EQUIPMENT SPECIFICATIONS-PHASE 2

POWER MONITOR

CTPM1
CTPM2
CTPM3
CTPM4
6TPM01
6TPM02

THERMOCOUPLES & THERMOWELLS

6TTC23-3
6TTC24-3
6TTC25-3
6TTC26-3
6PTC27-3
6PTC27-4
6TTC28-2
6TTC28-3
6TTC29-2
6TTC29-3
6TTC30-2
6TTC30-3
CLTC42
CLTC43
CLTC44
CLTC45
CTTC1
CTTC2
CTTC3
CTTC4
CTTC5
CTTC6
CTTC7
CTTC8
CTTC9
CTTC10
6PTC27-2

pH INSTRUMENT

CTPH1

VACUUM CONTROLLER

6CLK1
6CLK2
6TGP6
6PGP7
N61GP1
N61GP2

PRESSURE/VACUUM INSTRUMENTS

6CCG16
6CCG17
6PCG15
6PPT27-5
6TCG12
6TCG13
6TCG14
6TPT23-4
6TPT24-4
6TPT25-4
6TPT26-4
6TPT28-4
6TPT29-4
6TPT30-4
CTPT1
CTPT2
CTPT3
N61CG1
N61CG2
N61N0127
N61PT1
N61PT2
N61TCG1
N61TCG2
spare 1

DIFFERENTIAL PRESSURE INSTRUMENTS

CTDP1
CTDP2

POWER MONITOR				SHEET 1 OF 1	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		CONTRACT	DATE
				REHAB OF EPL CONTR-BLDG 301 PHASE 2	
				BY GM	CHK'D / APPR.

Rev.	Tag Number	MFG	Model	Voltage /Phase	P&ID	Output	Remarks	Service
	CTPM1	LOAD CONTROLS Inc.	TP2	120/1	SK-M21	4-20 mADC		PUMP #3 OZONE MOTOR POWER
	CTPM2	LOAD CONTROLS Inc.	UPC	480/3	SK-M21	4-20 mADC		CT FAN MOTOR POWER
	CTPM3	LOAD CONTROLS Inc.	UPC	480/3	SK-M21	4-20 mADC		CHEM FEED PUMP #1 MOTOR POWER
	CTPM4	LOAD CONTROLS Inc.	UPC	480/3	SK-M21	4-20 mADC		CHEM FEED PUMP #2 MOTOR POWER
	6TPM01	TIME MARK CORP.	252B	480/3	CF-197605	CONTACT CLOSURE		FMCC01 POWER
	6TPM02	TIME MARK CORP.	252B	480/3	CF-197605	CONTACT CLOSURE		FMCC02 POWER

NOTES:

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THERMOCOUPLES AND THERMOWELLS				SHEET 2 OF 2	
NO	BY	DATE	REVISION	SPEC. NO.	PROJ. PHASE #1
	GM	7/15/2005		CONTRACT	DATE
				REHAB OF EPL CONTROLS-BLDG 301 PROJ. - PHASE 2	
				BY GM	CHK'D / APPR.

Rev.	Tag Number	P&ID	Element Length	Single or Duplex	Type	Cable Length	Service	Notes
	CTTC3	SK-M21	SEE NOTE 2	SINGLE	TYPE "T"	36"	OZONATOR TEMPERATURE	
	CTTC4	SK-M21	SEE NOTE 2	SINGLE	TYPE "T"	36"	OZONATOR TEMPERATURE	
	CTTC5	SK-M21	SEE NOTE 2	SINGLE	TYPE "T"	36"	OZONATOR PUMP #3 TEMPERATURE	
	CTTC6	SK-M21	SEE NOTE 2	SINGLE	TYPE "T"	36"	OZONATOR PUMP #3 MOTOR TEMPERATURE	
	CTTC7	SK-M22	SEE NOTE 2	SINGLE	TYPE "T"	36"	CHEMICAL FEED PUMP #1 TEMPERATURE	
	CTTC8	SK-M22	SEE NOTE 2	SINGLE	TYPE "T"	36"	CHEMICAL FEED PUMP #1 MOTOR TEMPERATURE	
	CTTC9	SK-M22	SEE NOTE 2	SINGLE	TYPE "T"	36"	CHEMICAL FEED PUMP #2 TEMPERATURE	
	CTTC10	SK-M22	SEE NOTE 2	SINGLE	TYPE "T"	36"	CHEMICAL FEED PUMP #2 MOTOR TEMPERATURE	
	6PTC27-2	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	RP4 OIL TEMPERATURE	

Notes:
1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. THERMOCOUPLE TO BE SURFACE MOUNTED. USED WITH "OMEGABAND" 400 CEMENT .
3. PROVIDE TYPE "T" CABLE ("Mini Plug" TYPE) WITH 36 " LEADS AND CONNECTORS.

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THERMOCOUPLES AND THERMOWELLS				SHEET 1 OF 2	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		CONTRACT	DATE
				REHAB. OF EPL CONTROLS-BLDG.301	
				PROJ. PHASE #2	
				BY GM	CHK'D / APPR.

1. Complete Assembly ☐ Other SURFACE MOUNTED WITH CONN.
   Mfr. & Model No. OMEGA , Model: C01-T
   ELEMENT
   Mfr. & Model No.
2. ISA Type TYPE "T" Wire Size #20
3. Sheathed O.D. Material
   Exposed ☐ Grounded ☐ Ungrounded ☑
   Enclosed ☐ Beaded Insulators ☐ Spring Loaded ☐
4. Nipple Size Dimension N Union ☐
5. Packed Connector CEMENT ON - SEE NOTE 2
   HEAD
6. Screw-Cap & Chain ☐ Other NONE
7. Material Conduit Conn.
8. Terminal Block: Single ☐ Duplex ☐
   WELL OR TUBE
9. Material NONE
10. Construction: Tapered ☐ Straight ☐ Drilled ☐ Built-Up ☐ Closed End Tube ☐
11. Dimensions: Mfr. Std. ☐ O.D. I.D.
12. Connections: Process GLUE ON - SEE NOTE 2 Int.
13. Other Specs.:

Notes:
1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. THERMOCOUPLE TO BE SURFACE MOUNTED. USED WITH "OMEGABAND" 400 CEMENT .
3. PROVIDE TYPE "T" CABLE ("Mini Plug" TYPE) WITH 36 " LEADS AND CONNECTORS.

Rev.	Tag Number	P&ID	Element Length	Single or Duplex	Type	Cable Length	Service	Notes
	6TTC23-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROOTS BLOWER #1 - WATER TEMPERATURE	
	6TTC24-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROOTS BLOWER #2 - WATER TEMPERATURE	
	6TTC25-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROOTS BLOWER #3 - WATER TEMPERATURE	
	6TTC26-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROOTS BLOWER #4 - WATER TEMPERATURE	
	6PTC27-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGH PUMP #4 - WATER TEMPERATURE	
	6PTC27-4	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	KINNEY BLOWER #9 - WATER TEMPERATURE	
	6TTC28-2	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGHING PUMP #1 - WATER TEMPERATURE	
	6TTC28-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGHING PUMP #1 - WATER TEMPERATURE	
	6TTC29-2	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGHING PUMP #2 - WATER TEMPERATURE	
	6TTC29-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGHING PUMP #2 - WATER TEMPERATURE	
	6TTC30-2	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGHING PUMP #3 - WATER TEMPERATURE	
	6TTC30-3	CF-197605	SEE NOTE 2	SINGLE	TYPE "T"	36"	ROUGHING PUMP #3 - WATER TEMPERATURE	
	CLTC42	CF-197611	SEE NOTE 2	SINGLE	TYPE "T"	36"	CLCW FROM TK 6 - PC1 - WATER TEMPERATURE	
	CLTC43	CF-197611	SEE NOTE 2	SINGLE	TYPE "T"	36"	CLCW FROM TK 6 - PC2 - WATER TEMPERATURE	
	CLTC44	CF-197611	SEE NOTE 2	SINGLE	TYPE "T"	36"	CLCW FROM TK 6 - PC3 - WATER TEMPERATURE	
	CLTC45	CF-197611	SEE NOTE 2	SINGLE	TYPE "T"	36"	CLCW FROM TK 6 - PC4 - WATER TEMPERATURE	
	CTTC1	SK-M21	SEE NOTE 2	SINGLE	TYPE "T"	36"	OZONATOR TEMERATURE	
	CTTC2	SK-M21	SEE NOTE 2	SINGLE	TYPE "T"	36"	OZONATOR TEMERATURE	

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pH INSTRUMENTS				SHEET 1 OF 1	
NO	BY	DATE	REVISION	P&ID: SK-M21	
	GM	7/15/2005		CONTRACT	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM	CHK'D / APPR.

	1	Tag Number CTPH1	Service CTWS TO OZONATOR
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ with pH PROBE Other
	3	Type	Auto Bal. ☐ Man. Bal. ☐ Galv ☐ Other
	4	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other
	5	Mounting	Flush ☐ Surface ☐ Rack ☐ Multi-Case ☐ Other For Multiple Case, See Spec Sheet
	6	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ Other
	7	Power Supply	117V 60Hz ☐ Other 10 to 30 VDC
	8	Chart	____ Strip ☐ ____ Circ ☐ ____ Time Marks ☐ Range ____ No. ____ Chart Speed ____ Change Gears
	9	Scale	Type ____ Range 1 ____ 2
	10	Printout	No. of Points ____ Sec Per Point ____ Full Travel Speed ____ Print Character and Color ____ Point Select ☐
	11	Selector Switches	No. and Form ____ In Case ☐ External ☐ Switch Cabinet Specs
XMTR	12	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Tag CTPH1 Input-Output Isolation ☑ Mfg/Model HANNA HI8614L
CONTROLLER	13	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other
	14	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	15	Auto-Man Switch	None ☐ Mfr Std ☐ Specify
	16	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Specify
	17	Manual Reg.	None ☐ Mfr Std ☐ Other
	18	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other
INPUT	19	Thermocouple Type	J(IC) ☐ K(CA) ☐ T(CC) ☐ E(CHR-CON) ☐ Other Ref Junction Comp ☐ Lead Resistance (Galv)
	20	Other Input	pH probe ☑ Connection 1/2" NPT Other pH ELECTRODE HANNA Model : HI1001 Tag: CTPH1
ALARM	21	Alarm Switches	Quantity ____ Form ____ Rating
	22	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ Measure Other
	23		Front Adj ____ Back Adj
OPTIONS	24	Burnout Drive	None ☐ Upscale ☐ Downscale ☐
	25	Accessories	Case Illuminator ☐ ____ Charts Filter Reg ☐ Other
	26	Mfr & Model No.	HANNA Model HI 8614L (Transmitter) with HANNA Model HI1001 (pH electrode)

NOTES: 1. MANUFACTURE TO PROVIDE A STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER THE INSTRUMENT TAG.

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VACUUM CONTROLLER				SHEET 1 OF 6	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197606	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6CLK1	Service TANK 6 VACUUM CONTROL -CP1 THRU CP6
GENERAL	2	Function	Record ☐ Indicate ☑ Control ☑ Blind ☐ Integ ☐ Deviation ☐ Other DIODE MONITOR
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☑ Other ____
	4	Mounting	Flush ☐ Surface ☐ Rack ☑ Multi-Case ☐ Other ____ For Multiple Case, See Spec Sheet ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117 V 60 Hz ☑ Other ac ____ dc ☐ ____ Volts
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type IEEE-488 ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
CONTROLLER	10	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other 6 INPUTS - SEE NOTE 1
	11	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	12	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	13	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	14	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	15	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
INPUTS	16	Input Signals	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
	17	No. of Inputs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 INPUTS
	18	Power for Xmtrs	External ☐ This Inst ☑ No. of Independent Supplies ____ For Transmitters, See Spec Sheet ____
ALARMS	19	Alarm Switches	Quantity ____ Form ____ Rating ____
	20	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ On Meas. ____ Other ____
	21	Options	Filter-Reg ☐ Supply Gage ☐ Charts ☑ Int. Illumination ☑ Other ____ Cables:
	22	Mfr & Model No.	LAKESHORE, Model 218S

NOTES:

1. EXISTING DIODE INPUTS. TAG NUMBERS **"6CSD1"** (TK #6,CRYO #1), **"6CSD2"** (TK #6,CRYO #2), **"6CSD3"** (TK#6,CRYO #3), **"6CSD4"** (TK #6,CRYO #4), **"6CSD5"** (TK #6,CRYO #5) AND **"6CSD6"** (TK #6,CRYO #6).
2. LOCATED IN THE CONTROL ROOM, PANEL **CN36 - SEE DWG CF-197628**.

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VACUUM CONTROLLER				SHEET 2 OF 6	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197606	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6CLK2	Service TANK 6 VACUUM CONTROL - CP7 THRU CP12
GENERAL	2	Function	Record ☐ Indicate ☑ Control ☑ Blind ☐ Integ ☐ Deviation ☐ Other DIODE MONITOR
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☑ Other ____
	4	Mounting	Flush ☐ Surface ☐ Rack ☑ Multi-Case ☐ Other ____ For Multiple Case, See Spec Sheet ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☑ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117 V 60 Hz ☑ Other ac ____ dc ☐ ____ Volts
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type IEEE-4888 ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
CONTROLLER	10	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other 6 INPUTS - SEE NOTE 1
	11	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	12	Auto-Man Switch	None ☐ Mfr Std ☑ Other ____
	13	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	14	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	15	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
INPUTS	16	Input Signals	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
	17	No. of Inputs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 INPUTS
	18	Power for Xmtrs	External ☐ This Inst ☑ No. of Independent Supplies ____ For Transmitters, See Spec Sheet ____
ALARMS	19	Alarm Switches	Quantity ____ Form ____ Rating ____
	20	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ On Meas ____ Other ____
	21	Options	Filter-Reg ☐ Supply Gage ☐ Charts ☑ Int. Illumination ☐ Other ____ Cables:
	22	Mfr & Model No.	LAKESHORE, Model 218S

NOTES:

1. EXISTING DIODE INPUTS. TAG NUMBERS **"6CSD7"** (TK #6,CRYO #7), **"6CSD8"** (TK #6,CRYO #8), **"6CSD9"** (TK#6,CRYO #9), **"6CSD10"** (TK #6,CRYO #10), **"6CSD11"** (TK #6,CRYO #11) AND **"6CSD12"** (TK #6,CRYO #12).
2. LOCATED IN THE CONTROL ROOM, PANEL **CN36 - SEE DWG CF-197628**.

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VACUUM CONTROLLER				SHEET 3 OF 6
NO	BY	DATE	REVISION	SPEC. NO.
	GM	7/15/2005		P&ID CF-197605 — DATE
				REHAB. OF EPL CONTROLS-BLDG.301
				PROJ. PHASE #2
				BY GM — CHK'D — APPR.

	1	Tag Number 6TGP6	Service TANK 6 VACUUM CONTROL
GENERAL	2	Function	Record ☐ Indicate ☑ Control ☑ Blind ☐ Integ ☐ Deviation ☐ Other DIODE MONITOR
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☑ Other ____
	4	Mounting	Flush ☐ Surface ☐ Rack ☑ Multi-Case ☐ Other ____ For Multiple Case, See Spec Sheet ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☑ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117 V 60 Hz ☑ Other ac ____ dc ☐ ____ Volts
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type IEEE-488 ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
CONTROLLER	10	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast; P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other 6 INPUTS - SEE NOTE 1
	11	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	12	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	13	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	14	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	15	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
INPUTS	16	Input Signals	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
	17	No. of Inputs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 INPUTS
	18	Power for Xmtrs	External ☐ This Inst ☑ No. of Independent Supplies ____ For Transmitters, See Spec Sheet ____
ALARMS	19	Alarm Switches	Quantity ____ Form ____ Rating ____
	20	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ On Meas. ____ Other ____
	21	Options	Filter-Reg ☐ Supply Gage ☐ Charts ☑ Int. Illumination ☑ Other CONVECTION GAUGE MODULE, PROCESS CONTROL MODULE; Cables: SEE NOTE 2
	22	Mfr & Model No.	GRANVILLE-PHILLIPS Mod. 316

NOTES:

1. GAUGES TO BE PURCHASED SEPARTELY. TAG NUMBERS **6TCG12, 6TCG13 & 6TCG14**
2. MANUFACTURE TO PROVIDE: 1-120 FT SINGLE-ENDED CONVECTRON CABLE (PART No.316008-120) & 1-120 FT DOUBLE-ENDED CONVECTRON CABLE (PART No.303040-120) .
3. MANUFACTURE TO PROVIDE A STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER THE INSTRUMENT TAG.
4. LOCATED IN THE CONTROL ROOM, PANEL **CN9 - SEE DWG CF-197628**.

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VACUUM CONTROLLER				SHEET 4 OF 6
NO	BY	DATE	REVISION	SPEC. NO.
	GM	7/15/2005		P&ID CF-197605 — DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2
				BY GM — CHK'D — APPR.

	1	Tag Number 6PGP7	Service TANK 6 VACUUM CONTROL
GENERAL	2	Function	Record ☐ Indicate ☑ Control ☑ Blind ☐ Integ ☐ Deviation ☐ Other DIODE MONITOR
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☑ Other ____
	4	Mounting	Flush ☐ Surface ☐ Rack ☑ Multi-Case ☐ Other ____ For Multiple Case, See Spec Sheet ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117 V 60 Hz ☑ Other ac ____ dc ☐ ____ Volts
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☑ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type IEEE-488 ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
CONTROLLER	10	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other 6 INPUTS - SEE NOTE 1
	11	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	12	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	13	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	14	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	15	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
INPUTS	16	Input Signals	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
	17	No. of Inputs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 INPUTS
	18	Power for Xmtrs	External ☐ This Inst ☑ No. of Independent Supplies ____ For Transmitters, See Spec Sheet ____
ALARMS	19	Alarm Switches	Quantity ____ Form ____ Rating ____
	20	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ On Meas. ____ Other ____
	21	Options	Filter-Reg ☐ Supply Gage ☐ Charts ☑ Int. Illumination ☑ Other CONVECTION GAUGE MODULE, PROCESS CONTROL MODULE Cables: SEE NOTE 2
	22	Mfr & Model No.	GRANVILLE-PHILLIPS Mod. 316

NOTES:

1. GAUGES TO BE PURCHASED SEPARTELY. TAG NUMBERS **6PCG15 & 6CCG16**
2. MANUFACTURE TO PROVIDE: 1-120 FT SINGLE-ENDED CONVECTRON CABLE (PART No.316008-120) & 1-120 FT DOUBLE-ENDED CONVECTRON CABLE (PART No.303040-120) .
3. MANUFACTURE TO PROVIDE A STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER THE INSTRUMENT TAG.
4. LOCATED IN THE CONTROL ROOM, PANEL **CN9 - SEE DWG CF-197628**.

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VACUUM CONTROLLER				SHEET 5 OF 6
NO	BY	DATE	REVISION	SPEC. NO.
	GM	7/15/2005		P&ID SK-M25 — DATE
				REHAB. OF EPL CONTROLS-BLDG.301
				PROJ. PHASE #2
				BY GM — CHK'D — APPR.

	1	Tag Number **N61GP1**	Service N61 VACUUM CONTROL
GENERAL	2	Function	Record ☐ Indicate ☑ Control ☑ Blind ☐ Integ ☐ Deviation ☐ Other VACUUM GAUGE
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☑ Other ____
	4	Mounting	Flush ☐ Surface ☐ Rack ☑ Multi-Case ☐ Other ____ For Multiple Case, See Spec Sheet ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117 V 60 Hz ☑ Other ac ____ dc ☐ ____ Volts
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
CONTROLLER	10	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast; P ☑ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other 2 INPUTS - SEE NOTE 1
	11	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	12	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	13	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	14	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	15	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
INPUTS	16	Input Signals	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
	17	No. of Inputs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 INPUTS
	18	Power for Xmtrs	External ☐ This Inst ☑ No. of Independent Supplies ____ For Transmitters, See Spec Sheet ____
ALARMS	19	Alarm Switches	Quantity ____ Form ____ Rating ____
	20	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ On Meas ____ Other ____
	21	Options	Filter-Reg ☐ Supply Gage ☐ Charts ☑ Int. Illumination ☑ Other TCG GAUGE MODULE, PROCESS CONTROL MODULE; Cables: SEE NOTE 2
	22	Mfr & Model No.	GRANVILLE-PHILLIPS Mod. 316

NOTES:

1. GAUGES TO BE PURCHASED SEPARTELY. TAG NUMBERS **N61TCG1 & N61TCG2.**
2. MANUFACTURE TO PROVIDE: 1-100 FT DOUBLE-ENDED TCG CABLE (PART No.307057-100) AND 1-125 FT SINGLE-ENDED TCG CABLE (316013-125)
3. MANUFACTURE TO PROVIDE A STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER THE INSTRUMENT TAG.
4. LOCATED IN THE VF6 PUMP ROOM 155. **- SEE DWG CF-197626.**

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VACUUM CONTROLLER				SHEET 6 OF 6
NO	BY	DATE	REVISION	SPEC. NO.
	GM	7/15/2005		P&ID SK-M25 — DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2
				BY GM — CHK'D — APPR.

	1	Tag Number **N61GP2**	Service N61 VACUUM CONTROL
GENERAL	2	Function	Record ☐ Indicate ☑ Control ☐ Blind ☐ Integ ☐ Deviation ☐ Other VACUUM GAUGE
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☑ Other ____
	4	Mounting	Flush ☐ Surface ☐ Rack ☑ Multi-Case ☐ Other ____ For Multiple Case, See Spec Sheet ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117 V 60 Hz ☑ Other ac ____ dc ☐ ____ Volts
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
CONTROLLER	10	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other 3 INPUTS - SEE NOTE 1
	11	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	12	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	13	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	14	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	15	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
INPUTS	16	Input Signals	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☑ Other ____
	17	No. of Inputs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 INPUTS
	18	Power for Xmtrs	External ☐ This Inst ☑ No. of Independent Supplies ____ For Transmitters, See Spec Sheet ____
ALARMS	19	Alarm Switches	Quantity ____ Form ____ Rating ____
	20	Function	Meas. Var. ☐ Deviation ☐ Contacts To ____ On Meas ____ Other ____
	21	Options	Filter-Reg ☐ Supply Gage ☐ Charts ☑ Int. Illumination ☑ Other CONVECTION GAUGE MODULE, PROCESS CONTROL MODULE Cables: SEE NOTE 2
	22	Mfr & Model No.	GRANVILLE-PHILLIPS Mod. 316

NOTES:

1. GAUGES TO BE PURCHASED SEPARTELY. TAG NUMBERS **N61CG1 & N61CG2.**
2. MANUFACTURE TO PROVIDE: 1-25 FT SINGLE-ENDED CONVECTRON CABLE (PART No.316008) & 1-25 FT DOUBLE-ENDED CONVECTRON CABLE (PART No.303040-25) .
3. MANUFACTURE TO PROVIDE A STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER THE INSTRUMENT TAG.
4. LOCATED IN THE VF6 PUMP ROOM 155. - **SEE DWG CF-197626.**

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PRESSURE / VACUUM INSTRUMENTS				SHEET 1 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197605	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number **6CCG16**	Service 10' BELL JAR VACUUM FOR CRYO SYSTEM
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☑ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts ____
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig)☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std☐ Other ____
	14	Set Point Adj.	Manual☐ External☐ Remote☐ Other ____
	15	Manual Reg.	None☐ Mfr Std☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA☐ 21-103 kPa (3-15 psig)☐ Other ____
ELEMENT	17	Service	Gage Press.☐ Vacuum☑ Absolute☐ Compound☐
	18	Element Type	Diaphragm☐ Helix☐ Bourdon☐ Bellows☐ Other HEATED WIRE
	19	Material	316 SS☐ Ber. Copper☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT☐ Other 1/8" NPT Location: Bottom☑ Back☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☑ Output Gage☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**6PGP7**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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PRESSURE / VACUUM INSTRUMENTS				SHEET 2 OF 25
NO	BY	DATE	REVISION	SPEC. NO.
	GM	7/15/2005		P&ID CF-197605 — DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2
				BY GM — CHK'D — APPR.

	1	Tag Number **6CCG17**	Service 10' BELL JAR VACUUM FOR PORT SYSTEM
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☑ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts ____
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig)☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std☐ Other ____
	14	Set Point Adj.	Manual☐ External☐ Remote☐ Other ____
	15	Manual Reg.	None☐ Mfr Std☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA☐ 21-103 kPa (3-15 psig)☐ Other ____
ELEMENT	17	Service	Gage Press.☐ Vacuum☑ Absolute☐ Compound☐
	18	Element Type	Diaphragm☐ Helix☐ Bourdon☐ Bellows☐ Other HEATED WIRE
	19	Material	316 SS☐ Ber. Copper☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT☐ Other 1/8" NPT Location: Bottom☑ Back☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☑ Output Gage☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**6PGP7**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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PRESSURE / VACUUM INSTRUMENTS				SHEET 3 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197605	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6PCG15	Service ROUGHING PUMP #4 VACUUM
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☑ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts ____
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☐ Vacuum ☑ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☐ Helix ☐ Bourdon ☐ Bellows ☐ Other HEATED WIRE
	19	Material	316 SS ☐ Ber. Copper ☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed ☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT ☐ Other 1/8" NPT Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☑ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**6PGP7**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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	PRESSURE / VACUUM INSTRUMENTS				SHEET 4 OF 25		
	NO	BY	DATE	REVISION	SPEC. NO.		
		GM	7/15/2005		P&ID CF-197605		DATE
					REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2		
					BY GM	CHK'D	APPR.

	1	Tag Number 6PPT27-5	Service ROUGHING PUMP #4 OIL PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☑ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press.☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm☑ Helix☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed☑ Adj. Range 0-50 PSIG Set At 0-50 PSIG Overrange Protection To 0-150 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT☑ 1/2 in. NPT☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☐ Output Gage ☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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PRESSURE / VACUUM INSTRUMENTS				SHEET 5 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197605	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TCG12	Service TANK 6 VACUUM, PORT S77
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☐ Yoke ☑ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts ____
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☐ Vacuum ☑ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☐ Helix ☐ Bourdon ☐ Bellows ☐ Other HEATED WIRE
	19	Material	316 SS ☐ Ber. Copper ☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed ☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT ☐ Other 1/8" NPT Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☑ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "6TGP6".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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PRESSURE / VACUUM INSTRUMENTS				SHEET 6 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197605	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TCG13	Service ROOTS BLOWERS 3 & 4 - OUTLET PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☐ Yoke ☑ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts ____
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☐ Vacuum ☑ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☐ Helix ☐ Bourdon ☐ Bellows ☐ Other HEATED WIRE
	19	Material	316 SS ☐ Ber. Copper ☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed ☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT ☐ Other 1/8" NPT Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☑ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "6TGP6".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID CF-197605	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM	CHK'D / APPR.

	1	Tag Number **6TCG14**	Service ROOTS BLOWERS 1 & 2 OUTLET PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☑ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts ____
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig)☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std☐ Other ____
	14	Set Point Adj.	Manual☐ External☐ Remote☐ Other ____
	15	Manual Reg.	None☐ Mfr Std☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA☐ 21-103 kPa (3-15 psig)☐ Other ____
ELEMENT	17	Service	Gage Press.☐ Vacuum☑ Absolute☐ Compound☐
	18	Element Type	Diaphragm☐ Helix☐ Bourdon☐ Bellows☐ Other HEATED WIRE
	19	Material	316 SS☐ Ber. Copper☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT☐ Other 1/8" NPT Location: Bottom ☑ Back☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☑ Output Gage☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**6PGP6**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT23-4	Service ROOTS BLOWER #1 OIL PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press. ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-25 PSIG Set At 0-25 PSIG Overrange Protection To 0-75 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT24-4	Service ROOTS BLOWER #2 OIL PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑
			Other PRESSURE TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof ☐ Class ____
			For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____
			Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____
			Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
			For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast
			P☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐
			Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press.☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm☑ Helix☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed☑ Adj. Range 0-25 PSIG Set At 0-25 PSIG
			Overrange Protection To 0-75 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT☐ Other ____
			Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☐ Output Gage ☐ ____ Charts
			Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____
			Conn ____ Capillary: Length ____ Mtl. ____
			Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT25-4	Service ROOTS BLOWER #3 OIL PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-25 PSIG Set At 0-25 PSIG Overrange Protection To 0-75 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT26-4	Service ROOTS BLOWER #4 OIL PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-25 PSIG Set At 0-25 PSIG Overrange Protection To 0-75 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT28-4	Service ROUGHING PUMP #1 OIL PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☑ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-50 PSIG Set At 0-50 PSIG Overrange Protection To 0-150 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT29-4	Service ROUGHING PUMP #2 OIL PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press.☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm☑ Helix☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed☑ Adj. Range 0-50 PSIG Set At 0-50 PSIG Overrange Protection To 0-150 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☐ Output Gage ☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number 6TPT30-4	Service ROUGHING PUMP #3 OIL PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press.☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm☑ Helix☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed☑ Adj. Range 0-50 PSIG Set At 0-50 PSIG Overrange Protection To 0-150 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☐ Output Gage ☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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PRESSURE / VACUUM INSTRUMENTS				SHEET 15 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M22	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number CTPT1	Service CHEMICAL FEED PUMP INLET PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-25 PSIA Set At 0-25 PSIA Overrange Protection To 0-75 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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PRESSURE / VACUUM INSTRUMENTS				SHEET 16 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M21	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number CTPT2	Service COOLING TWR WTR SUPPLY PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-100 PSIG Set At 0-100 PSIG Overrange Protection To 0-200 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M21	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number CTPT3	Service COOLING TWR WTR RETURN PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press.☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm☑ Helix☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed☑ Adj. Range 0-60 PSIG Set At 0-60 PSIG Overrange Protection To 0-150 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT☐ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☐ Output Gage ☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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PRESSURE / VACUUM INSTRUMENTS				SHEET 18 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M25	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number N61CG1	Service ROUGH PUMP #1 VACUUM
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☐ Yoke ☑ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts ____
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☐ Vacuum ☑ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☐ Helix ☐ Bourdon ☐ Bellows ☐ Other HEATED WIRE
	19	Material	316 SS ☐ Ber. Copper ☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed ☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT ☐ Other 1/8" NPT Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☑ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS. CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**N61GP2**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M25	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number N61CG2	Service ROUGH PUMP #2 VACUUM
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☐ Yoke ☑ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts ____
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press ☐ Vacuum ☑ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☐ Helix ☐ Bourdon ☐ Bellows ☐ Other HEATED WIRE
	19	Material	316 SS ☐ Ber. Copper ☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed ☑ Adj. Range 10E-3 TO 10E3 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT ☐ Other 1/8" NPT Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☑ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, CONVECTRON SERIES #275 071

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**N61GP2**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M25	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number N61N0127	Service LN2 ANNULUS PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press. ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-200 PSIG Set At 0-200 PSIG Overrange Protection To 5000 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☑ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M30	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number N61PT1	Service GN2 SUPPLY PNL - HIGH SUPPLY PRESSURE
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std ☑ Nom Size ____ Color: Mfr Std ☐ Other ____
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other ____
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz ☐ Other ac ____ dc ☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip ☐ ____ Roll ☐ ____ Fold ☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☐ D_s ☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None ☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press. ☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm ☑ Helix ☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS ☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed ☑ Adj. Range 0-3000 PSIG Set At 0-3000 PSIG Overrange Protection To 5000 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT ☑ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press ☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg ☐ Sup Gage ☐ Output Gage ☐ ____ Charts Diaph Seal ☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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PRESSURE / VACUUM INSTRUMENTS				SHEET 22 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M30	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number N61PT2	Service GN2 SUPPLY PNL LOW SUPPLY PRESSURE
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other PRESSURE TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☐ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof ☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts 8.5 - 40 VDC
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std ☐ Other ____
	14	Set Point Adj.	Manual☐ External ☐ Remote ☐ Other ____
	15	Manual Reg.	None☐ Mfr Std ☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other ____
ELEMENT	17	Service	Gage Press.☑ Vacuum ☐ Absolute ☐ Compound ☐
	18	Element Type	Diaphragm☑ Helix☐ Bourdon ☐ Bellows ☐ Other ____
	19	Material	316 SS☐ Ber. Copper ☐ Other 304 SS, VITON
	20	Range	Fixed☑ Adj. Range 0-500 PSIG Set At 0-500 PSIG Overrange Protection To 1000 PSIG
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☑ 1/2 in. NPT☑ Other ____ Location: Bottom ☑ Back ☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation ☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☐ Output Gage ☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other INTERNAL CALIBRATION CIRCUIT FOR IN SITU CALIBRATION
	26	Mfr & Model No.	VIATRAN, Model 345

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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	PRESSURE / VACUUM INSTRUMENTS				SHEET 23 OF 25		
	NO	BY	DATE	REVISION	SPEC. NO.		
		GM	7/15/2005		P&ID SK-M125		DATE
					REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2		
					BY GM	CHK'D	APPR.

	1	Tag Number **N61TCG1**	Service N61 TOP OF DEWAR ANNULUS
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☑ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts ____
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ ____ ____ ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig)☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std☐ Other ____
	14	Set Point Adj.	Manual☐ External☐ Remote☐ Other ____
	15	Manual Reg.	None☐ Mfr Std☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA☐ 21-103 kPa (3-15 psig)☐ Other ____
ELEMENT	17	Service	Gage Press.☐ Vacuum☑ Absolute☐ Compound☐
	18	Element Type	Diaphragm☐ Helix☐ Bourdon☐ Bellows☐ Other HEATED WIRE
	19	Material	316 SS☐ Ber. Copper☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed☑ Adj. Range 10E-3 TO 1.0 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT☐ Other 1/8" NPT Location: Bottom ☑ Back☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☑ Output Gage☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, 270006-1 (DV6-M)

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**N61GP1**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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PRESSURE / VACUUM INSTRUMENTS				SHEET 24 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID SK-M125	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D	APPR.

	1	Tag Number **N61TCG2**	Service N61 DEWAR SUPPORT LEG
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☑ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts ____
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig)☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std☐ Other ____
	14	Set Point Adj.	Manual☐ External☐ Remote☐ Other ____
	15	Manual Reg.	None☐ Mfr Std☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA☐ 21-103 kPa (3-15 psig)☐ Other ____
ELEMENT	17	Service	Gage Press.☐ Vacuum☑ Absolute☐ Compound☐
	18	Element Type	Diaphragm☐ Helix☐ Bourdon☐ Bellows☐ Other HEATED WIRE
	19	Material	316 SS☐ Ber. Copper☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed☑ Adj. Range 10E-3 TO 1.0 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT☐ Other 1/8" NPT Location: Bottom ☑ Back☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☑ Output Gage☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, 270006-1 (DV6-M)

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**N61GP1**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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PRESSURE / VACUUM INSTRUMENTS				SHEET 25 OF 25	
NO	BY	DATE	REVISION	SPEC. NO.	
	GM	7/15/2005		P&ID	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY GM / CHK'D / APPR.	

	1	Tag Number **SPARE 1**	Service
GENERAL	2	Function	Record☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Other VACUUM TRANSMITTER
	3	Case	Mfr Std☑ Nom Size ____ Color: Mfr Std☐ Other ____
	4	Mounting	Flush☐ Surface☑ Yoke☑ Other ____
	5	Enclosure Class	General Purpose☑ Weather Proof☐ Explosion Proof☐ Class ____ For Use in Intrinsically Safe System ☐ Other ____
	6	Power Supply	117V 60Hz☐ Other ac ____ dc☐ ____ Volts ____
	7	Chart	____ Strip☐ ____ Roll☐ ____ Fold☐ Circular ____ Time Marks ____ Range ____ Number ____
	8	Chart Drive	Speed ____ Power ____
	9	Scales	Type ____ Range 1 ____ 2 ____ 3 ____ 4 ____
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig)☐ Other ____ For Receiver, See Spec Sheet ____
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P☐ PI☐ PD☐ PID☐ I_f☐ D_f☐ I_s☐ D_s☐ Other SEE NOTE 1
	12	Action	On Meas. Increase Output: Increases☐ Decreases☐
	13	Auto-Man Switch	None☐ Mfr Std☐ Other ____
	14	Set Point Adj.	Manual☐ External☐ Remote☐ Other ____
	15	Manual Reg.	None☐ Mfr Std☐ Other ____
	16	Output	4-20 mA☐ 10-50 mA☐ 21-103 kPa (3-15 psig)☐ Other ____
ELEMENT	17	Service	Gage Press.☐ Vacuum☑ Absolute☐ Compound☐
	18	Element Type	Diaphragm☐ Helix☐ Bourdon☐ Bellows☐ Other HEATED WIRE
	19	Material	316 SS☐ Ber. Copper☐ Other GOLD-PLATED TUNGSTEN
	20	Range	Fixed☑ Adj. Range 10E-3 TO 1.0 TORR Set At ____ Overrange Protection To 15 PSIA
	21	Process Data	Press: Normal ____ Max ____ Element Range ____
	22	Process Conn.	1/4 in. NPT ☐ 1/2 in. NPT☐ Other 1/8" NPT Location: Bottom☑ Back☐ Other ____
	23	Alarm Switches	Quantity ____ Form ____ Rating ____
	24	Function	Press☐ Deviation☐ Contacts To ____ on Inc. Press.
OPTIONS	25	Options	Filt Reg☐ Sup Gage☑ Output Gage☐ ____ Charts Diaph Seal☐ Type ____ Diaph ____ Bot Bowl ____ Conn ____ Capillary: Length ____ Mtl. ____ Other ____
	26	Mfr & Model No.	GRANVILLE-PHILLIPS, 270006-1 (DV6-M)

NOTES:
1. CONTROLLER TO BE PURCHASED SEPARATELY. TAG NUMBER "**XXXX**".
2. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.

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DIFFERENTIAL PRESSURE INTRUMENTS				SHEET 1 OF 2	
NO	BY	DATE	REVISION	SPEC. NO.	REV.
	GM	7/15/2005		P&ID SK-M21	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY / CHK'D	APPR.

	1	Tag Number CTDP1	Service FILTER WS9494 RESTRICTED
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Integ ☐ Other
	3	Case	Mfr Std ☐ Nom Size Color: Mfr Std ☑ Other
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class
			For Use in Intrinsically Safe System ☐ Other
	6	Power Supply	117V 60Hz ☐ Other ac dc ☑ Volts 8.5 - 4.0 VDC
	7	Chart	12 in. Circ. ☐ Other Range No.
	8	Chart Drive	24 hr. ☐ Other Elec. ☐ Spring ☐ Other
	9	Scale	Type Range: 1 2 3
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other
			For Receiver, See Spec Sheet
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast
			P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☑ D_s ☐
			Other
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other
	15	Manual Reg.	None ☐ Mfr Std ☐ Other
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other
UNIT	17	Service	Flow ☐ Level ☐ Diff. Pressure ☑ Other
	18	Element Type	Diaphragm ☐ Bellows ☐ Mercury ☐ Other
	19	Material	Body 316 SS Element
	20	Rating	Overrange 50 PSID Body Rating psig
	21	Diff. Range	Fixed ☐ Adj. Range 0-15 PSID Set At 0-15 PSID
	22		Elevation Suppression
	23	Process Data	Fluid Max Temp. Max Press.
	24	Process Conn.	1/2 in. NPT ☐ Other 1/4" NPT
	25	Alarm Switches	Quantity Form Rating
	26	Function	Meas. Var. ☐ Deviation ☑ Contacts To on Inc. Meas.
	27	Options	Pressure Element ☐ Range Material
			Temp. Element ☐ Range Type
			Filt-Reg ☐ Sup. Gage ☐ Output Gage ☐ Charts
			Valve Manifold
			Cond. Pots ☐ Adj. Damp ☐ Integral Sq. Rt. Ext. ☐
			Integrator
			Other
	28	Mfr & Model No.	VIATRON 274

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENT: +/- 10% FSO

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DIFFERENTIAL PRESSURE INTRUMENTS				SHEET 2	OF 2
NO	BY	DATE	REVISION	SPEC. NO.	REV.
	GM	7/15/2005		P&ID SK-M21	DATE
				REHAB. OF EPL CONTROLS-BLDG.301 PROJ. PHASE #2	
				BY / CHK'D	APPR.

	1	Tag Number CTDP2	Service OZONATOR
GENERAL	2	Function	Record ☐ Indicate ☐ Control ☐ Blind ☐ Transmit ☑ Integ ☐ Other
	3	Case	Mfr Std ☐ Nom Size Color: Mfr Std ☑ Other
	4	Mounting	Flush ☐ Surface ☑ Yoke ☐ Other
	5	Enclosure Class	General Purpose ☑ Weather Proof ☐ Explosion Proof ☐ Class For Use in Intrinsically Safe System ☐ Other
	6	Power Supply	117V 60Hz ☐ Other ac dc ☑ Volts 8.5 - 4.0 VDC
	7	Chart	12 in. Circ. ☐ Other Range No.
	8	Chart Drive	24 hr. ☐ Other Elec. ☐ Spring ☐ Other
	9	Scale	Type Range: 1 2 3
XMTR	10	Transmitter Output	4-20 mA ☑ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other For Receiver, See Spec Sheet
CONTROLLER	11	Control Modes	P = Prop (Gain), I = Integral (Auto Reset), D = Derivative (Rate), Sub: s = Slow, f = Fast P ☐ PI ☐ PD ☐ PID ☐ I_f ☐ D_f ☐ I_s ☑ D_s ☐ Other
	12	Action	On Meas. Increase Output: Increases ☐ Decreases ☐
	13	Auto-Man Switch	None ☐ Mfr Std ☐ Other
	14	Set Point Adj.	Manual ☐ External ☐ Remote ☐ Other
	15	Manual Reg.	None ☐ Mfr Std ☐ Other
	16	Output	4-20 mA ☐ 10-50 mA ☐ 21-103 kPa (3-15 psig) ☐ Other
UNIT	17	Service	Flow ☐ Level ☐ Diff. Pressure ☑ Other
	18	Element Type	Diaphragm ☐ Bellows ☐ Mercury ☐ Other
	19	Material	Body 316 SS Element
	20	Rating	Overrange 75 PSID Body Rating psig
	21	Diff. Range	Fixed ☐ Adj. Range 0-30 PSID Set At 0-30 PSID
	22		Elevation Suppression
	23	Process Data	Fluid Max Temp. Max Press.
	24	Process Conn.	1/2 in. NPT ☐ Other 1/4" NPT
	25	Alarm Switches	Quantity Form Rating
	26	Function	Meas. Var. ☐ Deviation ☑ Contacts To on Inc. Meas.
	27	Options	Pressure Element ☐ Range Material Temp. Element ☐ Range Type Filt-Reg. ☐ Sup. Gage ☐ Output Gage ☐ Charts Valve Manifold Cond. Pots ☐ Adj. Damp ☐ Integral Sq. Rt. Ext. ☐ Integrator Other
	28	Mfr & Model No.	VIATRON 274

NOTES:

1. MANUFACTURE TO PROVIDE STAINLESS STEEL NAMEPLATE ATTACHED WITH STAINLESS STEEL WIRE PER INSTRUMENT TAG.
2. MATING CONNECTOR INCLUDED:
   +/- 0.1% FSO ACCURACY
   +/- 0.2% FSO LONG TERM STABILITY
   +/- 0.1% FSO HYSTERESIS AND REPETABILITY
   TEMP. COMPENSATED: 0 Deg F to 200 Deg F
   ZERO & SPAN ADJUSTMENTt: +/- 10% FSO

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ITEM No.	DESCRIPTION	MFGR.	MODEL	SIZE	W.P. PSIG	REMARKS AND/OR NASA STOCK No
WN6043	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6044	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6045	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6046	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6047	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6048	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6049	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS
WN6050	BALL VALVE	NIBCO	T-585-70	¾"NPT	150	BRONZE, FULL PORT, TFE SEATS AND SEALS

CP-001

REVISIONS:

TITLE: EPL BLDG. 301 REHABILITATION OF EPL CONTROLS, PHASE 2

SYM	DATE	SYM	DATE

APPROVALS:

ENG.

BR. CHIEF

DATE: 9/29/2005

SHEET 1 OF 2

National Aeronautics and Space Administration
Lewis Research Center
Cleveland, Ohio

ITEM No.	DESCRIPTION	MFGR.	MODEL	SIZE	W.P. PSIG	REMARKS AND/OR NASA STOCK No
V6153	COLD TRAP	POLYCOLD	NSRFQ #CY05Q2-009	12"-150#FLG	150	
V6154	COLD TRAP	POLYCOLD	NSRFQ #CY05Q2-009	12"-150#FLG	150	
V6155	COLD TRAP	POLYCOLD	NSRFQ #CY05Q2-009	12"-150#FLG	150	
V6156	COLD TRAP	POLYCOLD	NSRFQ #CY05Q2-009	12"-150#FLG	150	

CP-001

REVISIONS:

SYM	DATE	SYM	DATE

TITLE: EPL BLDG. 301 REHABILITATION OF EPL CONTROLS, PHASE 2

APPROVALS:

ENG.

BR. CHIEF

DATE: 9/29/2005

SHEET 2 OF 2

National Aeronautics and Space Administration
Lewis Research Center
Cleveland, Ohio

DRAWING INDEX

BLDG. 301 REHAB
PHASE 2

9/29/2005

NEW DRAWING NUMBERS	TYPE	TITLE	NEW/ REV
CF-198000		TITLE SHEET	
CF-197605	P&ID	P&ID TK6 EXTERNAL VACUUM SYSTEM	NEW
CF-197606	P&ID	P&ID TK6 INTERNAL VACUUM SYSTEM	NEW
CF-197610	P&ID	P&ID TK6 REFRIGERATION UNITS	NEW
CF-197611	P&ID	P&ID CLOSED-LOOP COOLING SYSTEM	REV A
SK-M21	P&ID	COOLING TOWER WATER SYSTEM - P&ID	NEW
SK-M22	P&ID	COOLING TOWER WATER SYSTEM - P&ID	NEW
SK-M24	P&ID	SERVICE AIR SYSTEM - ISOMETRIC	NEW
SK-M25	P&ID	DEWAR N-61 PIPING SYSTEM SCHEMATIC	NEW
SK-M27	P&ID	VACUUM TANK #6-PIPING SYSTEM SCHEMATIC	NEW
SK-M30	P&ID	P&ID - GASEOUS NITROGEN SYSTEM	NEW
CF-197615	PIPING	1st FLOOR EQUIPMENT & PIPING PARTIAL PLAN	REV A
CF-197617	PIPING	MECH & PIPING SECTIONS & POLYCOLD CHART	REV A
CF-197619	PIPING	ENLARGED PIPING PLAN AND DETAILS	REV A
CF-197626	INSTRUMENTATION	1st FLOOR INSTR. AND EQUIPMENT LOCATION PLAN	REV A
CF-197627	INSTRUMENTATION	2nd FLOOR INSTR. AND EQUIPMENT LOCATION PLAN	REV A
CF-197628	INSTRUMENTATION	CONTROL ROOM (250) PLAN & CONTR. PNL. LAYOUT	REV A
CF-197629 sht 1	INSTRUMENTATION	COMPUTER, DATA AQ. AND CONTR.SYSTEM ARCHITECTURE	REV A
CF-197629 sht 3	INSTRUMENTATION	COMPUTER, DATA AQ. AND CONTR.SYSTEM ARCHITECTURE-DETAILS	REV A
CF-197631 sht 2	INSTRUMENTATION	1st FL. PANELS PB-28, PB-29, PB-30 & PB -31 REAR	REV A
CF-197632 sht 2	INSTRUMENTATION	1st FL. PANELS PB-33, PB-34, PB-35 & PB -36 REAR	REV A
CF-197637 sht 1	INSTRUMENTATION	CONTROL ROOM PANELS CN-1, 2, & 3 LAYOUTS - FRONT	NEW
CF-197637 sht 2	INSTRUMENTATION	CONTROL ROOM PANELS CN-1, 2, & 3 LAYOUTS - REAR	NEW
CF-197637 sht 3	INSTRUMENTATION	CONTROL ROOM PANELS CN-1, 2, & 3 TERMINAL WIRING DETAILS	NEW
CF-197638 sht 1	INSTRUMENTATION	VF6 CONTROL ROOM PANELS CN-4 THRU 7 LAYOUTS - FRONT	NEW
CF-197638 sht 2	INSTRUMENTATION	VF6 CONTROL ROOM PANELS CN-4 THRU 7 LAYOUTS - REAR	NEW
CF-197638 sht 3	INSTRUMENTATION	VF6 CONTROL ROOM PANELS CN-1 THRU 7 POWER DISTR DIAGRAMS	NEW
CF-197638 sht 4	INSTRUMENTATION	VF6 CONTROL ROOM PANELS CN-1 THRU 7 POWER DISTR DIAGRAMS(CONT)	NEW
CF-197638 sht 5	INSTRUMENTATION	VF6 CONTROL ROOM PANELS 6P WIRING SCHEMATIC	NEW
CF-197638 sht 6	INSTRUMENTATION	VF6 CONTROL ROOM PANELS CN-1 THRU 7 DETAILS	NEW
CF-197639 sht 2	INSTRUMENTATION	CONTR. RM. PNLS CN-30,31,32,33 AND 34 LAYOUT REAR	REV A
CF-197640 sht 2	INSTRUMENTATION	CONTR. RM. PNLS CN-35,36,37,38 AND 39 LAYOUT REAR	REV A
CF-197640 sht 3	INSTRUMENTATION	CONTR. RM. PNLS CN-35,36,37,38 AND 39 SCHEMATIC AND DETAILS	REV A
CF-197641 sht 1	INSTRUMENTATION	CONTR. RM. PNLS C23 & CV-24 LAYOUT FRONT	NEW

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CF-197641 sht 2	INSTRUMENTATION	CONTR. RM. PNLS C23 & CV-24 LAYOUT REAR	NEW
CF-197641 sht 3	INSTRUMENTATION	CONTR. RM. PNLS C23 & CV-24 SCHEMATIC WIRING DIAGRAM	NEW
CF-197642 sht 1	INSTRUMENTATION	CONTROL ROOM PANELS CV-25,-26,-27,-28 AND 29 LAYOUT FRONT	REV A
CF-197642 sht 3	INSTRUMENTATION	CONTROL ROOM PANELS CV-28 TERMINAL STRIP WIRING	REV A
CF-197648	INSTRUMENTATION	CABLE TRUNKING	REV A
CF-197650	INSTRUMENTATION	TOUCH SCREEN PANEL DETAILS	REV A
CF-197651 sht 1	ELECTRICAL	480V POLYCOLD PLAN FMCC0901, 02 AND 03 SCHEDULES	REV A
CF-197652	ELECTRICAL	120/208VOLT POWER PLAN-lst FLOOR FMC0902	REV A
CF-197655	ELECTRICAL	EXIST 2nd FL CONTR RM-PWR PLAN	NEW
CF-197667 sht 2	WIRING DIAGRAMS	I/O WIRING DIAGRAM-CL CONTROL PLC T/C INPUT MOD-BASE 0, SLOT 5 & 6	REV A
CF-197668 sht 1	WIRING DIAGRAMS	I/O WIRING DIAGRAM-MA PLC / DISCR. INPUT -BASE 0, SLOT 1	REV A
CF-197668 sht 2	WIRING DIAGRAMS	I/O WIRING DIAGRAM-MA PLC / DISCR. INPUT -BASE 0, SLOT 2	REV A
CF-197668 sht 6	WIRING DIAGRAMS	I/O WIRING DIAGRAM-MA PLC / DISCR. INPUT -BASE 0, SLOT 7	NEW
CF-197669 sht 1	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / 6CLK1/COPROC-BASE 0, SLOT 2	NEW
CF-197669 sht 2	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / 6CLK2/COPROC-BASE 0, SLOT 2	NEW
CF-197669 sht 3	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / AI & AO MOD-BASE 0, SLOT 3 & 4	NEW
CF-197669 sht 4	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / AI MOD-BASE 0, SLOT 5 & 6	NEW
CF-197669 sht 5	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / T/C MOD-BASE 1, SLOT 0,1,2 & 3	NEW
CF-197669 sht 6	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / T/C MOD-BASE 1, SLOT 4 & 5	NEW
CF-197669 sht 7	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC /110V DISCR IN-BASE 2, SLOT 0 & 1	NEW
CF-197669 sht 8	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC /110V DISCR IN-BASE 2, SLOT 2 & 3	NEW
CF-197669 sht 9	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / DISCR IN-BASE 2, SLOT 4	NEW
CF-197669 sht 10	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / DISCR OUT-BASE 3, SLOT 0 & 1	NEW
CF-197669 sht 11	WIRING DIAGRAMS	I/O WIRING DIAGRAM-C6 CONTROL PLC / DISCR OUT-BASE 3, SLOT 2	NEW
CF-197671 sht 1	INSTRUMENT	FIRST FLOOR WIRING DIAGRAM/ 24 VDC ANALOG AND THERMOCOUPLE	REV A
CF-197671 sht 2	INSTRUMENT	FIRST FLOOR WIRING DIAGRAM/ 24 VDC ANALOG AND THERMOCOUPLE	REV A
CF-197672 sht 1	INSTRUMENT	FIRST FLOOR WIRING DIAGRAM/ INSTRUMENT 24 V AND 120V DISCRETE	REV A
CF-197672 sht 2	INSTRUMENT	FIRST FLOOR WIRING DIAGRAM/ INSTRUMENT 24 V AND 120V DISCRETE	REV A
CF-198006 sht 1	INSTRUMENTATION	CTW PLC & TOUCHSCREEN PANEL / WIRING DETAILS	NEW
CF-198006 sht 2	INSTRUMENTATION	CTW PLC & TOUCHSCREEN PANEL / LAYOUT & WIRING SCHEMATIC	NEW
CF-198006 sht 3	INSTRUMENTATION	CTW PLC & TOUCHSCREEN PANEL / LAYOUT & WIRING SCHEMATIC	NEW
CF-198007	INSTRUMENTATION	INSTRUMENT JUNCTION BOX TSC-1 & TSC-2 TERMINAL WIRING	NEW
CF-198008	INSTRUMENTATION	INSTRUMENT JUNCTION BOX TSC-3 TERMINAL WIRING	NEW
CF-198009	INSTRUMENTATION	INSTRUMENT JUNCTION BOX TSC-18 & TSC-18A TERMINAL WIRING	NEW
CF-198010	INSTRUMENTATION	INSTRUMENT JUNCTION BOX TSC-23 & TSC-24 TERMINAL WIRING	NEW
CF-198011	INSTRUMENTATION	INSTRUMENT JUNCTION BOX TSC-27 TERMINAL WIRING	NEW
CF-198012	INSTRUMENTATION	INSTRUMENT JUNCTION BOX TSC-29 & TSC-30 TERMINAL WIRING	NEW
CF-198015 sht 1	INSTR WIRING	CTW PLC & TS PNL / T/C INPUTS-BASE 0, SLOT 1,2 & 3	NEW
CF-198015 sht 2	INSTR WIRING	CTW PLC & TS PNL / ANALOG INPUTS-BASE 0, SLOT 4 & 5	NEW

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CF-198015 sht 3	INSTR WIRING	CTW PLC & TS PNL / ANALOG INPUTS-BASE 0, SLOT 6 & 7	NEW
CF-198015 sht 4	INSTR WIRING	CTW PLC & TS PNL / ANALOG INPUTS-BASE 0, SLOT 0 & 1	NEW
CF-198015 sht 5	INSTR WIRING	CTW PLC & TS PNL / DISCRETE INPUTS-BASE 1, SLOT 2	NEW
CF-198015 sht 6	INSTR WIRING	CTW PLC & TS PNL / DISCRETE OUT-BASE 1, SLOT 3	NEW
CF-198016 sht 1	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / T/C INPUT-BASE 0, SLOT 3	NEW
CF-198016 sht 2	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / ISO AN. INPUT-BASE 1, SLOT 0 & 1	NEW
CF-198016 sht 3	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / ISO AN. INPUT-BASE 1, SLOT 2 & 3	NEW
CF-198016 sht 4	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / ISO AN. INPUT-BASE 1, SLOT 4	NEW
CF-198016 sht 5	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / 120V DISC INPUT-BASE 2, SLOT 0 & 1	NEW
CF-198016 sht 6	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / 120V DISC INPUT-BASE 2, SLOT 2 & 3	NEW
CF-198016 sht 7	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / 120V DISC INPUT-BASE 2, SLOT 4 & 5	NEW
CF-198016 sht 8	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / 120V DISC OUT-BASE 3, SLOT 0 & 1	NEW
CF-198016 sht 9	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / 120V DISC OUT-BASE 3, SLOT 2	NEW
CF-198016 sht 10	INSTR WIRING	I/O WIRING DIAGRAM-6P CONTROL PLC / RELAY OUTPUT-BASE 3, SLOT 3	NEW
CF-198017 sht 1	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/DISCRETE INPUTS-BASE 1,SLOT 0 & 1	NEW
CF-198017 sht 2	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/DISCRETE INPUTS-BASE 1,SLOT 2 & 3	NEW
CF-198017 sht 3	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/120V DISC INPUT-BASE 1,SLOT 4 & 5	NEW
CF-198017 sht 4	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/120V DISC OUTPUT-BASE 2,SLOT 0 & 1	NEW
CF-198017 sht 5	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/120V DISC OUTPUT-BASE 2,SLOT 2 & 3	NEW
CF-198017 sht 6	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/DISCRETE INPUTS-BASE 3,SLOT 0 & 1	NEW
CF-198017 sht 7	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/DISCRETE OUTPUT-BASE 3,SLOT 2 & 3	NEW
CF-198017 sht 8	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/DISC OUTPUT-BASE 3, SLOT 4	NEW
CF-198017 sht 9	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/ T/C INPUTS-BASE 1, SLOT 0,1,2 & 3	NEW
CF-198017 sht 10	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/ T/C INPUTS-BASE 1, SLOT 4,5,6 & 7	NEW
CF-198017 sht 11	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC/ ANALOG IN-BASE 2, SLOT 0 & 1	NEW
CF-198017 sht 12	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC /ANALOG INPUT-BASE 2, SLOT 2 & 3	NEW
CF-198017 sht 13	INSTR WIRING	I/O WIRING DIAGRAM-6T CONTROL PLC / ISO AN. INPUT-BASE 2, SLOT 4 & 5	NEW
CF-198021 sht 1	INSTR WIRING	I/O WIRING DIAGRAM-N61 CONTROL PLC / T/C INPUT-BASE 0, SLOT 1	NEW
CF-198021 sht 2	INSTR WIRING	I/O WIRING DIAGRAM-N61 CONTROL PLC / ANAL. INPUT-BASE 0, SLOT 2	NEW
CF-198021 sht 3	INSTR WIRING	I/O WIRING DIAGRAM-N61 CONTROL PLC / ANAL. INPUT-BASE 0, SLOT 3 & 4	NEW
CF-198021 sht 4	INSTR WIRING	I/O WIRING DIAGRAM-N61 CONTROL PLC / DISC. INPUT-BASE 0, SLOT 5 & 6	NEW
CF-198021 sht 5	INSTR WIRING	I/O WIRING DIAGRAM-N61 CONTROL PLC / DISC. INPUT-BASE 0, SLOT 7	NEW
CF-198021 sht 6	INSTR WIRING	I/O WIRING DIAGRAM-N61 CONTROL PLC / RELAY DISC. OUT-BASE 1, SLOT 0	NEW
CF-198040	INSTR WIRING	LN2 DEWAR MONITORING CAB. N-61-2	NEW
CF-198041 sht 1	INSTR WIRING	CONTROL CAB. N-61 LAYOUT FRONT	NEW
CF-198041 sht 2	INSTR WIRING	CONTROL CAB. N-61 LAYOUT REAR	NEW
CF-198041 sht 3	INSTR WIRING	CONTROL CAB. N-61 WIRING SCHEMATIC	NEW
CF-198041 sht 4	INSTR WIRING	CONTROL CAB. N-61 INSTR. & WIRING DETAIL	NEW
CF-198041 sht 5	INSTR WIRING	CONTROL CAB. N-61 TERMINAL STRIPS WIRING DETAILS	NEW
CF-198042	INSTR WIRING	CABLE SCHEDULE	NEW
CF-198045	ELECTRICAL	FMCC01 & FMCC02 FRONT VIEW	NEW

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CF-198046	ELECTRICAL	FMCC01 & FMCC02 WIRING AND DETAILS	NEW
SK-106541 sht 6	ELECTRICAL	ELECTRICAL ONE-LINE DIAGRAM	SKETCH
SK-DEMO-I-1	DEMO	1st FLOOR INSTR AND PANEL LOCATION - DEMO	SKETCH
SK-DEMO-I-2	DEMO	1st FLOOR INSTR AND PANEL LOCATION - DEMO	SKETCH
SK-DEMO-I-3	DEMO	EXISTING CONTROL ROOM PLAN - DEMO	SKETCH
SK-DEMO-I-6 sht 1	DEMO	PNLS PB-33,-34,-35 AND -36 FRONT LAYOUTS - DEMO	SKETCH
SK-DEMO-I-6 sht 2	DEMO	PNLS PB-33,-34,-35 AND -36 REAR LAYOUTS - DEMO	SKETCH
SK-DEMO-I-7 sht 1	DEMO	PNLS PB-37,-38,-39 AND -40 FRONT LAYOUTS - DEMO	SKETCH
SK-DEMO-I-7 sht 2	DEMO	PNLS PB-37,-38,-39 AND -40 REAR LAYOUTS - DEMO	SKETCH
SK-DEMO-I-8	DEMO	LN2 DEWAR MONITORING CAB. N-61-2-DEMO	SKETCH
SK-DEMO-I-9	DEMO	CABLE TRUNKING	SKETCH
SK-DEMO-I-10 sht 1	DEMO	PNLS CN-35,-36,-37,-38 AND -39 FRONT LAYOUTS - DEMO	SKETCH
SK-DEMO-I-10 sht 2	DEMO	PNLS CN-35,-36,-37,-38 AND -39 REAR LAYOUTS - DEMO	SKETCH
SK-DEMO-I-10 sht 3	DEMO	PNLS CN-35,-36,-37,-38 AND -39 REAR LAYOUTS (CONT) - DEMO	SKETCH
SK-DEMO-I-11	DEMO	PANELS CN-41 & CN-45 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-12	DEMO	PANELS CN-46 & CN-50 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-16 sht 1	DEMO	CONTROL ROOM PANELS CN-1,2,3,4 & 5 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-16 sht 2	DEMO	CONTROL ROOM PANELS CN-1,7,8,9 & 10 LAYOUTS REAR-DEMO	SKETCH
SK-DEMO-I-16 sht3	DEMO	CONTROL ROOM PANELS CN-2 & 4 LAYOUTS RIGHT SIDE AND DETAILS-DEMO	SKETCH
SK-DEMO-I-17 sht 1	DEMO	CONTROL ROOM PANELS CN-6,7,8,9 & 10 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-17 sht 2	DEMO	CONTROL ROOM PANELS CN-6,7,8,9 & 10 LAYOUTS REAR-DEMO	SKETCH
SK-DEMO-I-18 sht 1	DEMO	PANELS CV-23 & CV-24 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-18 sht 2	DEMO	PANELS CV-23 & CV-24 LAYOUTS REAR/SIDE-DEMO	SKETCH
SK-DEMO-I-19 sht 1	DEMO	CONTROL ROOM PANELS CN-30,31,32,33 & 34 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-19 sht 2	DEMO	CONTROL ROOM PANELS CN-30,31& 32 LAYOUTS REAR/SIDE-DEMO	SKETCH
SK-DEMO-I-19 sht 3	DEMO	CONTROL ROOM PANELS CN-33 & 34 LAYOUTS REAR/SIDE-DEMO	SKETCH
SK-DEMO-I-20 sht 1	DEMO	CONTROL ROOM PANELS CV-25,26,27,28 & 29 LAYOUTS FRONT-DEMO	SKETCH
SK-DEMO-I-23 sht 1	DEMO	CONTROL ROOM PANELS CE6,CE7,CE8 & CE9 LAYOUTS -FRONT-DEMO	SKETCH
SK-DEMO-I-23 sht 2	DEMO	VF6 REAR PANEL TERMINAL STRIPS-CONNECTION DIAGRAM-DEMO	SKETCH
SK-DEMO-I-24	DEMO	EXISTING N61 CABINET DEMO	SKETCH
SK-DEMO-I-25	DEMO	INSTRUMENT JUNCTION BOX TSC-1 & TSC-2 TERMINAL WIRING-DEMO	SKETCH
SK-DEMO-I-26	DEMO	INSTRUMENT JUNCTION BOX TSC-3 & TSC-18 TERMINAL WIRING-DEMO	SKETCH
SK-DEMO-I-27	DEMO	INSTRUMENT JUNCTION BOX TSC-23 & TSC-24 TERMINAL WIRING-DEMO	SKETCH
SK-DEMO-I-28	DEMO	INSTRUMENT JUNCTION BOX TSC-27 & TSC-29 TERMINAL WIRING-DEMO	SKETCH
SK-DEMO-E-01	DEMO	FMCC01 TERMINAL WIRING - DEMO	SKETCH
SK-DEMO-E-02	DEMO	FMCC02 TERMINAL WIRING - DEMO	SKETCH
SK-DEMO-E-03	DEMO	FMCC09 - DEMO	SKETCH