

CONNECTIONS:				
MARK	DESCRIPTION	QTY.	SIZE	TYPE
A	DRUM LEVEL TRANSMITTER	2	1 1/2"	SW
B	WATER COLUMN	2	1 1/2"	SCH 80 PIPE
C	AUX. LOW WATER CUTOFF	1	1"	SCH 80 PIPE
D	FURNACE PRESSURE	1	1"	N.P.T.
E	WATER GAUGE DRAIN VALVES	1	3/8"	SW
F	AUX. LOW WATER CUTOFF DRAIN VALVE	1	3/4"	N.P.T.
G	STEAM OUTLET	1	12"	300# RFLWN
H	CONTINUOUS BLOWDOWN	1	1 1/2"	S.W.
J	PRESSURE SAFETY VALVE	2	4"	300# RFLWN
K	VENT	1	1 1/4"	S.W.
L	INTERMITTENT BLOWDOWN	1	1 1/2"	300# RFLWN
M	FEEDWATER INLET	1	4"	300# RF FLG
N	CHEMICAL FEED	1	1 1/2"	300# RF FLG

CONNECTIONS CONT'D.				
MARK	DESCRIPTION	QTY.	SIZE	TYPE
R	STEAM HEATER COIL	2	1"	SCH 80 PIPE
S	PRESSURE SAFETY VALVE	1	6"	300# RFLWN

DESIGN DATA

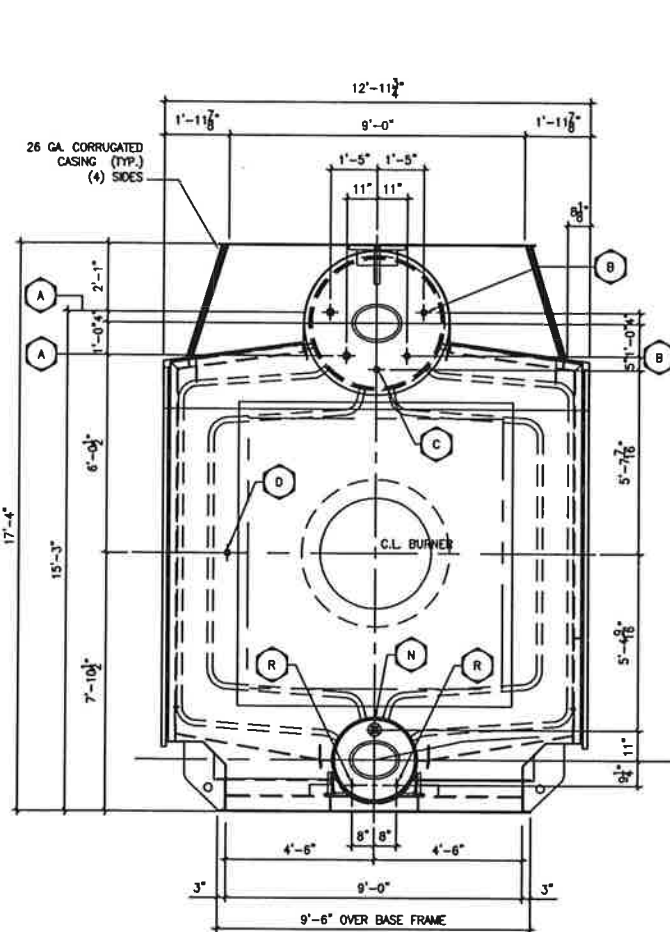
TWO (2) SHOP ASSEMBLED VOYAGER STEAM GENERATORS
DESIGN AND FABRICATED PER ASME SECTION 1, 2004 EDITION
2005 ADDENDA.
MAXIMUM ALLOWABLE WORKING PRESSURE: 250 PSIG
OPERATING PRESSURE: 120-150 PSIG AT NON-RETURN INLET
CAPACITY: 150,000#/HR @ 365°F
DESIGN TEMP: 500°F
TUBE DESIGN TEMP: 700 °F
HYDRO TEST PRESSURE 375 PSIG
RADIOGRAPH YES/NO
PWHT: DRUMS @ 1100° F MIN. HOLD TIME IS 1 HOUR / INCH THK.
BOILER HEATING SURFACE: TOTAL 10,750 SQ. FT.
CONVECTION 9,171 SQ. FT.
RADIANT 1,597 SQ. FT.
STEAM PURITY: 1 PPM
BLOWDOWN: 1%
FEEDWATER TEMPERATURE: 227°F TO ECONOMIZER
FUELS: PRIMARY - NATURAL GAS
WATER CAPACITY: BOILER OPERATING 5,664 GALS.
BOILER FLOODED 8,200 GALS.
SHIPPING WEIGHT: 161,000 LBS.
INSTALLATION: INDOORS

MECHANICAL DATA

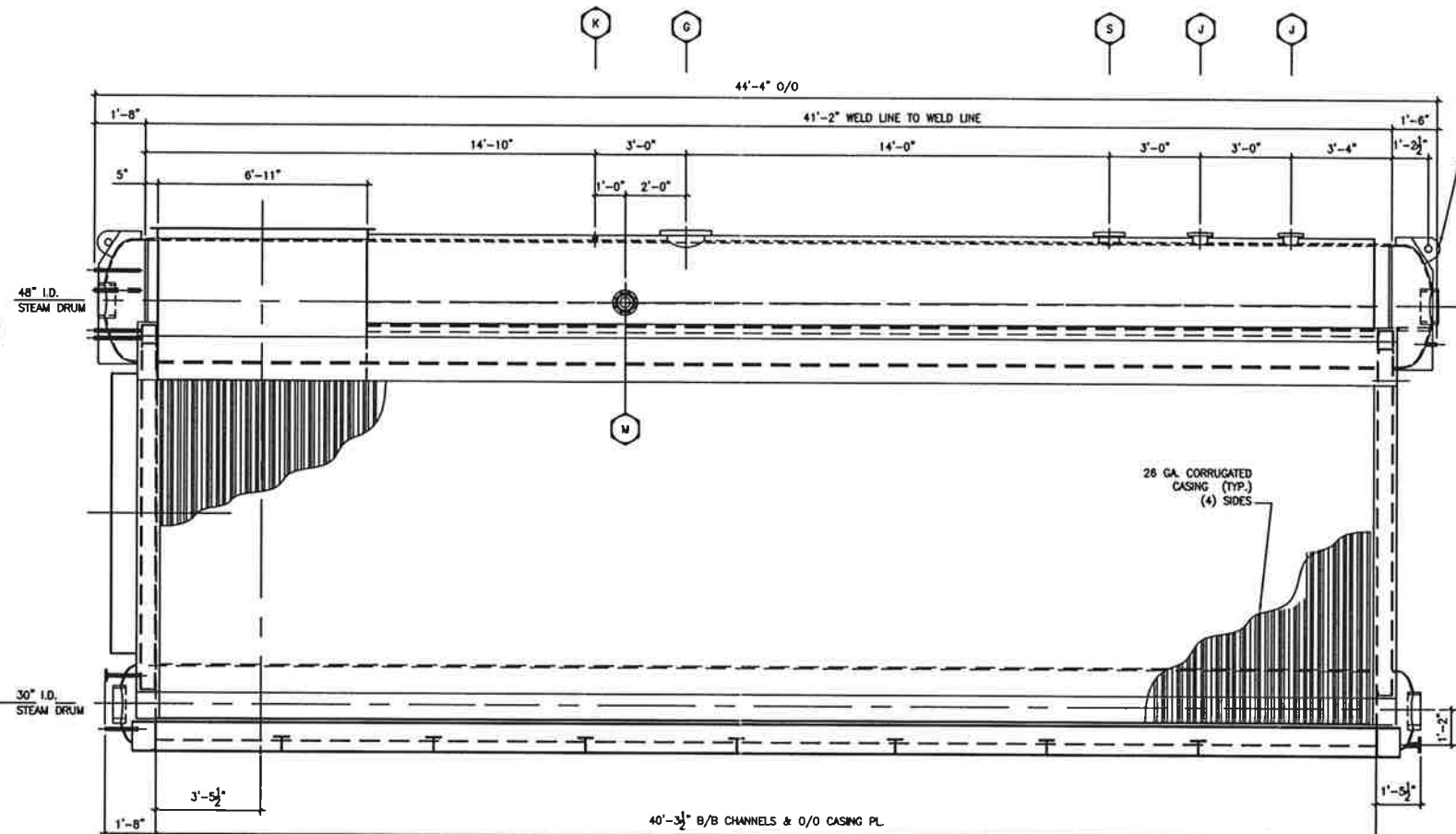
CASINGS:
FRONT & REAR SEALS & SUPPORT: 1/4" CARBON STEEL PLATE
ROOF: 10 GA. CARBON STEEL
SIDE: 24 GA. CORRUGATED GALVANIZED BRIDGED LAGGING
DRUM: 16 GA. CARBON STEEL SHEET
DRUMS:
UPPER: 3/4" THK. (NORMAL) SA-516 GR. 70 PVQ
LOWER: 5/8" THK. (NORMAL) SA-516 GR. 70 PVQ
HEADS:
UPPER: 5/8" THK. SA-516 GR. 70
LOWER: 1/2" THK. SA-516 GR. 70
TUBES:
WELDED FURNACE WALL: 2" O.D X 0.135" WALL SA-178A ERW
CONVECTION: 2" O.D X 0.105" WALL SA-178A ERW
OUTER WELDED WALL: 2" O.D X 0.135" WALL SA-178A ERW
WELDED FRONT & REAR WALLS: 2" O.D. X 0.135" WALL SA-178A ERW

NOTES:

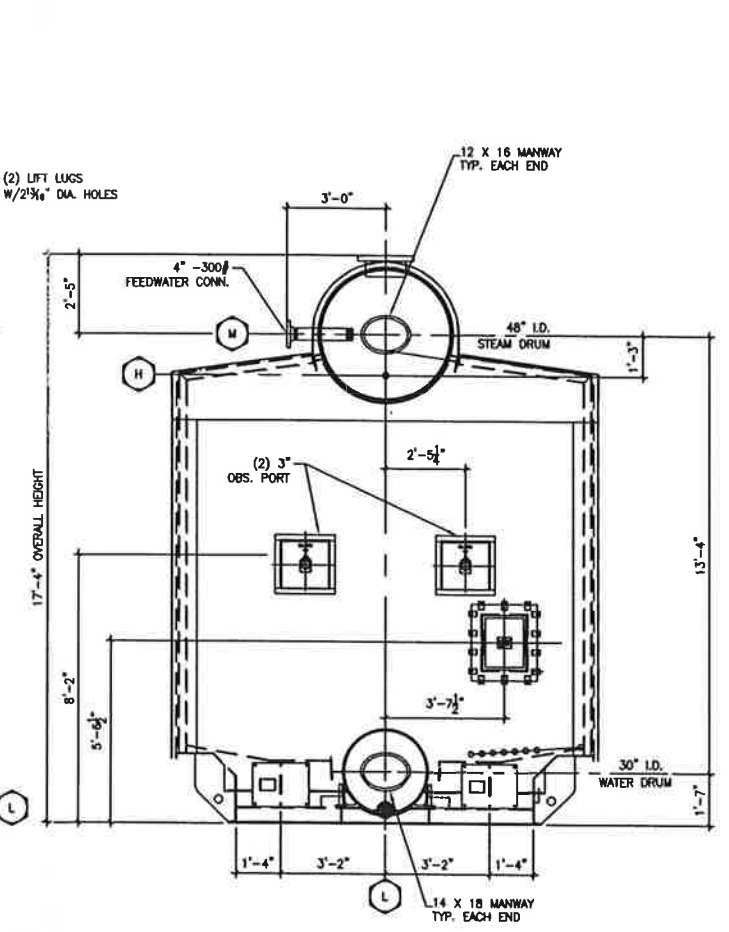
- REFER TO THE EQUIPMENT LIST FOR ITEM DESCRIPTIONS AND DESIGN DATA.
- MAIN STEAM, FEEDWATER AND DRAIN PIPING TO BE SUPPORTED IN FIELD BY OTHERS.
- PAINT:
BOILER
FLUE GAS OUTLET AND HOT DUCTING
SURFACE PREP: POWER TOOL CLEAN (SSPC-SP3) EXTERIOR SURFACE.
PRIMER COAT: HI-TEMP RED OXIDE (HIS)
FINISH COAT: HI-TEMP VEO GRAY
SUPPORT STRUCTURE
SURFACE PREP: SSPC-SP3
PAINT: CARBOLINE CARBOGAURD 890



FRONT END WALL



SIDE WALL
BOILER 9201 AS SHOWN
BOILER 9301 OPP. HAND



REAR END WALL

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rev.	by	date	chk'd	date	description
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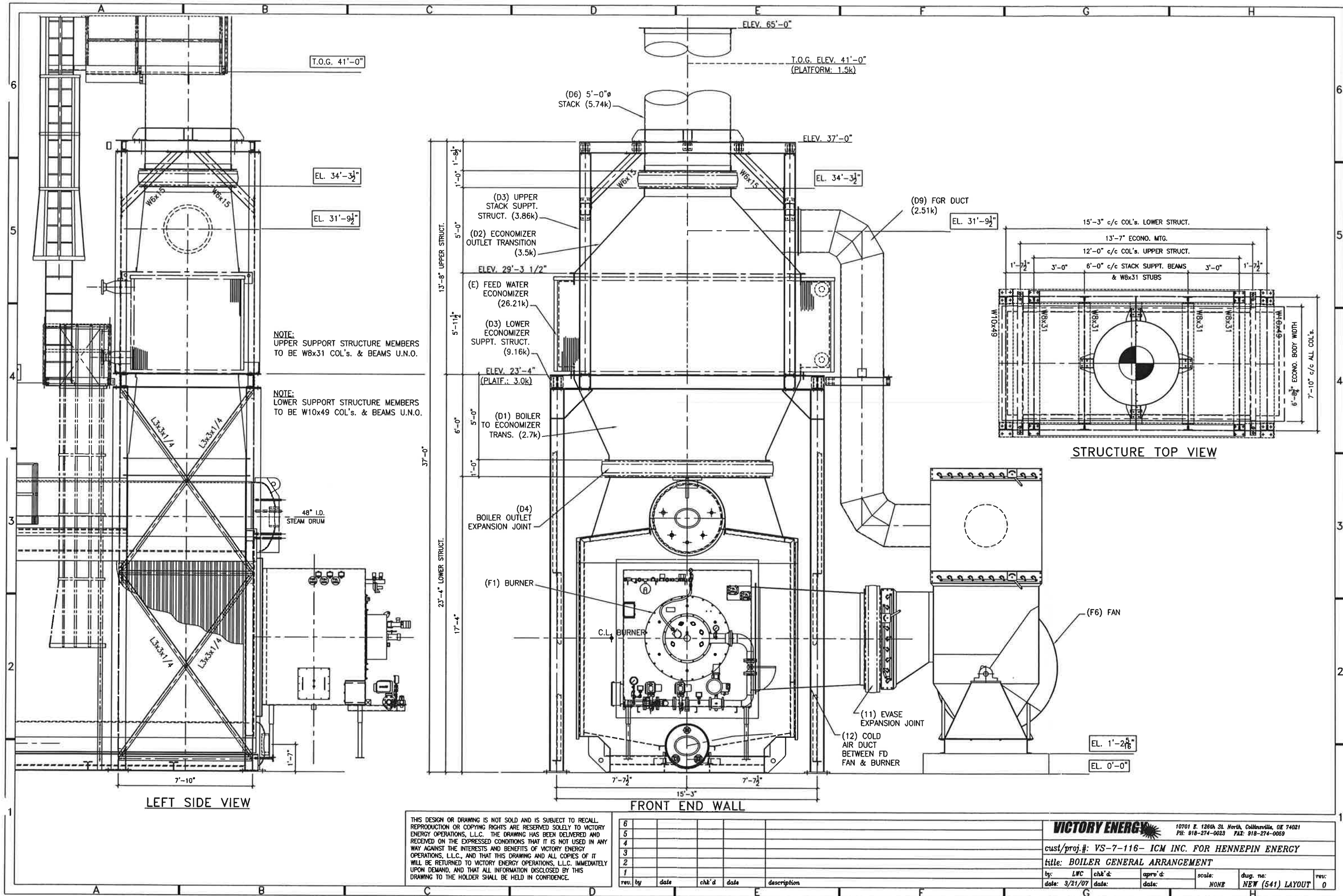
VICTORY ENERGY

10701 E. 125th St. North, Collinsville, IL 62421
PH: 918-274-0023 FAX: 918-274-0069

cust/proj.#: VS-7-116- ICM INC. FOR HENNEPIN ENERGY

title: BOILER GENERAL ARRANGEMENT

by: C.L.O.C.	chk'd: C.L.	appr'd: V.J.	scale: NONE	dwg. no: 00-541-01	REV: 0
date: 09.21.06	date: 9.06	date: 11.06			



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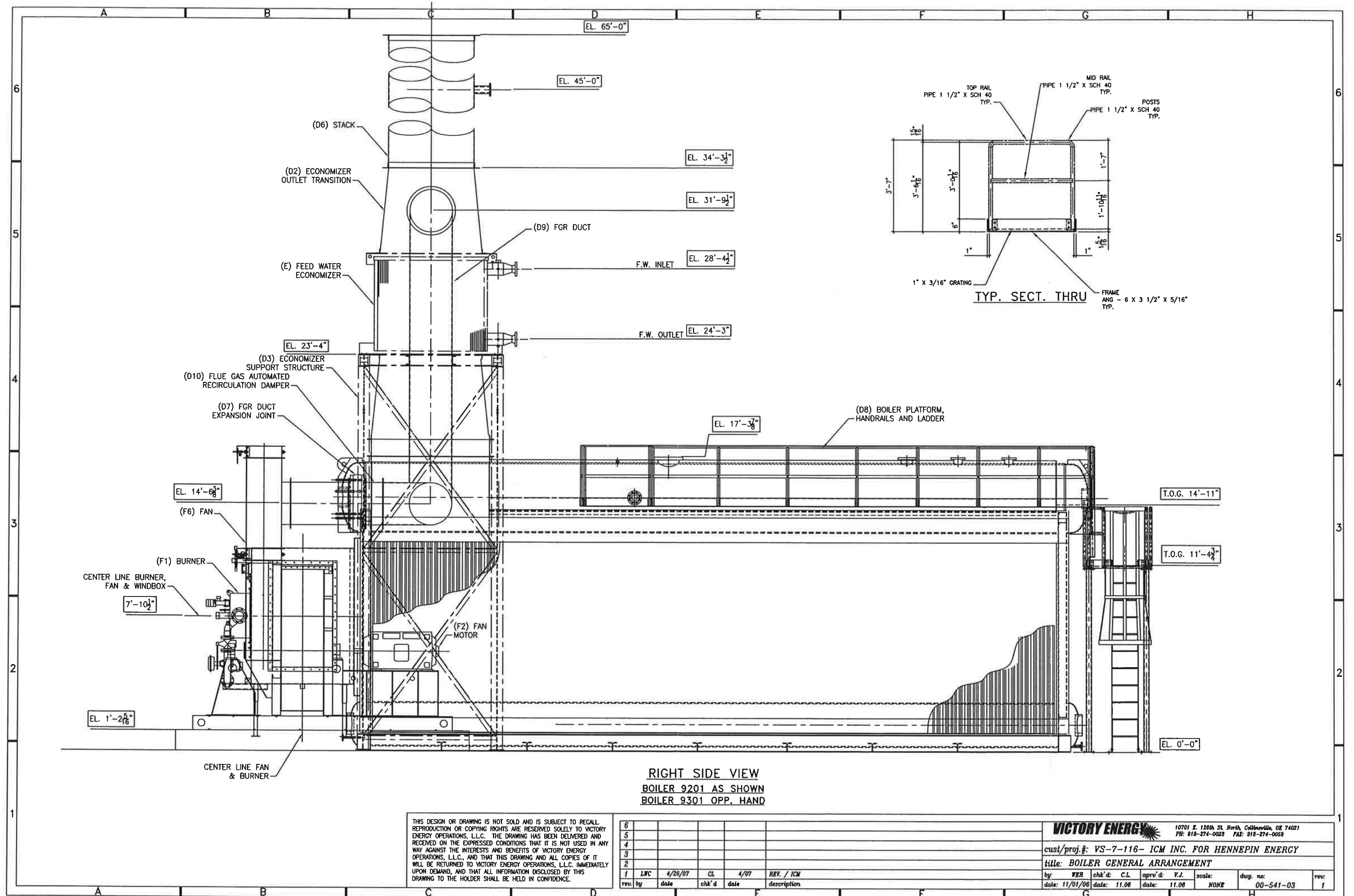
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rev.	by	date	chk'd	date	description

VICTORY ENERGY
10701 E. 126th St. North Collinsville, OK 74021
PH: 918-274-0023 FAX: 918-274-0059

cust/proj. #: VS-7-116- ICM INC. FOR HENNEPIN ENERGY

title: BOILER GENERAL ARRANGEMENT

by: LWC	chk'd:	appr'd:	scale: NONE	dwg. no: NEW (541) LAYOUT	rev: 0
date: 3/21/07	date:	date:			



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rev.	by	date	chk'd	date	description
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1	LWC	4/26/07	CL	4/07	REV. / ICM

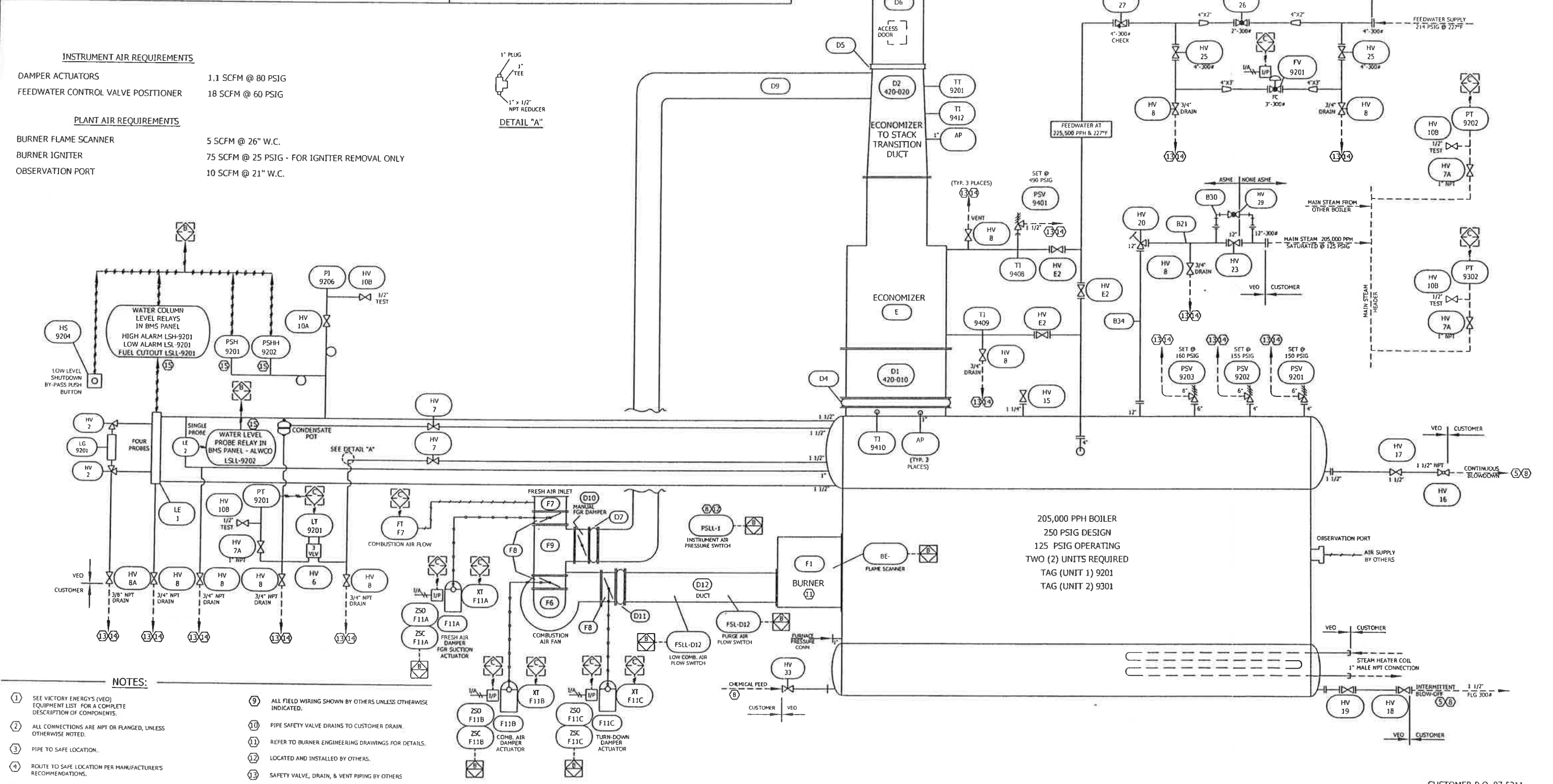
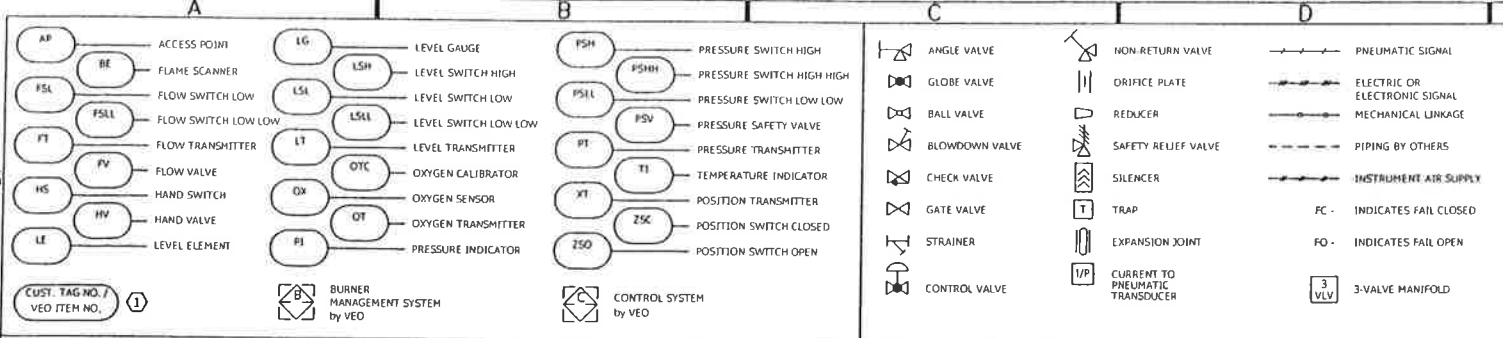


10701 E. 128th St. North, Collinsville, OH 44021
PH: 918-274-0023 FAX: 918-274-0059

cust/proj.#: VS-7-116- ICM INC. FOR HENNEPIN ENERGY

title: BOILER GENERAL ARRANGEMENT

by: WER	chk'd: C.L.	appr'd: V.J.	scale: NONE	dwg. no: 00-541-03	rev: 1
date: 11/01/06	date: 11/06	date: 11/06			



NOTES:

- SEE VICTORY ENERGY'S (VEO) EQUIPMENT LIST FOR A COMPLETE DESCRIPTION OF COMPONENTS.
- ALL CONNECTIONS ARE NPT OR FLANGED, UNLESS OTHERWISE NOTED.
- PIPE TO SAFE LOCATION.
- ROUTE TO SAFE LOCATION PER MANUFACTURER'S RECOMMENDATIONS.
- PIPE TO BLOWDOWN COLLECTION SYSTEM.
- LOWER DRUM BLOWOFF VALVES SERVE AS LOW POINT BOILER DRAIN.
- PIPING SUPPLIED BY VEO, FIELD FIT-UP AND INSTALLATION BY OTHERS UNLESS OTHERWISE NOTED.
- PIPING AND INSTALLATION BY OTHERS.
- ALL FIELD WIRING SHOWN BY OTHERS UNLESS OTHERWISE INDICATED.
- PIPE SAFETY VALVE DRAINS TO CUSTOMER DRAIN.
- REFER TO BURNER ENGINEERING DRAWINGS FOR DETAILS.
- LOCATED AND INSTALLED BY OTHERS.
- SAFETY VALVE, DRAIN, & VENT PIPING BY OTHERS.
- ROUTE ALL SAFETY VALVE, DRAIN, & VENT PIPING TO A SAFE LOCATION.
- WATER COLUMN PROBE RELAYS AND STEAM PRESSURE SWITCHES ARE LOCATED WITH BURNER MANAGEMENT SYSTEM.

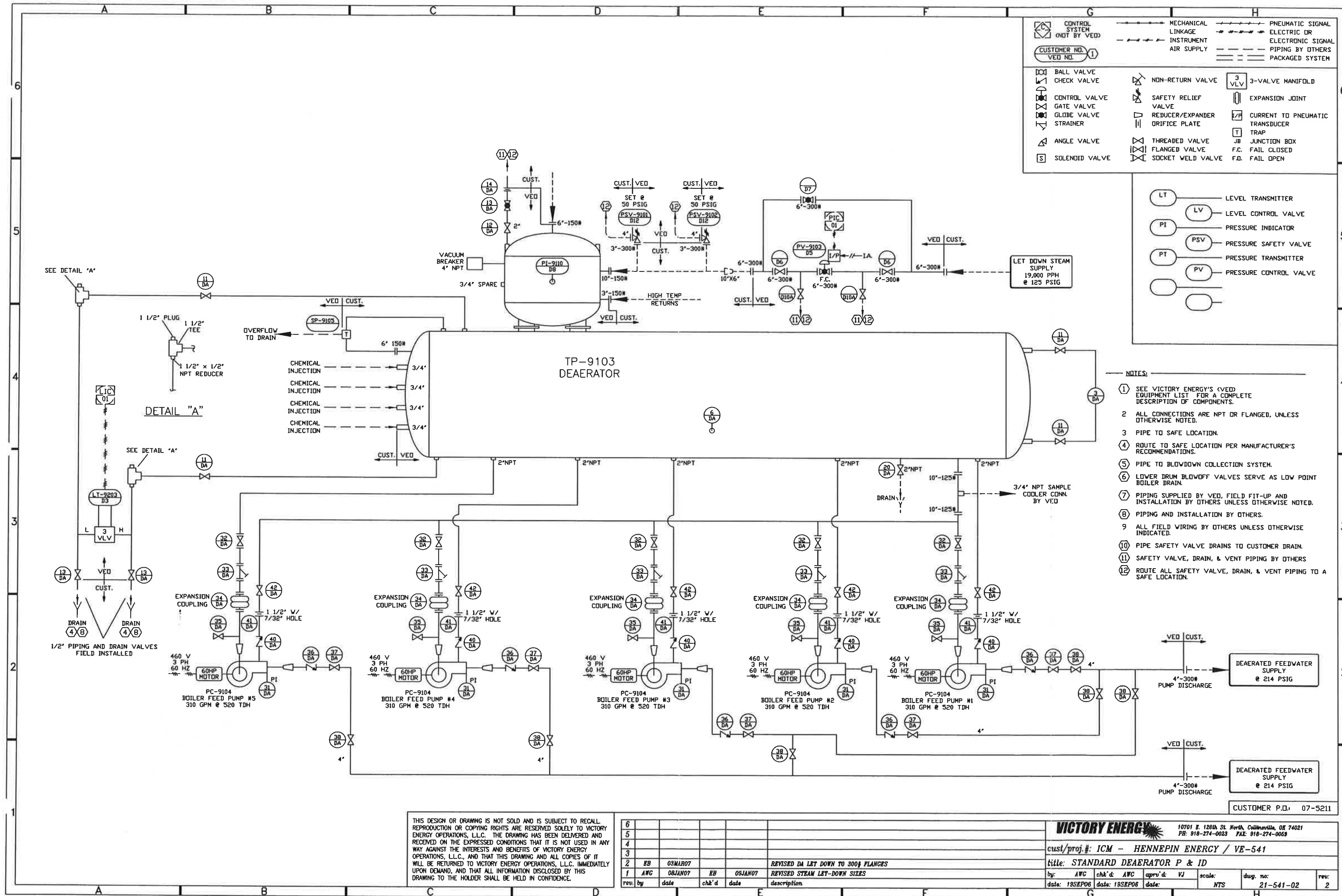
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REV.	BY	DATE	CHK'D	DATE	DESCRIPTION
1	AWC	26/JUL/07	FB	26/JUL/07	REVISED FEEDWATER PIPING, ADDED 1T-9201, ADDED STEAM HEADER PRESS. TRANSMITTERS

VICTORY ENERGY
 10701 E. 126th St. North, Collinsville, OH 44021
 PB: 918-274-0023 FAX: 918-274-0058

cust/proj. #: ICM -- HENNEPIN ENERGY / VE-541
title: WATER TUBE BOILER P & ID
by: AWC **chk'd:** AWC **aprv'd:** **scale:** **dwg. no:** 21-541-01 **rev:** 1
date: 19SEP06 **date:** **date:** **NTS**

CUSTOMER P.O. 07-5211



LEGEND

CONTROL SYSTEM (NOT BY VED)	MECHANICAL LINKAGE	PNEUMATIC SIGNAL
CUSTOMER NO. (VED NO. 1)	INSTRUMENT	ELECTRIC OR ELECTRONIC SIGNAL
AIR SUPPLY	PIPING BY OTHERS	PACKAGED SYSTEM

BALL VALVE	NON-RETURN VALVE	3-VALVE MANIFOLD
CHECK VALVE	SAFETY RELIEF VALVE	EXPANSION JOINT
CONTROL VALVE	REDUCER/EXPANDER	CURRENT TO PNEUMATIC TRANSDUCER
GATE VALVE	ORIFICE PLATE	TRAP
GLOBE VALVE	THREADED VALVE	JUNCTION BOX
STRAINER	FLANGED VALVE	F.C. FAIL CLOSED
ANGLE VALVE	SOCKET WELD VALVE	F.O. FAIL OPEN
SOLENOID VALVE		

NOTES:

- 1. SEE VICTORY ENERGY'S (VED) EQUIPMENT LIST FOR A COMPLETE DESCRIPTION OF COMPONENTS.
- 2. ALL CONNECTIONS ARE NPT OR FLANGED, UNLESS OTHERWISE NOTED.
- 3. PIPE TO SAFE LOCATION.
- 4. ROUTE TO SAFE LOCATION PER MANUFACTURER'S RECOMMENDATIONS.
- 5. PIPE TO BLOWDOWN COLLECTION SYSTEM.
- 6. LOWER DRUM BLOWOFF VALVES SERVE AS LOW POINT BOILER DRAIN.
- 7. PIPING SUPPLIED BY VED, FIELD FIT-UP AND INSTALLATION BY OTHERS UNLESS OTHERWISE NOTED.
- 8. PIPING AND INSTALLATION BY OTHERS.
- 9. ALL FIELD WIRING BY OTHERS UNLESS OTHERWISE INDICATED.
- 10. PIPE SAFETY VALVE DRAINS TO CUSTOMER DRAIN.
- 11. SAFETY VALVE, DRAIN, & VENT PIPING BY OTHERS.
- 12. ROUTE ALL SAFETY VALVE, DRAIN, & VENT PIPING TO A SAFE LOCATION.

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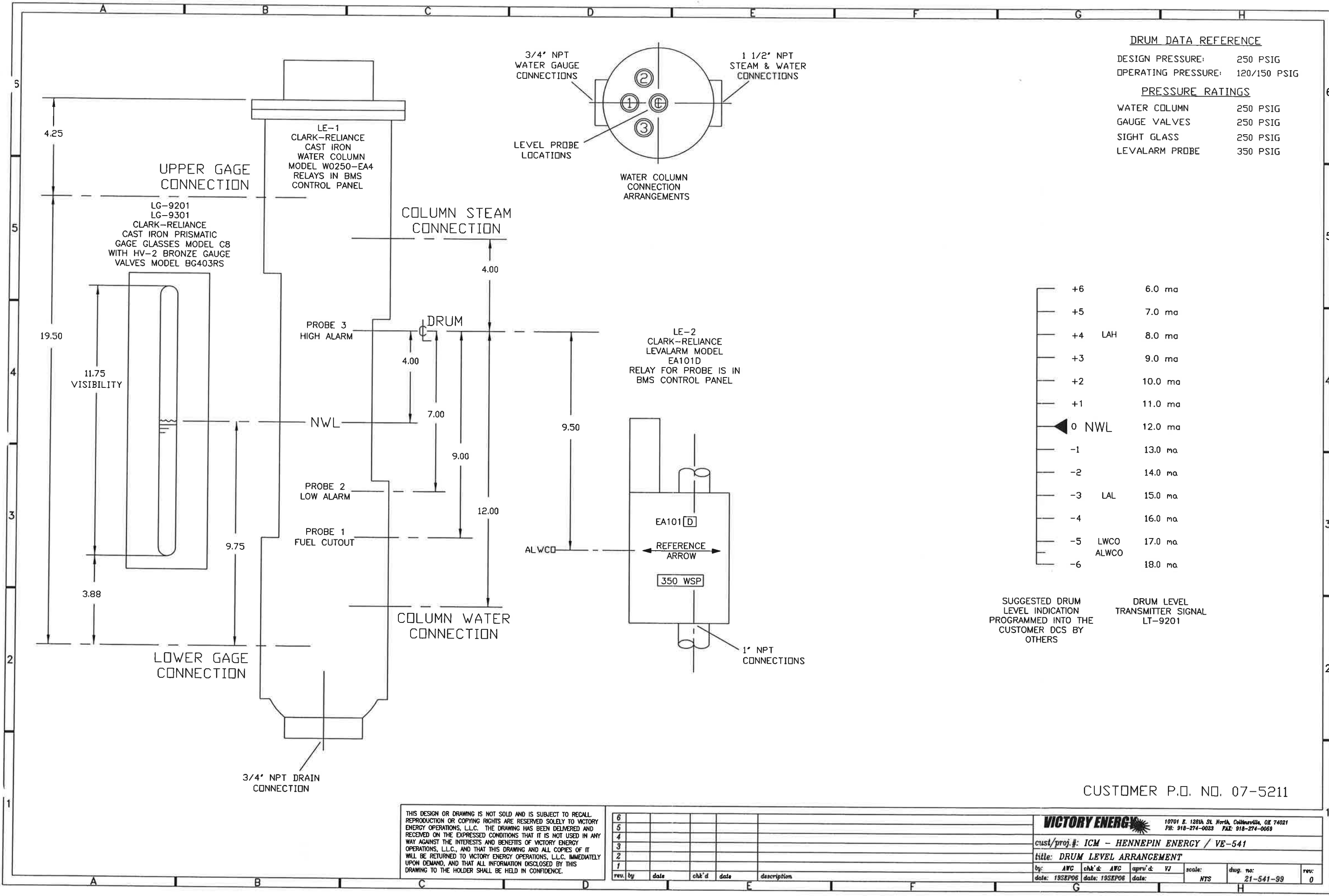
REV.	BY	DATE	CHK'D	DATE	DESCRIPTION
6					
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2	BB	08MAR07			REVISED DA LET DOWN TO 300# FLANGES
1	AWC	08JAN07	BB	09JAN07	REVISED STRAIN LET-DOWN SIZES

VICTORY ENERGY 10701 E. 128th St. North, Collinsville, OK 74021
PH: 918-274-0023 FAX: 918-274-0059

cust/proj. #: ICM - HENNEPIN ENERGY / VE-541

title: STANDARD DEAERATOR P & ID

by: AWC	chk'd: AWC	appr'd: VJ	scale: NTS	dwg. no: 21-541-02	rev: 2
date: 19SEP06	date: 19SEP06	date:			



DRUM DATA REFERENCE

DESIGN PRESSURE: 250 PSIG
OPERATING PRESSURE: 120/150 PSIG

PRESSURE RATINGS

WATER COLUMN 250 PSIG
GAUGE VALVES 250 PSIG
SIGHT GLASS 250 PSIG
LEVALARM PROBE 350 PSIG

	+6	6.0 ma
	+5	7.0 ma
	+4	LAH 8.0 ma
	+3	9.0 ma
	+2	10.0 ma
	+1	11.0 ma
◀	0	NWL 12.0 ma
	-1	13.0 ma
	-2	14.0 ma
	-3	LAL 15.0 ma
	-4	16.0 ma
	-5	LWCO 17.0 ma
	-6	ALWCO 18.0 ma

SUGGESTED DRUM
LEVEL INDICATION
PROGRAMMED INTO THE
CUSTOMER DCS BY
OTHERS

DRUM LEVEL
TRANSMITTER SIGNAL
LT-9201

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ENERGY OPERATIONS, L.L.C. THE DRAWING HAS BEEN DELIVERED AND
RECEIVED ON THE EXPRESSED CONDITIONS THAT IT IS NOT USED IN ANY
WAY AGAINST THE INTERESTS AND BENEFITS OF VICTORY ENERGY
OPERATIONS, L.L.C., AND THAT THIS DRAWING AND ALL COPIES OF IT
WILL BE RETURNED TO VICTORY ENERGY OPERATIONS, L.L.C. IMMEDIATELY
UPON DEMAND, AND THAT ALL INFORMATION DISCLOSED BY THIS
DRAWING TO THE HOLDER SHALL BE HELD IN CONFIDENCE.

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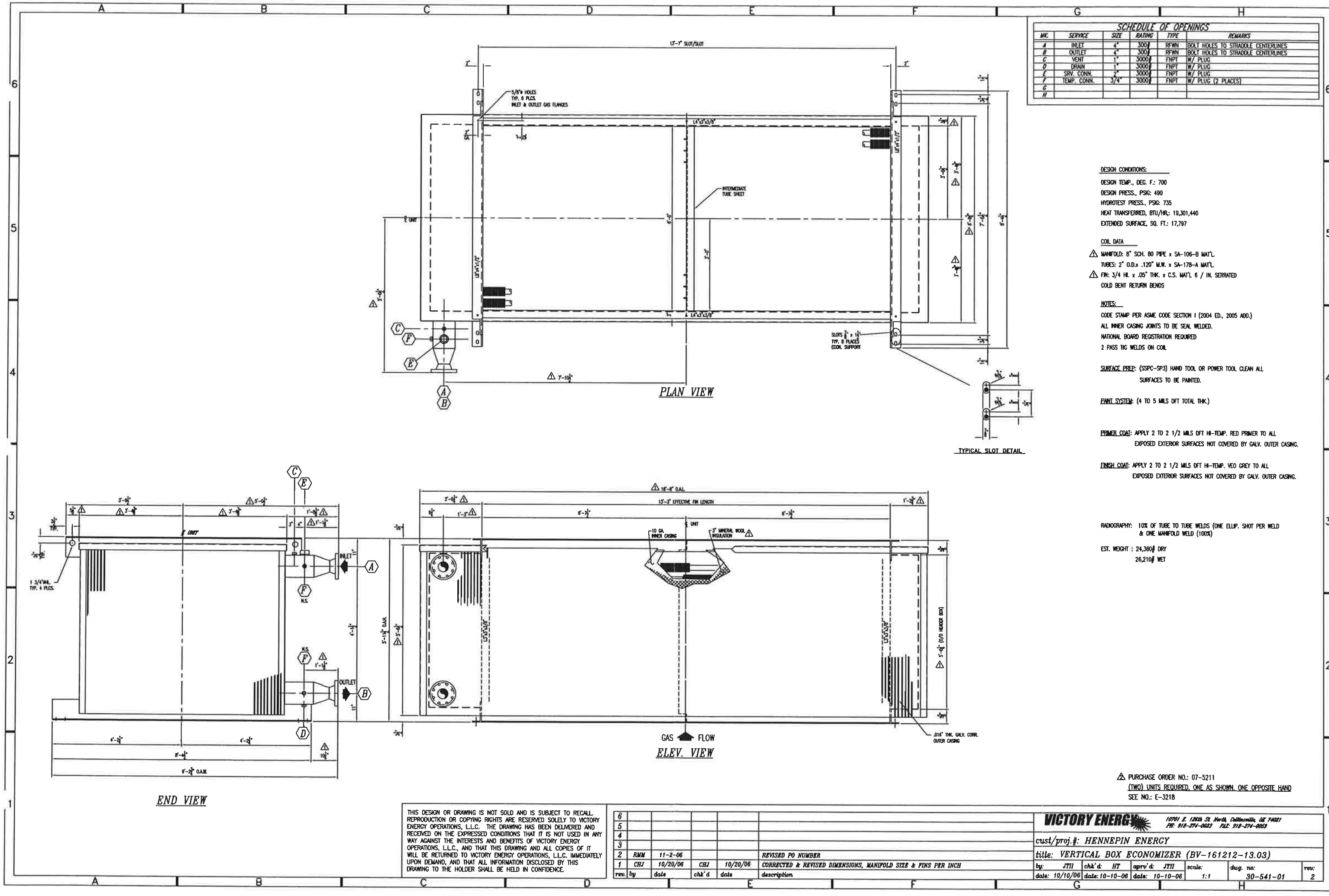


10701 E. 126th St. North, Collinsville, OK 74021
PH: 918-274-0023 FAX: 918-274-0059

cust/proj.#: ICM - HENNEPIN ENERGY / VE-541

title: DRUM LEVEL ARRANGEMENT

by: AWC	chk'd: AWC	aprv'd: VJ	scale: NTS	dwg. no: 21-541-99	rev: 0
date: 19SEP06	date: 19SEP06	date:			



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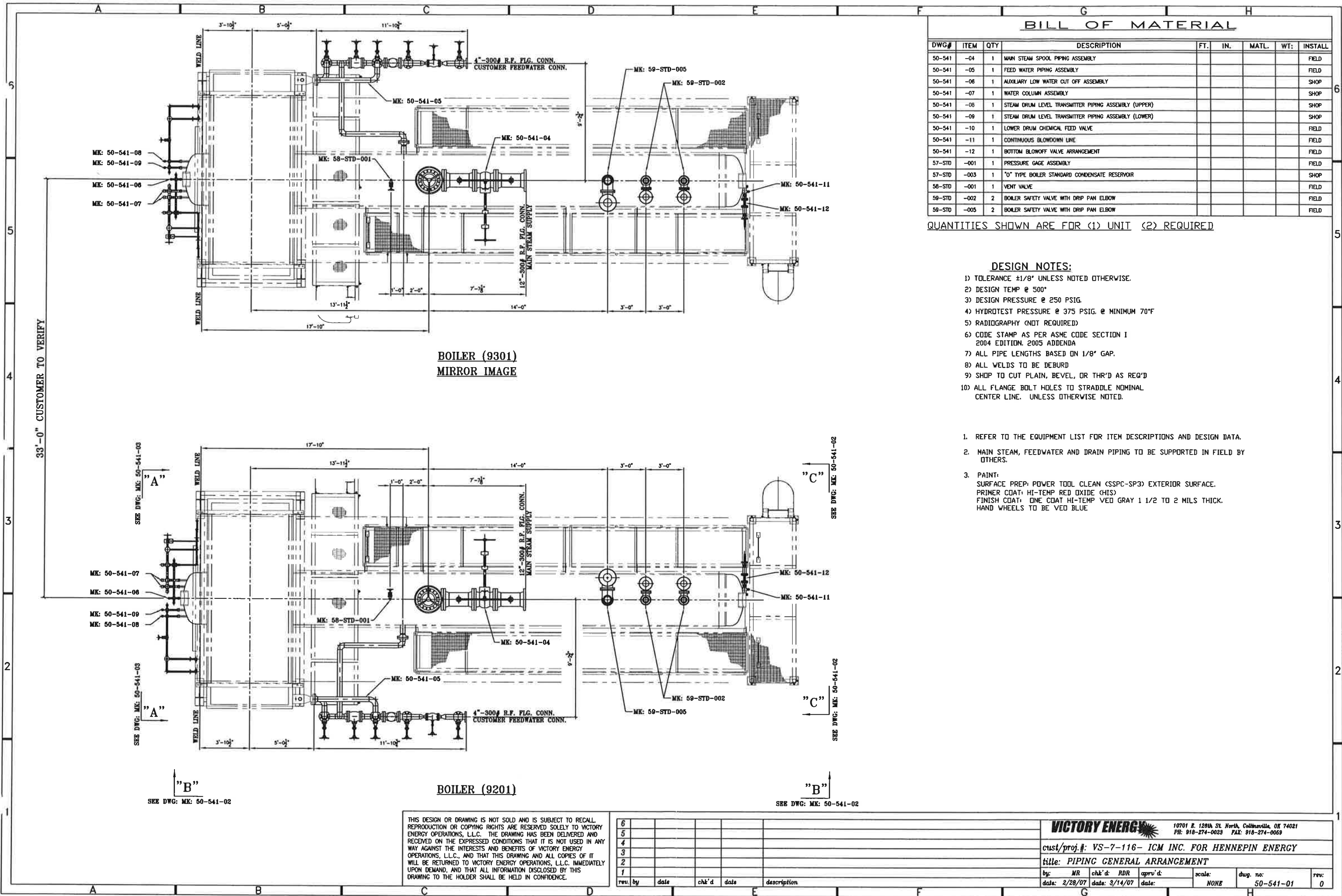
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2	RMM	11-2-06			REVISED PO NUMBER
1	CHJ	10/20/06	CHJ	10/20/06	CORRECTED & REVISED DIMENSIONS, MANIFOLD SIZE & FINS PER INCH
rev. by	date	chk'd	date	description	

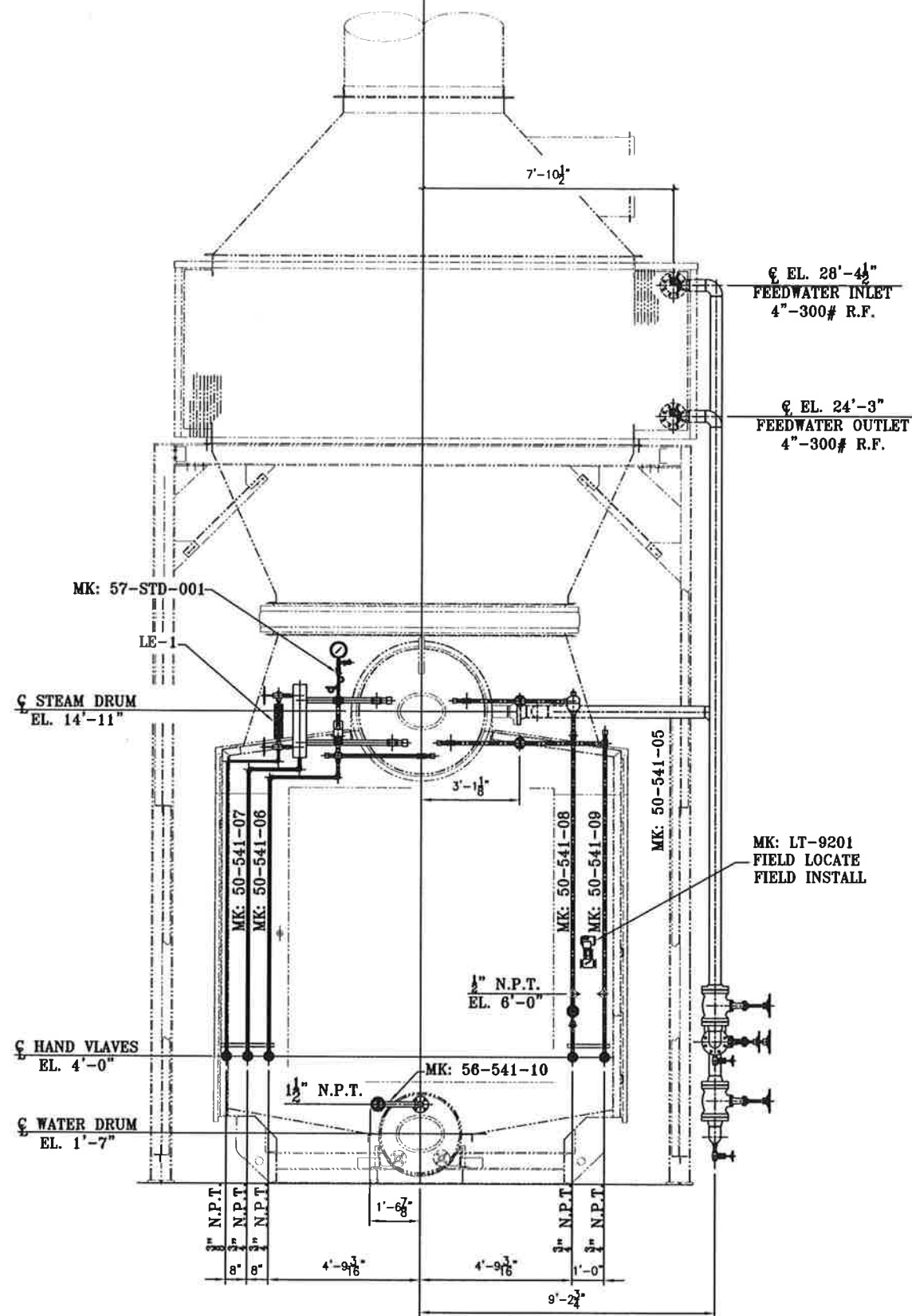
VICTORY ENERGY
10701 E. 126th St. North, Collinsville, OH 44001
PH: 918-374-0021 FAX: 918-374-0053

cust/proj.#: HENNEPIN ENERGY

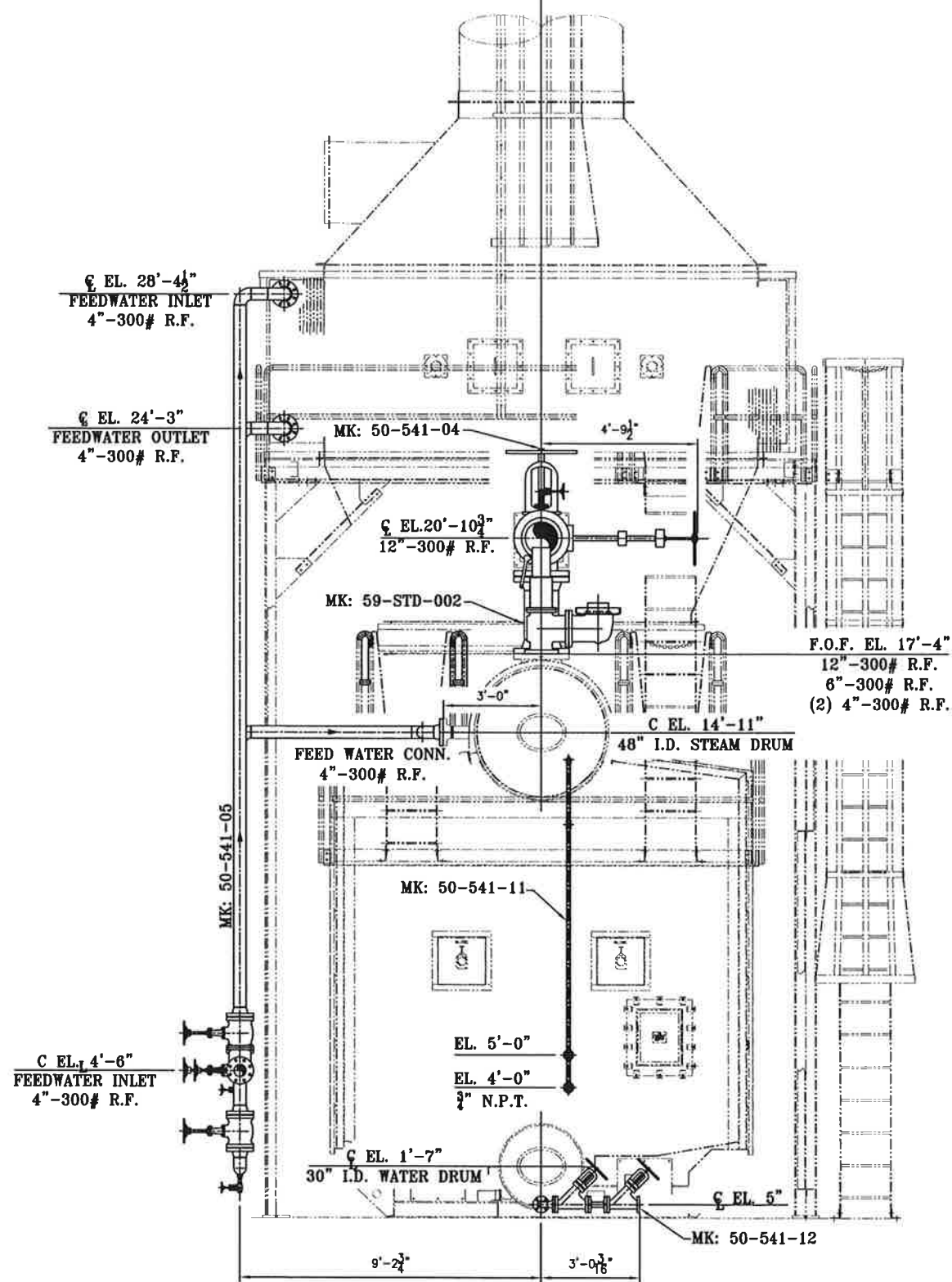
title: VERTICAL BOX ECONOMIZER (BV-161212-13.03)

by: JTH	chk'd: HT	appr'd: JTH	scale: 1:1	dwg. no: 30-541-01	rev: 2
date: 10/10/06	date: 10-10-06	date: 10-10-06			





VIEW "A-A"
BOILER (9201)



VIEW "C-C"
BOILER (9201)

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rev.	by	date	chk'd	date	description
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VICTORY ENERGY

10701 E. 126th St. North, Collinsville, OK 74021
PH: 918-274-0023 FAX: 918-274-0069

cust/proj #: VS-7-116- ICM INC. FOR HENNEPIN ENERGY

title: PIPING GENERAL ARRANGEMENT

by: MR	chk'd: RDR	appr'd:	scale: NONE	dwg. no: 50-541-02	rev: 0
date: 2/28/07	date: 3/13/07	date:			

