 322	Fuel Oil	Boiler FO Return, Day Tank, HSO-- PB-01	Ball	1 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 323	Fuel Oil	Boiler FO Return, Day Tank, HSO-- PB-02	Ball	1 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 324	Fuel Oil	Boiler FO Supply, Day Tank, HSO-- PB-01	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 325	Fuel Oil	Boiler FO Supply, Day Tank, HSO-- PB-02	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 326	Fuel Oil	Boiler FO Supply, Vent and Fill -- PB-01	Ball	1 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 327	Fuel Oil	Boiler FO Supply, Vent and Fill -- PB-02	Ball	1 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A004
BA - 328	Fuel Oil	Boiler FO Supply, Day Tank, Tank drain	Ball	0.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Day Tank	J7DC60000A004
BA - 329	Fuel Oil	Boiler FO Supply, Day Tank, Interstitial drain	Ball	0.5 Inch	125 SWP	Threaded	Bronze	--	1/4 Turn	Nibco	--	Vendor Supplied - FO Day Tank	J7DC60000A004
BA - 330	Fuel Oil	Boiler FO supply, HSO -- PB-01	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 331	Fuel Oil	Boiler FO supply, drain -- PB-01	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 332	Fuel Oil	Boiler FO supply, HSO -- PB-02	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 333	Fuel Oil	Boiler FO supply, drain -- PB-02	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 333	Fuel Oil	Boiler FO supply, drain -- PB-02	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 335	Fuel Oil	Boiler FO return, drain -- PB-01	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 336	Fuel Oil	Boiler FO return, HSO -- PB-01	Ball	1 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 338	Fuel Oil	Boiler FO return, drain -- PB-02	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-103-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 339	Fuel Oil	Boiler FO return, HSO -- PB-02	Ball	1 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A002
BA - 340	Fuel Oil	Main FO supply, Day Tank emergency overfill protection, 3 way	3-Way Ball	1 Inch	600 psi	Threaded	SS	PTFE	Motor	JFlow	DM-5200 Series L-port	Vendor Supplied - FO Pump Skid-shipped loose	J7DC60000A004
BA - 341	Fuel Oil	Main FO supply, Day Tank Supply, HSO	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	80-105-27	FO compatibitable (UL YRBX)	J7DC60000A004
GA - 401	Sanitary Water	Existing water supply underground, HSO	Gate	10 Inch	125 CL	Flange	DI	DI-EPPM	2" Nut	J&S Valve	Series 6800	NRS	J7DC60000A004
GA - 402	Sanitary Water	Main water supply underground, HSO	Gate	6 Inch	125 CL	Flange	DI	DI-EPPM	2" Nut	J&S Valve	Series 6800	NRS	J7DC60000A004
BA - 413	Sanitary Water	Boiler water supply, Instrument Isolation -- PI-401	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A004
GA - 414	Sanitary Water	Boiler water supply, HSO -- Backflow Preventer BFP-415	Gate	4 Inch	125 CL	Flange	DI	SS	Hand	Febco	--	Vendor Supplied - w/BFP	J7DC60000A004
BFP - 415	Sanitary Water	Boiler water supply, Backflow Preventer	Backflow preventer	4 Inch	125 CL	Flange	DI	SS	--	Febco	LF860	Site preference, NRS	J7DC60000A004
GA - 416	Sanitary Water	Boiler water supply, HSO -- Backflow Preventer BFP-415	Gate	4 Inch	125 CL	Flange	DI	SS	Hand	Febco	--	Vendor Supplied - w/BFP	J7DC60000A004
GA - 417	Sanitary Water	Boiler water supply, HSO -- Backflow Preventer BFP-421	Gate	4 Inch	125 CL	Flange	DI	SS	Hand	Febco	--	Vendor Supplied - w/BFP	J7DC60000A004
GA - 418	Sanitary Water	Boiler water supply, HSO -- Backflow Preventer BFP-421	Gate	4 Inch	125 CL	Flange	DI	SS	Hand	Febco	--	Vendor Supplied - w/BFP	J7DC60000A004
BA - 419	Sanitary Water	Boiler water supply, HSO -- Emergency Supply Connection	Ball	2.5 Inch	150 CL	Flange	CS-WCB	RPTFE	1/4 Turn	Apollo	88A-109-01		J7DC60000A004
BA - 420	Sanitary Water	Boiler water supply, Instrument Isolation -- PIT-405	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A004
BFP - 421	Sanitary Water	Boiler water supply, Backflow Preventer	Backflow preventer	4 Inch	125 CL	Flange	DI	SS	--	Febco	LF860	Site preference, NRS	J7DC60000A004
BA - 430	Sanitary Water	Boiler water supply, HSO -- PB-01	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
CH - 431	Sanitary Water	Boiler water supply, check -- PB-01	Check	2 Inch	400 CWP	Threaded	Bronze	RPTFE	--	Apollo	CVB: 61-103-01		J7DC60000A002
BA - 432	Sanitary Water	Boiler water supply, HSO -- PB-02	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
CH - 433	Sanitary Water	Boiler water supply, check -- PB-02	Check	2 Inch	400 CWP	Threaded	Bronze	RPTFE	--	Apollo	CVB: 61-103-01		J7DC60000A002
BA - 434	Sanitary Water	Boiler water supply, HSO -- PB-03	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
CH - 435	Sanitary Water	Boiler water supply, check -- PB-03	Check	2 Inch	400 CWP	Threaded	Bronze	RPTFE	--	Apollo	CVB: 61-103-01		J7DC60000A002
BA - 436	Sanitary Water	Boiler water supply, HSO -- PB-04	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
CH - 437	Sanitary Water	Boiler water supply, check -- PB-04	Check	2 Inch	400 CWP	Threaded	Bronze	RPTFE	--	Apollo	CVB: 61-103-01		J7DC60000A002
BA - 438	Sanitary Water	Boiler water supply, HSO -- PB-05	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
CH - 439	Sanitary Water	Boiler water supply, check -- PB-05	Check	2 Inch	400 CWP	Threaded	Bronze	RPTFE	--	Apollo	CVB: 61-103-01		J7DC60000A002
BA - 440	Sanitary Water	Boiler water supply, HSO -- PB-06	Ball	2 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
BA - 441	Sanitary Water	Boiler water supply, drain -- PB-06	Ball	0.5 Inch	600 CWP	Threaded	Bronze	RPTFE	1/4 Turn	Apollo	70-103-27		J7DC60000A002
CH - 501	Waste Water	Sump waste water, check -- PMP-01	Check	4 Inch	150 CL	Flange	CPVC	CPVC	--	Nibco	F510C-E	EPDM Trim	J7DC60000A002
BA - 502	Waste Water	Sump waste water, HSO -- PMP-01	Ball	4 Inch	150 CL	Flange	CPVC	PTFE	1/4 Turn	Nibco	F51TB-E	EPDM Trim & factory installed lockout kit 70050116	J7DC60000A002
CH - 503	Waste Water	Sump waste water, check -- PMP-02	Check	4 Inch	150 CL	Flange	CPVC	CPVC	--	Nibco	F510C-E	EPDM Trim	J7DC60000A002
BA - 504	Waste Water	Sump waste water, HSO -- PMP-02	Ball	4 Inch	150 CL	Flange	CPVC	PTFE	1/4 Turn	Nibco	F51TB-E	EPDM Trim & factory installed lockout kit 70050116	J7DC60000A002
BA - 506	Waste Water	Sump waste water, Instrument Isolation -- PI-501	Ball	0.5 Inch	250	Threaded	CPVC	PTFE	1/4 Turn	Nibco	U51TB-E	EPDM Trim & factory installed lockout kit 70050116	J7DC60000A002

NOTES

ALL EQUIPMENT AS LISTED (OR ENGINEER APPROVED EQUIVALENT) ARE FURNISHED BY OTHERS.
HSO – HAND SHUT OFF

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
TODD J. STRUTTMANN
LICENSED PROFESSIONAL ENGINEER
3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHK'D	ENGR	LEAD ENGR	CONF MGMT / NUCL SFTY	PROJ MGR	ENVR MGR
1	6/11/15	UPDATED TABLE							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDW	KK	KK	TS	JEL	RCS	RJH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
VALVE TABLE II

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C–600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A022	1

EQUIPMENT TABLE

Equipment ID			Process System	Description	Quantity	Manufacturer	Spec	Sheet Reference
PB	-	01	Steam	Steam Boiler 01 -- NG/FO	1	NBI	NBI boiler B-524	J7DC60000A002
PB	-	02	Steam	Steam Boiler 02 -- NG/FO	1	NBI	NBI boiler B-500	J7DC60000A002
PB	-	03	Steam	Steam Boiler 03 -- NG	1	NBI	NBI boiler B-525	J7DC60000A002
PB	-	04	Steam	Steam Boiler 04 -- NG	1	NBI	NBI boiler B-691	J7DC60000A002
PB	-	05	Steam	Steam Boiler 05 -- NG	1	NBI	NBI boiler B-692	J7DC60000A002
PMP	-	01	Waste Water	Sump Waste Water Pump 1 -- 2 x 100 % (75GPM, 6 Feet TDH)	1	VertiFlo	Model 820 3x2.5x7, CI	J7DC60000A002
PMP	-	02	Waste Water	Sump Waste Water Pump 2 -- 2 x 100 % (75GPM, 6 Feet TDH)	1	VertiFlo	Model 820 3x2.5x7, CI	J7DC60000A002
PMP	-	03	Fuel Oil	Fuel Oil Pump 1	1	Industrial Fuel Systems, Inc	SPM-0000xx-P004 steam boiler fuel oil pump system: 2 Gear Driven Pumps 762 gph @ min 25 psig, Skid Mounted System w/Secondary Containment Pressure Relief Valves, Emergency Strobe Light Control Panel, and 6 Discrete Digital Inputs	J7DC60000A004
PMP	-	04	Fuel Oil	Fuel Oil Pump 2				J7DC60000A004
STR	-	01	Steam	Strainer -- Steam Trap TR-01	1	Armstrong	250# Y-strainer, 3/4", CI, Threaded ends, SS screen 0.045 mesh, w/plug	M7DC60000A011
STR	-	02	Steam	Strainer -- Steam Trap TR-02	1	Armstrong	250# Y-strainer, 3/4", CI, Threaded ends, SS screen 0.045 mesh, w/plug	M7DC60000A011
STR	-	03	Steam	Strainer -- Steam Trap TR-03	1	Armstrong	250# Y-strainer, 3/4", CI, Threaded ends, SS screen 0.045 mesh, w/plug	M7DC60000A011
STR	-	04	Steam	Strainer -- Steam Trap TR-04	1	Armstrong	250# Y-strainer, 3/4", CI, Threaded ends, SS screen 0.045 mesh, w/plug	M7DC60000A011
STR	-	05	Steam	Strainer -- Steam Trap TR-05	1	Armstrong	250# Y-strainer, 3/4", CI, Threaded ends, SS screen 0.045 mesh, w/plug	M7DC60000A011
TK	-	01	Fuel Oil	Fuel Oil Day Tank	1	Industrial Fuel Systems, Inc	Nominal 500 gallon double walled steel tank; w/Immersion heater, control panel, and level switches mounted	J7DC60000A004
TR	-	01	Steam	Steam Trap	1	Armstrong	Model 812, 3/8" orifice, horizontal flow, 3/4" NPT connection, cast iron; w/ 1/2" pop drain	M7DC60000A008
TR	-	02	Steam	Steam Trap	1	Armstrong	Model 812, 3/8" orifice, horizontal flow, 3/4" NPT connection, cast iron; w/ 1/2" pop drain	M7DC60000A008
TR	-	03	Steam	Steam Trap	1	Armstrong	Model 812, 3/8" orifice, horizontal flow, 3/4" NPT connection, cast iron; w/ 1/2" pop drain	M7DC60000A008
TR	-	04	Steam	Steam Trap	1	Armstrong	Model 812, 3/8" orifice, horizontal flow, 3/4" NPT connection, cast iron; w/ 1/2" pop drain	M7DC60000A008
TR	-	05	Steam	Steam Trap	1	Armstrong	Model 812, 3/8" orifice, horizontal flow, 3/4" NPT connection, cast iron; w/ 1/2" pop drain	M7DC60000A008
			Waste Water	Duplex Control Panel	1	Indquip Engg	15-20763	J7DC60000A002
			Steam	Silencer	4	Maxim	Model 22"VT-2 with 6" 150# RFWN Inlet, constructed of carbon steel, painted hi temp factory black (or equivalent)	J7DC60000A003
			Sanitary Water	Heated Eye Wash Station w/Drench Hose (Portable)	1	Encon	Model #01103004: 10 Gal. Stainless Steel 41"-Height, 12-1/4"-Diameter (or equivalent)	NA

NOTES

ALL EQUIPMENT AS LISTED (OR ENGINEER APPROVED EQUIVALENT) ARE FURNISHED BY OTHERS.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN 16963 LICENSED PROFESSIONAL ENGINEER 3/10/15

DATE: 3/10/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	PROJ ENGR	ASSC ENGR	SUPR ENGR MAINT	PROJ MGR	DISC MGR
1	8/11/15	UPDATED TABLE	TJM	KK	KK	TS	DJW	KJD	KLH
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDR	KK	KK	TS	JDU	KJD	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

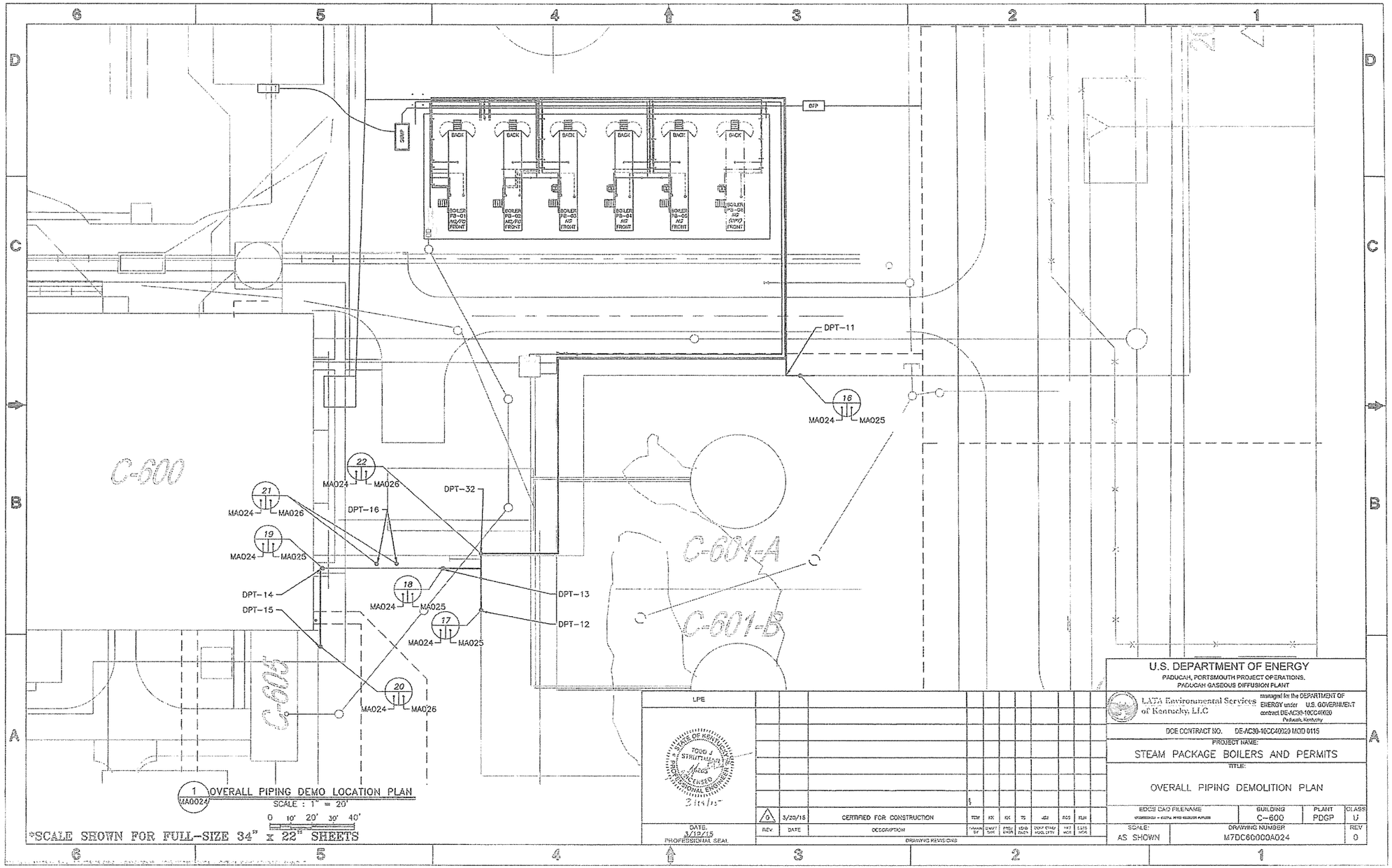
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: EQUIPMENT TABLE

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
M7DC60000A023 – EQUIPMENT TABLE.DWG	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A023	1



1 MA0024 OVERALL PIPING DEMO LOCATION PLAN

SCALE : 1" = 20'

0 10' 20' 30' 40'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN 16203 LICENSED PROFESSIONAL ENGINEER

3/19/15

DATE: 3/19/15

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DWGT SUB	PROJ ENGR	LEAD ENGR	DEPT STAFF MGR	DATE	DATE MGR
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDM	KK	KK	TS	JEH	RGS	RLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY

PADUCAH, PORTSMOUTH PROJECT OPERATIONS.
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC

managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:

STEAM PACKAGE BOILERS AND PERMITS

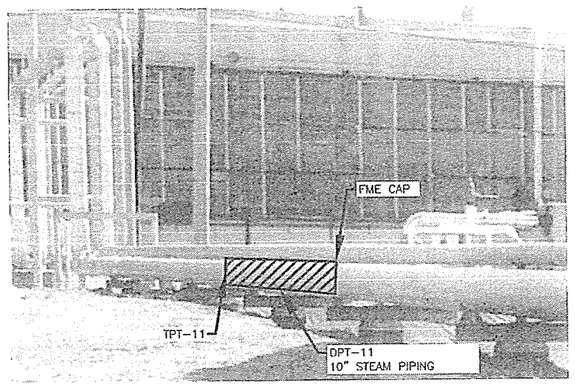
TITLE:

OVERALL PIPING DEMOLITION PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

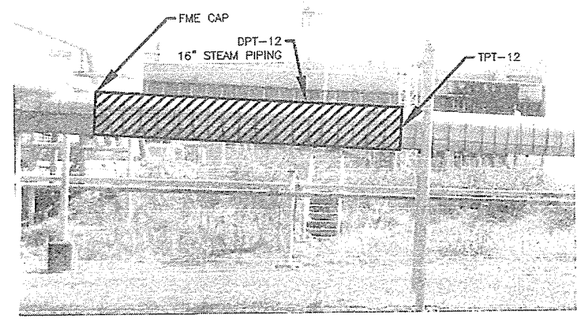
SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A024	0

APPROXIMATE LOCATION OF THE DEMOLITION AREA FOR THE NORTH LOOP STEAM LINE TIE IN TPT-11. DEMO PIPING TO FIT NORTH LOOP ISOLATION VALVE STATION SHOWN ON DWG MA010 DETAIL 5. ABANDONED PIPING TO THE WEST TO BE CUT TO WITHIN 18 INCHES OF NEXT SUPPORT AND ADD FME CAP. AREA SHOWN ON PHOTO IS FOR VISUAL REFERENCE ONLY.

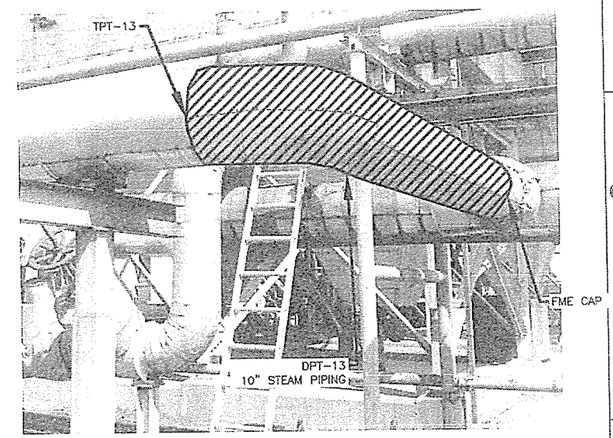


16 PIPING DEMOLITION DPT-11
N.T.S
MA024 MA025

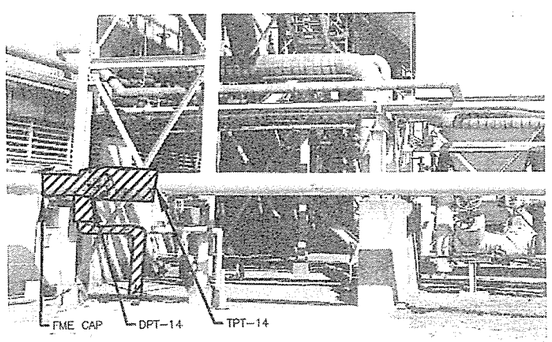
APPROXIMATE LOCATION OF THE DEMOLITION AREA FOR THE EAST LOOP STEAM LINE TIE IN TPT-12. LOCATION OF TPT-12 SHOULD BE ADJUSTED NORTH OR SOUTH SO TO FIT NORTH LOOP ISOLATION VALVE STATION SHOWN ON DWG MA010 DETAIL 6. ABANDONED PIPING TO THE NORTH TO BE CUT TO WITHIN 18 INCHES OF NEXT SUPPORT AND ADD FME CAP. AREA SHOWN IN PHOTO IS FOR VISUAL REFERENCE ONLY.



17 PIPING DEMOLITION DPT-12
N.T.S
MA024 MA025



18 PIPING DEMOLITION DPT-13
N.T.S
MA024 MA025



19 PIPING DEMOLITION DPT-14
N.T.S
MA024 MA025

NOTES

FME - FOREIGN MATERIAL EXCLUSION

CAP ALL ABANDON PIPE OPENINGS WITH PROTECTIVE PLASTIC PIPE CAPS TO KEEP ENVIRONMENT OUT, EXCEPT AS NOTED.

SUBCONTRACTOR TO PROVIDE FME CAPS, WELD CAPS, BLIND FLANGES AND NECESSARY HARDWARE FOR INSTALLATION.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY TODD J. STRUTTMANN 22263 LICENSED PROFESSIONAL ENGINEER
3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	DSGN ENGR	ENGR CHKR	CONT ENGR/ MOD ENGR	PROJ MGR	DES MGR
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TDT	JDI	TS	JBJ	RES	KSH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

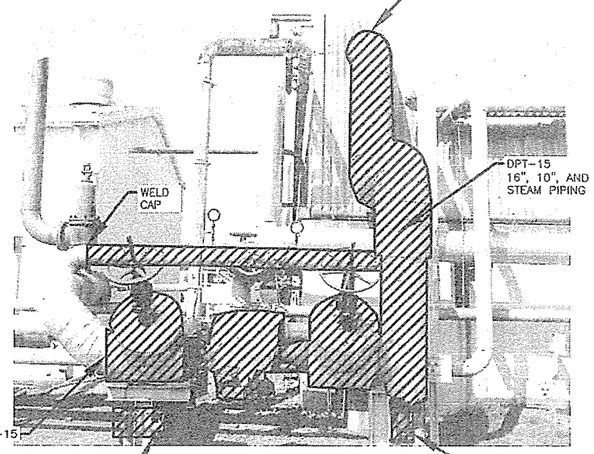
PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: PIPING DEMOLITION DETAIL I

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A025	0

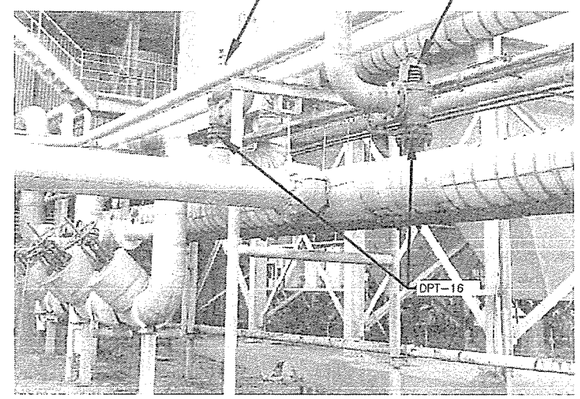
DISCONNECT RVS AT INLET FLANGE AND RELOCATE VALVE AND DISCHARGE VENT TO NEW PIPING AT ISOLATION VALVE STATIONS SHOWN ON DWG MA010. COVER OPEN PIPE FLANGE WITH FME PROTECTIVE COVER.



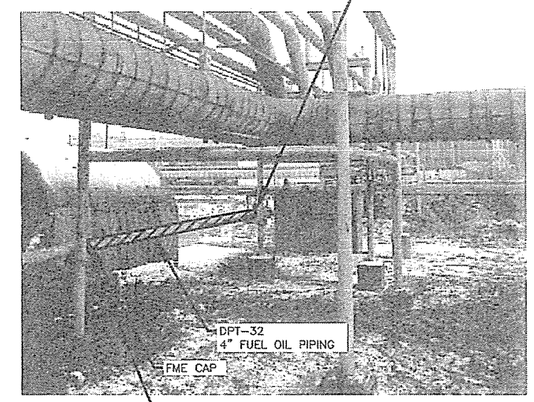
REMOVE REGULATOR AND AIR PIPING TO ALLOW FOR INSTALLATION OF NEW 10" STEAM LINE. ADD PLUG TO AIR PIPING.

REMOVE STEAM TRAP ASSEMBLY AND CONDENSATE RETURN LINE PIPING TO ALLOW FOR INSTALLATION OF NEW 10" STEAM LINE. ADD WELD CAP TO CONDENSATE RETURN PIPING.

20 PIPING DEMOLITION DPT-15
N.T.S
MA024 MA026



21 PIPING DEMOLITION DPT-16
N.T.S
MA024 MA026



REMOVE FLANGED EXCESS FLOW EXMERGENCY SHUTOFF VALVE AND ADD BLIND FLANGE TO ABANDON FLANGE PIPE END.

PLUG 1/8" AIR LINE TO EXCESS FLOW EMERGENCY SHUTOFF VALVE AND DEMO AIR PIPING TO VALVE.

22 PIPING DEMOLITION DPT-32
N.T.S
MA024 MA026

NOTES

FME - FOREIGN MATERIAL EXCLUSION

CAP ALL ABANDON PIPE OPENINGS WITH PROTECTIVE PLASTIC PIPE CAPS TO KEEP ENVIRONMENT OUT, EXCEPT AS NOTED.

SUBCONTRACTOR TO PROVIDE FME CAPS, WELD CAPS, BLIND FLANGES AND NECESSARY HARDWARE FOR INSTALLATION.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

UPE

STATE OF KENTUCKY TODD J. STRUTTMANN LICENSED PROFESSIONAL ENGINEER 3/19/15

DATE: 3/19/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	COMPT CHK	PROJ ENGR	SUPR ENGR	CONT CHAN MGR/SAFTY	FAC MGR	ENVS MGR
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCB	RK	KK	TS	KM	KBS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

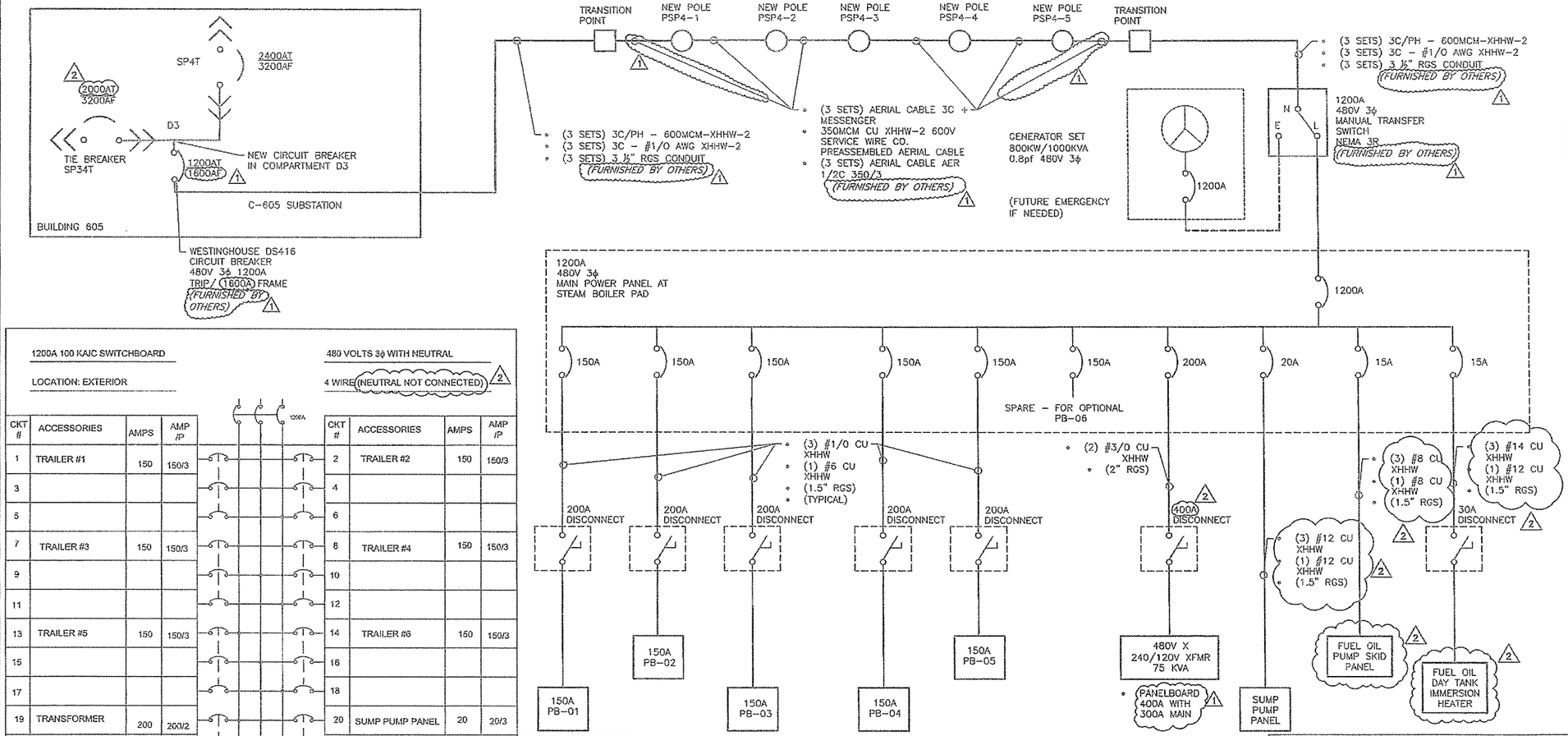
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
PIPING DEMOLITION DETAIL II

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	M7DC60000A026	0



1200A 100 KAIC SWITCHBOARD

LOCATION: EXTERIOR

480 VOLTS 3ϕ WITH NEUTRAL

4 WIRE (NEUTRAL NOT CONNECTED)

CKT #	ACCESSORIES	AMPS	AMP /P	CKT #	ACCESSORIES	AMPS	AMP /P
1	TRAILER #1	150	150/3	2	TRAILER #2	150	150/3
3				4			
5				6			
7	TRAILER #3	150	150/3	8	TRAILER #4	150	150/3
9				10			
11				12			
13	TRAILER #5	150	150/3	14	TRAILER #6	150	150/3
15				16			
17				18			
19	TRANSFORMER	200	200/2	20	SUMP PUMP PANEL	20	20/3
21				22			
23				24			
25	FUEL OIL PANEL	15	15/3	26	IMMERSION HEATER #1	15	15/3
27				28			
29				30			
	CURRENT	710			CURRENT	500	

TOTAL CURRENT 1052

REQUIRED SERVICE

480V TRAILER #1 3ϕ	150A
480V TRAILER #2 3ϕ	150A
480V TRAILER #3 3ϕ	150A
480V TRAILER #4 3ϕ	150A
480V TRAILER #5 3ϕ	150A
480V TRAILER #6 3ϕ	150A
480V TRANSFORMER (1ϕ)	200A
480V SUMP PUMP PANEL 3ϕ	20A
480V IMMERSION HEATER 3ϕ	15A
480V FUEL OIL PANEL 3ϕ	15A
TOTAL CURRENT	1150A
TOTAL POWER	955.7KW

LEE ROY STATE OF KENTUCKY LICENSED PROFESSIONAL ENGINEER

DATE: 6/16/15

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD	PROJ ENGR	PROJ CHKR	FAC ENGR	FAC MGR
2	6/11/15	TEXT EDIT						
1	3/26/15	EQUIPMENT CLARIFICATION	TL	TJH	TJH	DJ	JBJ	JDB
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TL	TJH	TJH	DJ	JBJ	JDB

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY

PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC

managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

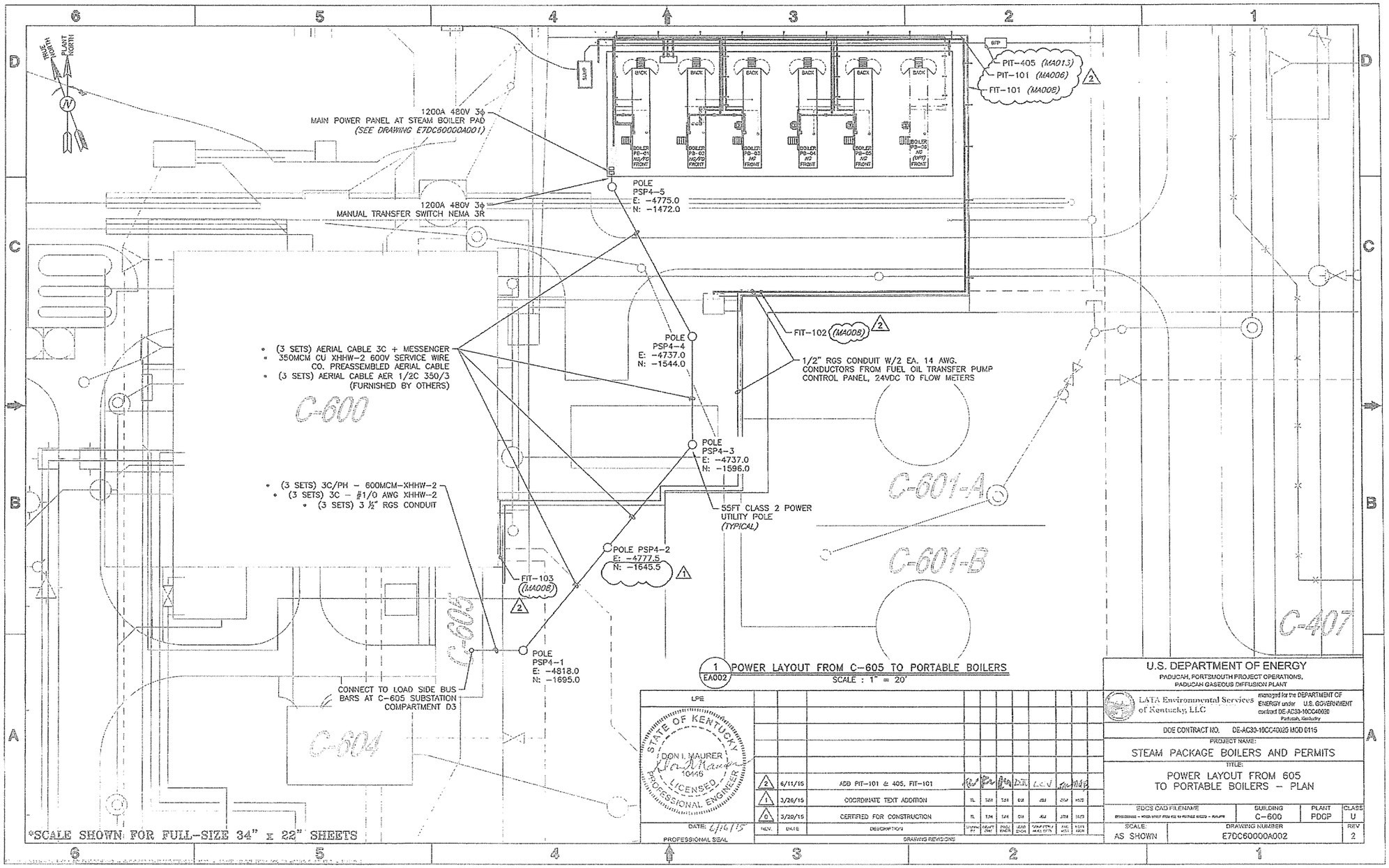
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: ELECTRICAL ONE LINE

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A001 - ONE LINE DIAGRAM.DWG	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A001	2



1 EA002 POWER LAYOUT FROM C-605 TO PORTABLE BOILERS
SCALE : 1" = 20'

LPE

STATE OF KENTUCKY
DON L. MAURER
10446
LICENSED
PROFESSIONAL ENGINEER

DATE: 4/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	REVIEW BY	PROJ. ENGR.	LEAD DSGN.	DSGN. MGR.	PROJ. MGR.	PROG. MGR.
2	6/11/15	ADD FIT-101 & 405, FIT-101							
1	3/26/15	COORDINATE TEXT ADDITION	TL	TJH	TJH	DJB	JBJ	JDM	MJG
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TL	TJH	TJH	DJB	AJJ	JDM	MJG

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

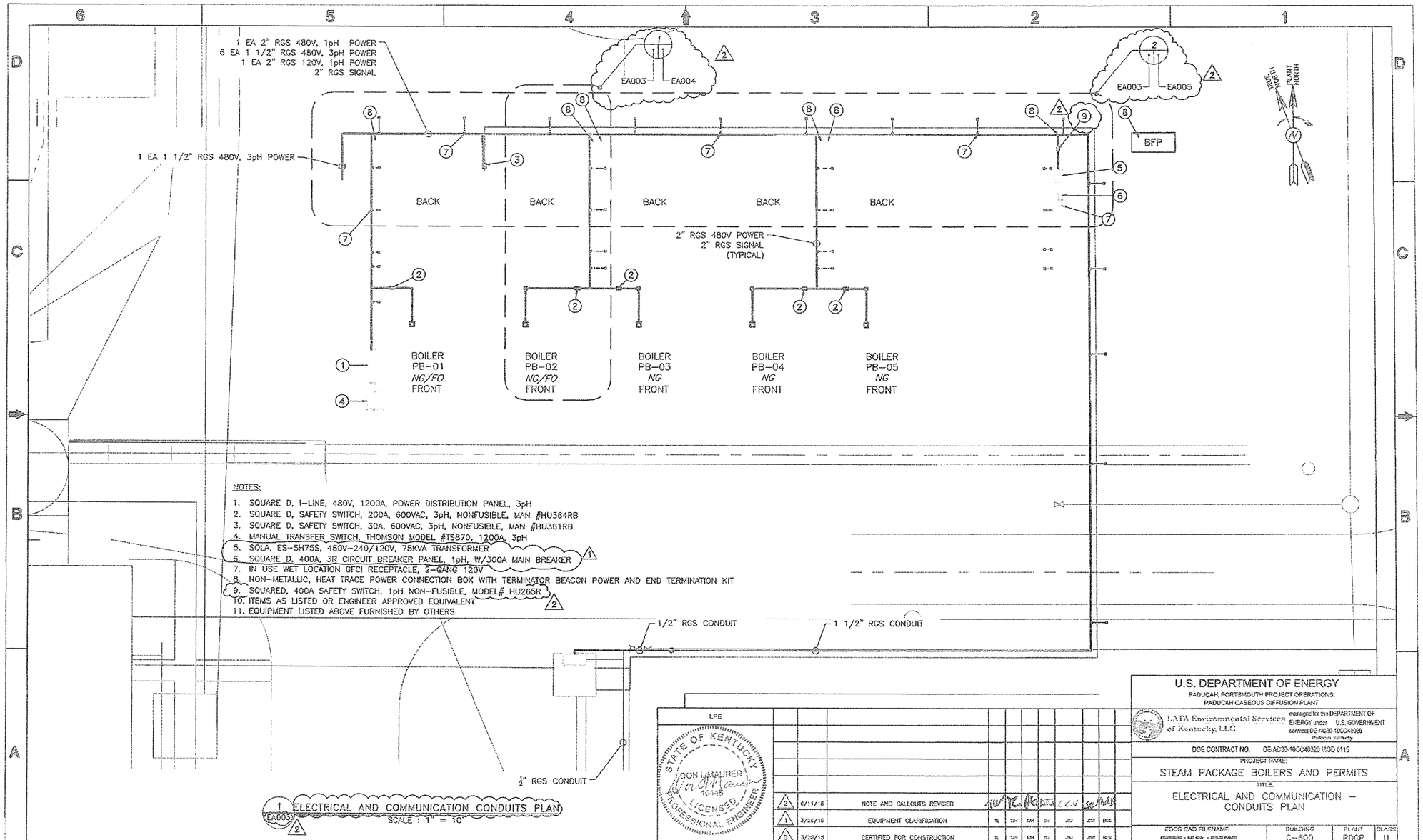
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
POWER LAYOUT FROM 605 TO PORTABLE BOILERS - PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A002.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC60000A002	2



NOTES:

1. SQUARE D, I-LINE, 480V, 1200A, POWER DISTRIBUTION PANEL, 3pH
2. SQUARE D, SAFETY SWITCH, 200A, 600VAC, 3pH, NONFUSIBLE, MAN #HU364RB
3. SQUARE D, SAFETY SWITCH, 30A, 600VAC, 3pH, NONFUSIBLE, MAN #HU361RB
4. MANUAL TRANSFER SWITCH, THOMSON MODEL #TS870, 1200A, 3pH
5. SOLA, ES-5H75S, 480V-240/120V, 75KVA TRANSFORMER
6. SQUARE D, 400A, 3R CIRCUIT BREAKER PANEL, 1pH, W/300A MAIN BREAKER 1
7. IN USE WET LOCATION GFCI RECEPTACLE, 2-GANG 120V
8. NON-METALLIC, HEAT TRACE POWER CONNECTION BOX WITH TERMINATOR BEACON POWER AND END TERMINATION KIT
9. SQUARED, 400A SAFETY SWITCH, 1pH NON-FUSIBLE, MODEL# HU265R 2
10. ITEMS AS LISTED OR ENGINEER APPROVED EQUIVALENT
11. EQUIPMENT LISTED ABOVE FURNISHED BY OTHERS.

1 EA003 2 ELECTRICAL AND COMMUNICATION CONDUITS PLAN
SCALE : 1" = 10'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
DON L. MAURER
10446
LICENSED
PROFESSIONAL ENGINEER

DATE: 6/16/15

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHK'D BY	PROJ ENGR	LEAD DISCIP	CONT ENGR	FAC MGR	DIVS MGR
2	6/11/15	NOTE AND CALLOUTS REVISED	TW	TL	TJH	DTJ	LCN	SW	MAB
1	3/25/15	EQUIPMENT CLARIFICATION	TL	TJH	TJH	DJ	JSJ	JSJ	HLS
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TL	TJH	TJH	DJ	JSJ	JSJ	HLS

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

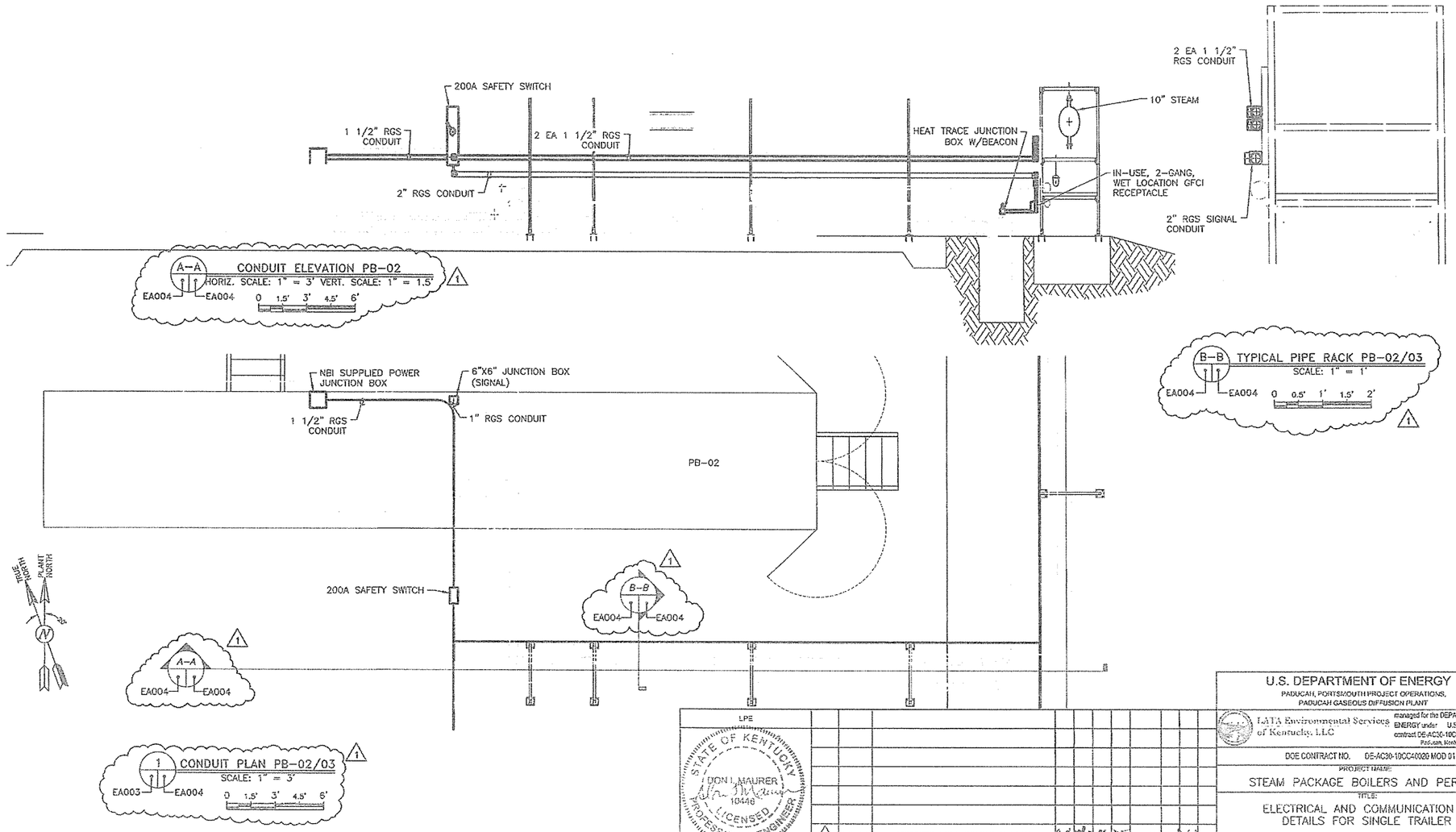
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
ELECTRICAL AND COMMUNICATION – CONDUITS PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC60000A003	2



*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
DON L. MAURER
10446
LICENSED PROFESSIONAL ENGINEER

DATE: 6/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	PROJ ENGR	LEAD ENGR	DISC ENGR MANAGER	PROJ MGR	ENG MGR
1	8/11/15	CORRECTED DETAIL/SECTION CALLOUTS							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TL	TJH	TJH	EM	JGM	JTW	LMS

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

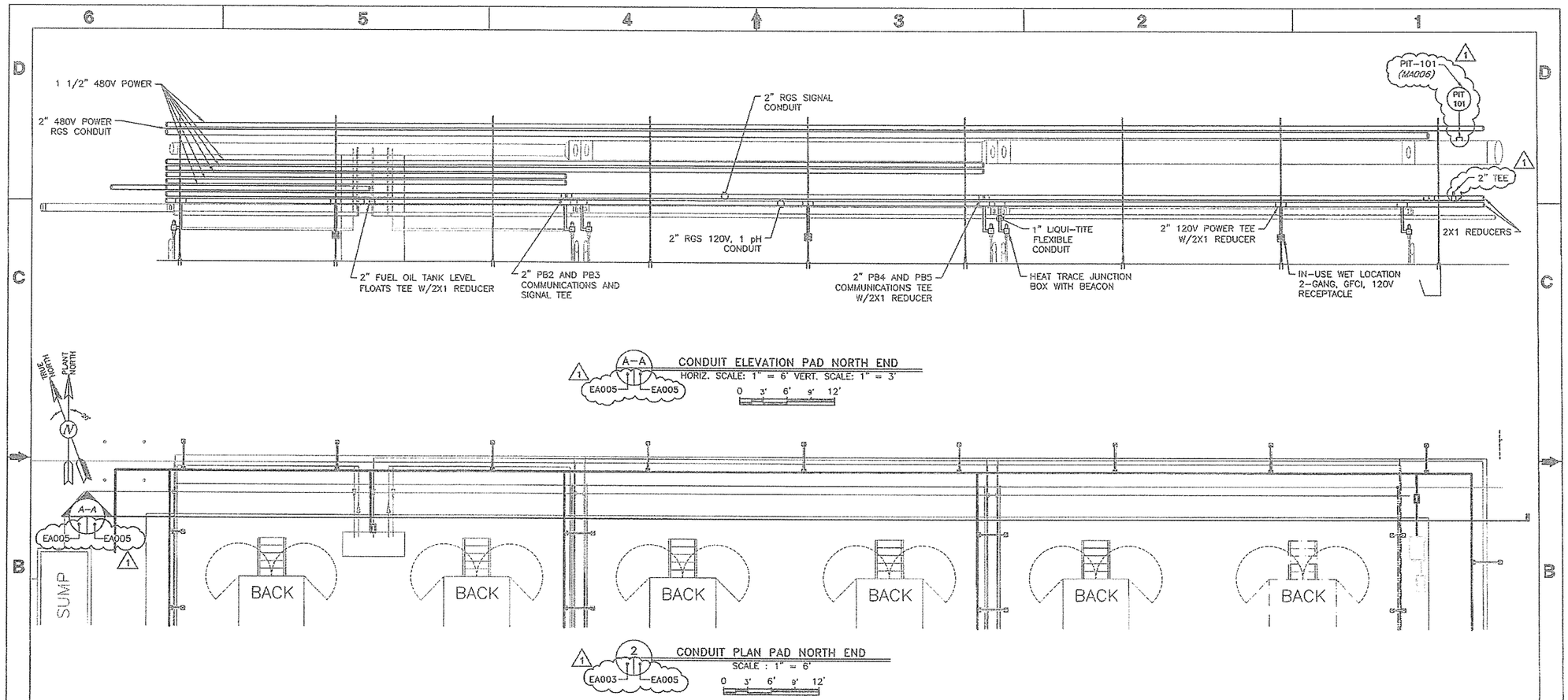
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
ELECTRICAL AND COMMUNICATION – DETAILS FOR SINGLE TRAILER

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC60000A004	1



CONDUIT ELEVATION PAD NORTH END
HORIZ. SCALE: 1" = 6' VERT. SCALE: 1" = 3'
0 3' 6' 9' 12'

CONDUIT PLAN PAD NORTH END
SCALE : 1" = 6'
0 3' 6' 9' 12'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
DON L. MAURER
10446
LICENSED PROFESSIONAL ENGINEER

DATE: 6/11/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	PROJ ENGR	MANF ENGR	NOW OPRS	FAC MGR	PLNT MGR
1	6/11/15	ADDED PIT-101 AND 2" TEE / CORRECT CALLOUTS							
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCR	TCH	TCH	CJS	JSU	JSU	HSS

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

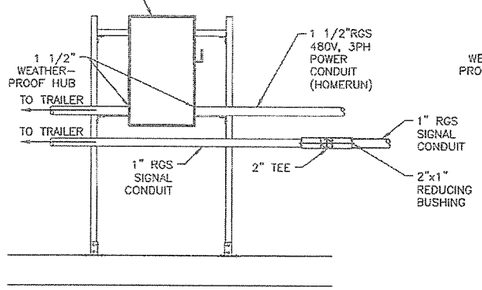
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
ELECTRICAL AND COMMUNICATION – CONDUITS ELEVATION AND DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

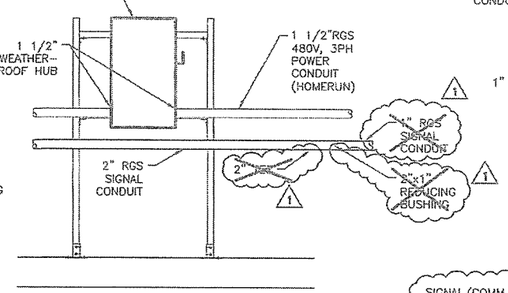
SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC60000AC05	1



TYPICAL FOR TRAILERS PB-02, PB-03, PB04, PB05, 75 KvA TRANSFORMER

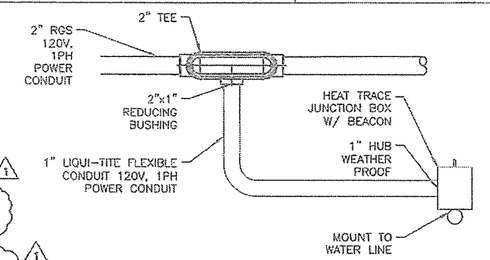
TYPICAL TRAILER POWER DISCONNECT
SCALE : 1" : 16"

0 8" 16" 24" 32"



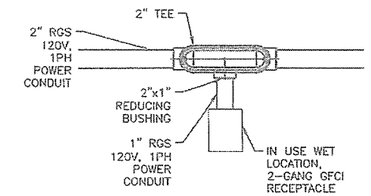
TRAILER POWER DISCONNECT AT PB-01
SCALE : 1" : 16"

0 8" 16" 24" 32"



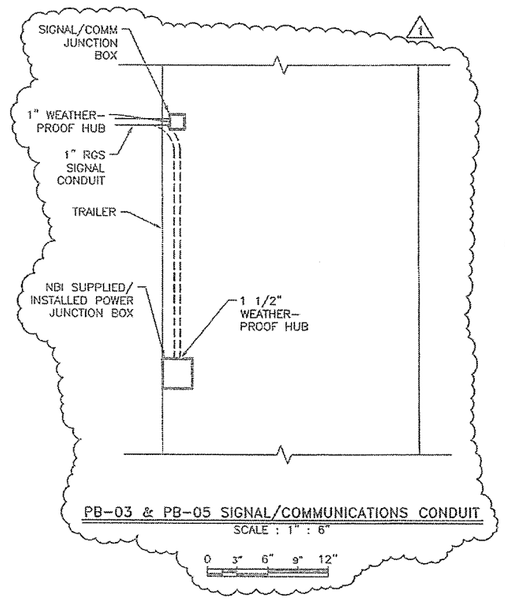
HEAT TRACE JUNCTION BOX W/ BEACON
SCALE : 1" : 8"

0 4" 8" 12" 16"



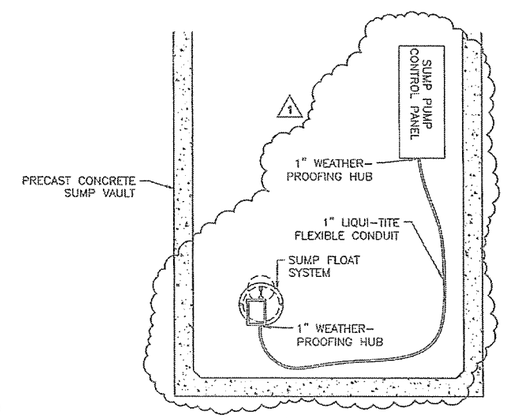
IN USE WET LOCATION GFCI RECEPTACLE
SCALE : 1" : 8"

0 4" 8" 12" 16"



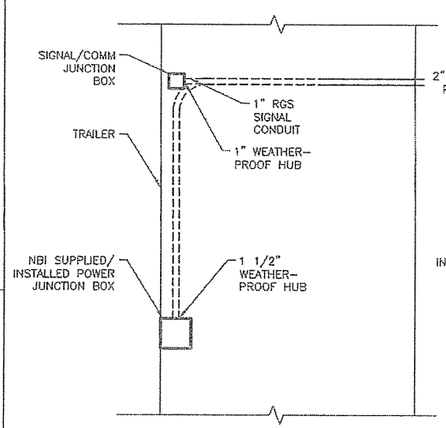
PB-03 & PB-05 SIGNAL/COMMUNICATIONS CONDUIT
SCALE : 1" : 6"

0 3" 6" 9" 12"



SUMP PUMP FLOAT CONN DETAIL
SCALE : 1" : 16"

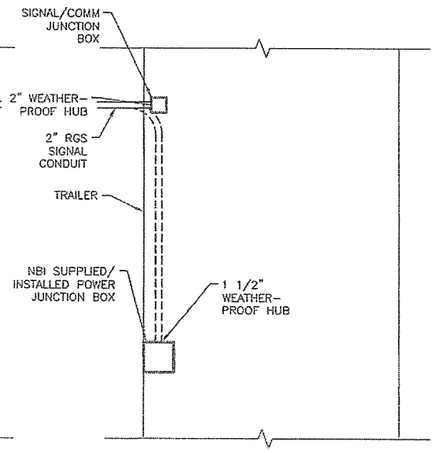
0 8" 16" 24" 32"



TYPICAL FOR TRAILERS PB-02, & PB04

TYPICAL SIGNAL CONDUIT UNDER TRAILER
SCALE : 1" : 6"

0 3" 6" 9" 12"



PB-01 SIGNAL/COMMUNICATIONS CONDUIT
SCALE : 1" : 6"

0 3" 6" 9" 12"

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY — DON I. MAURER 10446 — LICENSED PROFESSIONAL ENGINEER

DATE: 11/6/15

PROFESSIONAL SEAL

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONT SPEC SUPR DRFR	FAC MGR	ESTG MGR
1	6/11/15	ADDED PB-03/05 DETAIL AND REMOVED CALLOUTS	VW	VW	MD	DSH	ACH	JMM	MAG
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	TJN	TJN	DJ	JBJ	JDW	MAG

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
ELECTRICAL AND COMMUNICATION – CONDUIT DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDCP	U

SCALE	DRAWING NUMBER	REV
AS SHOWN	E7DC60000A006	1

Type Name	480 VAC															240 VAC			120 VAC			Ground			
Size AWG	1/0 AWG		1/0 AWG (1)			8 AWG			12 AWG			14 AWG				500 MCM (1)			12 AWG			8 AWG	12 AWG	6 AWG	3 AWG (1)
Wire Color	Brown	Orange	Brown	Orange	Yellow	Brown	Orange	Yellow	Brown	Orange	Yellow	Brown	Orange	Yellow		Black	Red	White	Black	Red	White			Green	
Trailer #1			TB1-L1	TB1-L2	TB1-L3																			TB1-G	
Trailer #2			TB2-L1	TB2-L2	TB2-L3																			TB2-G	
Trailer #3			TB3-L1	TB3-L2	TB3-L3																			TB3-G	
Trailer #4			TB4-L1	TB4-L2	TB4-L3																			TB4-G	
Trailer #5			TB5-L1	TB5-L2	TB5-L3																			TB5-G	
Trailer #6			TB6-L1	TB6-L2	TB6-L3																			TB6-G	
Transformer	XFM-L1	XFM-L2																							
Sump Pump Panel #1									SP-L1	SP-L2	SP-L3												SP1-G		
Immersion Heater #1												IH1-L1	IH1-L2	IH1-L3									IH1-G		
Fuel Oil						FO1-L1	FO1-L2	FO1-L3														FO1-G			
Panelboard 400A																PB1-L1	PB1-L2	PB1-L3							PB1-G
Outlet #1																			OT1-L1		OT1-L2		OT1-G		
Outlet #2																				OT2-L1	OT2-L2		OT2-G		
Outlet #3																			OT3-L1		OT3-L2		OT3-G		
Outlet #4																				OT4-L1	OT4-L2		OT4-G		
Outlet #5																			OT5-L1		OT5-L2		OT5-G		
Heat Trace #1																				HT1-L1	HT1-L2		HT1-G		
Heat Trace #2																			HT2-L1		HT2-L2		HT2-G		
Heat Trace #3																				HT3-L1	HT3-L2		HT3-G		
Heat Trace #4																			HT4-L1		HT4-L2		HT4-G		

Steam Package Boilers Electrical Schedule
XHHW Construction 90 Deg XLP Insulation

From	To	Conduit Size	Conduit Type	Conductor Length	Notes
Distribution Panel	Trailer #1	1.5	Rigid	~30'	
Distribution Panel	Trailer #2	1.5	Rigid	~155'	
Distribution Panel	Trailer #3	1.5	Rigid	~155'	
Distribution Panel	Trailer #4	1.5	Rigid	~212'	
Distribution Panel	Trailer #5	1.5	Rigid	~212'	
Distribution Panel	Trailer #6	1.5	Rigid	~235'	
Distribution Panel	Transformer	2	Rigid	~235'	
Distribution Panel	Sump Pump Panel #1	1.5	Rigid	~50'	
Distribution Panel	Immersion Heater	1.5	Rigid	~93'	
Distribution Panel	Fuel Oil Pump	1.5	Rigid	~300'	
Transformer	Panel Board Main Circuit Breaker	3.5	Rigid	~0'	
Panel Board Circuit Breaker #1	Outlet #1	2	Rigid	~3'	One 2" with tee off
Panel Board Circuit Breaker #2	Outlet #2	2	Rigid	~12'	One 2" with tee off
Panel Board Circuit Breaker #3	Outlet #3	2	Rigid	~105'	One 2" with tee off
Panel Board Circuit Breaker #4	Outlet #4	2	Rigid	~115'	One 2" with tee off
Panel Board Circuit Breaker #5	Outlet #5	2	Rigid	~153'	One 2" with tee off
Panel Board Circuit Breaker #6	Heat Trace #1	2	Rigid	~168'	One 2" with tee off
Panel Board Circuit Breaker #7	Heat Trace #2	2	Rigid	~70'	One 2" with tee off
Panel Board Circuit Breaker #8	Heat Trace #3	2	Rigid	~20	One 2" with tee off
Panel Board Circuit Breaker #9	Heat Trace #4	2	Rigid	~200'	One 2" with tee off

NOTES:

1. CONDUIT AND CONDUCTORS LISTED ABOVE FURNISHED BY OTHERS.

Type Name	Communication	24 VDC							
Size AWG	24 AWG	20 AWG (1)							
Wire Color	CAT 5e	Black	White	SHLD	From	To	Conduit Size	Conduit Type	Conductor Length	Notes
Trailer #2 (1)	TB2-COM			(1)	Trailer #2	Trailer #1	2	Rigid	~160'	(1) One 2" with tee off
Trailer #3	TB3-COM				Trailer #3	Trailer #1	2	Rigid	~180'	One 2" with tee off
Trailer #4	TB4-COM				Trailer #4	Trailer #1	2	Rigid	~210'	One 2" with tee off
Trailer #5	TB5-COM				Trailer #5	Trailer #1	2	Rigid	~230'	One 2" with tee off
Trailer #6	TB6-COM				Trailer #6	Trailer #1	2	Rigid	~210'	One 2" with tee off
Flow Meter #1		FT1-VDC	FT1-SIG	FT1-SHLD	Flow Transmitter	Trailer #1	2	Rigid	~210'	One 2" with tee off
Flow Meter #2		FT2-VDC	FT2-SIG	FT2-SHLD	Flow Transmitter	Fuel Oil Panel	1/2"	Rigid	~20'	One 1/2" with tee off
Flow Meter #3		FT3-VDC	FT3-SIG	FT3-SHLD	Flow Transmitter	Fuel Oil Panel	1/2"	Rigid	~250'	One 1/2" with tee off
Pressure Transmitter #1		PT1-VDC	PT1-SIG	PT1-SHLD	Pressure Transmitter #1	Trailer #1 (1)	2	Rigid	~210'	(1) One 2" with tee off
Pressure Transmitter #2		PT2-VDC	PT2-SIG	PT2-SHLD	Pressure Transmitter #2	Trailer #1	2	Rigid	~210'	One 2" with tee off

Steam Package Boilers Electrical Schedule
CAT 5E, Belden 1583A or Equal SC Shield: belden 9364 or Equal

NOTES:

1. CONDUIT AND CONDUCTORS LISTED ABOVE FURNISHED BY OTHERS.

LPE

STATE OF KENTUCKY
DON I. MAURER
10448
LICENSED
PROFESSIONAL ENGINEER

DATE: 6/16/15

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CHK / MOD. ENTRY	PAC REVIEW	ENVIR REVIEW
1	6/11/15	UPDATED TABLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TL	TJH	TJH	GG	JGM	JRK	TMG

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

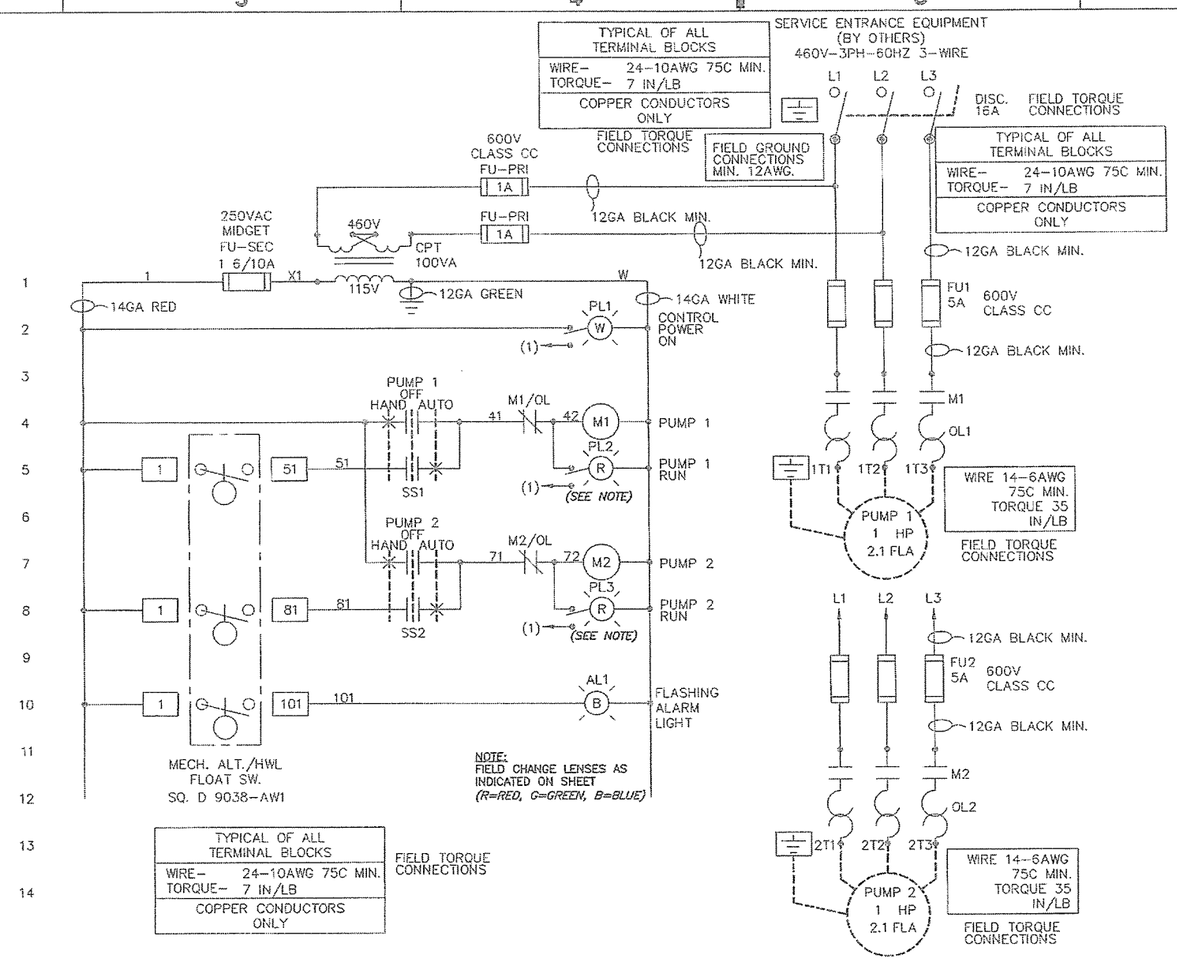
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
CONDUIT / WIRE SCHEDULE

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A007 - CONDUIT WIRE SCHEDULE.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER:	REV
AS SHOWN	E7DC60000A007	1



ENCL		NEMA 4 WALL MOUNT, LIVE FRONT, 20x16x8	
	1	SAGINAW	SCE–20EL1608LP + SCE–20P16
FEET	1	SAGINAW	SCE–ELMFK4
DISC	1	C–H	R5A3016U
HANDLE	1	C–H	SHB00N4X
SHAFT	1	C–H	SF200SH5X5
FU1,2	6	FERRAZ	ATDR 5
CLIP	2	FERRAZ	30323R
M1,2	2	C–H	XTCE007B10A
OL1,2	2	C–H	XTOB2P4BC1
FU–PRI	2	FERRAZ	ATQR 1
CPT	1	C–H	C0100E2AFB
FU–SEC	1	FERRAZ	TRM 1 6/10
SS1,2	2	C–H	M22–WRK3–K20
PL1	1	C–H	M22–DL–W–K11–230W
PL2,3	2	C–H	M22–DL–G–K11–230G
AL1	1	OHIO ELEC.	EL–3K–120V + FLASHER

MANUFACTURER – INDQUIP ENGINEERING
MAXIMUM VOLTAGE – 460 V
TOTAL FLA – 5.2 FLA
LARGEST MOTOR HP & FLA – 1 HP/2.1 FLA
PHASE – 3 PH
FREQUENCY – 60 HZ
DIAGRAM – 35642
SCCR – 10000A

UL TYPE 4 ENCLOSURE

UL SERIALIZED 508A ENCLOSED INDUSTRIAL CONTROL PANEL A43318075

SCCR 10,000 A

NOTE !
AFTER A CIRCUIT IS DEENERGIZED BY A CIRCUIT PROTECTIVE DEVICE, THE CIRCUIT MAY NOT BE REENERGIZED UNTIL IT HAS BEEN DETERMINED THAT THE EQUIPMENT AND CIRCUIT CAN BE SAFELY ENERGIZED. THE REPETITIVE RECLOSING OF CIRCUIT BREAKERS OR REENERGIZING CIRCUITS THROUGH REPLACED FUSES IS PROHIBITED.

VERTALO PUMP COMPANY
7807 Redsky Drive
Cincinnati, OH 45249
Phone (513) 530-0888
Fax (513) 530-0893

indquip ENGINEERING
175 CHESTERFIELD IND. BLVD
CHESTERFIELD, MO 63005
PHONE (636)532-9010 FAX (636)532-5559

1 HP DUPLEX PUMP CONTROL
P.O. 0035848 TAG NO. 15-20763

DRAWN BY	SCALE	AS-BUILT
JGM	NONE	4-24-15
CHECKED BY	DATE	DRAWING NO
	4-8-15	35642
REV	APP'D	SHEET 1 OF 1

LPE
STATE OF KENTUCKY
DON I. MAURER
10446
LICENSED PROFESSIONAL ENGINEER
DATE: 6/11/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	MAT'L CONTROL	CONTROL NAME PLATE	FAB VER	ELEC VER
0	6/11/15	VENDOR SUPPLIED DRAWING							

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

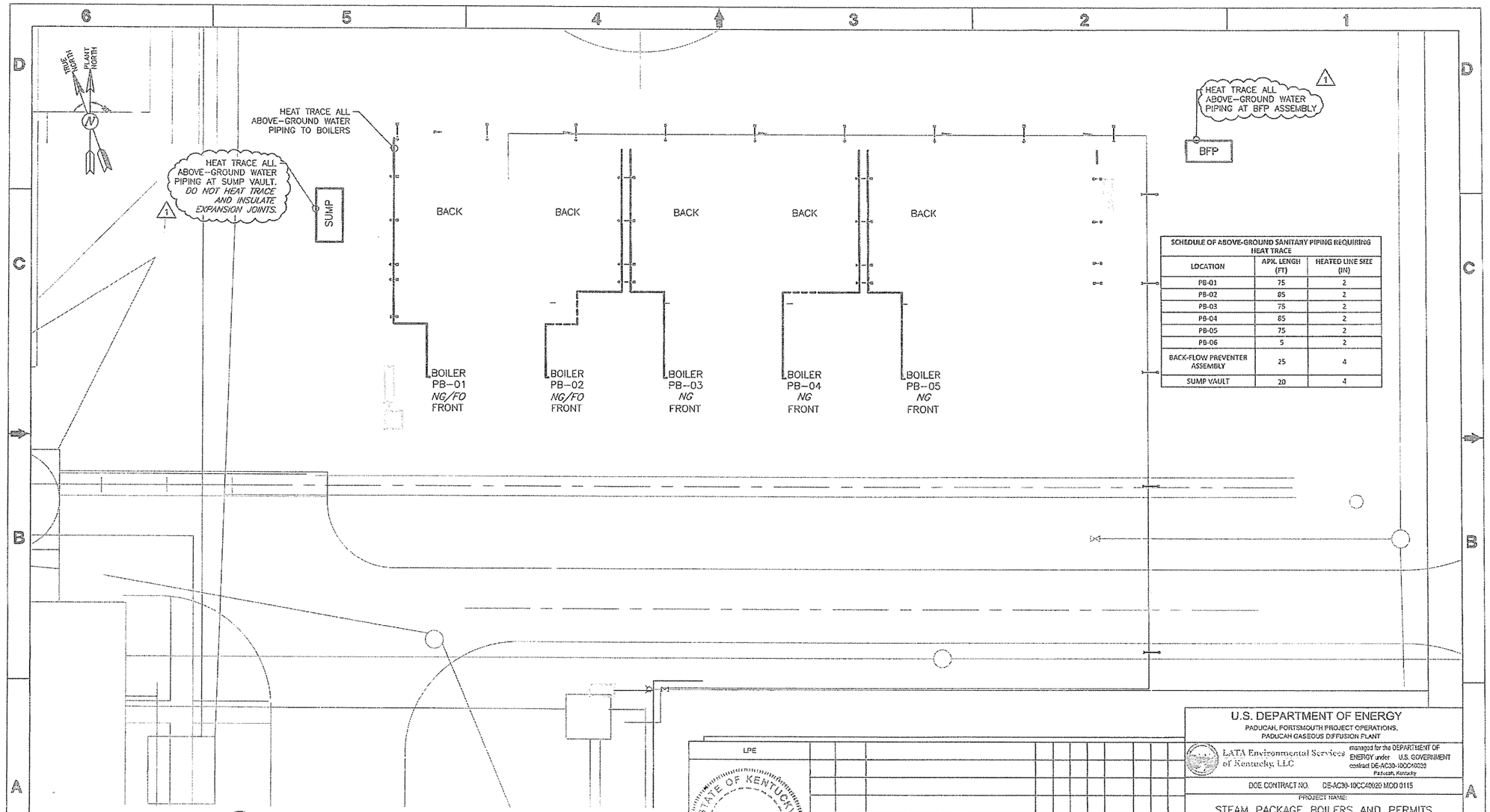
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
SUMP PUMP MAIN ENCLOSURE ELECTRIC

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A008 – SUMP PUMP MAIN ENCLOSURE ELECTRIC.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A008	0



SCHEDULE OF ABOVE-GROUND SANITARY PIPING REQUIRING HEAT TRACE		
LOCATION	APX. LENGH (FT)	HEATED LINE SIZE (IN)
PB-01	75	2
PB-02	85	2
PB-03	75	2
PB-04	85	2
PB-05	75	2
PB-06	5	2
BACK-FLOW PREVENTER ASSEMBLY	25	4
SUMP VAULT	20	4

1 EA012 HEAT TRACE RUNS (PLAN)
SCALE : 1" = 10'
0 5' 10' 15' 20'

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
DON L. MAURER
10446
LICENSED PROFESSIONAL ENGINEER
DATE: 6/11/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	ENGR CHK	ENGR ENGR	LEAD ENGR	DSM CHK	DSM NUCLSTY	FAC MGR	FAC MGR
1	6/11/15	CORRECTED TEXT AND CALLOUT	KLM	MM	MM	DM	LCV			
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TCW	TLH	TLH	GM	JRN	MDW	HTG	

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

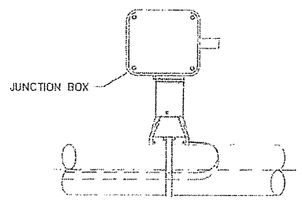
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

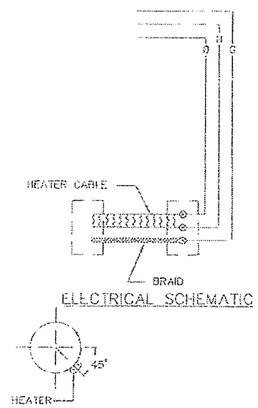
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
HEAT TRACE RUNS (PLAN)

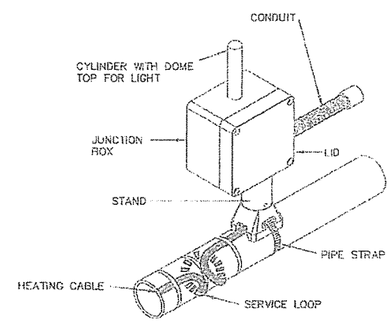
EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC60000A012	1



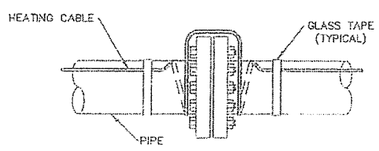


ELECTRICAL SCHEMATIC

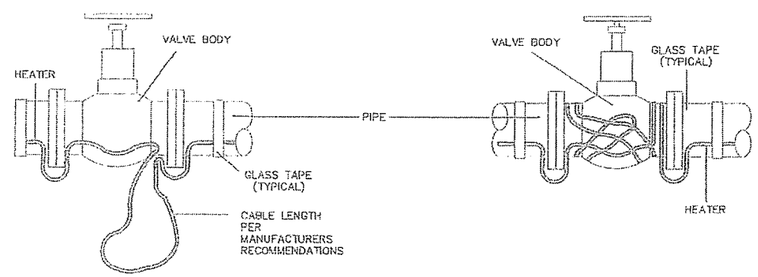


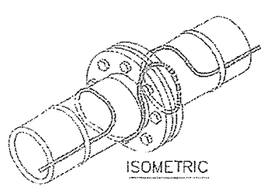
GENERAL HEAT TRACE NOTES

1. THE COMPLETE HEAT TRACE SYSTEM SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE NATIONAL ELECTRIC CODE, LOCAL CODES, DESIGN DRAWINGS, NOTES, DETAILS.
2. INSTALL 8 WATT PER FOOT HEAT TRACE FOR 4" PIPING OR LARGER AND 3 WATT PER FOOT HEAT TRACE FOR PIPING LESS THAN 4", WITH 1-1/2" INSULATION OR CONTRACTOR APPROVED EQUAL PER MANUFACTURER'S INSTRUCTIONS.
3. USE FOIL TAPER FOR PVC PIPE AND GLASS TAPE FOR STEEL PIPE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ENSURE ALL HEAT TRACED PIPE IS INSULATED.



SIDE VIEW





ISOMETRIC

1 / EA013 HEAT TRACE DETAILS
Scale: 1:1

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: HEAT TRACE DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC50000A013	0

LPE

STATE OF KENTUCKY — DON I. MAURER — 10445 — LICENSED PROFESSIONAL ENGINEER

DATE: 4/8/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	SAFETY REV	ENGR REV	LEAD ENGR	DOE ENGR/ REALSTAT	FIRE REV	ELECT REV
0	3/20/15	CERTIFIED FOR CONSTRUCTION							

DRAWING REVISIONS

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

INSTRUMENT TABLE

Instrument ID			Process System	Description	Instrument Type	Input Range	Output Range	Manufacturer	Part No.	Sheet Reference	Comment
FIT	-	101	Steam	Header Steam Flow- Main	Flow Indicating Transmitter	0 - 250 Inches of H2O	4-20ma	Rosemount	3051SFC1P5120N065T32JA1 A3AQ4M3	J7DC60000A003	Compact Orifice Flowmeter
PI	-	101	Steam	Header Steam Pressure-North Loop	Pressure Indicator	0-160 psig	0-160 psig	Ashcroft	45100951L04LXGV160# with a siphon 50-1098-S	J7DC60000A003	50-1098-S: 0.5 Inch, ASTM A-106, Seamless Steel, Grade A
FIT	-	101	Steam	Header Steam Pressure- Main	Pressure Indicating Transmitter	--	4-20ma	Rosemount	3051TG3	J7DC60000A003	Supplied by NBI
FIT	-	102	Steam	Header Steam Flow- To East and South Loop	Flow Indicating Transmitter	0 - 250 Inches of H2O	4-20ma	Rosemount	3051SFC1P5120N065T32JA1 A3AQ4M5	J7DC60000A003	Compact Orifice Flowmeter
PI	-	102	Steam	Header Steam Pressure-East Loop	Pressure Indicator	0-160 psig	0-160 psig	Ashcroft	45100951L04LXGV160# with a siphon 50-1098-S	J7DC60000A003	50-1098-S: 0.5 Inch, ASTM A-106, Seamless Steel, Grade A
FIT	-	103	Steam	Header Steam Flow- South loop	Flow Indicating Transmitter	0 - 250 Inches of H2O	4-20ma	Rosemount	3051SFC1P5120N065T32JA1 A3AQ4M5	J7DC60000A003	Compact Orifice Flowmeter
PI	-	103	Steam	Header Steam Pressure-South Loop	Pressure Indicator	0-160 psig	0-160 psig	Ashcroft	45100951L04LXGV160# with a siphon 50-1098-S	J7DC60000A003	50-1098-S: 0.5 Inch, ASTM A-106, Seamless Steel, Grade A
PI	-	201	Natural Gas	Natural Gas Supply, To Boilers	Pressure Indicator	0-100 psig	0-100 psig	Ashcroft	45100951L04LXGV100#	J7DC60000A003	
DPIS	-	301	Fuel Oil	Main FO Supply, Duplex Strainer	Differential Pressure Indicating Switch	--	--	DP Plus	200DPG	J7DC60000A004	Supplied by Pump Skid Manufacturer
FSL	-	301	Fuel Oil	Main FO Supply, low Flow	Flow Switch	--	--	--	--	J7DC60000A004	Supplied by Pump Skid Manufacturer
PI	-	301	Fuel Oil	Main FO Supply, Duplex Strainer, upstream	Pressure Indicator	-30 to 30 psig	-30 to 30 psig	Ashcroft	45127S9S04LXLLVAC/30	J7DC60000A004	
LI	-	302	Fuel oil day tank	Day tank level indicator	Level Indicator	NA	NA	Innovative	L503	J7DC60000A004	Supplied by Day Tank Manufacturer
LSLL	-	302	Fuel oil day tank	Day tank level switch Low Low (low level alarm)	Level Switch Low Low	NA	19.25"	Innovative	L500	J7DC60000A004	Supplied by Day Tank Manufacturer
LSL	-	302	Fuel oil day tank	Day tank level switch Low (call for Fill)	Level Switch Low	NA	25"				
LSH	-	302	Fuel oil day tank	Day tank level switch High (call for Stop)	Level Switch High	NA	38.5"				
LSHH	-	302	Fuel oil day tank	Day tank level switch High High 1 (alarm and Trip)	Level Switch High High	NA	43.25"				
PI	-	302	Fuel Oil	Main FO Supply, Duplex Strainer, downstream	Pressure Indicator	--	--	WIKA	--	J7DC60000A004	Supplied by Pump Skid Manufacturer
LSH	-	303	Fuel oil day tank	Day tank Interstitial level switch High (leak alarm)	Level Switch High	NA	2.75"	Innovative	L500	J7DC60000A004	Supplied by Day Tank Manufacturer
PI	-	303	Fuel Oil	Main FO Supply, Pumps, downstream	Pressure Indicator	--	--	WIKA	0-200PSI	J7DC60000A004	Supplied by Pump Skid Manufacturer
LSHH	-	304	Fuel oil day tank	Day tank level switch High High 2 (overfill protection)	Level Switch High High	NA	45"	Innovative	L322	J7DC60000A004	Supplied by Day Tank Manufacturer
LSH	-	305	Fuel Oil	FO Pump Skid Leak Detection (leak alarm)	Level Switch High	NA	NA	Innovative	L176	J7DC60000A004	Supplied by Pump Skid Manufacturer
PI	-	404	Sanitary Water	Boiler water supply, backflow preventer, upstream	Pressure Indicator	0-100 psig	0-100 psig	Ashcroft	45100951L04LXGV100#	J7DC60000A004	
PIT	-	405	Sanitary Water	Boiler water supply, backflow preventer, downstream	Pressure Indicating Transmitter	0-150 psig	4-20ma	Rosemount	3051TG2A2BAQ4Q8D4M4T1	J7DC60000A004	
LSLL	-	501	Waste Water	Sump waste water, in vault (call for Stop)	Level Switch Low Low	NA	19"	Square-D	9038-AW1-N5	J7DC60000A002	Supplied by Sump Pump Manufacturer
LSL	-	501	Waste Water	Sump waste water, in vault (call for Start lead pump)	Level Switch Low	NA	39"				
LSH	-	501	Waste Water	Sump waste water, in vault (call for Start lag pump)	Level Switch High	NA	max span				
LSHH	-	501	Waste Water	Sump waste water, in vault (alarm)	Level Switch High High	NA	max span				
PI	-	501	Waste Water	Sump waste water, PMP-01 & PMP-02, downstream	Pressure Indicator	0-15 psig	0-15 psig	Ashcroft	45100951L04LXGV15#	J7DC60000A002	

NOTES

ALL INSTRUMENTS AS LISTED (OR ENGINEER APPROVED EQUIVALENT) ARE FURNISHED BY OTHERS.

LPE

STATE OF KENTUCKY
DON I. MAURER
10446
LICENSED PROFESSIONAL ENGINEER

DATE: 8/10/15

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	PROJ ENGR	ENGR SUPV	CONF CTRLD MGR	MGR	DATE MGR
1	8/11/15	UPDATED TABLE	TL	TJH	DJH	JGJ	JDH	RMS	
0	3/20/15	CERTIFIED FOR CONSTRUCTION	TL	TJH	DJH	JGJ	JDH	RMS	

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

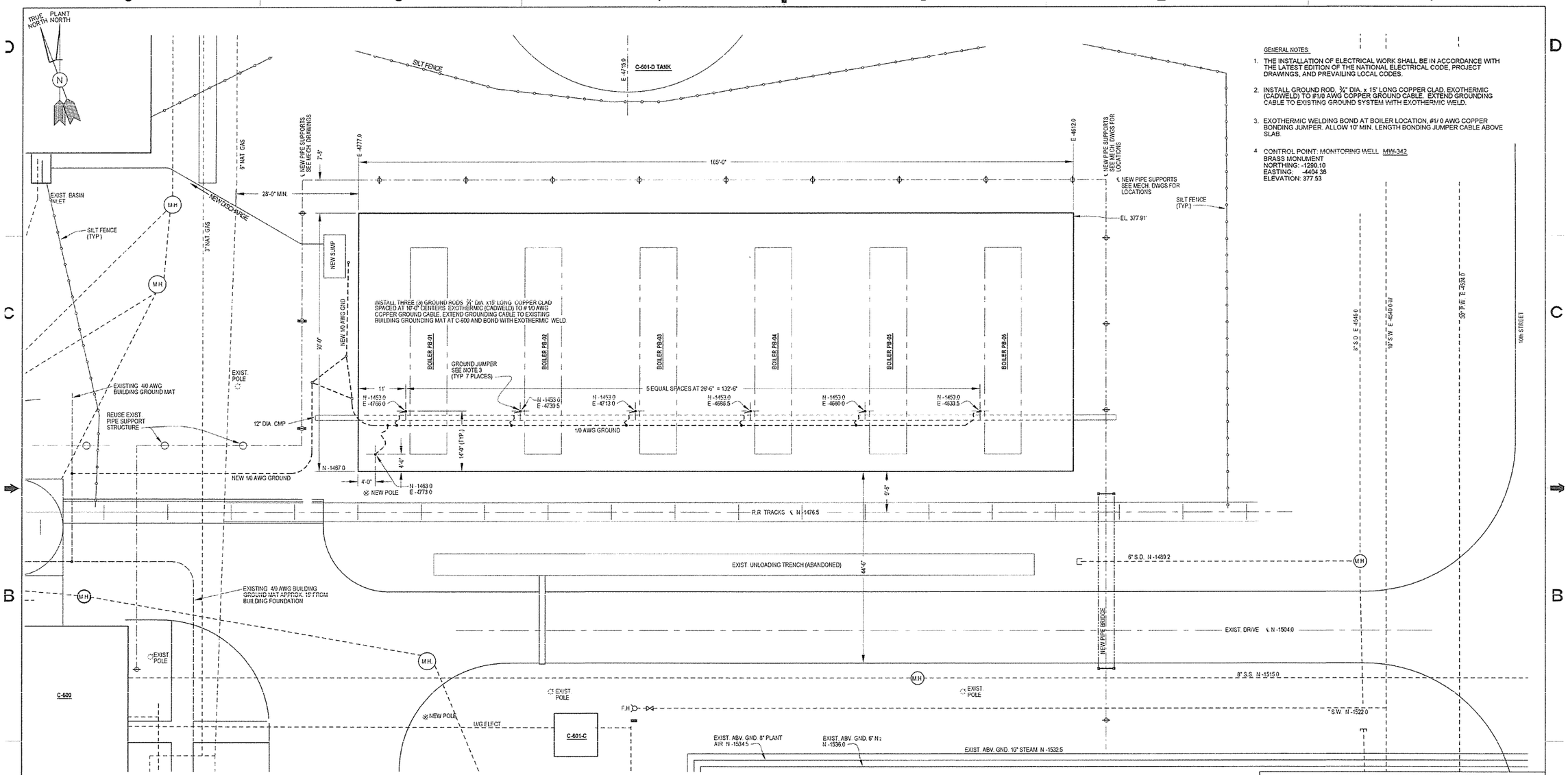
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME: STEAM PACKAGE BOILERS AND PERMITS

TITLE: INSTRUMENT TABLE

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A01A – INSTRUMENT TABLE.DWG	C-600	PDGP	U

SCALE	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A014	1



GENERAL NOTES

1. THE INSTALLATION OF ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, PROJECT DRAWINGS, AND PREVAILING LOCAL CODES.
2. INSTALL GROUND ROD, 3/4" DIA. x 15' LONG COPPER CLAD, EXOTHERMIC (CADWELD) TO #1/0 AWG COPPER GROUND CABLE. EXTEND GROUNDING CABLE TO EXISTING GROUND SYSTEM WITH EXOTHERMIC WELD.
3. EXOTHERMIC WELDING BOND AT BOILER LOCATION, #1/ 0 AWG COPPER BONDING JUMPER. ALLOW 10' MIN. LENGTH BONDING JUMPER CABLE ABOVE SLAB.
4. CONTROL POINT: MONITORING WELL MW-342
   BRASS MONUMENT
   NORTHING: -1290.10
   EASTING: -4404.38
   ELEVATION: 377.53

GROUNDING PLAN

SCALE: 1/2" = 1'-0"

REFERENCE DRAWINGS	DRAWING NO.
C-600 AREA PACKAGE BOILERS CONCRETE PAD DEMOLITION PLAN	C7DC60000A001
C-600 AREA PACKAGE BOILERS CONCRETE PAD GRADING PLAN	C7DC60000A002

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR

SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN
SECTION AND DETAIL KEY

LPE

DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF ESTL / NOD. SFTY	FAC MGR	EA/S MGR
0	2/23/11	ISSUED FOR CONSTRUCTION	KW	JSH	DJS	DJH	JBJ	—	KJ

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

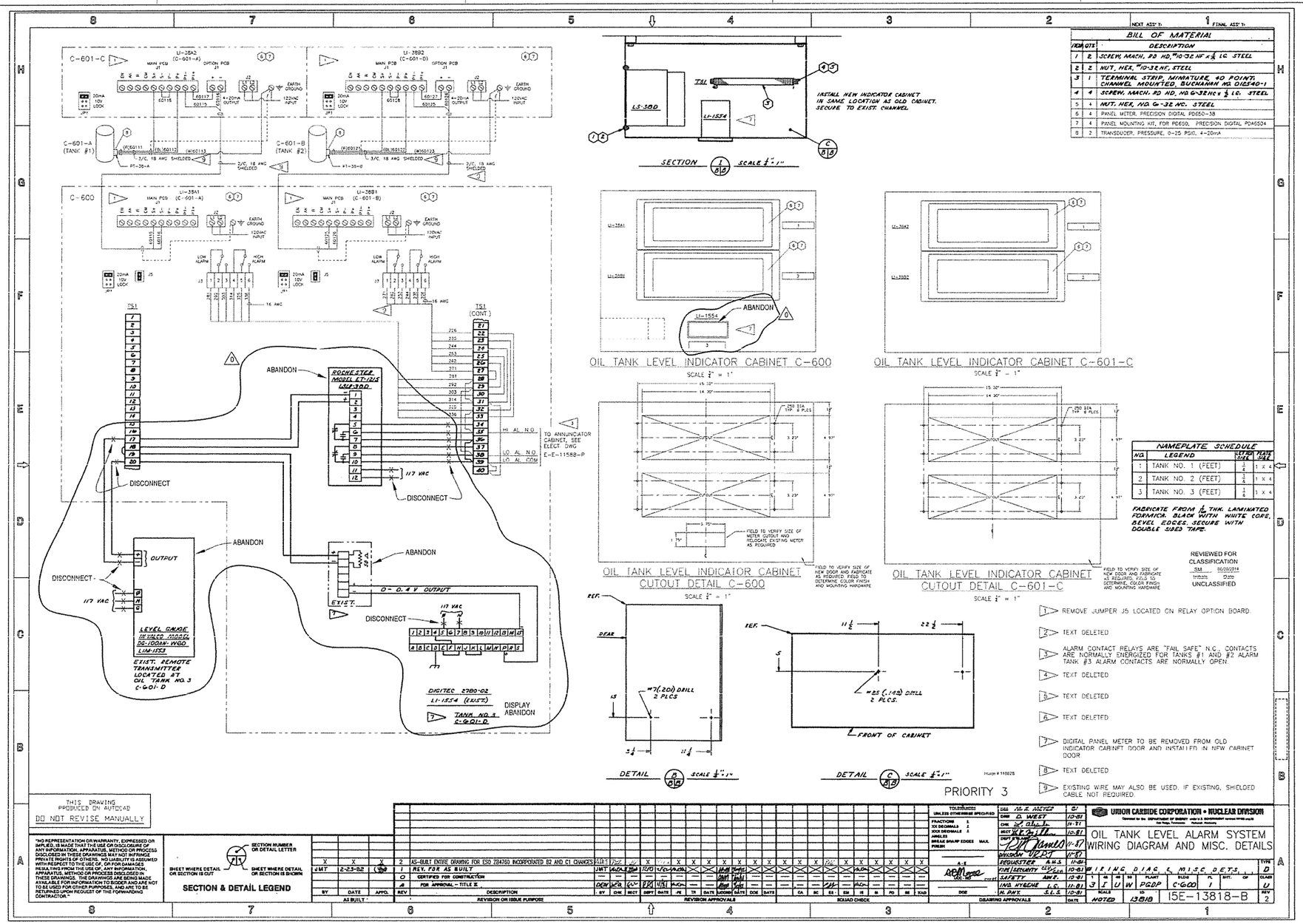
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
CONCRETE PAD EQUIPMENT
GROUNDING PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A015 rev0.dwg	C-600	PGDP	U

SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		E7DC60000A015	0



ITEM	QTY	DESCRIPTION
1	2	SCREW, MACH, RD HD, #10-32 NF x 3/8 LG STEEL
2	2	NUT, HEX, #10-32 NF, STEEL
3	1	TERMINAL STRIP, MINIATURE, 40 POINT, CHANNEL MOUNTED, BUCHANAN NO. 012540-1
4	4	SCREW, MACH, RD HD, NO 6-32 NC x 3/8 LG. STEEL
5	4	NUT, HEX, NO 6-32 NC, STEEL
6	4	PANEL METER, PRECISION DIGITAL PD650-38
7	4	PANEL MOUNTING KIT, FOR PD650, PRECISION DIGITAL PDA5504
8	2	TRANSDUCER, PRESSURE, 0-25 PSIG, 4-20mA

BILL OF MATERIAL

NO	LEGEND	STRIP SIZE	PLATE SIZE
1	TANK NO. 1 (FEET)	1/4	1 x 4
2	TANK NO. 2 (FEET)	1/4	1 x 4
3	TANK NO. 3 (FEET)	1/4	1 x 4

NAMEPLATE SCHEDULE

FABRICATE FROM 1/8 THK. LAMINATED FORMICA. BLACK WITH WHITE CORE. BEVEL EDGES. SECURE WITH DOUBLE SIDED TAPE.

REVIEWED FOR CLASSIFICATION
SM 05/20/2014
Initials Date
UNCLASSIFIED

1. REMOVE JUMPER J5 LOCATED ON RELAY OPTION BOARD.
2. TEXT DELETED
3. ALARM CONTACT RELAYS ARE "FAIL SAFE" N.C., CONTACTS ARE NORMALLY ENERGIZED FOR TANKS #1 AND #2 ALARM TANK #3 ALARM CONTACTS ARE NORMALLY OPEN.
4. TEXT DELETED
5. TEXT DELETED
6. TEXT DELETED
7. DIGITAL PANEL METER TO BE REMOVED FROM OLD INDICATOR CABINET DOOR AND INSTALLED IN NEW CABINET DOOR.
8. TEXT DELETED
9. EXISTING WIRE MAY ALSO BE USED. IF EXISTING, SHIELDED CABLE NOT REQUIRED.

"NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. THE DRAWINGS ARE BEING MADE AVAILABLE FOR INFORMATION TO BIDDER AND ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR."

C-600 AREA PACKAGE BOILERS CONCRETE PAD DEMOLITION PLAN	C7DC60000A001
C-600 AREA PACKAGE BOILERS CONCRETE PAD GRADING PLAN	C7DC60000A002
REFERENCE DRAWINGS	DRAWING NO.

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN
SECTION AND DETAIL KEY

LPE

__/__/__
DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&I'S MGR
0	2/13/15	ISSUED FOR CONSTRUCTION	KJW	DLG	DLG	DLG	JBJ	—	KJW

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020

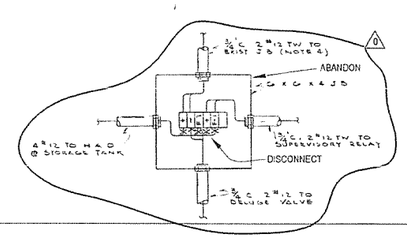
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
OIL TANK LEVEL ALARM SYSTEM
WIRING DIAGRAM AND MISC. DETAILS

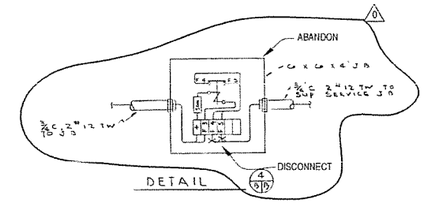
EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A016 rev0.dwg	C-600	PGDP	U

SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		E7DC60000A016	0

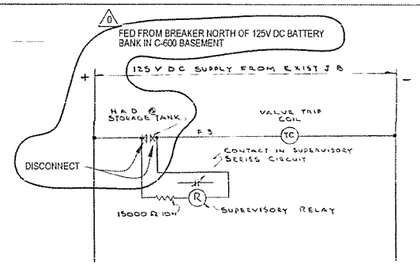
Unclassified



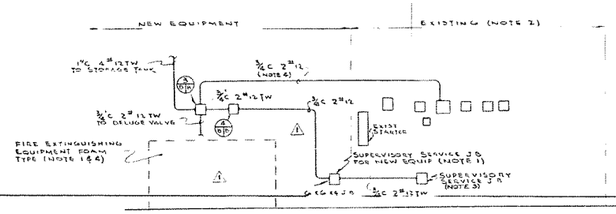
DETAIL



DETAIL



FOAM SYSTEM CONTROL SCHEMATIC



SECTION

NOTES

1 SUPERVISORY CONTACTS FROM EQUIPMENT TO BE WIRED IN SERIES & NEW SUPERVISORY SERVICE J B, THEN TO EXIST SERIES CIRCUIT @ EXIST J B

2 EQUIPMENT & BOXES SHOWN ARE EXISTING CONDUIT RUNS SHOWN ARE NEW

3 PULL 2#12 INTO J B, CONNECTION TO SUPERVISORY CIRCUIT TO BE MADE BY OTHERS

4 SEE FOAM SYSTEM CONTROL SCHEMATIC THIS SHEET

REVIEWED FOR CLASSIFICATION
JBB 05/05/2014
Initials Date
UNCLASSIFIED

BT Images In 00018691

SECTION NUMBER OR DETAIL LETTER
SHEET WHERE DETAIL OR SECTION IS OUT
SHEET WHERE DETAIL OR SECTION IS SHOWN

SECTION & DETAIL LEGEND

REVISIONS													
AS BUILT				ORIGINAL ISSUE				SQUAD CHECK					

UNION CARBIDE CORPORATION
NUCLEAR DIVISION—PADUCAH PLANT

FUEL OIL STORAGE TANK- SECTIONS, WIRING & SCHEMATICS

C 600 E E 14138 BREV 1

REFERENCE DRAWINGS	DRAWING NO.
C-600 AREA PACKAGE BOILERS CONCRETE PAD DEMOLITION PLAN	C7DC60000A001
C-600 AREA PACKAGE BOILERS CONCRETE PAD GRADING PLAN	C7DC60000A002

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SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

LPE

--/--/--
DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&TS MGR
0	2/23/15	ISSUED FOR CONSTRUCTION	KTW	DTM	JGS	DTM	JBJ	—	[illegible]

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

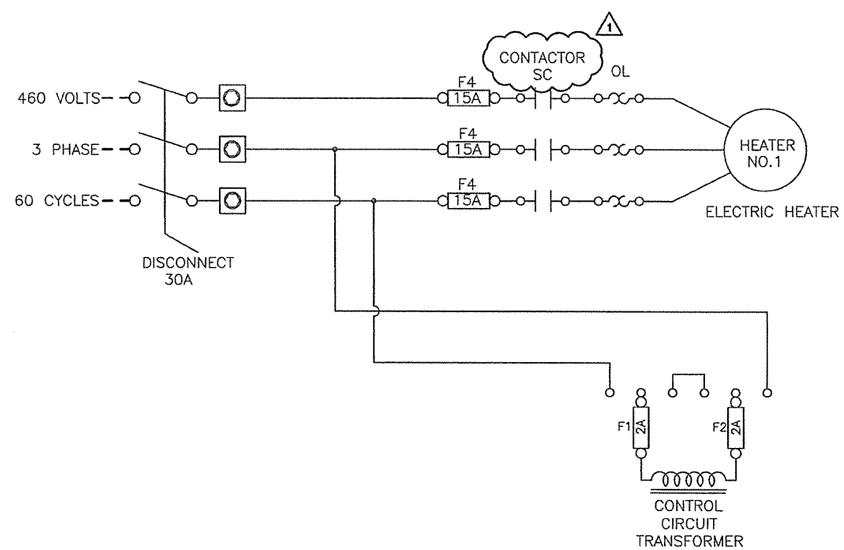
DOE CONTRACT NO. DE-AC30-10CC40020

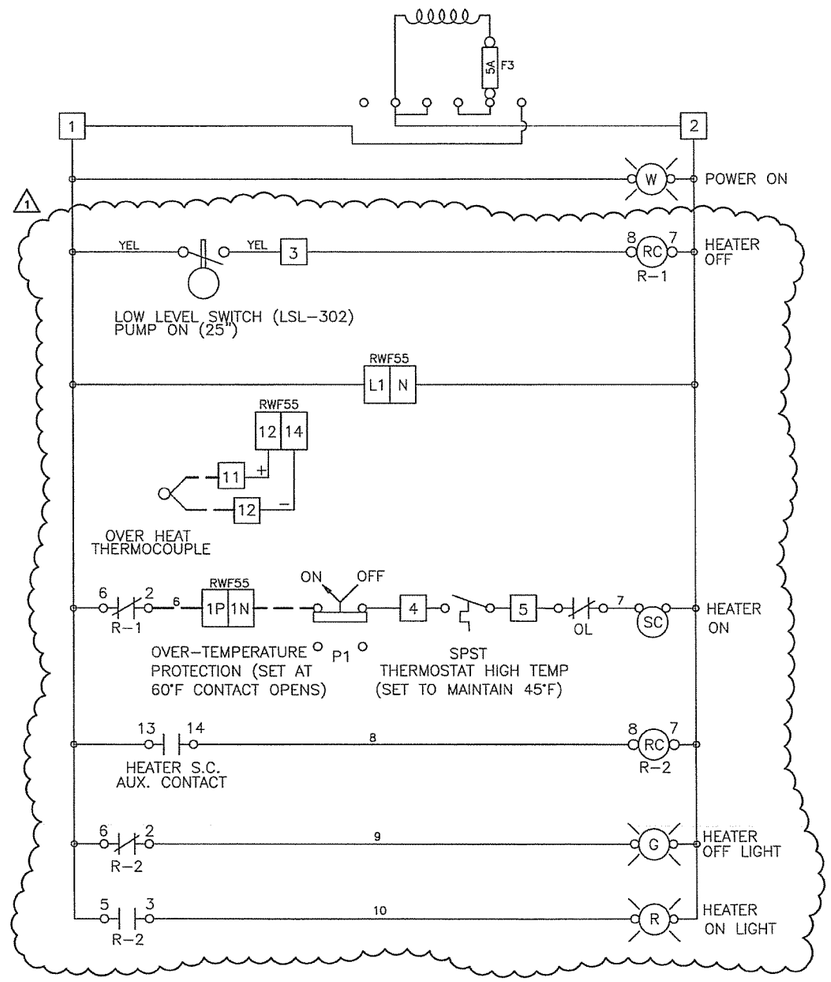
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
OIL TANK LEVEL ALARM SYSTEM
C-601-D TANK WIRING AND SCHEMATICS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A017 rev0.dwg	C-600	PGDP	U

SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		E7DC60000A017	0





NO.	DESCRIPTION	SIZE	MANUFACTURER	MODEL
1	OVER-TEMPERATURE CONTROLLER		SIEMENS	RWF55
1	HEATER ON LIGHT (RED)		SIEMENS	52PE4G2
1	TWO POSITION SWITCH ON-OFF		SIEMENS	52SA2GABA1
2	HEATER OFF (GREEN)		SIEMENS	52PE4G3
1	RELAY (8-PIN)		SIEMENS	3TX7114-5LT8
1	RELAY BASE (8-PIN)		SIEMENS	3TX7144-1E9
1	POWER ON LIGHT (WHITE)		SIEMENS	52PE4GB
1	SECONDARY FUSE		LITTELFUSE	FLM5
1	TRANSFORMER (120VAC)		HAMMOND	P1500UMJ
2	PRIMARY FUSE		LITTELFUSE	KLDR2
3	FUSE		LITTELFUSE	JTD15ID
1	FUSE BLOCK		LITTELFUSE	LFJ60030JCID
1	OVERLOAD	8.4A	SIEMENS	3RB3016-1SB0
1	CONTACTOR	8.4A	SIEMENS	3RT2016-1AK61
1	POWER DISTRIBUTION BLOCK		BUSS	UD2570-3
1	DISCONNECT SWITCH (30 AMP)		ABB	OT30E3
1	DISCONNECT ROD		ABB	DXP0K230
1	DISCONNECT HANDLE		ABB	OHB80L6
1	BACK PANEL		HOFFMAN	20X20
1	CONTROL PANEL (TYPE 4)		HOFFMAN	20X20X06

BILL OF MATERIAL

HEATER THERMOSTAT AND OVERTEMP PROTECTION ARE INTERGRATED IN THE HEAD OF THE WARREN ELECTRIC HEATER.

FUEL OIL DAY TANK
TAG NO: TK-01

REV.	CHANGE	DATE	BY
7	CHANGED TO A RWF55 AND CORRECTED WIRING	7/14/15	J.C.
6	ADDED OVER TEMP THERMOCOUPLE CONTROLLER	7/1/15	J.A.
5	AS BUILT	06/24/15	J.C.
4	CHANGED WIRING PER PRODUCTION	5/29/15	J.A.
3	CHANGED HEATER ON AND OFF LIGHT COLOR.	4/24/15	J.Z.
2	ADDED TAG NUMBER	4/24/15	J.Z.
1	ADDED THERMOSTAT OVERTEMP WIRING.	4/22/15	J.Z.

INDUSTRIAL FUEL SYSTEMS LLC.
MISSION CRITICAL FUEL OIL SYSTEMS
1403 SOUTHWEST 7TH STREET ATLANTIC,IA (630)756-4382

PROJECT NAME LATA
PROJECT LOCATION PADUCAH, KY
SYSTEM MODEL 500 GALLON DAY TANK

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF INDUSTRIAL FUEL SYSTEMS AND SUPPLIED ONLY ON A CONFIDENTIAL BASIS. NO TRANSMITTAL OR DISCLOSURE SHALL BE MADE TO ANY PERSON, FIRM OR CORPORATION WITHOUT PRIOR WRITTEN APPROVAL OF INDUSTRIAL FUEL SYSTEMS LLC.

460 VOLTS 3 PHASE 60 CYCLE

SCALE	DRAWN BY	APPROVED	DATE	DRAWING NUMBER	REV.
NONE	J.L.		4/7/15	WD-24796B	7

LPE

STATE OF KENTUCKY
DON L. MAURER
LICENSED PROFESSIONAL ENGINEER

DATE: 7/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ MAT. SFTY	FAC MGR	EAT'S MGR
1	7/15/15	VENDOR PRODUCTION CHANGES	JL	KK	TH	DW	JB	MB	RMP
0	6/11/15	VENDOR SUPPLIED DRAWING	TCW	DG	DG	DGJ	LCV	JCW	MJB

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

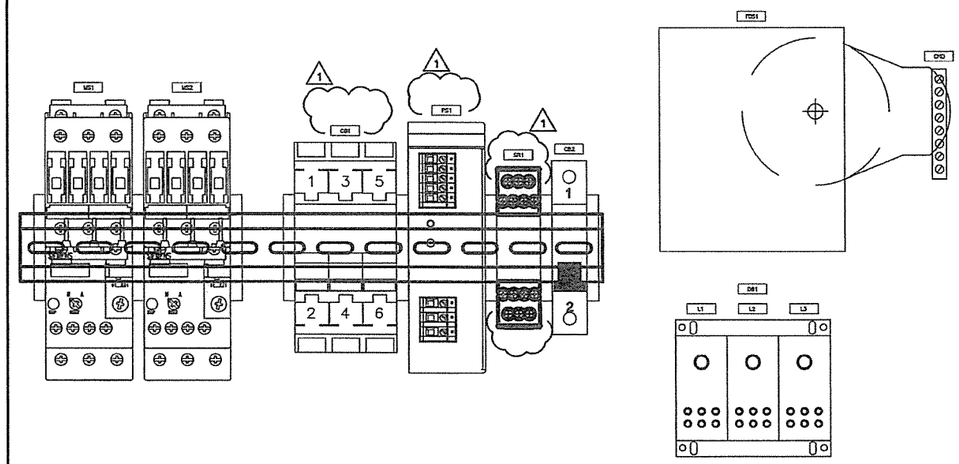
TITLE:
FUEL OIL 500 GALLON DAY TANK
IMMERSION HEATER SCHEMATIC

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A018 – FUEL OIL 500 GAL DAY TANK IMMERSION HEATER SCHEMATIC	C-600	PDGP	U

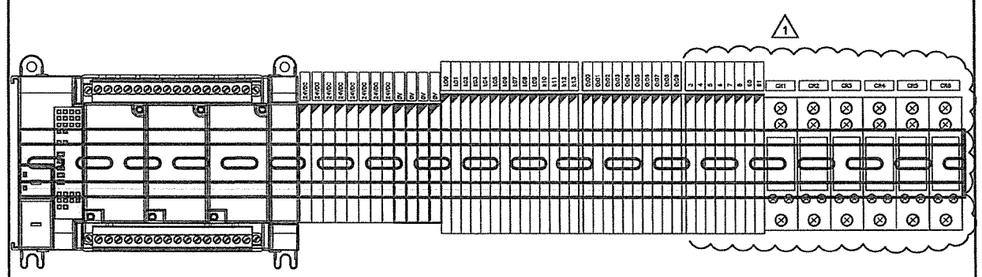
SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A018	1

P:\LATA_KY\11/05.14_STEAM PRO FERS\DRAFTING – C:\SYCADD\DB-ELECTLE7\DC60000\A018 – FUEL OIL 500 GAL DAY TANK IMMERSION HEATER SCHEMATIC.DWG

31 X 85 PANDUIT



31 X 85 PANDUIT



31 X 85 PANDUIT

31 X 85 PANDUIT

31 X 85 PANDUIT

FUEL OIL PUMP SKID
TAG NO: PMP-03/PMP-04

REV.	CHANGE	DATE	BY
2	ADDED CR6, CR1, TB4 – 7, 8, 90, 91.	5/29/15	T.H.
1	UPDATED TITLE BLOCK.	4/24/15	J.Z.

INDUSTRIAL FUEL SYSTEMS LLC.
MISSION CRITICAL FUEL OIL SYSTEMS
1403 SOUTHWEST 7TH STREET ATLANTIC,IA (630)784-4382

PROJECT NAME LATA
PROJECT LOCATION PADUCAH, KY
SYSTEM MODEL MAIN ENCLOSURE LAYOUT PUMP SKID

SYSTEM VOLTAGE :
480 VOLTS
3 PHASE
60 CYCLE

SCALE	DRAWN BY	PAGE	DATE	DRAWING NUMBER	REV.
NONE	J.K.	1 OF 1	4/10/15	WD-24795A-2	2

LPE

STATE OF KENTUCKY
DON I. MAURER
10446
LICENSED
PROFESSIONAL ENGINEER

DATE: 7/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	EAST MGR
1	7/14/15	VENDOR PRODUCTION CHANGES	TCW	DG	DG	DGM	LCV	JRW	MAG
0	6/11/15	VENDOR SUPPLIED DRAWING	TCW	DG	DG	DGM	LCV	JRW	MAG

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

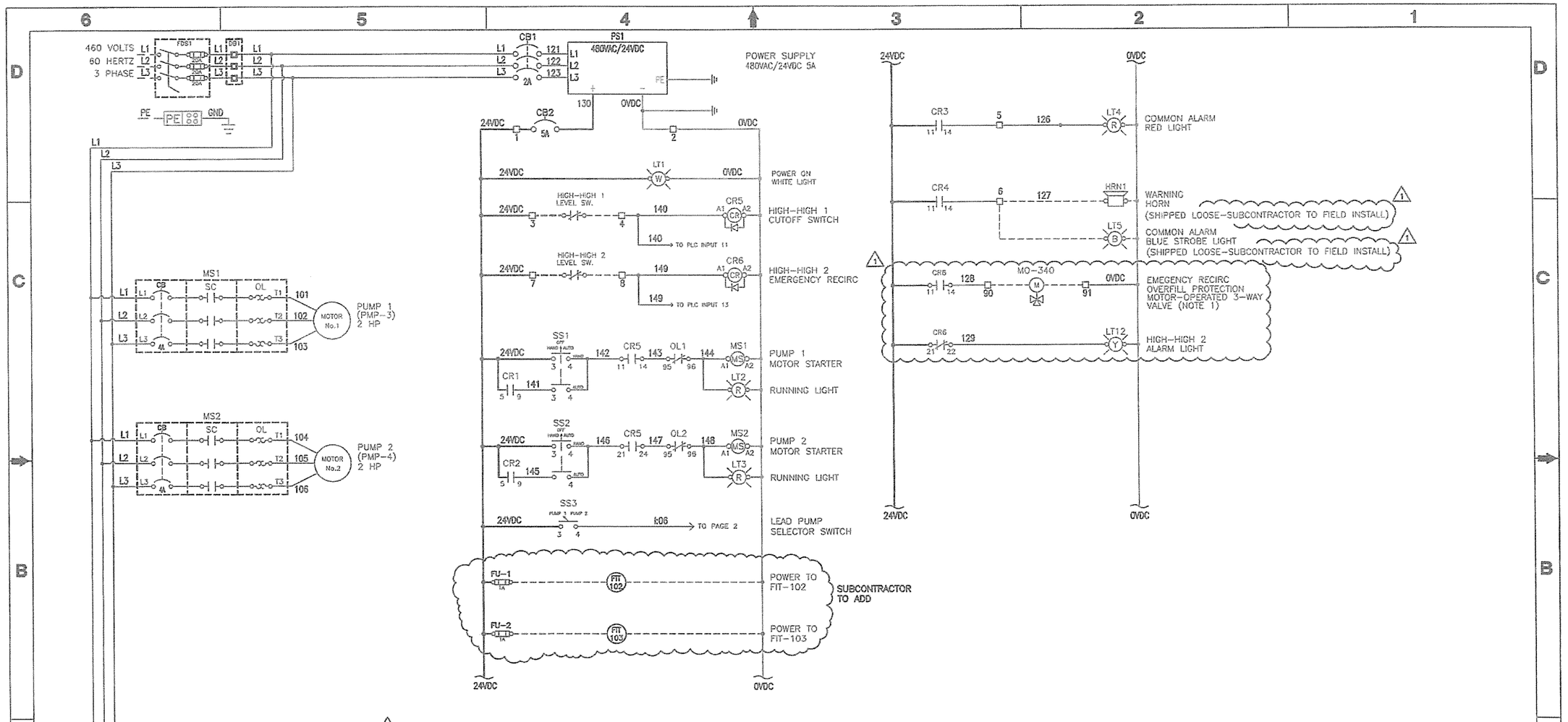
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
FUEL OIL MAIN ENCLOSURE LAYOUT PUMP SKID

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
EDCS60000A019 – FUEL OIL MAIN ENCLOSURE LAYOUT PUMP SKID.DWG	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A019	1

P:\LATA WD\11100-14 STEAM BOILERS\DRAWING – DWG\DWG\DOE-FUEL OIL\E7DC60000A019 – FUEL OIL MAIN ENCLOSURE LAYOUT PUMP SKID.DWG



FUEL OIL PUMP SKID
TAG NO: PMP-03/PMP-04

NOTE 1: ENERGIZE TO PORT FO TO DAY TANK, DE-ENERGIZE TO PORT BACK TO BULK STORAGE VIA INTEGRAL BATTERY BACKUP

REV.	CHANGE	DATE	BY
4	ADDED CR6, LT12, MO-340, AND SR1 CONTACTS.	5/29/15	J.K.
3	CHANGED PUMP RUN LIGHT COLOR.	4/24/15	J.P.
2	UPDATED PUMP NUMBERS AND TITLE BLOCK.	4/24/15	J.P.
1	UPDATED FOR SEQUENCE OF OPERATION REV 3.	4/22/15	J.P.

INDUSTRIAL FUEL SYSTEMS LLC.
MISSION CRITICAL FUEL OIL SYSTEMS
1453 SOUTHWEST 7TH STREET ATLANTA, GA (630)755-4382

PROJECT NAME LATA
PROJECT LOCATION PADUCAH, KY
SYSTEM MODEL PLC MAIN ENCLOSURE PUMPING SKID

SYSTEM VOLTAGE : 460 VOLTS / 3 PHASE / 60 CYCLE

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF INDUSTRIAL FUEL SYSTEMS AND SUPPLIED ONLY ON A CONFIDENTIAL BASIS. NO TRANSMITTAL FOR DISCLOSURE SHALL BE MADE TO ANY PERSON, FIRM OR CORPORATION WITHOUT PRIOR WRITTEN APPROVAL OF INDUSTRIAL STEAM.

SCALE	DRAWN BY	PAGE	DATE	DRAWING NUMBER	REV.
NONE	J.K.	1 OF 2	4/10/15	WD-24796A-1	3

LPE

STATE OF KENTUCKY
LEON I. MAURER
10408
LICENSED
PROFESSIONAL ENGINEER

DATE: 7/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	ENGR CHK	LEAD ENGR	CONF CONS/ MGR, STY	FAB MGR	FAB'D MGR
1	7/14/15	VENDOR PRODUCTION CHANGES	JMK	KK	TJ		JBJ	ADS	
0	6/11/15	VENDOR SUPPLIED DRAWING	TCW	DG	DG	DBS	LDV	JRW	MAG

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

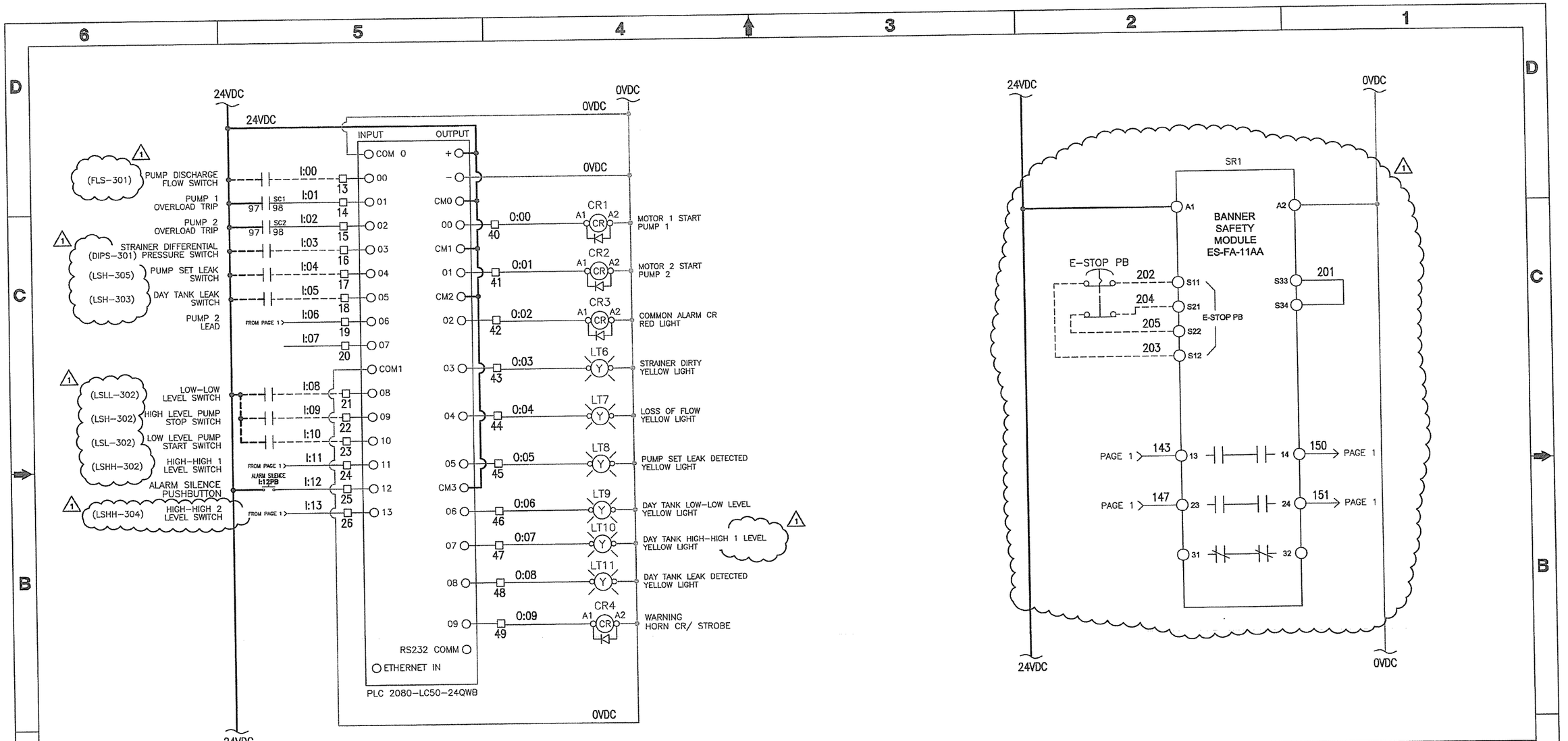
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
FUEL OIL MAIN ENCLOSURE
PUMP SKID ELECTRIC I

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A020	1



FUEL OIL PUMP SKID
TAG NO: PMP-03/PMP-04

REV.	CHANGE	DATE	BY
4	ADDED HIGH-HIGH 2 LEVEL SWITCH INPUT TO PLC, AND SRI.	5/29/15	J.K.
3	CHANGED STROBE RELAY.	4/24/15	F.J.
2	UPDATED PUMP NUMBER AND TITLE BLOCK.	4/23/15	F.J.
1	UPDATED PER SEQUENCE OF OPERATION REV 3.	4/22/15	F.J.

INDUSTRIAL FUEL SYSTEMS LLC.
MISSION CRITICAL FUEL OIL SYSTEMS
1403 SOUTHWEST 7TH STREET ATLANTIC,IA (630)758-4362

PROJECT NAME LATA
PROJECT LOCATION PADUCH, KY
SYSTEM MODEL PLC MAIN ENCLOSURE PUMP SKID

SYSTEM VOLTAGE: 460 VOLTS, 3 PHASE, 60 CYCLE

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF INDUSTRIAL FUEL SYSTEMS AND SUPPLIED ONLY ON A CONFIDENTIAL BASIS. NO TRANSMITTAL OR DISCLOSURE SHALL BE MADE TO ANY PERSON, FIRM OR CORPORATION WITHOUT PRIOR WRITTEN APPROVAL OF INDUSTRIAL FUEL SYSTEMS LLC.

SCALE	DRAWN BY	PAGE	DATE	DRAWING NUMBER	REV.
NONE	J.K.	2 OF 2	4/10/15	WD-24796A-1	4

LPE

STATE OF KENTUCKY
DON L. MAURER
10446
LICENSED
PROFESSIONAL ENGINEER

DATE: 7/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&TS MGR
1	7/14/15	VENDOR PRODUCTION CHANGES	JM	KK	TJH	DLM	JBJ	MS	MAH
0	6/11/15	VENDOR SUPPLIED DRAWING	TCW	DG	DG	DM	LCV	JRW	MJG

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

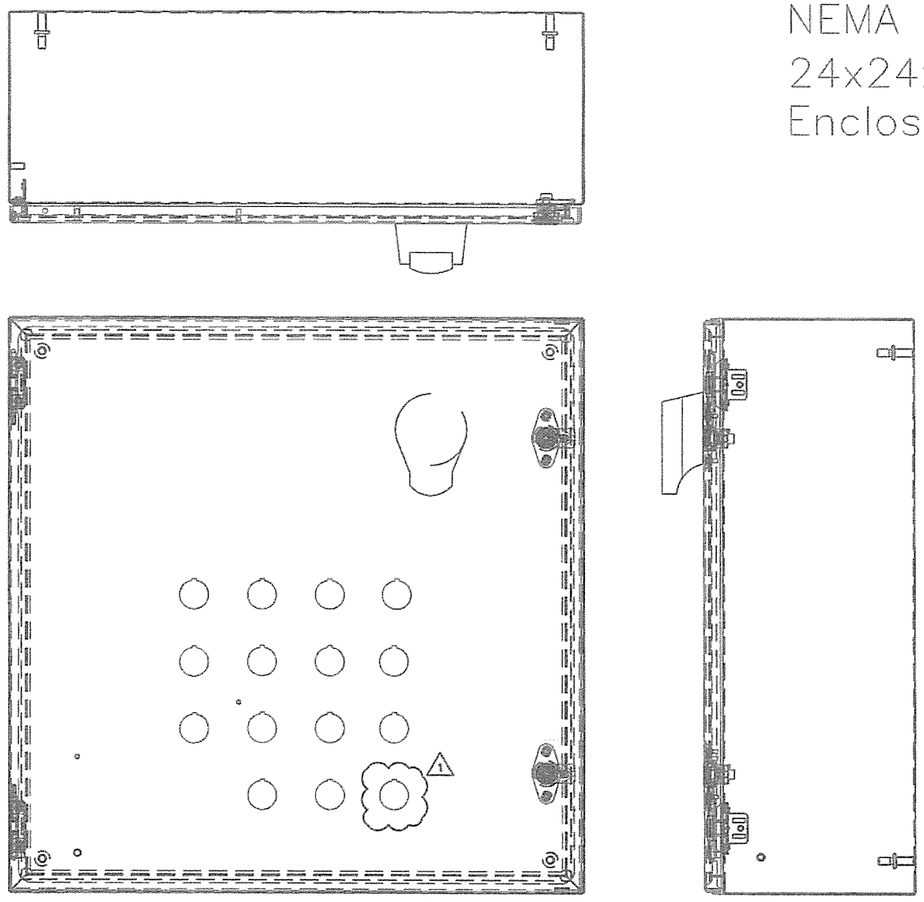
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
FUEL OIL MAIN ENCLOSURE
PUMP SKID ELECTRIC II

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
[illegible]	C-600	PDGP	U

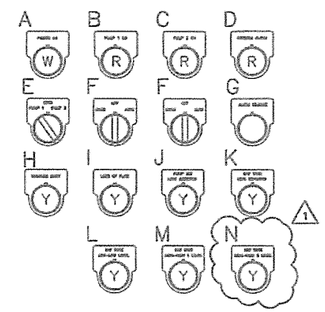
SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A021	1

Hoffman
NEMA Type 4/12
24x24x8"
Enclosure



HORN AND BLUE STROBE LIGHT
(SHIPPED LOOSE)

LEGEND PLATES



A – POWER ON
B – PUMP 1 ON
C – PUMP 2 ON
D – COMMON ALARM LIGHT
E – LEAD PUMP 1 / PUMP 2
F – HAND–OFF–AUTO SWITCH
G – ALARM SILENCE
H – STRAINER DIRTY
I – LOSS OF FLOW
J – PUMP SET LEAK DETECTED
K – DAY TANK LEAK DETECTED
L – DAY TANK LOW–LOW LEVEL
M – DAY TANK HIGH–HIGH 1 LEVEL
N – DAY TANK HIGH–HIGH 2 LEVEL

FUEL OIL PUMP SKID
TAG NO: PMP–03/PMP–04

REV.	CHANGE	DATE	BY
4	ADDED YELLOW HIGH HIGH 2 ALARM LIGHT	3/28/15	J.A.
3	CHANGED PUMP RUN LIGHT COLOR.	4/24/15	F.F.
2	UPDATED TITLE BLOCK.	4/24/15	F.F.
1	CHANGES MADE PER SEQUENCE OF OPERATION REV 3	4/22/15	F.F.

INDUSTRIAL FUEL SYSTEMS LLC.
MISSION CRITICAL FUEL OIL SYSTEMS
1403 SOUTHWEST 7TH STREET ATLANTIC, IA (630)758-4382

PROJECT NAME LATA
PROJECT LOCATION PADUCAH, KY
SYSTEM MODEL PLC MAIN ENCLOSURE PUMP SKID

SYSTEM VOLTAGE :
480 VOLTS
3 PHASE
60 CYCLE

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF INDUSTRIAL FUEL SYSTEMS AND SUPPLIED ONLY FOR A CONFIDENTIAL SHEET. ITS TRANSMITTAL, FOR DISCLOSURE SHALL BE MADE TO ANY PERSON, FIRM OR CORPORATION WITHOUT PRIOR WRITTEN APPROVAL OF INDUSTRIAL FUEL SYSTEMS LLC.

SCALE	DRAWN BY	PAGE	DATE	DRAWING NUMBER	REV.
NONE	J.A.	1 OF 1	4/16/15	WD-24796A-3	4

LPE

STATE OF KENTUCKY
DON L. MAURER
10428
LICENSED
PROFESSIONAL ENGINEER

DATE: 7/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	DATE MGR
1	7/14/15	VENDOR PRODUCTION CHANGES	JM	KK	[illegible]	[illegible]	JBS	NG	[illegible]
0	6/11/15	VENDOR SUPPLIED DRAWING	TCW	DG	DG	DM	LDV	JRB	MAB

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE–AC30–10CC40020
Paducah, Kentucky

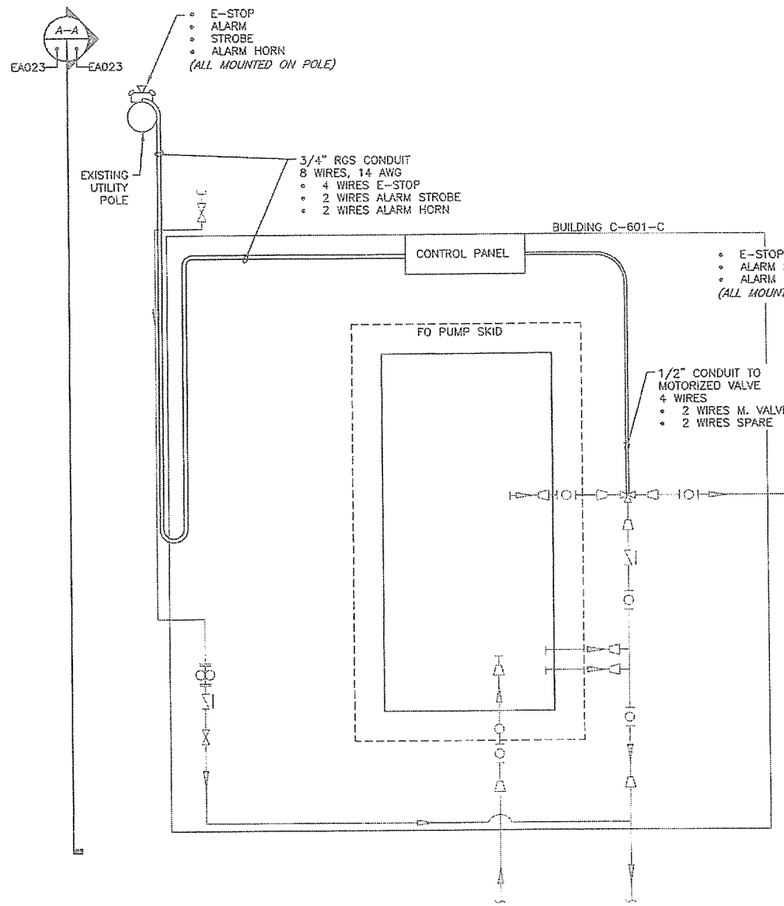
DOE CONTRACT NO. DE–AC30–10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

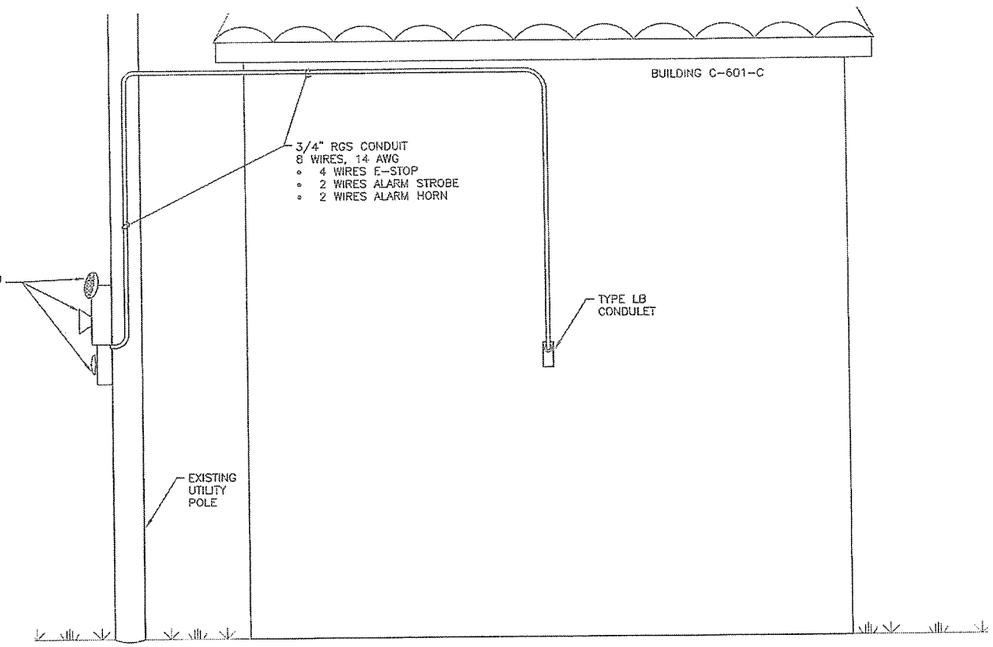
TITLE:
FUEL OIL PLC MAIN ENCLOSURE
PUMP SKID LAYOUT

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
E7DC60000A022 – FUEL OIL PLC MAIN ENCLOSURE PUMP SKID LAYOUT.DWG	C–600	PDGP	U

SCALE:	DRAWING NUMBER	REV
NOT TO SCALE	E7DC60000A022	1



1 EA023 FUEL OIL PUMP SKID CONDUIT AND E-STOP DETAIL
SCALE : N.T.S.



A-A EA023 EA023 FUEL OIL PUMP SKID CONDUIT AND E-STOP ELEV. VIEW
SCALE : N.T.S.

*SCALE SHOWN FOR FULL-SIZE 34" x 22" SHEETS

LPE

STATE OF KENTUCKY
DON I. MAURER
10446
LICENSED
PROFESSIONAL ENGINEER

DATE: 6/16/15
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	CHK'D	PROJ ENGR	MAIN ENGR	CONT CTRL MGR	TEC MGR	DES MGR
0	6/11/15	CERTIFIED FOR CONSTRUCTION							

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

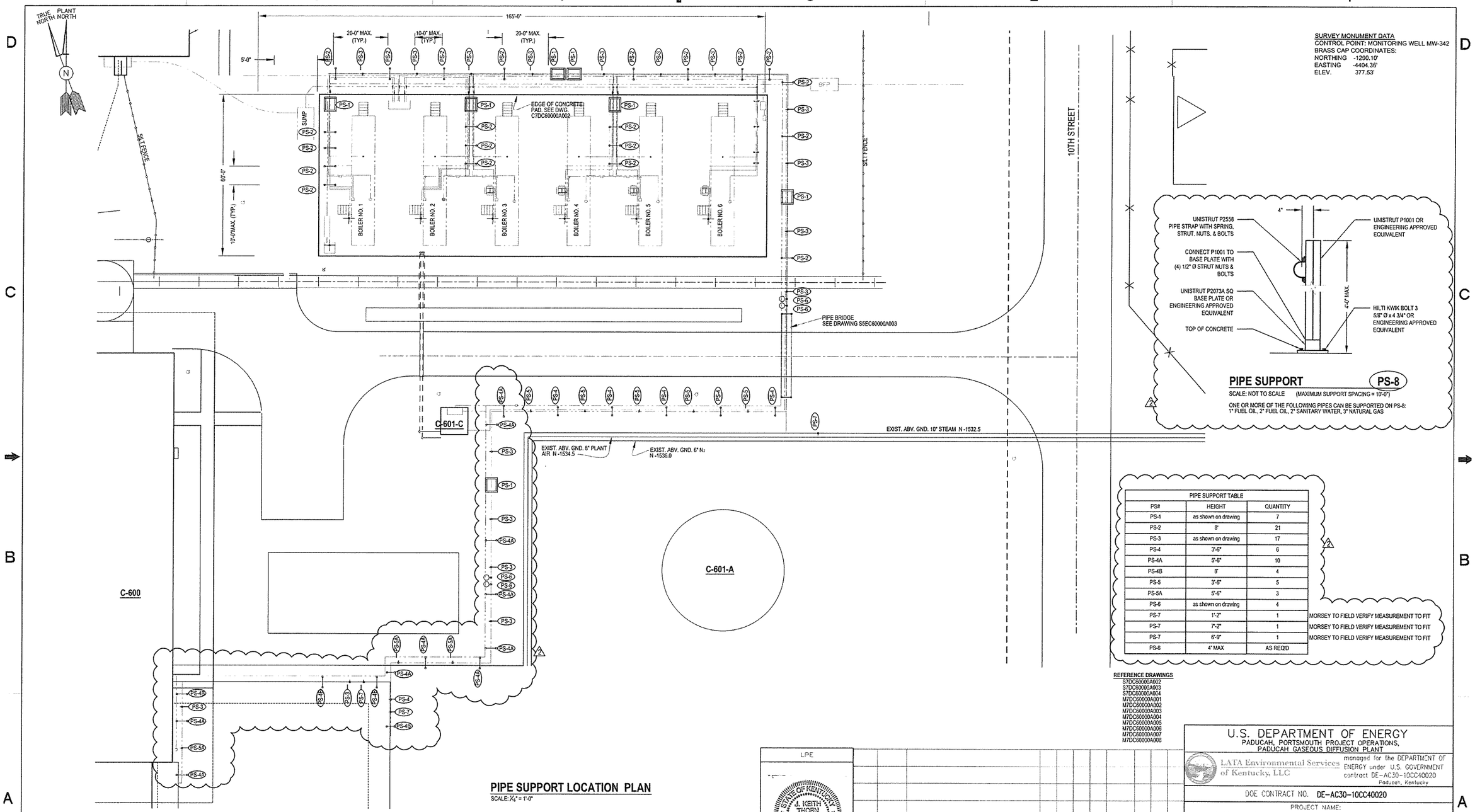
DOE CONTRACT NO. DE-AC30-10CC40020 MOD 0115

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
NATURAL GAS AND FUEL OIL – PIPING ELEVATIONS DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
	C-600	PDGP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	E7DC60000A023	0



PIPE SUPPORT LOCATION PLAN

SCALE: 1/16" = 1'-0"

PIPE SUPPORT TABLE			
PS#	HEIGHT	QUANTITY	
PS-1	as shown on drawing	7	
PS-2	8'	21	
PS-3	as shown on drawing	17	
PS-4	3'-6"	6	
PS-4A	5'-6"	10	
PS-4B	8'	4	
PS-5	3'-6"	5	
PS-5A	5'-6"	3	
PS-6	as shown on drawing	4	
PS-7	1'-2"	1	MORSEY TO FIELD VERIFY MEASUREMENT TO FIT
PS-7	7'-2"	1	MORSEY TO FIELD VERIFY MEASUREMENT TO FIT
PS-7	6'-9"	1	MORSEY TO FIELD VERIFY MEASUREMENT TO FIT
PS-8	4' MAX	AS REQ'D	

REFERENCE DRAWINGS

S7DC60000A002
S7DC60000A003
S7DC60000A004
M7DC60000A001
M7DC60000A002
M7DC60000A003
M7DC60000A004
M7DC60000A005
M7DC60000A006
M7DC60000A007
M7DC60000A008

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SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

LPE

STATE OF KENTUCKY J. KEITH THORN 16809 LICENSED PROFESSIONAL ENGINEER
07/08/15

DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&TS MGR
2	07-08-15	TABLE, NOTES AND DETAIL ADDED	KTW	JKT	TDS	JKT	JBJ	JRW	HWS
1	04-08-15	ISSUED FOR CONSTRUCTION	KTW	JKT	TDS	JKT	JBJ	JRW	HWS
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020 Paducah, Kentucky

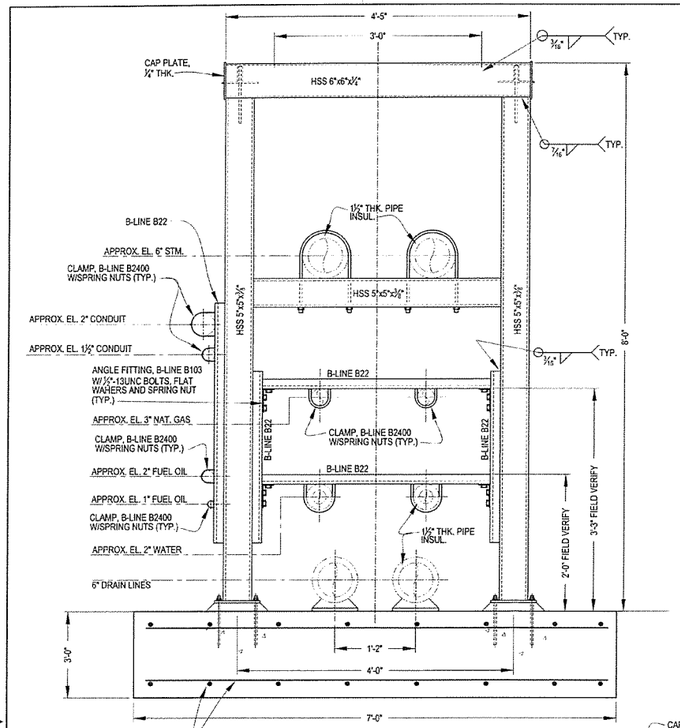
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

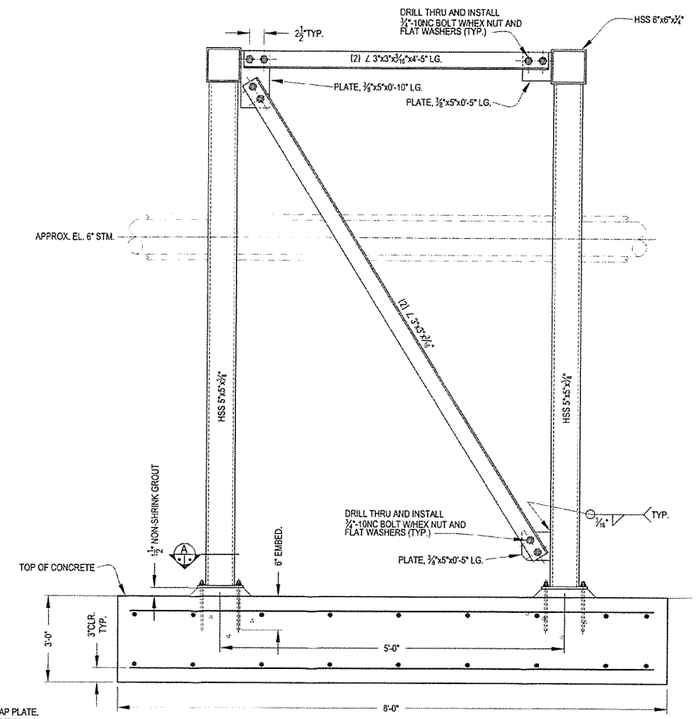
TITLE:
C-600 AREA PACKAGE BOILERS
CONCRETE PAD
PIPE SUPPORT LOCATION PLAN

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A001 rev2.dwg	C-600	PGDP	U

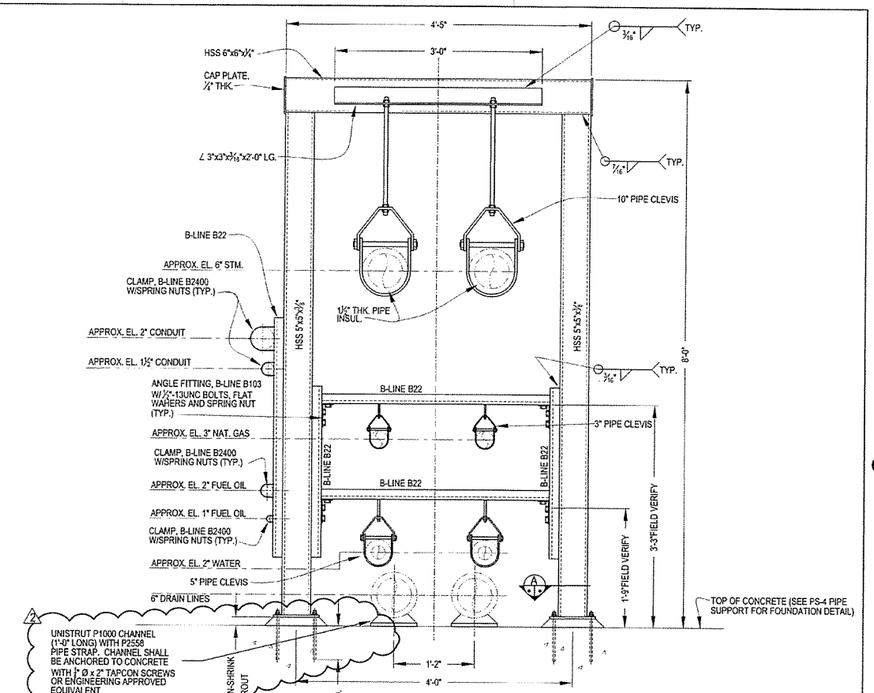
SCALE:	TYPE	DRAWING NUMBER	REV
AS NOTED		S7DC60000A001	2



END VIEW
SCALE: 1" = 1'-0"
PS-1

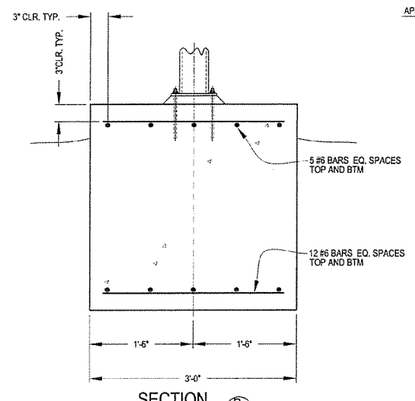


SIDE VIEW
SCALE: 1" = 1'-0"
PS-1

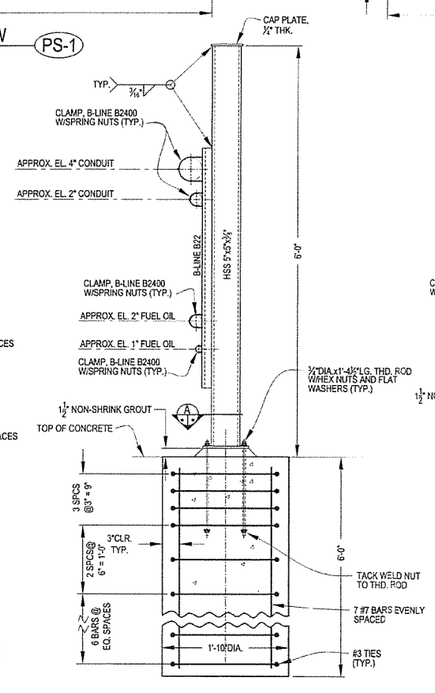


PIPE SUPPORT
SCALE: 1" = 1'-0"
PS-2

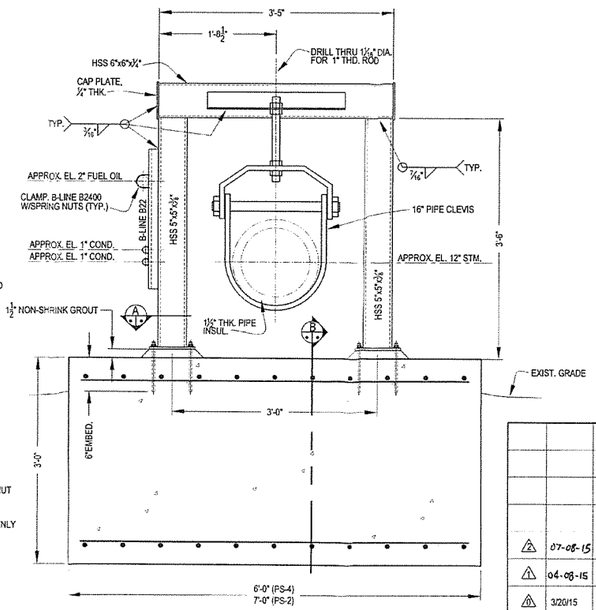
NOTE:
THE PIPING AND CONDUIT ARRANGEMENTS SHOWN AT EACH PIPE SUPPORT DETAIL ARE APPROX. AND MAY CHANGE AS SYSTEMS ARE FIELD ROUTED AND INSTALLED. LOCATIONS SHALL BE FIELD VERIFIED. SEE STRUCTURAL STEEL NOTE NUMBER 4 ON DRAWING S7DC60000A004



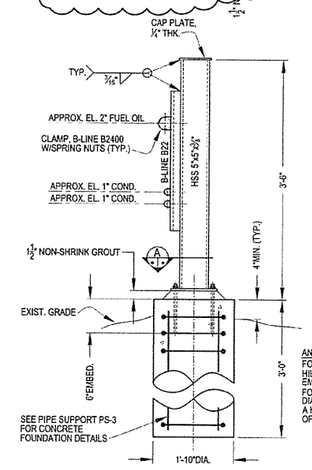
SECTION
SCALE: 1" = 1'-0"
B



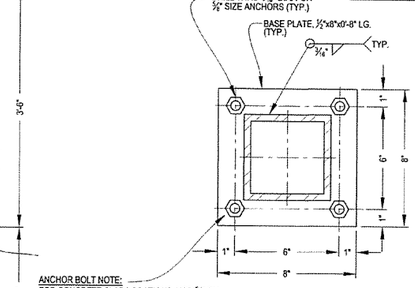
PIPE SUPPORT
SCALE: 1" = 1'-0"
PS-3



PIPE SUPPORT
SCALE: 1" = 1'-0"
PS-4



PIPE SUPPORT
SCALE: 1" = 1'-0"
PS-5



ANCHOR BOLT NOTE:
FOR CONCRETE SLAB LOCATIONS, USE ¾" DIA. HILTI KWIK BOLT 3 WITH A MIN. OF 5½" EMBEDMENT.
FOR CONCRETE PLACED SHAFTS/PIERS, USE ½" DIA. THREADED ROD WITH 8" MIN. EMBEDMENT. A HEX NUT SHALL BE TACK WELDED AT THE END OF ROD WHICH WILL BE CAST IN PLACE.

SECTION
SCALE: 3" = 1'-0"
A

REFERENCE DRAWINGS
S7DC60000A001
M7DC60000A001
M7DC60000A002
M7DC60000A003
M7DC60000A004
M7DC60000A005
M7DC60000A006
M7DC60000A007
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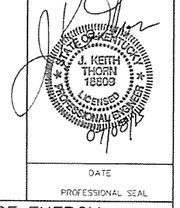
LPF



DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	EH&S MGR
2	07-08-15	ADDED NOTE							
1	04-08-15	ISSUED FOR CONSTRUCTION	KTW	JKY	TDS	JKT	JBJ	JRV	HWS
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
PIPING AND CONDUIT SUPPORTS
SECTIONS AND DETAILS

CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A002 rev2.dwg	C-600	PGDP	U

SCALE:	DRAWING NUMBER	REV
NOTED	S7DC60000A002	2

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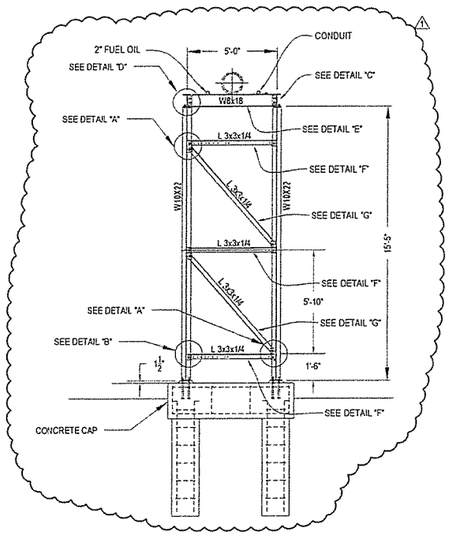
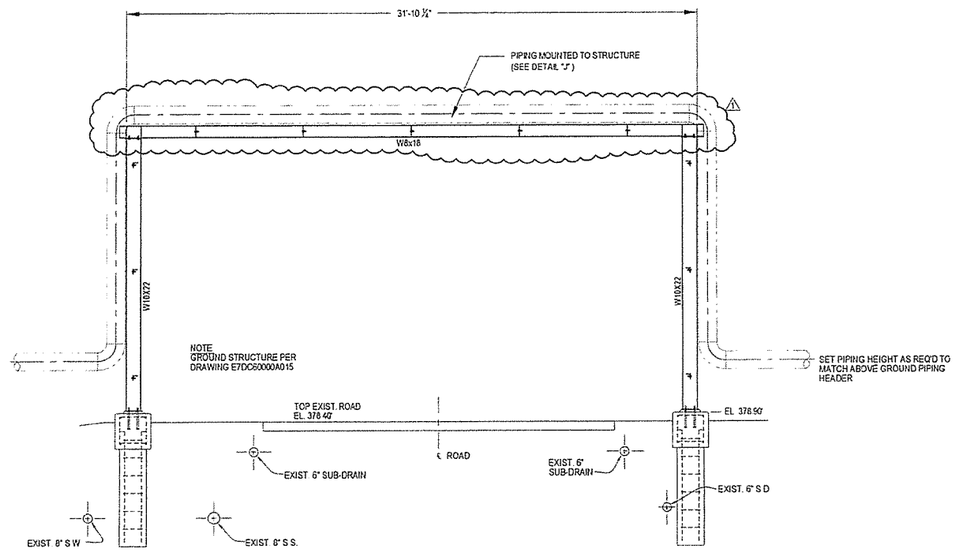
SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN
SECTION AND DETAIL KEY



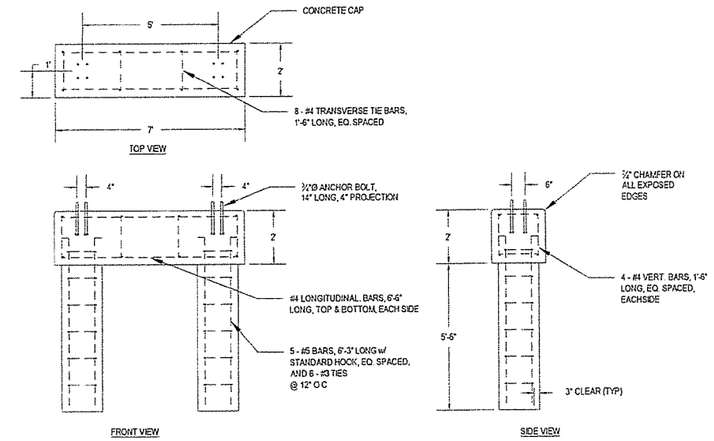
UTILITY BRIDGE SOUTH ELEVATION

Scale: 1/4" = 1'-0"



UTILITY BRIDGE EAST ELEVATION

Scale: 1/4" = 1'-0"

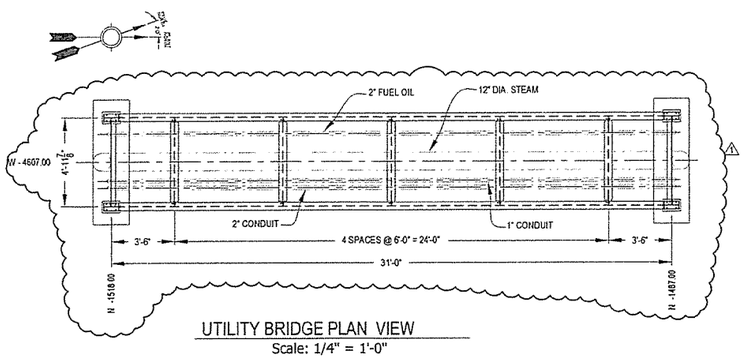


DRILLED CONCRETE PIER FOUNDATION

Scale: 3/8" = 1'-0"

PIPE BRIDGE NOTES:

1. STRUCTURAL STEEL SHALL MEET THE FOLLOWING REQUIREMENTS;
   - 1.a. W SHAPES: ASTM A992, Fy=50 KSI
   - 1.b. ANGLE AND PLATE: ASTM A36, Fy=36 KSI
   - 1.c. HSS (SQUARE TUBING): ASTM A500 GRADE B
2. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AWS D1.1 USING E70 ELECTRODES. SUBMIT WELDER QUALIFICATION RECORDS TO CONTRACTOR PRIOR TO STARTING FABRICATION.
3. ALL HOLES SHALL BE DRILLED. BURNING IS NOT ALLOWED. VERIFY MOUNTING DIMENSIONS OF U-BOLTS PRIOR TO DRILLING.
4. SUBMIT STRUCTURAL STEEL SHOP DRAWINGS FOR CONTRACTOR ACCEPTANCE PRIOR TO FABRICATION.
5. CLEAN STEEL IN ACCORDANCE WITH SSPC-SP2, HAND TOOL CLEANING.
6. PRIME STEEL WITH 2 MILS TNEMEC SERIES 10 PRIMER AND FINISH WITH 2 MILS TNEMEC SERIES 2H HIGH GLOSS ENAMEL (INDUSTRIAL GREY), OR CONTRACTOR ACCEPTED ALTERNATE.
7. ALL BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL MEET THE REQUIREMENTS OF ASTM A325.
8. ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F1554, Fy=36 KSI.
9. CONCRETE SHALL BE CLASS "AA" AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, 2-4 INCH SLUMP, AND 6% ± 2% AIR ENTRAINMENT. SUBMIT CONCRETE MIX DESIGN FOR CONTRACTOR ACCEPTANCE PRIOR TO START OF FIELD WORK.
10. REBAR SHALL MEET THE REQUIREMENTS OF ASTM A615, Fy=60 KSI. SUBMIT REBAR SHOP DRAWINGS FOR CONTRACTOR ACCEPTANCE PRIOR TO FABRICATION.
11. CONCRETE COVER REQUIREMENTS:
    - 11.a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
    - 11.b. CONCRETE EXPOSED TO EARTH OR WEATHER = 1½"
12. PROVIDE ¾" CHAMFER ON ALL EXPOSED CONCRETE EDGES.
13. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318.
14. ALLOW CONCRETE TO CURE A MINIMUM OF 3 DAYS BEFORE ERECTING STEEL.
15. PROVIDE RUBBED FINISH TO EXPOSED CONCRETE SURFACES.
16. GROUT SHALL BE DURAGROUT, NON-SHRINK, NON-METALLIC, CEMENT BASE GROUT AS MANUFACTURED BY L&M CONSTRUCTION CHEMICALS, INC. OR CONTRACTOR ACCEPTED ALTERNATE.
17. GROUND STRUCTURE IN ACCORDANCE WITH DRAWING E7DC50000A015.
18. HOT DIPPED GALVANIZED STEEL U-BOLTS WITH NUTS AND WASHERS SHALL BE AS FOLLOWS:
    - 18.a. ½" - 20 THREAD SIZE FOR 1" CONDUIT
    - 18.b. ¾" - 16 THREAD SIZE FOR 1½" OR 2" PIPE OR CONDUIT.
    - 18.c. ⅞" - 9 THREAD SIZE FOR 12" PIPE.



UTILITY BRIDGE PLAN VIEW

Scale: 1/4" = 1'-0"

REFERENCE DRAWINGS

S7DC50000A001
S7DC50000A005
S7DC50000A006
S7DC50000A007
S7DC50000A008
M7DC50000A001
M7DC50000A002
M7DC50000A003
M7DC50000A004
M7DC50000A005
M7DC50000A006
M7DC50000A007
M7DC50000A008

REFERENCE DRAWINGS	DRAWING NO.

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SECTION NUMBER OR DETAIL LETTER

DRAWING ON WHICH SECTION OR DETAIL IS TAKEN

DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

LPE

COMMONWEALTH OF KENTUCKY
J. KEITH THORN
18500
LICENSED PROFESSIONAL ENGINEER
04/07/15

DATE

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	EA&TS MGR
1		ISSUED FOR CONSTRUCTION	KTW	JRO	TDS	JRO	JBJ	RGS	HW
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

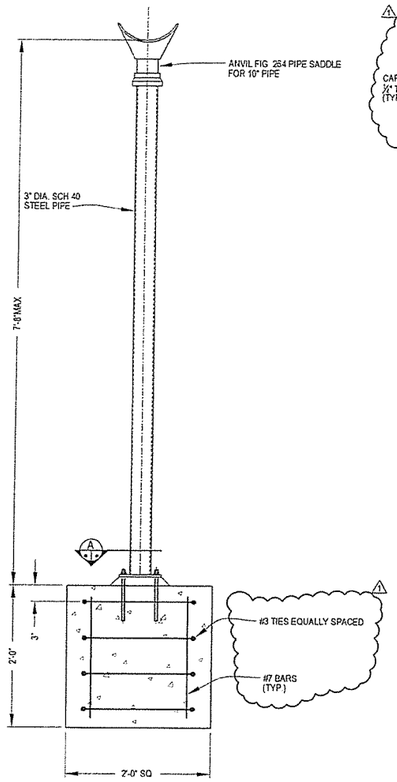
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

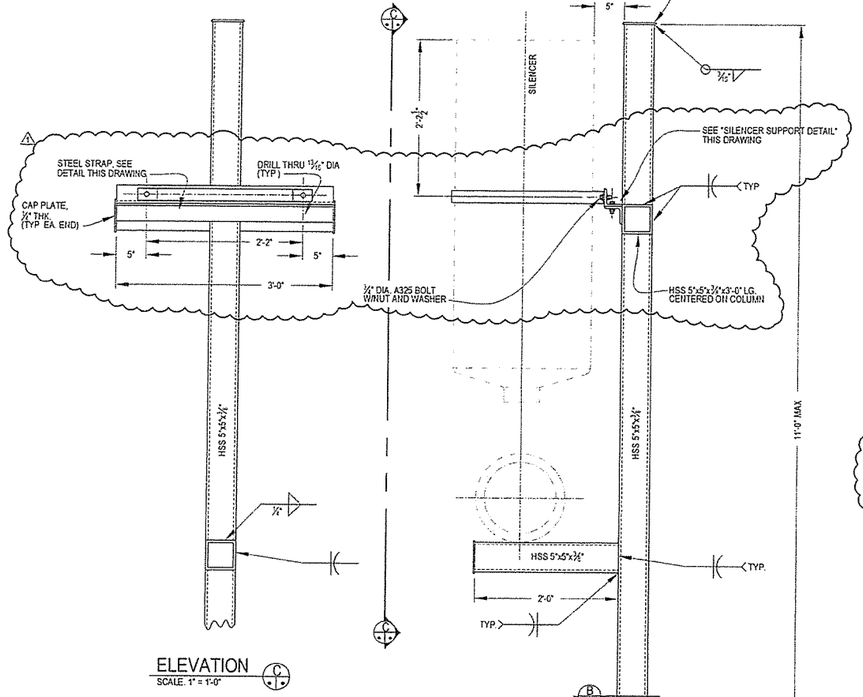
TITLE:
C-600 AREA PACKAGE BOILERS
UTILITY BRIDGE & FOUNDATION
DETAILS

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A003 rev1.dwg	C-600	PGDP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	S7DC60000A003	1

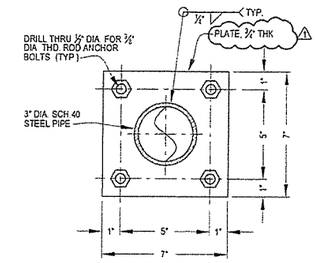


PIPE SUPPORT (PS-7)
SCALE: 1" = 1'-0"

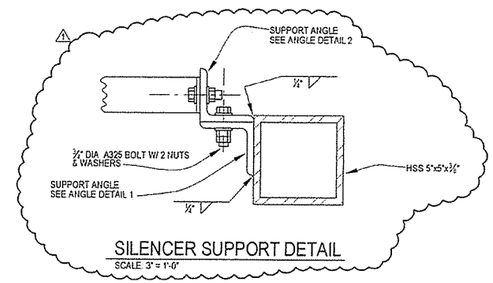


ELEVATION
SCALE: 1" = 1'-0"

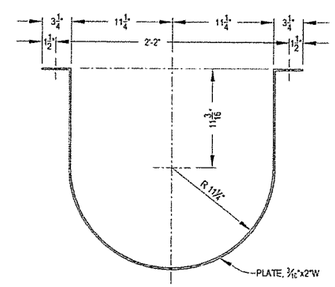
PIPE SUPPORT (PS-6)
SCALE: 1" = 1'-0"



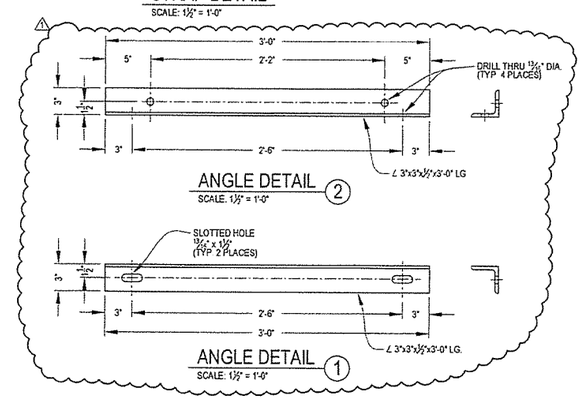
SECTION (A)
SCALE: 3" = 1'-0"



SILENCER SUPPORT DETAIL
SCALE: 3" = 1'-0"

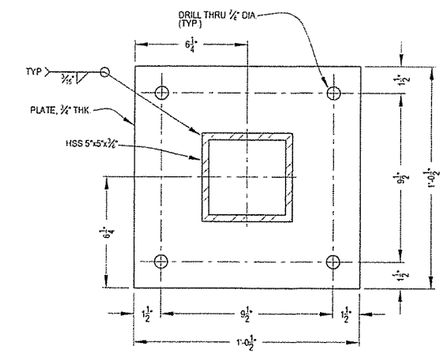


STRAP DETAIL
SCALE: 1 1/2" = 1'-0"



ANGLE DETAIL (2)
SCALE: 1 1/2" = 1'-0"

ANGLE DETAIL (1)
SCALE: 1 1/2" = 1'-0"



SECTION (B)
SCALE: 3" = 1'-0"

STRUCTURAL NOTES:

1. STRUCTURAL STEEL SHALL MEET THE FOLLOWING REQUIREMENTS;
   - 1.a. W SHAPES: ASTM A992, Fy=50 KSI
   - 1.b. ANGLE AND PLATE: ASTM A36, Fy=36 KSI
   - 1.c. HSS (SQUARE TUBING): ASTM A500 GRADE B
2. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AWS D1.1 USING E70 ELECTRODES. SUBMIT WELDER QUALIFICATION RECORDS TO CONTRACTOR PRIOR TO STARTING FABRICATION.
3. ALL HOLES SHALL BE DRILLED. BURNING IS NOT ALLOWED. VERIFY MOUNTING DIMENSIONS PRIOR TO DRILLING.
4. SUBMIT STRUCTURAL STEEL SHOP DRAWINGS FOR CONTRACTOR ACCEPTANCE PRIOR TO FABRICATION.
5. CLEAN STEEL IN ACCORDANCE WITH SSPC-SP2, HAND TOOL CLEANING.
6. PRIME STEEL WITH 2 MILS TNEMEC SERIES 10 PRIMER AND FINISH WITH 2 MILS TNEMEC SERIES 2H HIGH GLOSS ENAMEL (SAFETY YELLOW), OR CONTRACTOR ACCEPTED ALTERNATE.
7. ALL BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL MEET THE REQUIREMENTS OF ASTM A325.
8. ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F1554, Fy=36 KSI.
9. CONCRETE SHALL BE CLASS "AA" AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, 2-4 INCH SLUMP, AND 6% ± 2% AIR ENTRAINMENT. SUBMIT CONCRETE MIX DESIGN FOR CONTRACTOR ACCEPTANCE PRIOR TO START OF FIELD WORK.
10. REBAR SHALL MEET THE REQUIREMENTS OF ASTM A615, Fy=60 KSI. SUBMIT REBAR SHOP DRAWINGS FOR CONTRACTOR ACCEPTANCE PRIOR TO FABRICATION.
11. CONCRETE COVER REQUIREMENTS:
    - 11.a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
    - 11.b. CONCRETE EXPOSED TO EARTH OR WEATHER = 1 1/2"
12. PROVIDE 3/4" CHAMFER ON ALL EXPOSED CONCRETE EDGES.
13. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318.
14. ALLOW CONCRETE TO CURE A MINIMUM OF 3 DAYS BEFORE ERECTING STEEL.
15. PROVIDE RUBBED FINISH TO EXPOSED CONCRETE SURFACES.
16. GROUT SHALL BE DURAGROUT, NON-SHRINK, NON-METALLIC, CEMENT BASE GROUT AS MANUFACTURED BY L&M CONSTRUCTION CHEMICALS, INC. OR CONTRACTOR ACCEPTED ALTERNATE.
17. GROUND STRUCTURES IN ACCORDANCE WITH DRAWING E7DC60000A015.
18. PIPE CLEVIS SHALL BE ANVIL FIG. 260 OR 260 ISS FOR INSULATED PIPE OR CONTRACTOR APPROVED EQUAL.

REFERENCE DRAWINGS

S7DC60000A001
S7DC60000A002
M7DC60000A001
M7DC60000A002
M7DC60000A003
M7DC60000A004
M7DC60000A005
M7DC60000A006
M7DC60000A007
M7DC60000A008

LPE

J. KEITH TUCKER 16203 LICENSED PROFESSIONAL ENGINEER

04/08/15

DATE

PROFESSIONAL SEAL

REFERENCE DRAWINGS	DRAWING NO.

PRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFOR- OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR IS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE , OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMA- APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAW- DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON T OF THE FORWARDING CONTRACTOR

SECTION NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN
SECTION AND DETAIL KEY

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	DATS MGR
1		ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC — managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020, Paducah, Kentucky

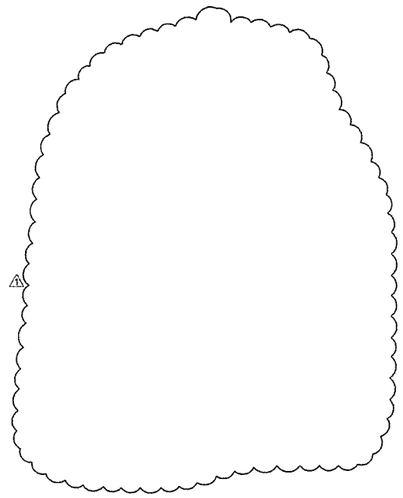
DOE CONTRACT NO. DE-AC30-10CC40020

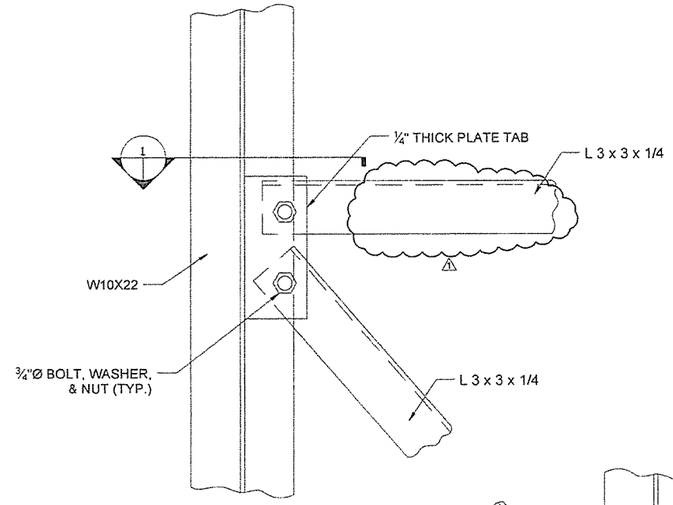
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
PIPING AND CONDUIT SUPPORTS
SILENCER SUPPORT DETAILS

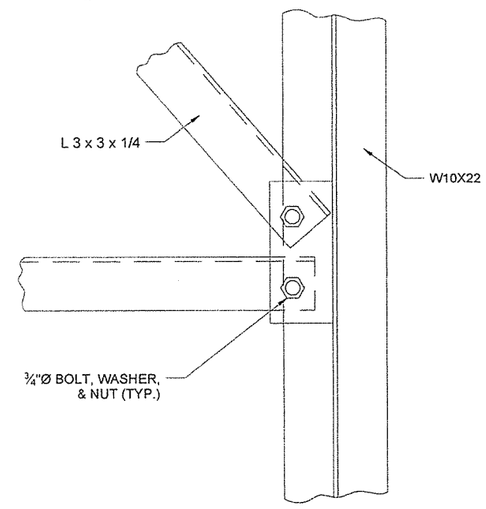
CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A004 rev1.dwg	C-600	PGDP	U

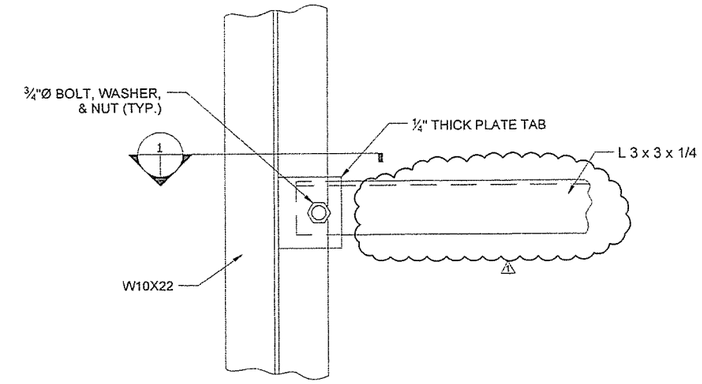
SCALE:	DRAWING NUMBER	REV
NOTED	S7DC60000A004	1



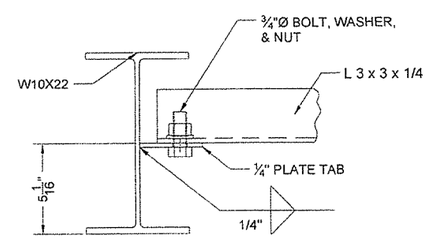


A 2-BOLT COLUMN TAB CONNECTION
Scale: 3" = 1'





B SINGLE BOLT COLUMN TAB CONNECTION
Scale: 3" = 1'



1 COLUMN TAB SECTION
Scale: 3" = 1'

REFERENCE DRAWINGS	DRAWING NO.

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SECTION AND DETAIL KEY
NUMBER OR DETAIL LETTER
SECTION
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

REFERENCE DRAWINGS
S7DC60000A001
S7DC60000A003
S7DC60000A006
S7DC60000A007
S7DC60000A008

LPE
J. KEITH THORN 16803 LICENSED PROFESSIONAL ENGINEER KENTUCKY
04/30/15
DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&TS MGR
1		ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS, PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

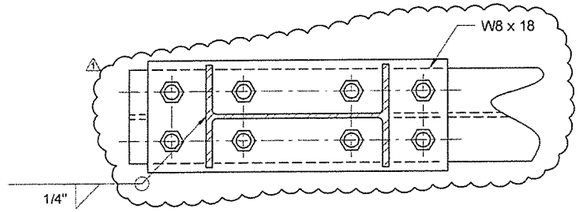
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

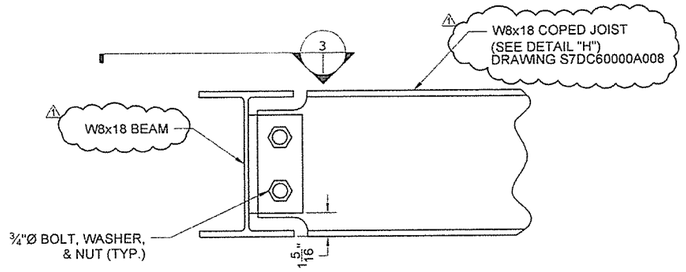
TITLE:
C-600 AREA PACKAGE BOILERS
UTILITY BRIDGE
DETAIL SHEET 1

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A005 rev1.dwg	C-600	PGDP	U

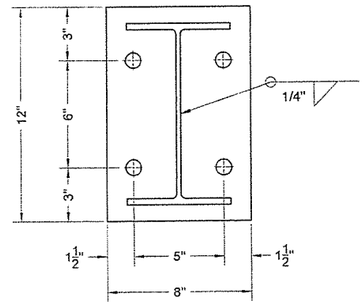
SCALE:	DRAWING NUMBER	REV
AS SHOWN	S7DC60000A005	1

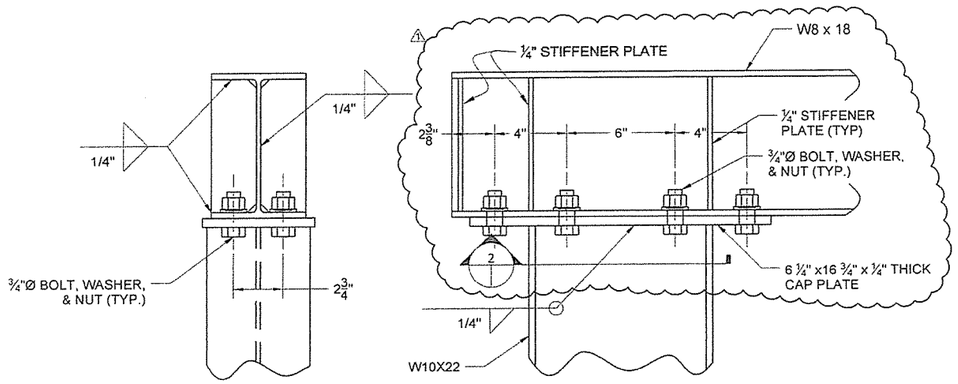


2 COLUMN/BEAM SECTION
Scale: 3" = 1'

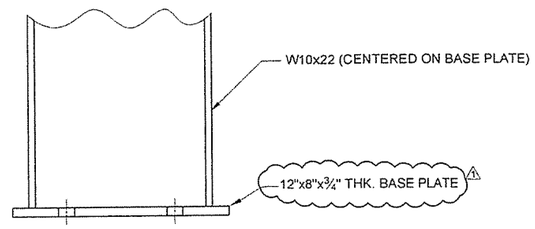


D MAIN BEAM/JOIST CONNECTION
Scale: 3" = 1'

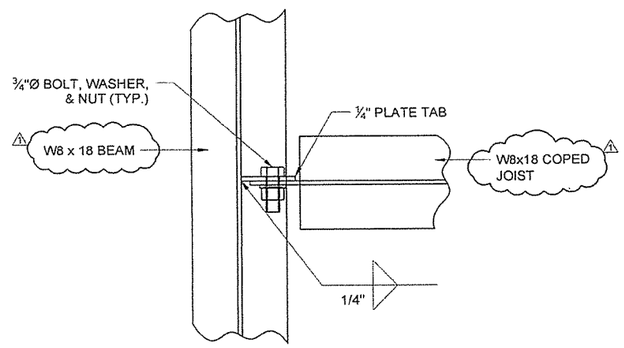




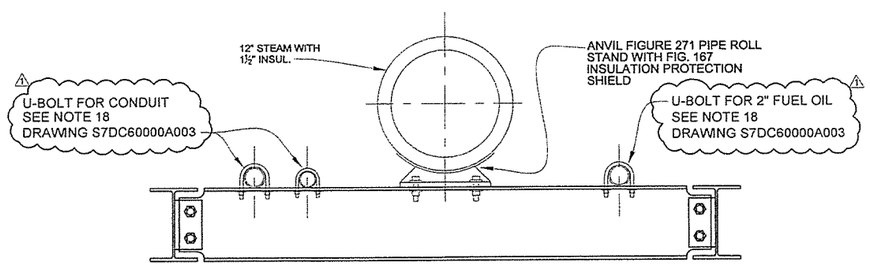
C COLUMN/BEAM CONNETION
Scale: 3" = 1'



J BASE PLATE DETAIL
Scale: 3" = 1'



3 BEAM TAB SECTION
Scale: 3" = 1'



E TYPICAL UTILITY MOUNTING DETAIL (LOOKING SOUTH)
Scale: 1 1/2" = 1'

REFERENCE DRAWINGS	DRAWING NO.

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

SECTION
NUMBER OR DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN
SECTION AND DETAIL KEY

REFERENCE DRAWINGS
S7DC60000A001
S7DC60000A003
S7DC60000A005
S7DC60000A007
S7DC60000A008

LPE

PROFESSIONAL ENGINEER J. KEITH THORN 16609 LICENSED KENTUCKY 04/09/15

DATE
PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&TS MGR
1		ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020

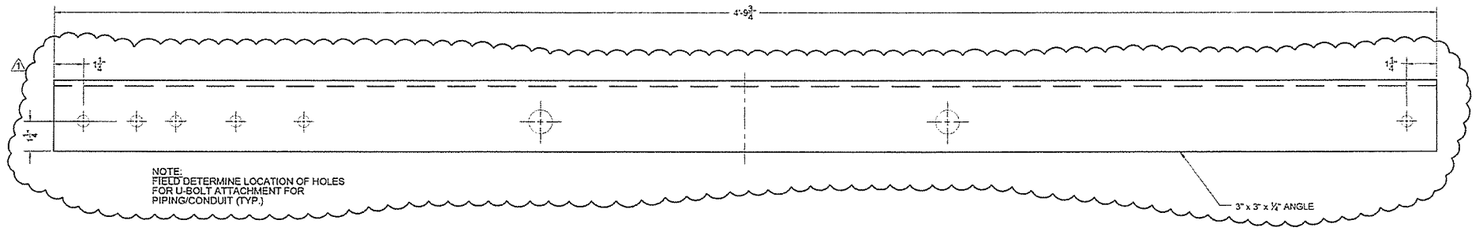
PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
UTILITY BRIDGE
DETAIL SHEET 2

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A006 rev1.dwg	C-600	PGDP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	S7DC60000A006	1

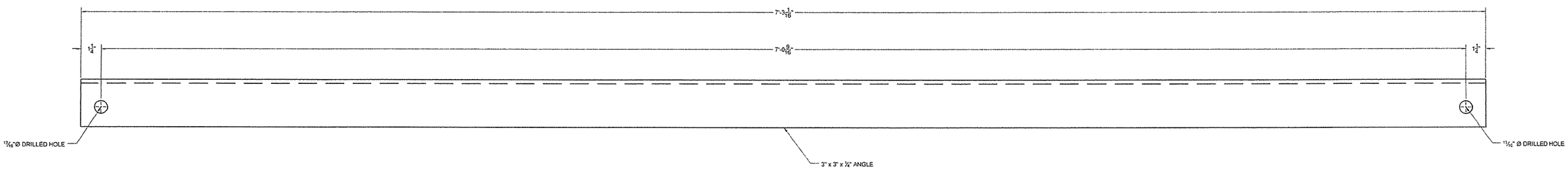
NOTE:
DIMENSIONS SHALL BE
FIELD VERIFIED



(F) HORIZONTAL BRACE ANGLE DETAIL (NORTH ELEVATION)

NOT TO SCALE

NOTE: MIRROR IMAGE REQUIRED FOR SOUTH ELEVATION



(G) DIAGONAL BRACE ANGLE DETAIL

NOT TO SCALE

REFERENCE DRAWINGS	DRAWING NO.

SECTION

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NUMBER OR DETAIL LETTER

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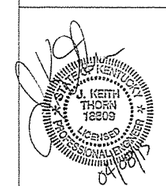
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

REFERENCE DRAWINGS
S7DC60000A001
S7DC60000A003
S7DC60000A005
S7DC60000A006
S7DC60000A008

LPE



DATE

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	EQTS MGR
1		ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC30-10CC40020
Paducah, Kentucky

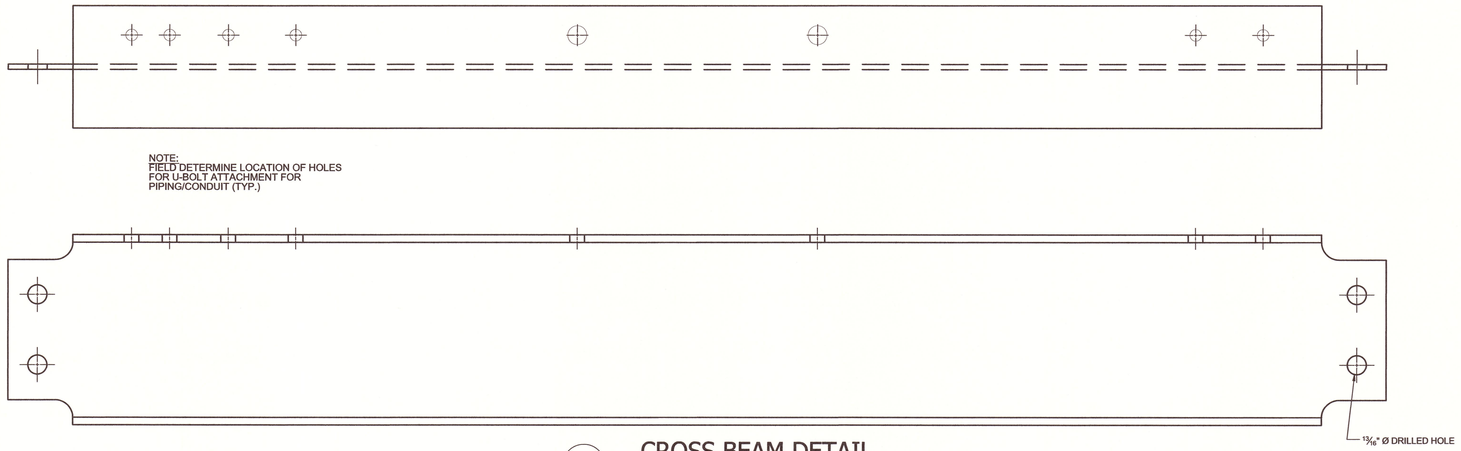
DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

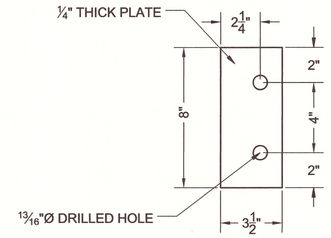
TITLE:
C-600 AREA PACKAGE BOILERS
UTILITY BRIDGE
DETAIL SHEET 3

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A007 rev1.dwg	C-600	PGDP	U

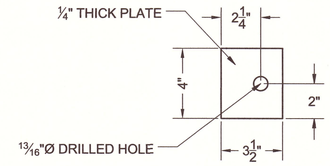
SCALE:	DRAWING NUMBER	REV
AS SHOWN	S7DC60000A007	1



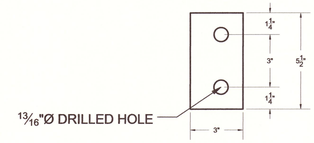
(H) CROSS BEAM DETAIL
NOT TO SCALE



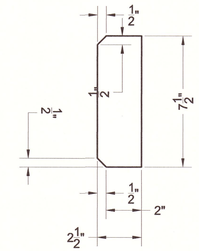
TWO-BOLT COLUMN TAB
Scale: 3" = 1'



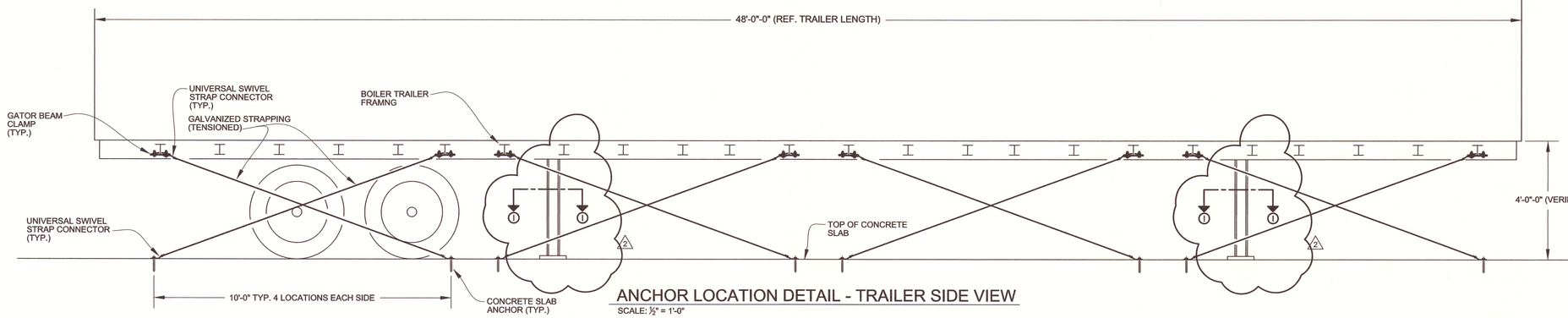
SINGLE-BOLT COLUMN TAB
Scale: 3" = 1'



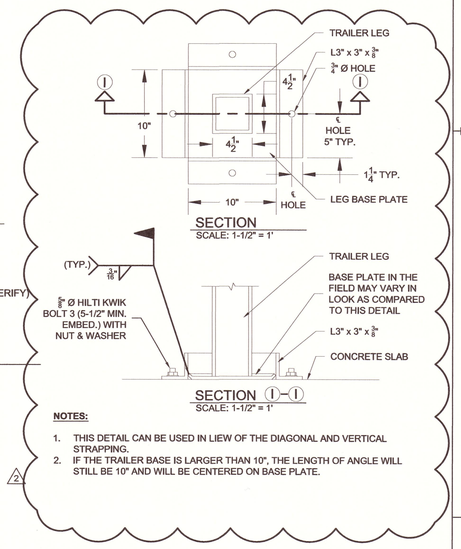
TWO-BOLT BEAM TAB
Scale: 3" = 1'



TYPICAL BEAM WEB STIFFENER
Scale: 3" = 1'



ANCHOR LOCATION DETAIL - TRAILER SIDE VIEW
SCALE: 1/2" = 1'-0"



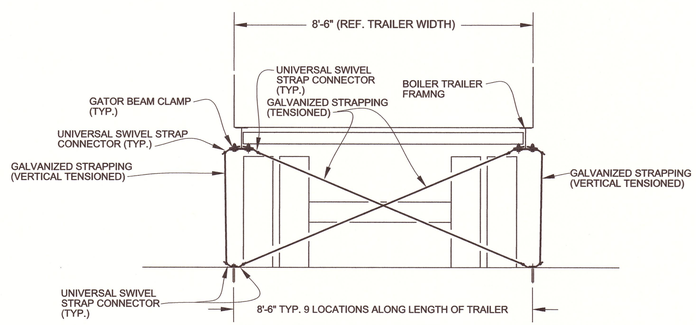
NOTES:

1. THIS DETAIL CAN BE USED IN LIEW OF THE DIAGONAL AND VERTICAL STRAPPING.
2. IF THE TRAILER BASE IS LARGER THAN 10", THE LENGTH OF ANGLE WILL STILL BE 10" AND WILL BE CENTERED ON BASE PLATE.

NOTE:
THE TRAILER FRAME SHOWN ON THIS DRAWING INDICATES A GENERAL CONFIGURATION. CONFIRM FINAL CONNECTION LOCATIONS WITH ENGINEERING PRIOR TO INSTALLATION.

REFERENCE DRAWINGS

C7DC60000A003
M7DC60000A001
M7DC60000A002
M7DC60000A003
M7DC60000A004
S7DC60000A001
S7DC60000A003
S7DC60000A005
S7DC60000A006
S7DC60000A007



ANCHOR LOCATION DETAIL - TRAILER END VIEW
SCALE: 1/2" = 1'-0"

SECTION
NUMBER OR
DETAIL LETTER
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

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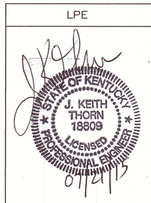
LPE



DATE

PROFESSIONAL SEAL

REV.	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR	CONF CTRL/ NUCL SFTY	FAC MGR	E&TS MGR
2	7/20/15	ISSUED FOR CONSTRUCTION	[illegible]	[illegible]	[illegible]	[illegible]	JBJ	[illegible]	[illegible]
1	4/14/15	ISSUED FOR CONSTRUCTION	KTW	JKT	TDS	JKT	JBJ	JRW	HWS
0	3/20/15	ISSUED FOR CONSTRUCTION	KTW	TAW	TDS	TAW	JBJ	RGS	KLH

DRAWING REVISIONS

U.S. DEPARTMENT OF ENERGY
PADUCAH, PORTSMOUTH PROJECT OPERATIONS,
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC
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Paducah, Kentucky

DOE CONTRACT NO. DE-AC30-10CC40020

PROJECT NAME:
STEAM PACKAGE BOILERS AND PERMITS

TITLE:
C-600 AREA PACKAGE BOILERS
UTILITY BRIDGE AND EQUIPMENT ANCHOR
DETAIL SHEET 4

EDCS CAD FILENAME	BUILDING	PLANT	CLASS
S7DC60000A008 rev2.dwg	C-600	PGDP	U

SCALE:	DRAWING NUMBER	REV
AS SHOWN	S7DC60000A008	2