

- NOTES**
1. PLATFORMS ARE SUPPLIED WITH 1 1/4" X 3/16" SERRATED GRATING AND FABENCO A-71 SAFETY GATES. GRATING TO BE WELDED BAR TYPE. HANDRAILS TO HAVE (2) ANGLE IRON, SA-36 RAILS & POSTS. SOME FIELD BOLTING REQUIRED.
 2. ALL PLATFORMS, LADDERS, AND GRATING TO BE HOT DIPPED GALVANIZED PER ASTM-A123.
 3. GRATING CUTOUTS FOR PIPING 2" AND LARGER ARE TO BE FIELD INSTALLED.
 4. GAS SIDE DESIGN PRESSURE: 220" W.G.
 5. AN ADDITIONAL 3" WILL BE ADDED AT PIPING FIELD WELDS FOR ADJUSTMENT IN THE FIELD CUT AND PREP. AS REQUIRED.
 6. ALL EXPOSED SURFACES PREP PER SSPC-SP6 PRIME WITH PPG 97-676 ONE-PAC INORGANIC ZINC PRIMER. 3-4 MILS DFT. FINISH COAT WITH CARBOLINE 4900R SILICONE ACRYLIC ENAMEL (ALUMINUM COLOR), 1.5-2 MILS DFT.
 7. ALL GAS SIDE FLANGES, EXCEPT AS NOTED ON NOTE #9, WILL BE WELDED.
 8. ALL FRESH AIR FLANGES THROUGH BURNER INLET FLANGE, FAN, SILENCER, RAINHOOD, MIXING DUCT, FOR OUTLET EXPANSION JOINT, AND DAMPER WILL BE BOLTED.
 9. CUSTOMER TO INCLUDE RENTECH'S PORTION OF STEAM OUTLET PIPING IN THEIR STRESS ANALYSIS AND ADVISE RENTECH OF SUPPORT DETAILS REQUIRED. REFER TO DRAWING 16-39-05 FOR STEAM OUTLET NOZZLE MOVEMENTS AND ALLOWABLE LOADS.
 10. REFER TO 16-39-05 FOR BASE PLATE LOCATIONS.

MATERIAL OF CONSTRUCTION

BURNER	SEE ZEECO DRAWING
FAN	SEE ZEECO DRAWING
BOILER	SEE RENTECH DRAWING 16-39-10
BOILER OUTLET DUCT	SEE E-TECH DRAWING GA-4431-1
ECONOMIZER	SEE E-TECH DRAWING BV-4431-1
ECONOMIZER OUTLET DUCT	SEE E-TECH DRAWING GA-4431-1
STACK	SEE E-TECH DRAWING GA-4431-1
FGR	16" OD, 1/4" THICK INSULATED IN FIELD BY OTHERS

△ * SG = SAFETY GATE

REFERENCE DRAWINGS

16-39-02	SYSTEM ARRANGEMENT - SIDE VIEW
16-39-03	SYSTEM ARRANGEMENT - BURNER END VIEW
16-39-04	SYSTEM ARRANGEMENT - TARGET END VIEW
16-39-05	ANCHOR BOLT ARRANGEMENT
16-39-10	"D" TYPE WATERTUBE BOILER

NO.	DATE	DESCRIPTION	BY	APPR
2/17/17		CUSTOMER COMMENTS	BKD	BW

RENTECH BOILER SYSTEMS, INC.
 "Boilers for people who know and care"

THIS DRAWING AND DESIGN ARE THE PROPERTY OF RENTECH BOILER SYSTEMS, INC. THEY ARE SUBMITTED ON THE CONDITION THAT THEY ARE NOT TO BE COPIED IN PART, IN WHOLE, OR FOR ANY PURPOSE DETRIMENTAL TO RENTECH BOILER SYSTEMS, INC.

DESCRIPTION: **SYSTEM ARRANGEMENT - PLAN VIEW**

CUSTOMER: P.O. #10246
 RD JUNIPER CTL PROJECT
 TAG #US-01-083-H-0001
 WESTLAKE, LOUISIANA

SCALE: 1/2" = 1'-0"
 DATE: 12/28/16

DRAWN BY: RD
 APPR BY: BW

PROJECT NUMBER: 16-39-01
 REV: 0

PLAN VIEW

STACK HAS BEEN CUT TO FIT ON DRAWING
REFER TO ETECH DRAWING GA-4431-1 FOR
FULL STACK DETAILS

STACK AND PLATFORM
REFER TO ETECH
DRAWING GA-4431-1

RAINHOOD

START-UP VENT
SILENCER

SILENCER

DAMPER

FGR MIXING DUCT

ECONOMIZER OUTLET DUCT
REFER TO ETECH
DRAWING GA-4431-1

ECONOMIZER
REFER TO ETECH
DRAWING EV-4431-1

BOILER
REFER TO RENTECH
DRAWING 16-39-10

CHEMICAL FEED
TIE POINT
3/4" 600# FLG
CONTINUOUS
BLOWDOWN
TIE POINT
1" 800# RF FLG

FAN
REFER TO AIRPRO
DRAWING 2191901

ECONOMIZER INLET DUCT
REFER TO ETECH
DRAWING GA-4431-1

BURNER REFER TO ZEECO
DRAWING 30625-G-006-A-102

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

BOILER GAS OUTLET
TIE POINT
1/4" 16"

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

BOILER GAS OUTLET
ECONOMIZER
STACK

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

MAIN STEAM OUTLET
TIE POINT
2" 600# RF FLG

FEEDWATER INLET
TIE POINT
3" 600# RF FLG

FEEDWATER INLET
TIE POINT
3" 600# RF FLG

FEEDWATER INLET
TIE POINT
3" 600# RF FLG

FEEDWATER INLET
TIE POINT
3" 600# RF FLG

FEEDWATER INLET
TIE POINT
3" 600# RF FLG

FEEDWATER INLET
TIE POINT
3" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG

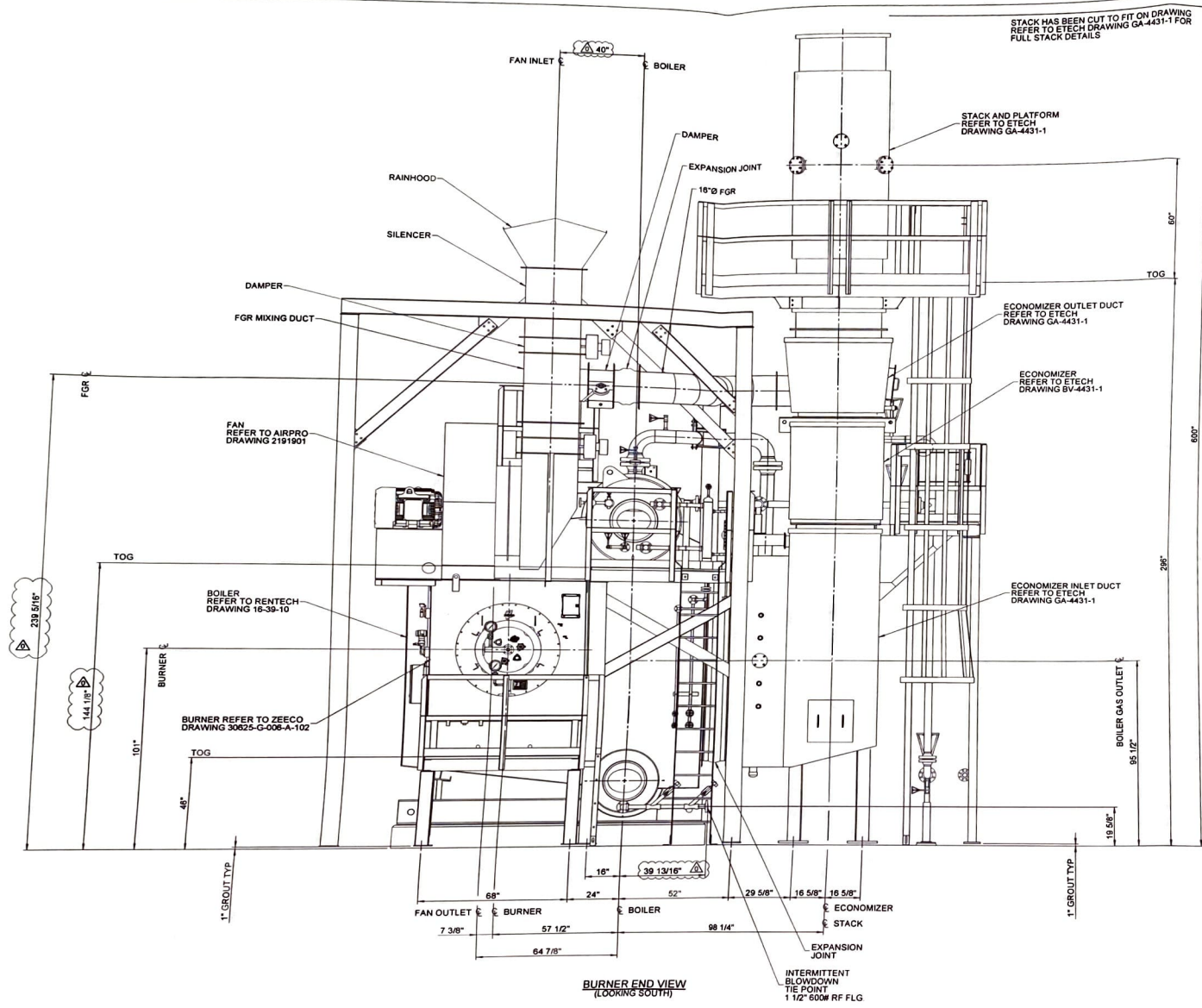
REFERENCE DRAWINGS

16-39-01	SYSTEM ARRANGEMENT - PLAN VIEW
16-39-03	SYSTEM ARRANGEMENT - BURNER END VIEW
16-39-04	SYSTEM ARRANGEMENT - TARGET END VIEW
16-39-05	ANCHOR BOLT ARRANGEMENT
16-39-10	"D" TYPE WATERTUBE BOILER

NO	DATE	GENERAL REVISION	BKD	BW
	2/17/17			

		BOILER SYSTEMS, INC. <small>"Boilers for people who know what they want"</small>
<small>THIS DRAWING AND DESIGN ARE THE PROPERTY OF RENTTECH BOILER SYSTEMS, INC. THEY ARE SUBMITTED ON THE CONDITION THAT THEY ARE NOT TO BE COPIED IN PART OR WHOLE, OR FOR ANY PURPOSE DETRIMENTAL TO RENTTECH BOILER SYSTEMS, INC.</small>		
DESCRIPTION	SYSTEM ARRANGEMENT - SIDE VIEW	
CUSTOMER	P.O. #10246 RD JUNIPER GLE PROJECT TAG MUS-01-983-H-0001 WESTLAKE, LOUISIANA	
SCALE	1/2" = 1'-0"	DRAWN BY: RD
DATE	12/29/16	APPR BY: BW
		DRAWING NO. 16-39-02
		PAGE 0

SIDE VIEW
(LOOKING EAST)



STACK HAS BEEN CUT TO FIT ON DRAWING
REFER TO ETECH DRAWING GA-4431-1 FOR
FULL STACK DETAILS

REFERENCE DRAWINGS			
16-39-01	SYSTEM ARRANGEMENT - PLAN VIEW		
16-39-02	SYSTEM ARRANGEMENT - SIDE VIEW		
16-39-04	SYSTEM ARRANGEMENT - TARGET END VIEW		
16-39-05	ANCHOR BOLT ARRANGEMENT		
16-39-10	"D" TYPE WATERTUBE BOILER		

NO.	DATE	GENERAL REVISION	BKD	BW
	2/17/17			

RENTECH BOILER SYSTEMS, INC.
"Boilers for people to be known and cared"

THIS DRAWING AND DESIGN ARE THE PROPERTY OF RENTECH BOILER SYSTEMS, INC.
THEY ARE SUBMITTED ON THE CONDITION THAT THEY ARE NOT TO BE COPIED IN PART,
IN WHOLE OR FOR ANY PURPOSE DETRIMENTAL TO RENTECH BOILER SYSTEMS, INC.

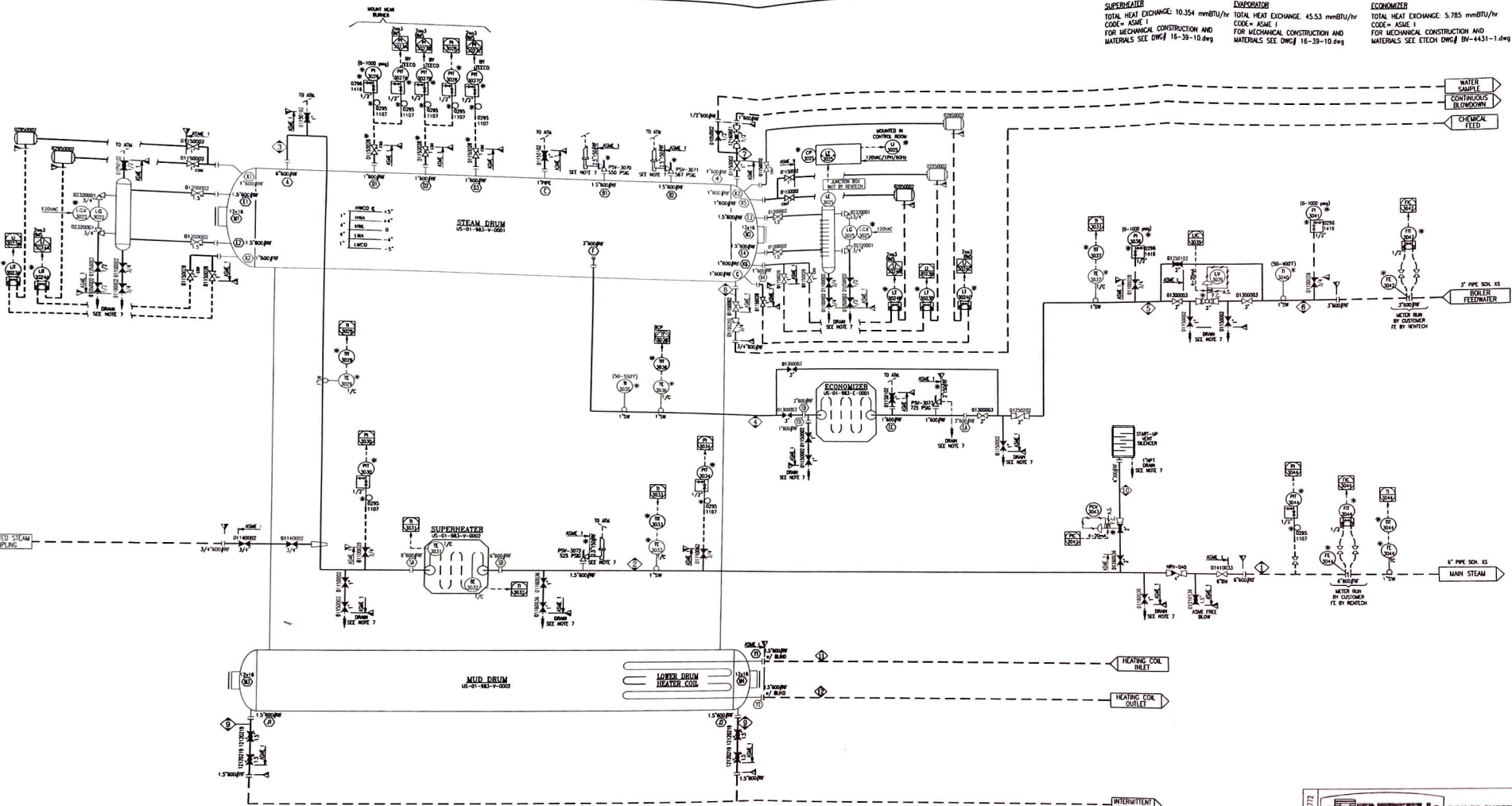
DESCRIPTION: SYSTEM ARRANGEMENT - BURNER END VIEW

CUSTOMER: P.O. #10246
RD JUNIPER GTL PROJECT
TAG BUS-01-953-H001
WESTLAKE, LOUISIANA

SCALE: 1/2" = 1'-0" DRAWN BY: RD DRAWING NUMBER: 16-39-03 SHEET: 0
DATE: 12/29/16 APPR BY: BW

BURNER END VIEW
(LOOKING SOUTH)

INTERMITTENT
BLOWDOWN
TIE POINT
1 1/2" 600# RF FLG



SUPERHEATER
 TOTAL HEAT EXCHANGE: 10,354 mmBTU/hr
 CODE= ASME I
 FOR MECHANICAL CONSTRUCTION AND MATERIALS SEE DWG# 16-39-10.dwg

ECONOMIZER
 TOTAL HEAT EXCHANGE: 45.53 mmBTU/hr
 CODE= ASME I
 FOR MECHANICAL CONSTRUCTION AND MATERIALS SEE DWG# 16-39-10.dwg

ECONOMIZER
 TOTAL HEAT EXCHANGE: 5,785 mmBTU/hr
 CODE= ASME I
 FOR MECHANICAL CONSTRUCTION AND MATERIALS SEE ETECH DWG# BH-4431-1.dwg

NOTICE
 ALL INSTRUMENTED AND DESIGN TEMPERATURES LISTED ARE ASME CODE DESIGN CONDITIONS
 ALL PIPE SIZES UNLESS OTHERWISE SPECIFIED ARE ASME CODE DESIGN CONDITIONS
 ALL PRESSURES, OPERATING TEMPERATURES AND FLOW RATES LISTED ARE THE
 DESIGN CONDITIONS FOR THE EQUIPMENT AT 100% WORK

ITEM NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

- NOTES:**
- SEE STANDARD LEGEND ON DRAWING NO. 16-39-20
 - ALL DESIGNED PIPE SIZES/INSTRUMENTATION POINTS ARE NOT PROVIDED BY SUPPLIER AND FUNCTIONS ARE PROVIDED BY CUSTOMER
 - STEEL INDICATED BY 101 IS FURNISHED BY PENTECH & SUPPLIED LOGS TO BE INSTALLED BY OTHERS IN THE FIELD
 - (REVISIONS) INDICATES SCOPE OF WORK
 - FEEDWATER INLET PRESSURE MUST BE AT LEAST 541 PSIG
 - ALL COLD WATER TO BE HEATED TO 180°F TO PREVENT THERMAL SHOCK TO BOILER
 - FEED PUMP MUST BE CAPABLE OF PRODUCING WATER AT 541 PSIG AT 200 GPM
 - THE USE OF STEAM PRESSURE GAUGE LOCATION VALVE MUST BE APPROVED BY THE CUSTOMER
 - ALL DRAINS ARE TO BE INSTALLED TO GRADE OR TO A SAFE LOCATION AND USED TO ROUTE TO PRETREATED LOCATION
 - ALL ELECTRICAL DEVICES TO BE RATED FOR HAZARDOUS
 - FOR COMB. AIR & GAS PIPING REFER TO DRAWING 16-39-22
 - SPECIAL WARNING REQUIREMENTS ARE NOT APPLICABLE
 - PRESSURE INSTRUMENTS ARE TO BE MOUNTED BELOW THE PROCESS CONNECTION
 - SUPERHEATER INSTRUMENTATIONS SUPPLIED FOR AREA-UP PURPOSE
 - LIFE EXPECTANCY IS LIMITED
 - ALL PNEUMATIC DEVICES SHALL BE DESIGNED FOR CLEAN DRY AIR AT 80 PSIG AND 170 PSIG MAX.

PENTECH BOILER SYSTEMS, INC.
 "Boilers for people who know and care"

THIS DRAWING AND DESIGN ARE THE PROPERTY OF PENTECH BOILER SYSTEMS, INC. AND SHALL BE KEPT CONFIDENTIAL TO THE CUSTOMER. ANY REUSE OR REPRODUCTION WITHOUT WRITTEN PERMISSION IS STRICTLY PROHIBITED. THIS DRAWING IS FOR INFORMATION ONLY AND IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY PURPOSES OTHER THAN THAT FOR WHICH IT WAS DESIGNED.

SKALS NO: 20001712

NO.	DESCRIPTION	DATE	BY	APPROV.
1	ISSUE FOR CONSTRUCTION	2/2/17	EDR	TDL
2	ISSUE FOR REVIEW AND COMMENT	12/22/16	EDR	TDL

DESCRIPTION: P & I D WATER AND STEAM WATER TUBE BOILER W/ SUPERHEATER
 CUSTOMER: P.O. BOX 10284 TALL MADISON, MISSISSIPPI 39210
 RD JUNIPER OIL PROJECT
 WESTLAKE, LOUISIANA

SCALE: NONE
 DATE: 12-8-2016
 DRAWN BY: EDR
 APPR BY: TDL
 CHECKED BY: EDR
 DATE: 16-39-21



"Boilers for people who know and care"
5025A East Business 20, Abilene, Texas 79601 – 325-872-3400
<http://www.rentechboilers.com>

Operation & Maintenance Manual

Prepared for:

RD Juniper GTL Project
Westlake, Louisiana

Tag # US-01-983-H-0001

Project Information:

Purchase Order No.:	10246
Issued to Rentech by:	Juniper GTL, LLC
Project Name:	RD Juniper GTL Project
Location:	Westlake, LA

Rentech Serial Number Sequence:

Boiler – "D" Style Watertube	2016-39-BLR
Superheater	2016-39-260
Economizer	2016-39-ECON

Operation and Maintenance Manual
Book 1 of 1