

NOTES:

1.  DENOTES REMOTE CONTROL PANEL BY OTHERS.
2. PROPANE, GLYCOL AND HEATING MEDIUM PIPING TO BE SOCKET WELD (SW), 1 1/2" AND SMALLER.
3. LOW POINT DRAINS/HIGH POINT VENTS ADDED WHERE REQUIRED.
4. INSTRUMENT FITTINGS TO BE PARKER 316 SS & 316 SS TUBING.
5. INSTALL THERMOWELL IN ELBOW.
6. TDE TO SHIP LOOSE BDV-3000 & BY-3000 (HAND VALVES BY OTHERS)

E-300A/B

GAS/GAS EXCHANGER
SIZE: 24" ODx48'-0" TS/TS
TYPE: NEN 2-BANKS
DESIGN: 1300 PSIG @ 150/-49°F
DUTY: 6,091,000 BTU/HR
C.A.: 1/16"

E-310

GAS CHILLER
SIZE: 24" ODx42" ODx30'-0" TS/TS
TYPE: NKN
TUBESIDE: 1300 PSIG @ 150/-49°F
SHELLSIDE: 260 PSIG @ 150/-49°F
DUTY: 1,965,000 BTU/HR
C.A.: 1/16"

V-320

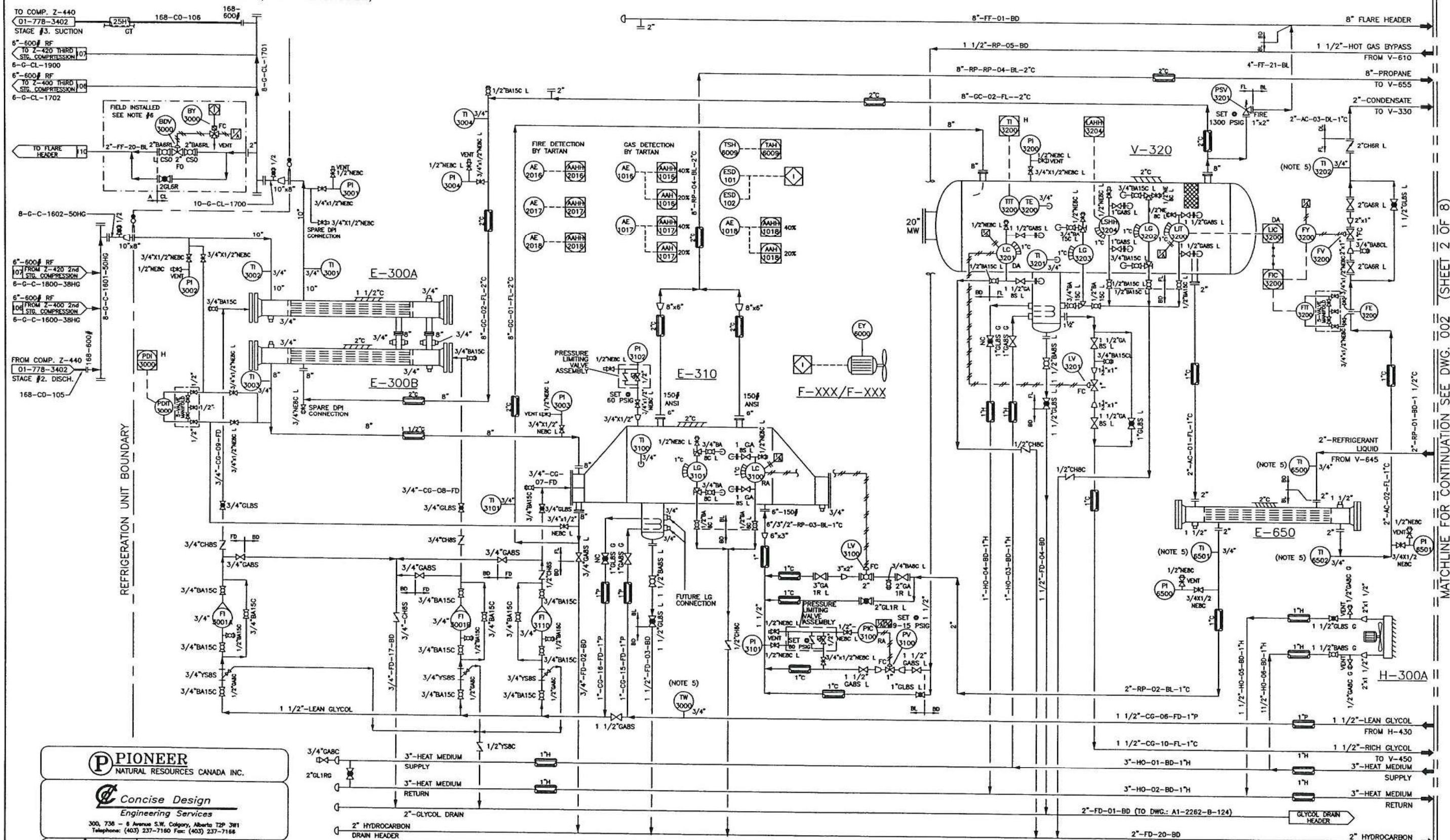
LOW TEMPERATURE SEPARATOR
SIZE: 54" ODx18'-0" S/S
TYPE: HORIZONTAL 3-PHASE
DESIGN: 1300 PSIG @ 150/-49°F
C.A.: 1/16"

H-300A

BUILDING HEATER
MODEL: RUFFNECK HP5-16
DUTY: 93,100 BTU/HR
FAN MOTOR: 1/4 HP, 1725 RPM
120/208V/1Ø/60 HZ, XP

E-650

PROPANE SUBCOOLER
SIZE: 6 5/8" ODx20'-0" TS/TS
TYPE: NEN
TUBESIDE: 1300 PSIG @ 150/-49°F
SHELLSIDE: 260 PSIG @ 150/-49°F
DUTY: 118,000 BTU/HR
C.A.: 1/16"



MATCHLINE FOR CONTINUATION SEE DWG. 002 (SHEET 2 OF 8)

PIONEER
NATURAL RESOURCES CANADA INC.

Concise Design
Engineering Services

300, 736 - 8 Avenue S.W. Calgary, Alberta T2P 3W1
Telephone: (403) 237-7160 Fax: (403) 237-7166



PROJECT No.
226200
DATE
97.11.03
DWG. No.
A1-2262-B-120
REV
8

REVISION	DATE	BY
4 TDE CHANGES.	JAN.27/98	D.C.S.
5 PLANT EXPANSION (01-778.04) - AS BUILT	MAR/13/02	GX
6 PLANT EXPANSION 2001/2002 (01-778.04) - ISSUED FOR CONSTR.	NOV/30/01	CJB
7 PLANT EXPANSION 2001/2002 (01-778.04) - ISSUED FOR BID	NOV/1/01	CJB
8 PLANT EXPANSION 2001/2002 (01-778.04) - ISSUED FOR APPROVAL	OCT/2/01	CJB



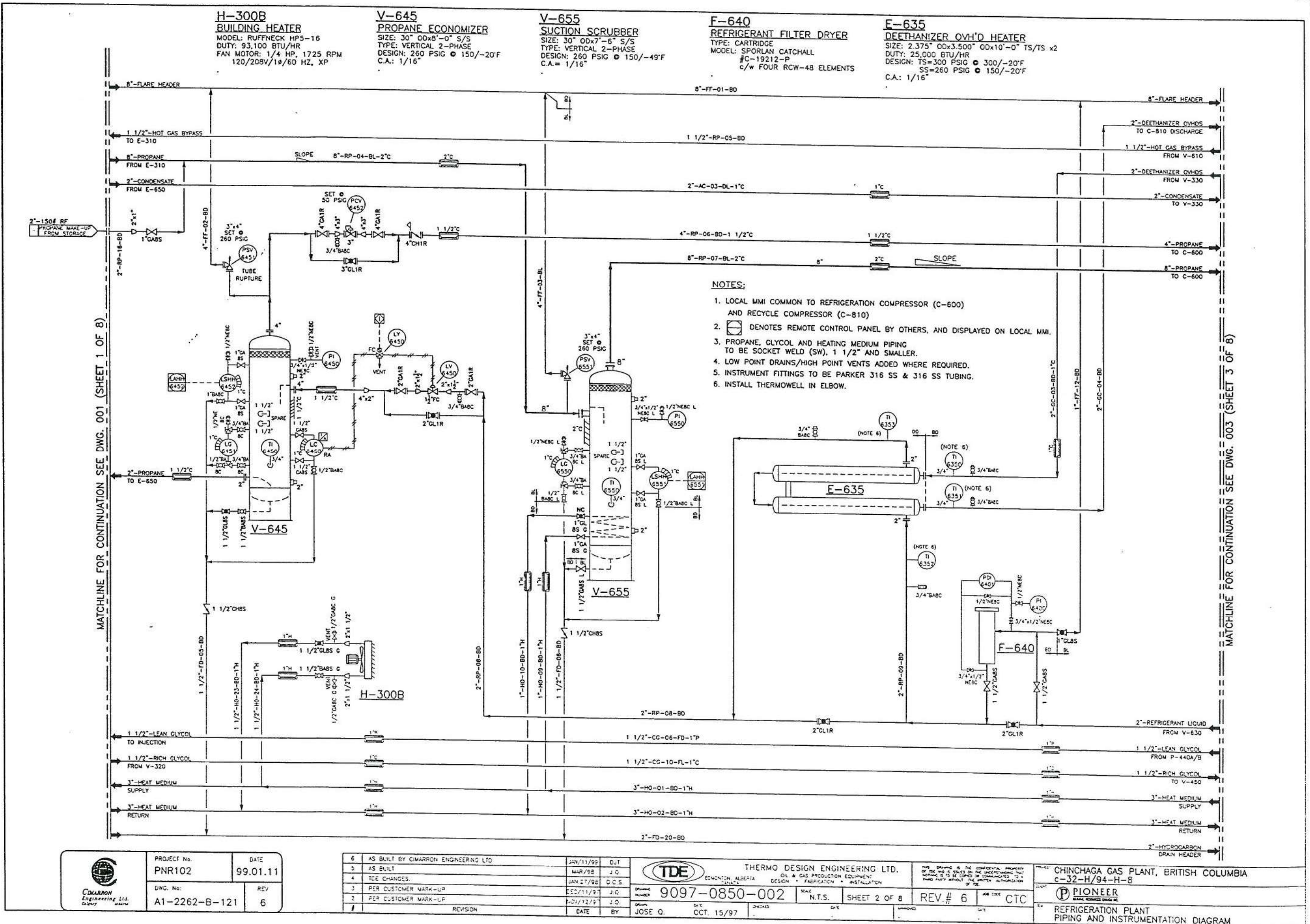
THERMO DESIGN ENGINEERING LTD.
OIL & GAS PRODUCTION EQUIPMENT
DESIGN • FABRICATION • INSTALLATION

9097-0850-001
N.T.S. SHEET 1 OF 8
REV.# 8
JOB CODE CTC
DATE OCT. 15/97
CHECKED
APPROVED

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PROJECT CHINCHAGA GAS PLANT, BRITISH COLUMBIA
C-32-H/94-H-8

CLIENT PIONEER NATURAL RESOURCES CANADA INC.
c/o CONCISE DESIGN
REFRIGERATION PLANT
PIPING AND INSTRUMENTATION DIAGRAM



	PROJECT No.	DATE
	PNR102	99.01.11
	DWG. No.	REV
	A1-2262-B-121	6

6	AS BUILT BY CIMARRON ENGINEERING LTD	JAN/11/99	DJT
5	AS BUILT	MAR/98	J.G.
4	TCE CHANGES	JAN 27/98	D.C.S.
3	PER CUSTOMER MARK-UP	FEB/11/97	J.G.
2	PER CUSTOMER MARK-UP	FEB/12/97	J.G.
1	REVISION	DATE	BY



THERMO DESIGN ENGINEERING LTD.
 OIL & GAS PRODUCTION EQUIPMENT
 DESIGN • FABRICATION • INSTALLATION

DRAWING NUMBER: 9097-0850-002
 DATE: OCT. 15/97
 CHECKED: [Signature]
 APPROVED: [Signature]

SCALE: N.T.S.
 SHEET 2 OF 8
 REV.# 6
 JOB CODE: CTC

CHINCHAGA GAS PLANT, BRITISH COLUMBIA
 C-32-H/94-H-8

PIONEER
 REFRIGERATION PLANT
 PIPING AND INSTRUMENTATION DIAGRAM

M-600
REFRIGERANT COMP. DRIVER
TYPE: ELECTRICAL MOTOR
CAPACITY: 600 HP @ 3550 RPM
4160V/3Ø/60 HZ, XP
MANUF.: TECO WESTINGHOUSE

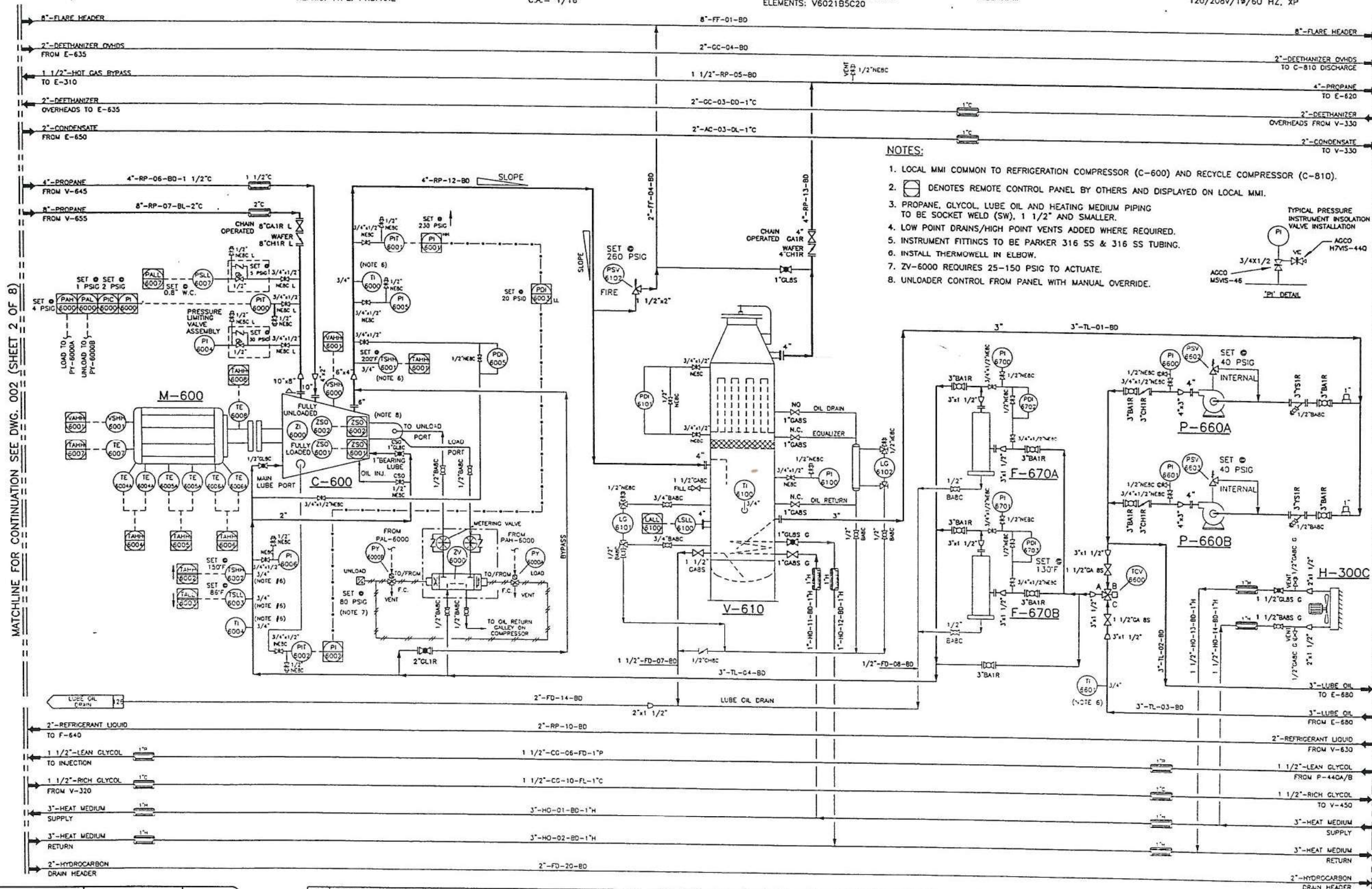
C-600
REFRIGERANT COMPRESSOR
MODEL: MYCOM 250VS
TYPE: SINGLE STAGE SCREW COMPRESSOR
REFRIG. CAP.: 163.75 USTR MAX
(3550 RPM, 470 HP MAX.)
REFRIG. TYPE: PROPANE

V-610
DISCHARGE OIL TRAP/COALESCER
SIZE: 30" ODx7'-6" S/S
TYPE: VERTICAL 2-PHASE
ELEMENTS: SIX HEADLINE #51-476-70C
DESIGN: 260 PSIG @ 200/-20°F
C.A. = 1/16"

F-670A/B
LUBE OIL FILTERS
MODEL: VICKERS H6201E4MNB5C20
TYPE: 20 MICRONS
DESIGN: 900 PSIG @ 275/-20°F
FLOW: 2-FILTERS IN PARALLEL
ELEMENTS: V6021B5C20

P-660AB
LUBE OIL PUMPS
MODEL: MYCOM M80P-6PM
CAPACITY: 60 USGPM
MOTOR: 7.5 HP, 480/3Ø/60 HZ, XP
1150 RPM

H-300C
BUILDING HEATER
MODEL: RUFFNECK HP5-16
DUTY: 93,100 BTU/h.
FAN MOTOR: 1/4 HP, 1725 RPM
120/208V/1Ø/60 HZ, XP



MATCHLINE FOR CONTINUATION SEE DWG. 002 (SHEET 2 OF 8)

MATCHLINE FOR CONTINUATION SEE DWG. 004 (SHEET 4 OF 8)

	PROJECT No.	DATE
	PNR102	99.01.11
	DWG. No.	REV
A1-2262-B-122	6	

6	AS BUILT BY CIMARRON ENGINEERING LTD	JAN/11/99	DUT
5	AS BUILT	MAR/98	JQ
4	TDE CHANGES	JAN 27/98	D C S
3	PER CUSTOMER MARK-UP	DEC/11/97	JQ
2	PER CUSTOMER MARK-UP	NOV/12/97	JQ
1	REVISION	DATE	BY

	THERMO DESIGN ENGINEERING LTD.	
	OIL & GAS PRODUCTION EQUIPMENT DESIGN • FABRICATION • INSTALLATION	
EDMONTON, ALBERTA (CANADA)	PHONE	9097-0850-003
FAX	850-0033	
JOSE Q.	DATE	OCT. 15/97
CHECKED	DATE	
APPROVED	DATE	
SHEET 3 OF 8		REV. # 6
N.T.S.		JOB CODE CTC

PROJECT	CHINCHAGA GAS PLANT, BRITISH COLUMBIA C-32-H/94-H-8
CLIENT	PIONEER NATURAL RESOURCES CANADA INC.
TECH	REFRIGERATION PLANT PIPING AND INSTRUMENTATION DIAGRAM

V-630
PROPANE ACCUMULATOR
SIZE: 42" ODX12'-0" S/S
TYPE: HORIZONTAL 2-PHASE
DESIGN: 260 PSIG @ 150/-20°F
C.A.: 0"

E-620
PROPANE CONDENSER
TYPE: FORCED DRAFT
MODEL: ACE E144-2
DESIGN: 260 PSIG @ 200/-20°F
DUTY: 2,760,000 BTU/h. @ 110°F CONDENSING
C.A.: 1/8"

E-680 (INTEGRAL W/E-620)
REFRIG. COMPRESS. LUBE OIL COOLER
TYPE: FORCED DRAFT
MODEL: ACE E144-2
DESIGN: 215 PSIG @ 350/-20°F
DUTY: 450,000 BTU/h.
C.A.: 1/8"

E-350 (INTEGRAL W/E-620)
NGL COOLER
TYPE: FORCED DRAFT
MODEL: ACE E144-2
DESIGN: 300 PSIG @ 350/-20°F
DUTY: 180,000 BTU/h.
C.A.: 1/16"

M-680/681
AIR COOLER FAN MOTORS
SIZE: 40 HP
MAKE: MARATHON BLUECHIP
VOLTAGE: 480V/3Ø/60 HZ, XP

V-330
DE-ETHANIZER
SIZE: 16" ODX40'-0" S/S
TYPE: PACKED TOWER
DESIGN: 300 PSIG @ 300/-20°F
C.A.: 1/16"

E-340
DE-ETHANIZER REBOILER
SIZE: 10 3/4" ODX5'-0" TS/TS
TYPE: VERTICAL THERMOSYPHON
DESIGN: SHELL=150 PSIG @ 350/-20°F
TUBE=300 PSIG @ 300/-20°F
DUTY: 557,000 BTU/h. +10%, C.A.=1/16"

MATCHLINE FOR CONTINUATION SEE DWG. 003 (SHEET 3 OF 8)

MATCHLINE FOR CONTINUATION SEE DWG. 005 (SHEET 5 OF 8)

NOTES:

1.  DENOTES REMOTE CONTROL PANEL BY OTHERS.
2. PROPANE, GLYCOL AND HEATING MEDIUM PIPING TO BE SOCKET WELD (SW), 1 1/2" AND SMALLER.
3. LOW POINT DRAINS/HIGH POINT VENTS ADDED WHERE REQUIRED.
4. - - - - - INDICATES INTERCONNECTION PIPING BY OTHERS.
5. INSTRUMENT FITTINGS TO BE PARKER 316 SS & 316 SS TUBING.
6. INSTALL THERMOWELL IN ELBOW.
7. SPECIAL PIPING ITEM TO ANSI B31.1 DESIGN CODE.

PIONEER
NATURAL RESOURCES CANADA INC.

Concise Design
Engineering Services

300, 738 - 8 Avenue S.W. Calgary, Alberta T2P 3W1
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PROJECT No.
226200
DATE
97.11.03
DWG. No.
A1-2262-B-123
REV
7

4	TDE CHANGES.	JAN.27/98	D.C.S.
3	PER CUSTOMER MARK-UP	DEC.11/97	J.Q.
7	PLANT EXPANSION 2001/2002 (01-778.04) - AS BUILT	MAR.13/02	GX
8	PLANT EXPANSION 2001/2002 (01-778.04)-ISSUED FOR CONSTR.	NOV.30/01	CJB
5	PLANT EXPANSION 2001/2002 (01-778.04)-ISSUED FOR BID	NOV.1/01	CJB
#	REVISION	DATE	BY



THERMO DESIGN ENGINEERING LTD.
OIL & GAS PRODUCTION EQUIPMENT
DESIGN • FABRICATION • INSTALLATION

9097-0850-004

SCALE
N.T.S.

SHEET 4 OF 8

REV.# 7

JOB CODE
CTC

PROJECT
CHINCHAGA GAS PLANT, BRITISH COLUMBIA
C-32-H/94-H-8
CLIENT
PIONEER NATURAL RESOURCES CANADA INC.
c/o CONCISE DESIGN
ITEM
REFRIGERATION PLANT
PIPING AND INSTRUMENTATION DIAGRAM

V-400
GLYCOL FLASH SEPARATOR
SIZE: 24" ODx6'-0" S/S
610mmODx1829mm S/S
TYPE: 2-PHASE VERTICAL
DESIGN: 175 PSIG @ 200/-20°F
1206 kPaG @ 93/-29°C
C.A.: 1/16"

F-410
GLYCOL FILTER
MODEL: CUNO 1B2
TYPE: CARTRIDGE 25 MICRONS
DESIGN: 50 PSIG @ 200/-20°F
C.A.: 1/16"
FLOOR MOUNT

F-420
CHARCOAL FILTER
TYPE: CUNO 1B2
TYPE: CHARCOAL CARTRIDGE
DESIGN: 50 PSIG @ 200/-20°F
C.A.: 1/16"
FLOOR MOUNT

H-430/V-450/T-460
GLYCOL REBOILER
SIZE: 36"OD x 16'-0"LG
SURGE TANK: 30"OD x 16'-0"LG
STILL COLUMN: 16" ODx7'-0" HIGH
DUTY: 1,320,000 BTU/HR
DESIGN: SHELL 10 PSIG @ 350°F, C.A. = 1/16"
STILL COIL: 1300 PSIG @ 350°F/-49°F, C.A. = 1/16"
STORAGE COIL: 1300 PSIG @ 350°F/-20°F, C.A. = 1/16"

E-435
TUBE BUNDLE
SIZE: 12" x 15'-6" TS/TAN, BKU
DUTY: 1,320,000 BTU/HR
DESIGN: 150 PSIG @ 350°F/-20°F, C.A. = 1/16"

P-440A/B
GLYCOL INJECTION PUMPS
MODEL: WHEATLEY P-100A
CAPACITY: 10 USGPM, 900 PSIG
272 RPM
MOTOR: 7.5 HP, 480/34/60 HZ, XP, 1800 RPM

MATCHLINE FOR CONTINUATION SEE DWG. 004 (SHEET 4 OF 8)

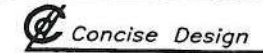
MATCHLINE FOR CONTINUATION
SEE DWG. 006 (SHEET 6 OF 8)

NOTES:

1.  DENOTES REMOTE CONTROL PANEL BY OTHERS.
2. PROPANE, GLYCOL AND HEATING MEDIUM PIPING TO BE SOCKET WELD (SW), 1 1/2" AND SMALLER.
3. LOW POINT DRAINS/HIGH POINT VENTS ADDED WHERE REQUIRED.
4. INSTRUMENT FITTINGS TO BE PARKER 316 SS & 316 SS TUBING.
5. INSTALL THERMOWELL IN ELBOW.



PIONEER
NATURAL RESOURCES CANADA INC.



Concise Design
Engineering Services

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Telephone: (403) 237-7160 Fax: (403) 237-7166



Tartan
RESPONSE ENGINEERING
CALGARY ALBERTA

PROJECT No.
226200

DATE
97.11.03

DWG. No.
A1-2262-B-124

REV
8

4	TDE CHANGES.	JAN.27/98	D.C.S.
8	PLANT EXPANSION 2001/2002 (01-778.04) - AS BUILT	MAR.13/02	GX
7	GENERAL REVISION (01-778.04)	FEB.01/02	SM
6	PLANT EXPANSION 2001/2002 (01-778.04)-ISSUED FOR CONSTR.	NOV.30/01	CJB
5	PLANT EXPANSION 2001/2002 (01-778.04)-ISSUED FOR BID	NOV.01/01	CJB
#	REVISION	DATE	BY



TDE
THERMO DESIGN ENGINEERING LTD.
EDMONTON, ALBERTA
CANADA

9097-0850-005

SCALE
N.T.S.

SHEET 5 OF 8

REV.# 8

JOB CODE
CTC

DESIGNED JOSE Q.	DATE OCT. 15/97	CHECKED	DATE	APPROVED	DATE
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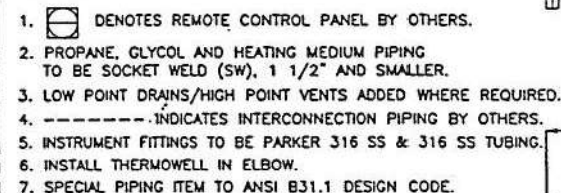
PROJECT
CHINCHAGA GAS PLANT, BRITISH COLUMBIA
C-32-H/94-H-8

CLIENT
PIONEER NATURAL RESOURCES CANADA INC.
c/o CONCISE DESIGN

FROM
GLYCOL INJECTION
PIPING AND INSTRUMENTATION DIAGRAM

FILE NAME: G:\778.04\MECH\226200\226200.DWG --- MENU: C:\PROGRAM FILES\ACAD2000\SUPPORT\ACAD --- PLOTTED: 2002.03.28 7:59am --- GERRY

V-938
UTILITY AIR RECEIVER
SIZE: 16" ODx38" OVERALL (30 GALLONS)
TYPE: VERTICAL
DESIGN: 200 PSIG • 150/-20°F
C.A.: 1/16"



→ MATCHLINE FOR CONTINUATION SEE DWG. 007 (SHEET 7 OF 8)

 CIMARRON Engineering Ltd. Calgary Alberta	PROJECT No. PNR102		DATE 99.01.11	
	DWG. No. A1-2262-B-125		REV 5	

4	AS BUILT	MAR/98	J.O.
3	TDE CHANGES	JAN.27/98	D.C.S.
2	PER CUSTOMER MARK-UP	DEC/11/97	J.O.
1	PER CUSTOMER MARK-UP	NOV/18/97	J.O.
5	AS BUILT BY CIMARRON ENGINEERING LTD	JAN/11/99	CUT
#	REVISION		DATE BY

 THERMO DESIGN ENGINEERING LTD. DR. & GAS PRODUCTION EQUIPMENT DESIGN • FABRICATION • INSTALLATION		THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF TDE AND IS TO BE KEPT IN THE UNDISPUTEDLY CONFIDENTIALITY OF THE COMPANY. IT IS TO BE KEPT IN THE COMPANY'S FILES AND NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN AUTHORIZATION OF TDE.			
		DRAWING NUMBER 9097-0850-006	SCALE N.T.S.	SHEET 6 OF 8	REV.# 5
DRAWN D. B. Hargy	DATE OCT. 28/97	CHECKED	DATE	APPROVED	DATE

PROJECT CHINCHAGA GAS PLANT, BRITISH COLUMBIA C-32-H/94-H-8
CLIENT  PIONEER (NATURAL RESOURCES CANADA INC.)
TITLE CONDENSATE STABILIZATION PIPING AND INSTRUMENTATION DIAGRAM

V-800
RECYCLE SUCTION SCRUBBER
 SIZE: 12 3/4" OD x 6'-0" S/S
 TYPE: 2 PHASE VERTICAL
 DESIGN: 245 PSIG @ 250°F/-20°F
 C.A.: 1/16"

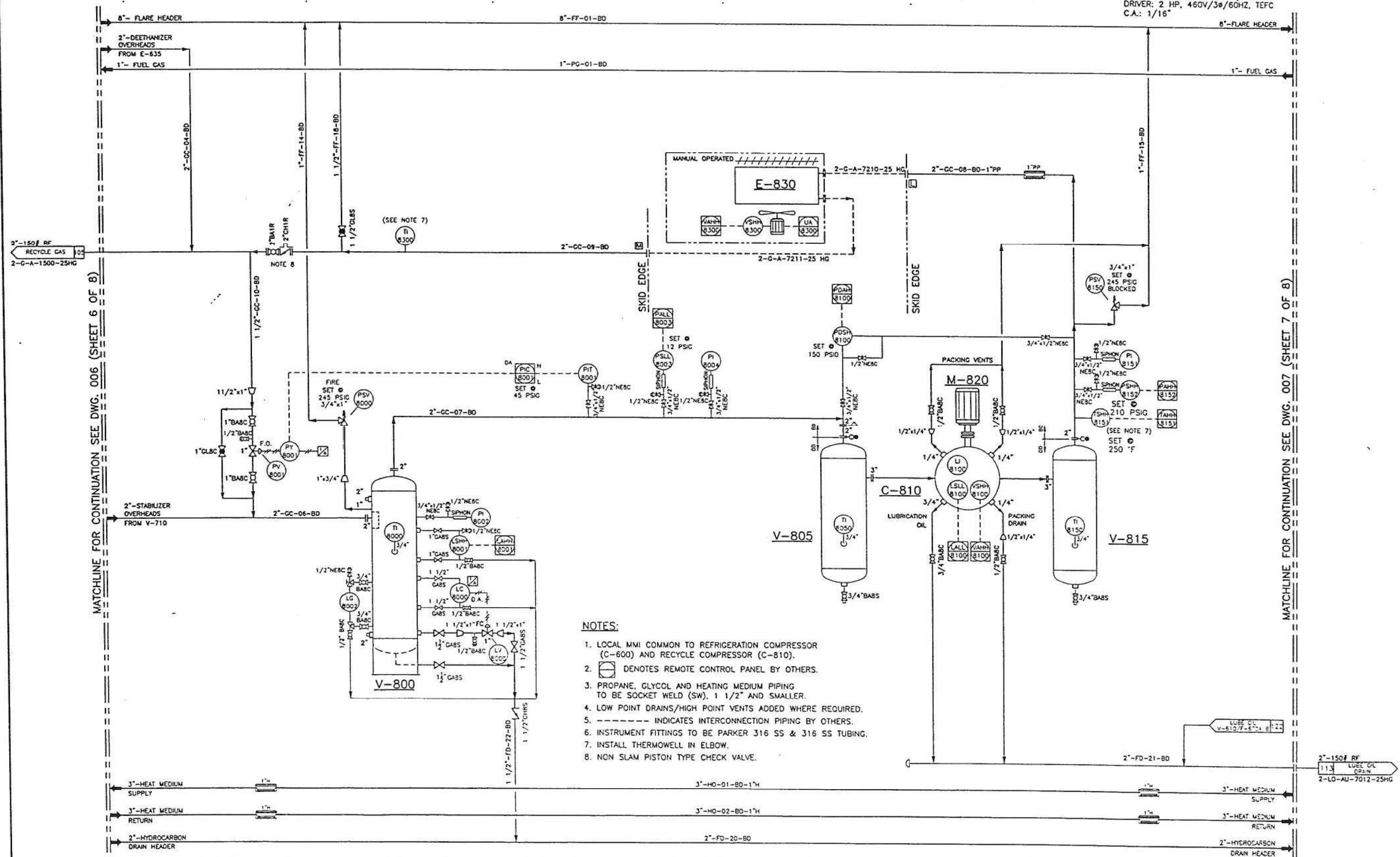
V-805
1ST STAGE SUCTION BOTTLE
 SIZE: 12 3/4" OD x 20" S/S
 TYPE: HORIZONTAL
 DESIGN: 500 PSIG @ 350°F/-20°F
 C.A.: 1/16"

C-810
RECYCLE COMPRESSOR-SINGLE STAGE
 MAKE: KNOX WESTERN
 MODEL: TP65
 DESIGN: 0.340 MMSCFD @ 650 RPM
 PRESSURE: 30 PSIG SUCTION/160PSIG DISCHARGE

V-815
1ST STAGE DISCHARGE BOTTLE
 SIZE: 10 3/4" OD x 24" S/S
 TYPE: HORIZONTAL
 DESIGN: 500 PSIG @ 350°F/-20°F
 C.A.: 1/16"

M-820
RECYCLE COMPRESSOR DRIVER
 MAKE: WEG
 FRAME: 324T, XP
 SIZE: 40 HP @ 1800 RPM
 POWER: 230/460V, 3 PHASE, 60 Hz

E-830
RECYCLE COMPRESSOR-AFTER COOLER
 MAKE: ACE
 MODEL: E24
 DUTY: 60,000 BTU/HR.
 DESIGN: 245 PSIG @ 250°F/-20°F
 DRIVER: 2 HP, 460V/30/60HZ, TEFC
 C.A.: 1/16"



NOTES:

1. LOCAL MMI COMMON TO REFRIGERATION COMPRESSOR (C-600) AND RECYCLE COMPRESSOR (C-810).
2. DENOTES REMOTE CONTROL PANEL BY OTHERS.
3. PROPANE, GLYCOL AND HEATING MEDIUM PIPING TO BE SOCKET WELD (SW), 1 1/2" AND SMALLER.
4. LOW POINT DRAINS/HIGH POINT VENTS ADDED WHERE REQUIRED.
5. ----- INDICATES INTERCONNECTION PIPING BY OTHERS.
6. INSTRUMENT FITTINGS TO BE PARKER 316 SS & 316 SS TUBING.
7. INSTALL THERMOWELL IN ELBOW.
8. NON SLAM PISTON TYPE CHECK VALVE.

	PROJECT No.	DATE
	PNR102	99.01.11
	DWG. No.	REV
	A1-2262-B-126	6

4	AS BUILT	MAR/98	J.O.
3	TDE CHANGES	JAN 27/99	D.C.S
2	PER CUSTOMER MARK-UP	DEC/11/97	J.O.
1	PER CUSTOMER MARK-UP	NOV/19/97	J.O.
5	AS BUILT BY CIMARRON ENGINEERING LTD	JAN/11/99	DJT
1	REVISION	DATE	BY

		THERMO DESIGN ENGINEERING LTD.	
EDMONTON, ALBERTA		OIL & GAS PRODUCTION EQUIPMENT	
DESIGN		FABRICATION	
INSTALLATION		SCALE	
9097-0850-007		N.T.S.	
SHEET 7 OF 8		REV. # 5	
DATE		OCT. 29/97	
BY		CTC	

PROJECT		CHINCHAGA GAS PLANT, BRITISH COLUMBIA	
SHEET		c-32-H/94-H-8	
DRAWN			
CHECKED		RECYCLE COMPRESSION	
DATE		PIPING AND INSTRUMENTATION DIAGRAM	