Docket No. SA-534

Exhibit No. 2-AK

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

NTSB_036-008
MILPITAS UPS UPGRADE
PROJECT DOCUMENTATION

(74 Pages)

Job Scope:

PROJECT DESCRIPTION / JUSTIFICATION
(IE: PROBLEM, OBJECTIVE, SCOPE, CONSEQUENCES, COST/BENEFIT, ALTERNATIVES):
PROBLEM: THE UNINTERRUPTIBLE POWER SUPPLY AT THE MILPITAS TERMINAL FAILED ON MARCH 31, 2010. TEMPORARY SMALL UPS UNITS WERE INSTALLED TO PROVIDE POWER TO THE VALVE CONTROLLERS UNTIL THE STANDBY GENERATORS COME ON LINE. THE EXISTING UPS IS OVER 20 YEARS OLD, THE MANUFACTURER IS NO LONGER IN BUSINESS AND PARTS AND SERVICES ARE NO LONGER AVAILABLE. THE BATTERY IS SHOWING SIGNS OF EARLY FAILURE AND NEEDS TO BE LOAD TESTED TO DETERMINE CAPACITY & CONDITION. SIGNIFICANT CHANGES HAVE BEEN MADE TO THE TERMINAL SINCE THE UPS WAS ORIGINALLY INSTALLED. AN EVAULATIONS IS APPROPRIATE TO ENSURE THE UPS MEETS LOAD AND DURATION REQUIREMENTS FOR THE STATION.

OBJECTIVE: CREATE A SAFE AND RELIABLE POWER DISTRIBUTION SYSTEM AT MILPITAS TERMINAL. EVALUATE UPS AND BATTERY REQUIREMENTS AND REPLACE THE UNIT WITH AN APPROPRIATELY SIZED UNIT TO MEET THE TERMINAL S NEEDS.

SCOPE:
-EVALUATE EXISTING LOADS AND SYSTEM PHILOSOPHY OF UPS.
-DESIGN AND SPECIFY REPLACEMENT EQUIPMENT AND CONFIGURATION
-REPLACE UPS AND BATTERY (AS REQUIRED)
-UPDATE DRAWINGS, SCHEDULES AND BOM DOCUMENTATION.

CONSEQUENCES: CONTINUING TO OPERATE THE TERMINAL WITH THE TEMPORARY UPS UNITS FOR A PROLONGED PERIOD OF TIME COULD REDUCE THE RELIABILITY OF THE SYSTEM. THE TEMPORARY UPS UNITS WITH SELF-CONTAINED BATTERY DO NOT HAVE THE LONG TERM RELIABILITY NORMALLY SPECIFIED.

Tasks (cont.):

PACIFIC GAS & ELECTRIC COMPANY

DESIGN CRITERIA

REPLACE UPS SYSTEM
MILPITAS TERMINAL

Job Order No. 30772051

REV. NO.	DESCRIPTION	PM	District Rep	Project Engineer	Station Engineer	GSO	Date
A	Issue for review	**ARP3**	**DLBk**	**JG**	**AAR3**	**KAS5**	**5/21/2010**
B	Issued for review w/B. Schell comments incorporated	**ARP3**	**DLBk**	**JG**	**AAR3**	**KAS5**	**5/23/2010**
1	Issued for Use	**ARP3**	**DLBk**	**JG**	**AAR3**	**KAS5**	**7/14/10**

DESIGN CRITERIA
REPLACE UPS SYSTEM
MILPITAS TERMINAL

1 BACKGROUND

1.1 This document contains the Design Basis for replacing the UPS System at Milpitas Terminal.

1.2 The UPS system at Milpitas Terminal provides continuous AC power to critical loads during utility power outages to ensure the equipment connected stay powered until the Stand-by Generators come on line.

1.3 Over the past 10 years the critical load connected to the UPS System has decreased. This is predominately due to the removal of the Gas SCADA VAX system. This has reduced the maximum load requirement of the UPS form 15 KVA to 5 KVA.

2 PROJECT OBJECTIVES

2.1 Provide reliable continuous AC power to critical station control equipment at Milpitas Terminal during utility power outages.

2.2 Provide reliable continuous AC power to critical SCADA telecommunication equipment during utility power outages.

2.3 Reduce maintenance by replacing existing, obsolete, malfunctioning UPS with a new, industrial quality UPS.

2.4 Test existing UPS batteries to determine their condition and either retain or replace, based on the battery test.

2.5 Install an external Maintenance Bypass Switch to allow work to be performed on the UPS totally de-energized.

3 PROJECT SCOPE

3.1 The physical scope of this project consists of the following:

3.1.1 Replace the existing 15 KVA UPS with a new 5 KVA, single phase UPS.

3.1.2 Test the battery system to determine condition.

3.1.2.1 If the battery test confirms the battery condition is good, the existing batteries will be retained.

3.1.2.2 If the battery test confirms the battery condition is poor, the batteries will be replaced with flooded cell Lead Acid batteries. This will be determined in conjunction with the district after the test.

3.1.3 Install a new Maintenance Bypass Switch to allow the UPS to be worked on completely de-energized while maintaining power to critical control systems.

3.1.4 Install a new Isolation Transformer to convert the voltage to the Maintenance Bypass Switch from 208 VAC to 240 VAC single phase.

3.1.5 Modify the UDP panel from a 208 VAC three phase panel to a 240 VAC single phase panel.

3.1.6 Re-route and install conduit and cables as required to facilitate the replacement effort.

4 DESIGN CONDITIONS

4.1 UPS

4.1.1 Input Voltage – 208 VAC, three phase, 60 Hz

4.1.2 Output Voltage – 240 VAC, single phase, 60 Hz

4.1.3 Output Power – 5 KVA

4.1.4 Harmonic Distortion - < 5%

4.1.5 Inverter – Ferroresonant

4.1.6 Conversion – True sine wave

4.1.7 Type – On-Line

4.1.8 Meters
- 4.1.8.1 AC Output Voltage
- 4.1.8.2 AC Output Current
- 4.1.8.3 AC Output Frequency
- 4.1.8.4 DC Output Voltage
- 4.1.8.5 DC Output Current

4.1.9 Alarms
- 4.1.9.1 Battery Supplying Load
- 4.1.9.2 UPS Trouble

4.2 Maintenance Bypass Switch

4.2.1 Output Current - 50 Amp

4.2.2 Output Voltage – 120/240 VAC single phase

4.2.3 Switch – Make-Before-Break 3 position switch

4.3 Isolation Transformer

4.3.1 Rating – 15 KVA

4.3.2 Input Voltage – 208 VAC, 60 Hz, single phase

4.3.3 Output Voltage – 240 VAC, 60 Hz, single phase

4.4 UDP Panel

4.4.1 Rating – 125 Amp

4.4.2 Breakers – 24 single pole positions

4.4.3 Main – 60 Amp, 2 Pole Circuit Breaker

4.5 Batteries

4.5.1 Type – Flooded Cell Lead Acid

4.5.2 Life – 20 year

4.5.3 Capacity – 2 hours at full load

4.5.4 DC Bus Voltage – 130 VDC

4.5.3 Mounting – Seismic rated Zone 4

4.6 Environment

4.6.1 Temperature - 0-40 deg. C

4.6.2 Humidity – 0-95% non-condensing

4.6.3 Noise - <70 dB(A)

5 CONNECTED LOADS

5.1 All Moore Process Controllers will be powered from the UPS.

5.2 All PLC Controllers and PLC I/O will be powered from the UPS.

5.3 All telecommunication systems required to interface with the station control system and the Gas SCADA system will be powered from the UPS.

6 OTHER EQUIPMENT

6.1 The existing distribution panel feeding the UPS (EDP) will be retained.

6.2 The existing battery charging system (used to re-charge batteries after testing) will be retained.

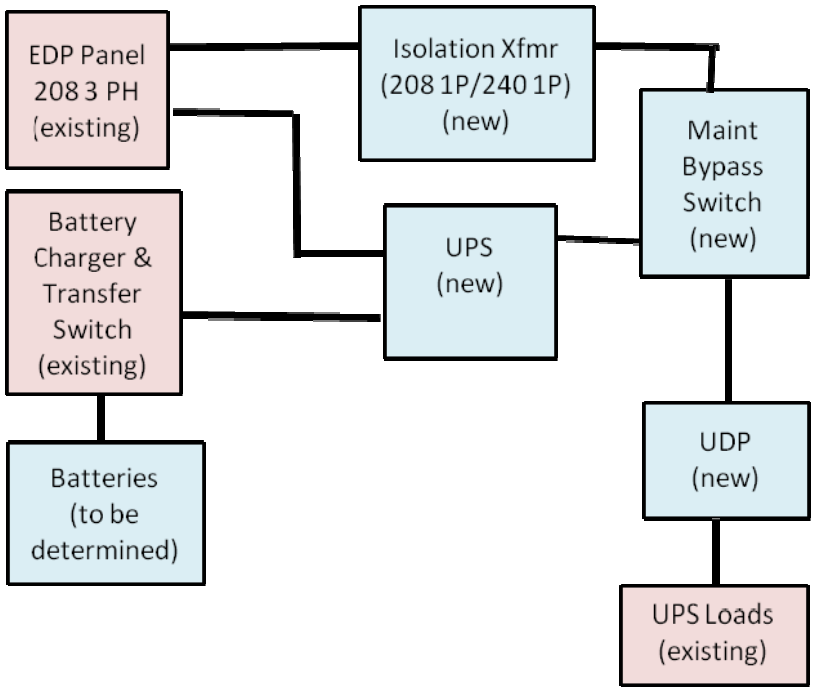
7 APPLICABLE STANDARDS

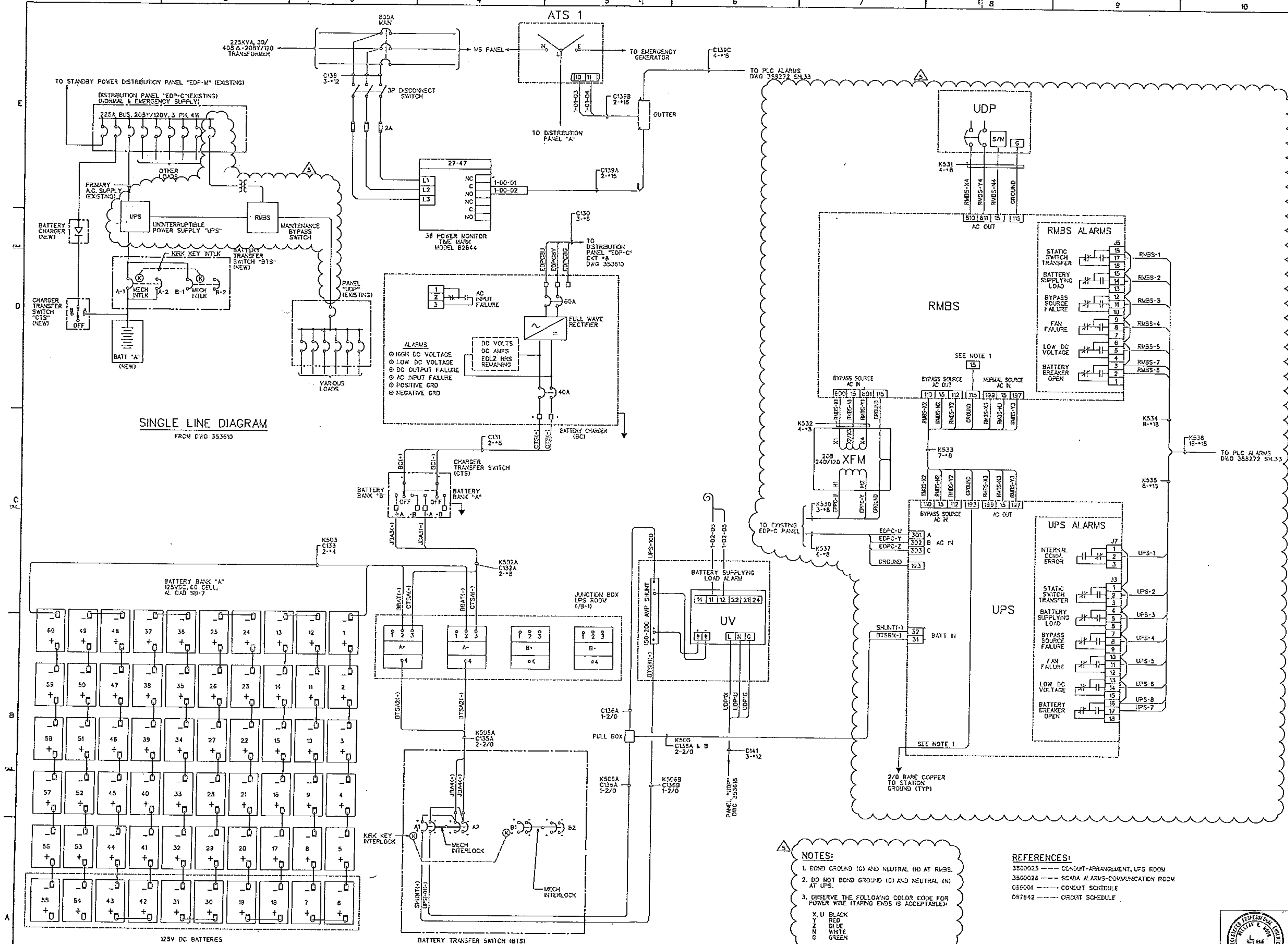
7.1 National Electric Code – NFPA 70 (Latest edition)

7.2 Standard for Electrical Safety – NFPA 70 E (Latest edition)

8. ATTACHMENTS

8.1 Block Diagram of UPS System





NOTES:

1. BOND GROUND (G) AND NEUTRAL (N) AT RMBS.
2. DO NOT BOND GROUND (G) AND NEUTRAL (N) AT UPS.
3. OBSERVE THE FOLLOWING COLOR CODE FOR POWER WIRE (TAPING ENDS IS ACCEPTABLE):

X, U	BLACK
Y	RED
Z	BLUE
N	WHITE
G	GREEN

REFERENCES:

3800025 —— CONDUIT-ARRANGEMENT, UPS ROOM
3800026 —— SCADA ALARMS-COMMUNICATION ROOM
059001 —— CONDUIT SCHEDULE
057842 —— CIRCUIT SCHEDULE

NO.	DATE	DESCRIPTION	DM/SPEC	DWN	CHKD	SUPV	APVD BY
5	8/24/	ISSUED FOR CONSTRUCTION	30772051	AB			
4	8-9-02	AS BUILT PER FIELD CONSTRUCTION	7035529	PP		ED	
3	7-6-98	AS BUILT	7003338	TAC			
2	6-6-95	AS-BUILT PER AES ENGINEERING INFORMATION	4224176	LPC	CS		WRM
1	3-6-95	ISSUED FOR CONSTRUCTION	4224176	RRY	CS		WRM

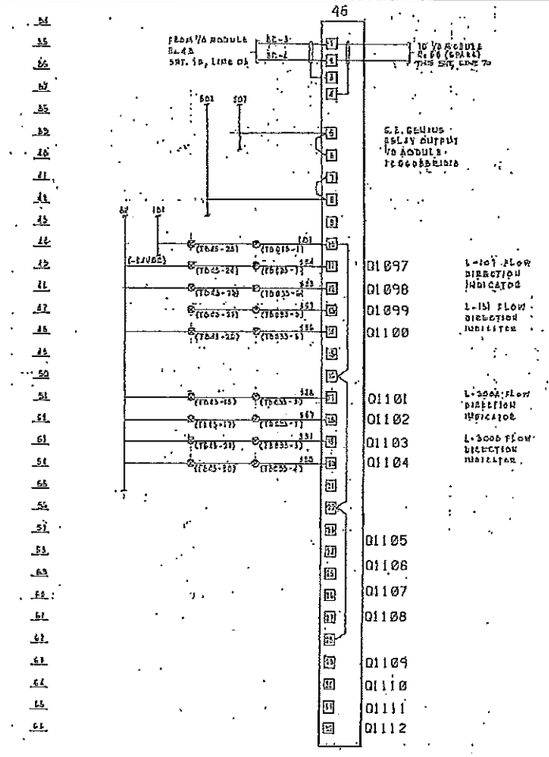
REVISIONS

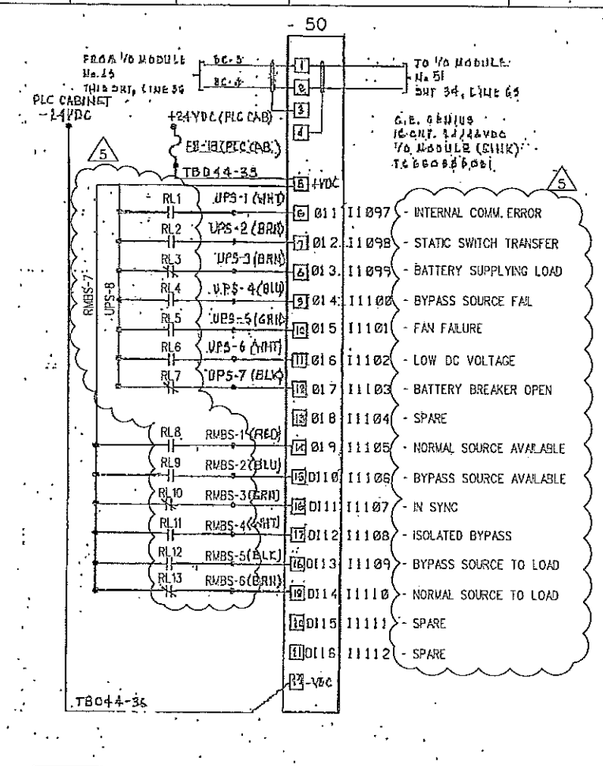
CONNECTION-DIAGRAM
UPS SYSTEM
CONTROL BUILDING
MILPITAS TERMINAL

GAS SYSTEM TECHNICAL SUPPORT
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

489930 REV. 5

FILENAME:489930.DGS





16 CIRCUIT RELAY OUTPUT BLOCK
Configuration Worksheet

Block Name: 45
Configuration Protected (Y/N): ____
Block Number (1-255): 22
Reference Numbers: Q-1097 through Q-1112
Pulse Test (Enabled/Disabled): ____ Input Filter Time (10-100): ____ mS
Redundancy Mode (None/Standby/Duplex): ____ Duplex Default (on/off): ____
BSM Present (Y/N): N BSM Controller (Y/N): N Outputs Default (2.5/10 sec): ____
Baud Rate (153.6 Kb Std/153.6 Kb Ext/76.8 Kb/38.4 Kb): 153.6Kb Std.

Circuit Configuration

Ckt #	Reference Number	(output) Hold Last State (yes/no)	(output) Default State (ON/OFF)
1	1097	N	OFF
2	1098	N	OFF
3	1099	N	OFF
4	1100	N	OFF
5	1101	N	OFF
6	1102	N	OFF
7	1103	N	OFF
8	1104	N	OFF
9	1105	N	OFF
10	1106	N	OFF
11	1107	N	OFF
12	1108	N	OFF
13	1109	N	OFF
14	1110	N	OFF
15	1111	N	OFF
16	1112	N	OFF

*bTristate input must have 5.1K Ohm resistor across dry contacts of input device.

16 CIRCUIT DC SOURCE/SINK BLOCK
Configuration Worksheet

Block Name: 50
Configuration Protected (Y/N): ____
Block Number (1-255): 28 Block Type (Input/Output/Combination): INPUT
Reference Numbers: I-1097 through I-1112
Pulse Test (Enabled/Disabled): DISABLED Input Filter Time (10-1000): 20 mS
Redundancy Mode (None/Standby/Duplex): STANDBY Duplex Default (on/off): ____
BSM Present (Y/N): N BSM Controller (Y/N): N Outputs Default (2.5/10 sec): ____
Baud Rate (153.6 Kb Std/153.6 Kb Ext/76.8 Kb/38.4 Kb): 153.6Kb Std.

Circuit Configuration

Ckt #	Reference Number	I/O Type (I/O/B)*	Report Faults (yes/no)	(output) Hold Last State (yes/no)	(output) Default State (ON/OFF)	(output) Report No Load (yes/no)	(output) Overload Shutdown (yes/no)
1	1097	I	N				
2	1098	I	N				
3	1099	I	N				
4	1100	I	N				
5	1101	I	N				
6	1102	I	N				
7	1103	I	N				
8	1104	I	N				
9	1105	I	N				
10	1106	I	N				
11	1107	I	N				
12	1108	I	N				
13	1109	I	N				
14	1110	I	N				
15	1111	I	N				
16	1112	I	N				

*bTristate input must have 5.1K Ohm resistor across dry contacts of input device.

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
5	8/23-10	ISSUED FOR CONSTRUCTION	30772051	AB	KL		
4	7-30-03	AS-BUILT	70404185	PIP	RL	BD	DEB
3	7-14-98	AS-BUILT	7003338	TBK			JPQ
2	8-3-97	AS-BUILT	7003838	PIP			GEG
1	4-29-91	AS-BUILT OC FIELD CHG'S	12	BWP	WRL		RCB

REVISIONS

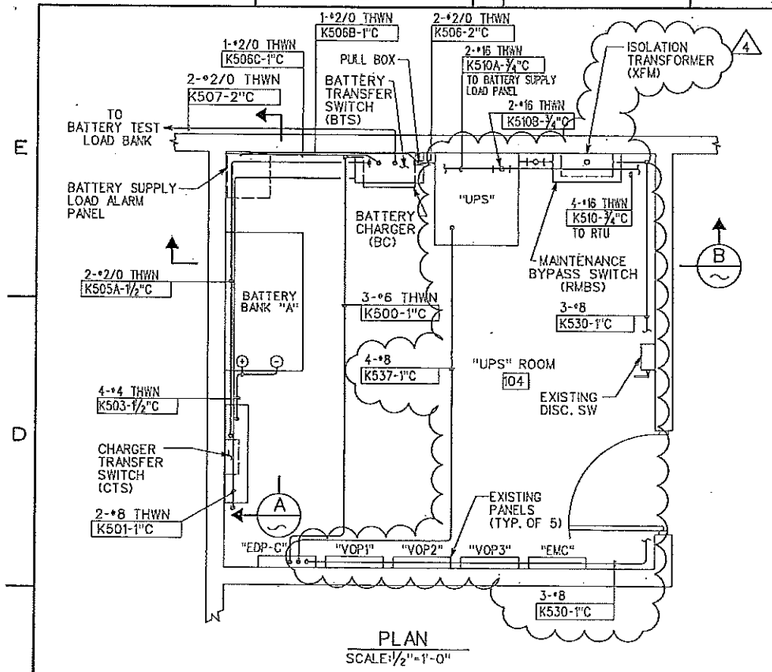
APPROVED BY: SO 12, SUPV, DSGN GWB, DWN CDC, CHKD GBG, OK RSR, DATE 4-29-91, SCALES NONE

ELEMENTARY - ELECTRICAL
PLC I/O & CONTROL SYSTEM
MILPITAS TERMINAL

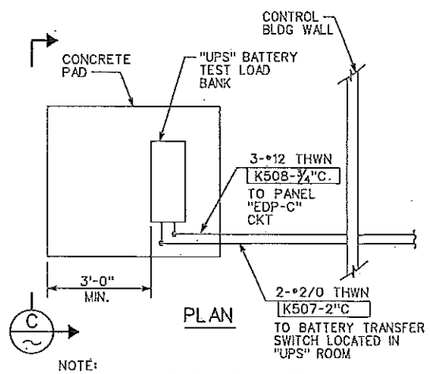
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

MICROFILM
BILL OF MATL
DWG LIST
SUPSOS
SUPSO BY
SHEET NO. 33 OF SHEETS
388272 REV 5

SCAN 5/6



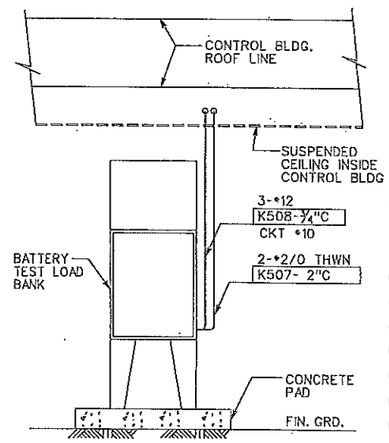
PLAN
SCALE: 1/2"=1'-0"



PLAN

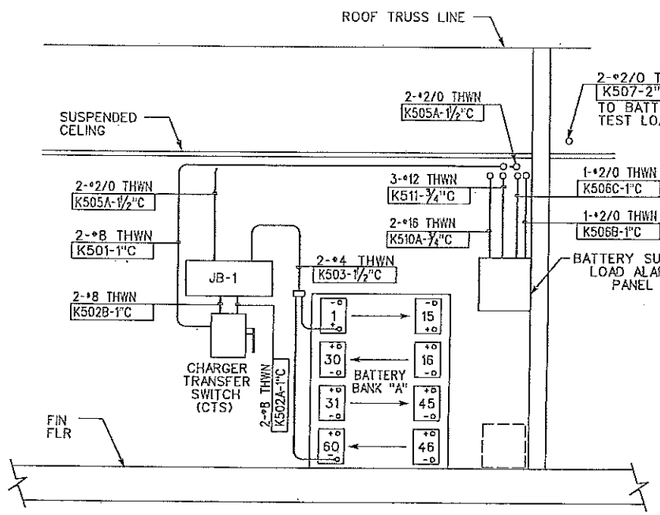
NOTE:
THE BATTERY TEST LOAD BANK IS TO BE LOCATED OUTSIDE AT THE SOUTH SIDE OF THE CONTROL BLDG., ADJACENT TO THE COMMUNICATION LINK

DETAIL 1 "UPS" BATTERY TEST LOAD BANK
SCALE: 1/2"=1'-0" 353614

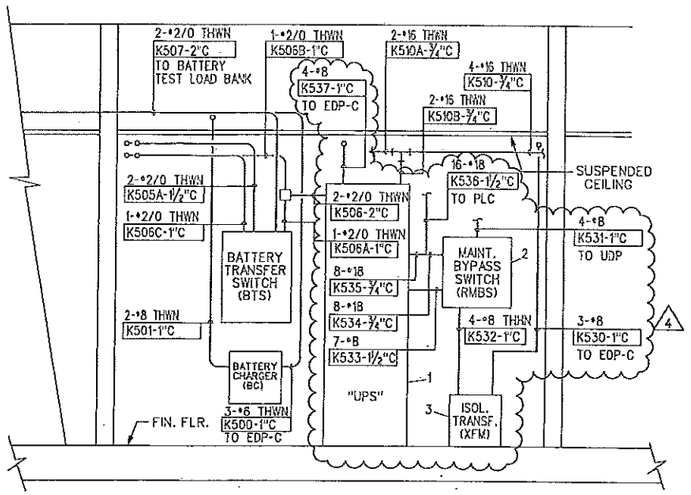


SECTION C
SCALE: 1/2"=1'-0"

PG&E CODE	ITEM NO.	QTY	UNIT	DESCRIPTION	CAT. OR DWG REF	OTHER DATA
				2010 CONSTRUCTION JOB # 30772051		
	1	1	EA	UPS, 5 KVA, 208 VAC - 3 PH INPUT, 240 VAC 1 PH OUTPUT	AMTEC 2SE3005U-20-13-24	ON HAND
	2	1	EA	MAINTENANCE BYPASS SWITCH - 5 KVA, 240 VAC	AMTEC 2RS050MB-24	ON HAND
	3	1	EA	TRANSFORMER, 7.5 KVA, 208 VAC - 1 PH INPUT, 240/120 VAC - 1 PH OUTPUT	JEFFERSON ELECTRIC 411-0131-208 OR EQUAL	
	4	1	EA	PANEL BOARD, 100A, 18 SPACES, 240/120 VAC - 1 PH 60A MAIN BREAKER	SQUARE D NQ18L1	
	5	2	EA	CIRCUIT BREAKER, BOLT ON 40A 2P	SQUARE D QOB240	
	6	2	EA	CIRCUIT BREAKER, CLAMP ON 15A 1P	SQUARE D QO115	
	7	1	EA	CIRCUIT BREAKER, BOLT ON 40A 3P	SQUARE D QOB340	
	8	60	FT	CONDUIT, EMT, 1 1/2"		
	9	60	FT	CONDUIT, EMT, 1"		
	10	10	FT	CONDUIT, EMT, 3/4"		
	11	AS REQ'D		FITTINGS, EMT, (COUPLINGS, ELBOWS, TEES) FOR SIZES: 1/2", 1" & 1/2"		
	12	1000	FT	CABLE, #8, THHN		
	13	200	FT	MULTICABLE, 8 CONDUCTOR, #18		



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



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

REFERENCES:
4 089001 CONDUIT SCHEDULE
087842 CIRCUIT SCHEDULE
489930 CONNECTION-DIAGRAM "UPS" SYSTEM

REGISTERED PROFESSIONAL ENGINEER WILLIAM R. HOON No. E 6556 EXP. 9-98 ELECTRICAL STATE OF CALIFORNIA

SCAN 4 of 4

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
4	8/20/10	ISSUED FOR CONSTRUCTION	30772051	AB	RL	BD	JPQ
3	6-14-02	AS-BUILT PER FIELD CONSTRUCTION	70355526	PJP	RL	BD	
2	7-14-98	AS-BUILT PER AES ENGINEERING INFORMATION	4224176	JPC			
1	10-6-95	ISSUED FOR CONSTRUCTION	4224176	GLN	GS		WRM

REVISIONS

APPROVED BY	
GM	4224176
SUPVL	MILPITAS-LEE
DSGN	G.SLUTSKY
DWN	G.NORRIS
CHKD	G.SLUTSKY
OK	GS
DATE	10-6-95
SCALES	AS SHOWN
WRM	

CONDUIT - ARRANGEMENT
"UPS" ROOM
CONTROL BUILDING
MILPITAS TERMINAL
GAS SYSTEM TECHNICAL SUPPORT
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

MICROFILM
BILL OF MATL
DWG LIST
SUPSDS
SUPSD BY
SHEET NO. 3800025
SHEETS REV 4

(4)

J3800025.G05

RTU 84 ADDRESS 228

DIGITAL OUT

RTU TB2

16	H	HIGH SPEED ACC
15	L	
14	H	
13	L	
12	H	
11	L	
10	H	
9	L	
8		SYS VDC
7		
6		SYS COMMON
5		
4	H	EXT ALARM
3	L	
2	H	EXT INTR
1	L	

31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

DIGITAL IN

RTU TB3

31	1-15 OPERATIONS BLDG ENTRY ALARM
30	
29	1-14 CONTROL ROOM ENTRY ALARM
28	
27	1-13 TELECOM & VAX ROOM ENTRY ALARM
26	
25	1-12 SHOP BLDG ENTRY ALARM
24	
23	1-11 FRONT GATE ALARM
22	
21	1-10 FIRE DETECTION SYSTEM TROUBLE ALARM
20	
19	1-09 FIRE DETECTED SHOP BUILDING
18	
17	1-08 FIRE DETECTED CONTROL BUILDING
16	
15	1-07 SPARE
14	
13	1-06 SPARE
12	
11	1-05 SPARE
10	
9	1-04 SPARE
8	
7	1-03 BATTERY SUPPLYING LOAD
6	
5	1-02 SPARE
4	
3	1-01 GEN ON LINE
2	
1	1-100 LOSS OF OFFSITE POWER
0	

FROM SECURITY ALARM PANEL

FROM PYROTRONICS FIRE CONTROL PANEL IN UTILITY ROOM

C140 DWG 489930

C139 DWG 489930

RTU TB4

	COM
	REF
ANALOG OUTPUT	-
	+
	COM
	REF
	-
	+
ANALOG IN	H
	L
	SH
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	L
	SH
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REFERENCES:

489930 CONNECTION - DIAGRAM, "UPS" SYSTEM

SUPERSEDED

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
3	8/10/00	SUPERSEDED	30772051	AB	RJ		
2	7-14-98	AS BUILT	70033338	TAK			GS
1	10-6-95	ISSUED FOR CONSTRUCTION	4224176	CA	GS		WRM

REVISIONS

APPROVED BY: GM 4224176; SUPV L.WILLIAMS-LEE; DSGN G.SLUTSKY; DWN C.AGAWON; CHKD G.SLUTSKY; OK GS; DATE 10-6-55; SCALES NONE; WRM

CONNECTION - DIAGRAM
SCADA ALARMS
COMMUNICATION ROOM
MILPITAS TERMINAL

GAS SYSTEM TECHNICAL SUPPORT
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

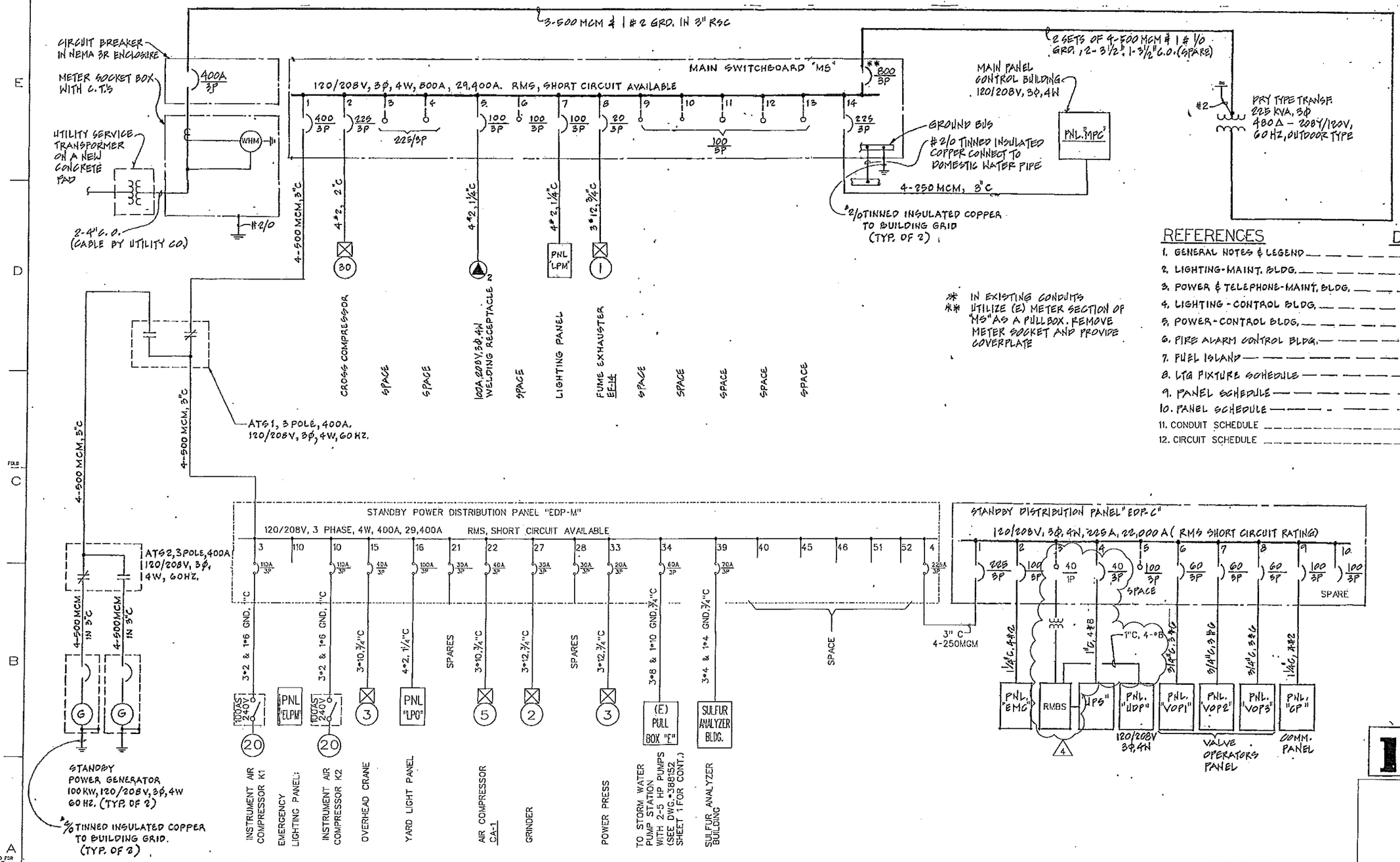
SCAN 3

MICROFILM

BILL OF MATL. NONE
DWG LIST
SUPSDS
SUPSD BY 388272 SH.33
SHEET NO. OF SHEETS
3800026 REV 3

FILE NAME:3800026 .G06

3800026



REFERENCES

	DWG. NC
1. GENERAL NOTES & LEGEND	3800220
2. LIGHTING-MAINT. BLDG.	3800222
3. POWER & TELEPHONE-MAINT. BLDG.	3800223
4. LIGHTING-CONTROL BLDG.	3800224
5. POWER-CONTROL BLDG.	3800225
6. FIRE ALARM CONTROL BLDG.	3800226
7. FUEL ISLAND	3800227
8. LTG FIXTURE SCHEDULE	3800228
9. PANEL SCHEDULE	3800230
10. PANEL SCHEDULE	3800231
11. CONDUIT SCHEDULE	089001
12. CIRCUIT SCHEDULE	087842

1987 REBUILT

NO.	DATE	DESCRIPTION	GW/SPEC	DWN	CHKD	SUPV	APVD BY
4	5/30/14	ISSUED FOR CONSTRUCTION	30772054	AB	RL	TK	
3	1-15-08	AS BUILT	7055361	PJP	SL	JS	LKG
2	5-14-02	AS-BUILT PER FIELD CONSTRUCTION	7035525	PJP	RL	BD	
1	6-20-89	SUPERSEDES 353610, TITLE CHG, ISSUE FOR USE	2009839	PJP			JPQ

REVISIONS

APPROVED BY: KAG, JQF

SO 2009839
SUPV B.DAUGH
DSGN P.PARKER
DWN P.PARKER
CHKD R.L.
QK JPQ
DATE 6-20-89
SCALES NONE

ELECTRICAL - DIAGRAM
SINGLE LINE DIAGRAM
MILPITAS TERMINAL

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

E-2

MICROFILM
BILL OF MATL
DWG LIST
SUPSDS 353610
SUPSD BY
SHEET NO. 01 OF SHEETS
3800221 REV 4

[EDMS] 3800221.dgn
[EDMS] 3800221.tif

INITIAL ISSUED FOR CONSTRUCTION. REVISION OF THIS DRAWING STAMPED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER

3800221

PANEL "LPM" SCHEDULE — LOCATION MAINTENANCE BLDG.

TYPE OF LOAD AND LOCATIONS	VOLT-AMPS #A	#B	#C	NO OF OUTLETS Misc	Rec	Ltg	BRKR Pole	Amp	Ckt. No	A B C	Ckt No	BRKR Amp	Pole	NO OF OUT.ETS Ltg	Rec	Misc	VOLT-AMPS #A	#B	#C	TYPE OF LOAD AND LOCATIONS
LTG.-ELEC.COMP.MOD.R	710						1	20	1		2	20	1	14			900			LTG.-OUTDOOR
↓ -MAINT. SHOP		772				6			3		4	↓				1		1775		AC-3
↓ -OFFICE STORAGE			1038			8			5		6	30							1587	EP-9
RECEPT	900				4				7		8	20			3	1	640			RECEPT (LEAK RESPONSE)
↓		900			5				9		10	↓			4			720		RECEPT
			720		4				11		12	↓			5				900	↓
HTR BLDG. #3(E)	100			1					13		14	30					1587			EXH. FAN EF-10
UNIT HEATER 1		400							15		16	20						400		UNIT HEATER 2
↓ 3			300				↓	↓	17		18	↓	↓						300	EXH. FAN EF-11
	687						3	20	19		20	20	3			1	687			
ROLL UP DOOR 1		687					-	-	21		22	-	-					687		ROLL-UP DOOR 2
			687				-	-	23		24	-	-						687	↓
	687						3	20	25		26	20	3							SPARE
ROLL UP DOOR 3		687					-	-	27		28	-	-							↓
			687				-	-	29		30	-	-							SPARE
SPARE							2	20	31		32	20	3							
↓							-	-	33		34	-	-			1		100		HTR BLDG. #2(C)
SPARE							2	20	35		36	-	-			1			100	HTR BLDG. #1(D)
↓							-	-	37		38	20	3			1	475			EF-15
SPARE		300						20	39		40	-	-					475		↓
CORROSION PROTECTION			500				L	↓	41		42	-	-						475	

SERVICE 120/208V, 3Ø, 4W — TYPE —
FEED TOP — MAIN BUS 225A
MOUNTING SURFACE — MAIN BRKR. —
MANUFACTURER — MIN. I.C. 22,000A SYM.

LOAD SUMMARY

#A	2872 VA	TOTAL LOAD 25963	KVA
#B	82 | 5 VA		
#C	8876 VA	MAX. PHASE 73.93	AMPS

PANEL "MPC" SCHEDULE — LOCATION ELECT/MECH.RM & CONTROL BLDG.

TYPE OF LOAD AND LOCATIONS	VOLT-AMPS #A	#B	#C	NO OF OUTLETS Misc	Rec	Ltg	BREAKER Pole	Amp	CKT. NO	A B	CKT NO	BRKR Amp	Pole	NO OF OUT.ETS Ltg	Rec	Misc	VOLT-AMPS #A	#B	#C	TYPE OF LOAD AND LOCATIONS
LTG.-WEST SIDE	1882					16	1	20	1		2	20	1		8		900			RECEPT.
-		4896				20			3		4	-	-					900		
↓ - OUTDOOR	798		1004			14			7		6	-	-		6					
D.F.		366							9		8	-	-		6		720			
SPARE									11		10	-	-		6			900		↓
PREHEAT									13		12	↓	↓		6				900	KITCHEN UNIT
SPARE									15		14	20	2			1	1350			
WATER HEATER			4600				2	60	17		16	-	-					1350		EF-6
	4500						-	-	19		18	20	2			1	1350			KITCHEN UNIT
PLUGMOLD		1080						20	21		20	-	-					1350		↓
↓			1440				↓	↓	23		22	-	-							SPARE
FENCE LTG.	870					9	2	20	25		24	20	1						1080	↓
		870					-	-	27		26	20	1							PLUGMOLD
FENCE LTG.	968					10	2	20	29		28	20	1							SPARE
		968					-	-	31		30									MISC. (TRANSD. BLDG #1)
SPARE							1	20	33		32	20	2	3	1		1200			HEATER (-N-) *
↓							↓	↓	35		34	20	2			1		1500		
CP-2	2654						3	40	37		36	-	-						1500	—
		2654					-	-	39		38	20	1							SPARE
			2654				-	-	41		40									↓
											42	↓	↓							

SERVICE 120/208V, 3Ø, 4W — TYPE —
FEED BOTTOM — MAIN BUS 225A
MOUNTING SURFACE — MAIN BRKR. 225A
MANUFACTURER — MIN. I.C. 22,000A SYM.

LOAD SUMMARY

#A	13049 VA	TOTAL LOAD 41.845	KVA
#B	15148 VA		
#C	14348 VA	MAX. PHASE 119.56	AMPS

* PROVIDE MECHANICAL INTERTIE FOR 2 EQUIP CIRCUIT BREAKERS. (TYP. FOR PNLS "MPC" & "LPO")

PANEL "ELPM" SCHEDULE — LOCATION ELECT. RM - MAINT. BLDG.

TYPE OF LOAD AND LOCATIONS	VOLT-AMPS #A	#B	#C	NO OF OUTLETS Misc	Rec	Ltg	BRKR Pole	Amp	Ckt. No	A B C	Ckt No	BRKR Amp	Pole	NO OF OUTLETS Ltg	Rec	Misc	VOLT-AMPS #A	#B	#C	TYPE OF LOAD AND LOCATIONS
LTG.	650					4	1	20	1		2	20	1		5		900			RECEPTACLE
LTG.		1074				6			3		4	↓	↓					1440		PLUGMOLD
SPARE									5		6	20	2						1000	GEN # 2 HTR
PLUGMOLD	1080						↓	↓	7		8	↓	↓				1000			—
FUEL PUMP FP-1		1000					2	20	9		10	20	2					1000		GEN. BAT. CHARGER #2
↓			1000				↓	↓	11		12	↓	↓						1000	↓
FUEL PUMP FP-2	1000						2	20	13		14	20	1				200			FIRE ALARM PANEL
↓		1000					↓	↓	15		16									SPARE
SPARE								20	17		18									—
LTG - FUEL ISLAND									19		20									
SPARE							↓	↓	23		22									
↓									25		24	↓	↓							
									27		26									
									29		28									
									31		30									
									33		32									
									35		34									
									37		36									
									39		38									
									41		40									
											42									

SERVICE 120/208V, 3Ø, 4W — TYPE —
FEED TOP — MAIN BUS 100A
MOUNTING SURFACE — MAIN BRKR. —
MANUFACTURER — MIN. I.C. 22,000A SYM.

LOAD SUMMARY

#A	4830 VA	TOTAL LOAD 13.344	KVA
#B	5514 VA		
#C	8000 VA	MAX. PHASE 45.93	AMPS

PANEL "LPO" SCHEDULE — LOCATION ELECT. RM - MAINT. BLDG.

TYPE OF LOAD AND LOCATIONS	VOLT-AMPS #A	#B	#C	NO OF OUTLETS Misc	Rec	Ltg	BREAKER Pole	Amp	CKT. NO	A B C	Ckt No	BRKR Amp	Pole	NO OF OUTLETS Misc	Rec	Ltg	VOLT-AMPS #A	#B	#C	TYPE OF LOAD AND LOCATIONS
LTG - STAIRWAY	671						2	20	1		2	20	2				845			LTG - PIT NO. 4,5
		671					-	-	3		4	-	-					895		
PIT. NO. 6	895						2	20	5		6	20	2						895	- PIT NO. 7
			896				-	-	7		8	-	-				845			
PIT. NO. 1, 2, 3		1341					2	20	9		10	20	2					1118		- L12 U/O
			1341				-	-	11		12	-	-						1118	REMOVAL
OUTGOING	448						2	20	13		14	20	2				1500			HEATER
VALVE LOTS		448					-	-	15		16	-	-					1500		(TRANSD. BLDG #2)
RECEPT. - PIT NO. 6			1000				1	20			18	20							900	RECEPT. - PIT NO. 5 L.R.
PIT. NO. 7	1080								19		20	↓	↓				900			↓ LIGHT POLE
↓ PIT NO. 1, 2, 3, 4		1260							21		22	SP						1302		SPACE
YARD LTG. CONTROL			100				↓	↓	23		24	20	1						794	TRANSD. BLDG #2
FLAMMABLE STORAGE	612							20	25		26	SP								TRANSD. BLDG #3
HEATER		1500					2	20	27		28	SP								SPACE
(TRANSD. BLDG #3)			1500				-	-	29		30	↓	↓							↓
									31		32									
									33		34									
									35		36									
									37		38									
									39		40									
									41		42									

SERVICE 120/208V, 3Ø, 4W — TYPE —
FEED TOP — MAIN BUS 100A
MOUNTING SURFACE — MAIN BRKR. —
MANUFACTURER — MIN. I.C. 22,000A SYM.

LOAD SUMMARY

#A	6896 VA	TOTAL LOAD 20.55	KVA
#B	7035 VA		
#C	7123 VA	MAX. PHASE 59.36	AMPS

* TWO-SECTION PANELBOARD, INSERT CONTACTOR BETWEEN BUSES. SEE CONTROL DIAGRAM (E14), PANELBOARD SHALL COMPLETE WITH CONTACTOR.

PANEL* "EMC" SCHEDULE — LOCATION UPS ROOM - CONTROL BLDG.

TYPE OF LOAD AND LOCATIONS	VOLT-AMPS #A	#B	#C	NO OF OUTLETS Misc	Rec	Ltg	BRKR Pole	Amp	Ckt. No	A B C	Ckt No	BRKR Amp	Pole	NO OF OUTLETS Ltg	Rec	Misc	VOLT-AMPS #A	#B	#C	TYPE OF LOAD AND LOCATIONS
LTG. - WEST SIDE	1162					17	1	20	1		2	20	1	8	-		592			LTG - RM 9, 108, 114, 115
- COMPUTER RM.		1160				16			3		4			8				1600		REC. - RMS 100, 102, 108
↓ - CONTROL RM.			1140			19			5		6			6					1110	RECEPTACLE
EP-8	667								7		8	30					1130			EF-A
EP-9		928						30	9		10	30					1130			EF-B
PANEL "DP"			100				↓	20	11		12	20	↓						100	EMERG. SHUTDOWN
SPACE								-	13		14	-	-							SPACE
↓								-	15		16	-	-							↓
GATE OPERATOR			864			2	2	20	17		18	-	-							SPACE
↓	864					-	-		19		20	20	1				150			FENCE LTG. CONTROL
FIRE ALARM Annun.		100				1	2	20	21		22									SPARE
SPARE								20	23		24	↓	↓							↓
FLOOR OUTLET CONT. RM	360						↓	20	25		26	20	1							SPARE
FIRE ALARM PANEL		200				2	2	20	27		28	20	2				193			FENCE LTG.
			200				↓	↓	29		30	-	-						193	
SPARE						1	2	20	31		32	20	1	3			540			RECEPT - COMPUTER RM
F-1		1140						30	33		34			2				360		↓
F-1			1140				↓	↓	35		36	↓	↓							SPARE
	4027					3	50	37		38	20	3					476			
CO-1		4027					-	-	39		40	-	-					476		EF-1
			4027				-	-	41		42	-	-						476	

SERVICE 120/208V, 3Ø, 4W — TYPE —
FEED BOTTOM — MAIN BUS 100A
MOUNTING SURFACE — MAIN BRKR. —
MANUFACTURER — MIN. I.C. 22,000A SYM.

LOAD SUMMARY

#A	8512 VA	TOTAL LOAD 23.862	KVA
#B	9614 VA		
#C	7736 VA	MAX. PHASE 80.11	AMPS

PANEL "UDP" SCHEDULE — LOCATION COMPUTER RM. - CONTROL BLDG.

TYPE OF LOAD AND LOCATIONS	VOLT-AMPS #A	#B	NO OF OUTLETS MISC.	REC.	LTG.	BREAKER POLE	AMP	CKT. NO	A B	CKT. NO	BREAKER AMP	POLE	NO. OF OUTLETS LTG.	REC.	MISC.	VOLT-AMPS #A	#B	TYPE OF LOAD AND LOCATIONS
SPARE						1	40	1		2	40	2						MAIN
FLOOR OUTLET						1	20	3		4	40	2						MAIN
						1	20	5		6	20	1						SPARE
						1	20	7		8	20	1						FLOOR OUTLET
						1	20	9		10	20	1						PLC PS-1
COMM BAY A RACK 3						1	15	11		12	20	1						SPARE
↓ RACK 4						1	15	13		14	20	1						SPARE
↓ RACK 5						1	40	15		16	20	1						PS-2
SPARE						1	40	17		18	20	1						CHROMATOGRAPH
						1	20	19		20	20	1						PLC 2 I/O
↓						1	20	21		22	20	1						PLC 1
PLC 2						1	20	23		24	20	1						SPARE

SERVICE 120/240V, 1Ø, 3W — TYPE —
FEED TOP — MAIN BUS 100A
MOUNTING SURFACE — MAIN BRKR. 40A *
MANUFACTURER — MIN. I.C. 10,000A SYM.

LOAD SUMMARY

#A	W	TOTAL LOAD	KVA
#B	W	MAX. PHASE	AMPS

* PANEL SHALL BE COMPLETELY ISOLATED AND EQUIPPED WITH ISOLATED GROUND BAR. MAIN BREAKER SHALL BE EQUIPPED WITH SHUNT TRIP

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHK'D	SUPV	APV'D BY
2	9/9/10	ISSUED FOR CONSTRUCTION	30772051	AB	RL	GR	
1	7-22-98	THIS DWG SUPERSEDES 353618, "FIELD CHG"	1004564	PJP		GRR	
		REVISED EXIST. GAS HEATER BREAKERS 13, 34 & 35					

REVISIONS

APPROVED BY		
GM	1004564	
SUPV		
DSGN	PJP	
DWN	PJP	
CHK'D		
QK		
DATE		
SCALES	NONE	

PANEL - SCHEDULE
120/208VAC DISTRIBUTION, CONTROL BUILDING
MILPITAS TERMINAL

GAS OPERATIONS
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

SCAN 2-12

MICROFILM
BILL OF MATL
DWG LIST
SUPSDS 353618
SUPSD BY
SHEET NO. 3800230 — SHEETS REV 2

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3800230

Signed Masker

Milpitas Gas Distribution Terminal (MIL)

Pacific Gas and Electric Company

Date: October 7, 2010

Re: PG&E – Milpitas Gas Transmission UPS replacement

Subj: **Method of Procedure (MOP) #1 - Rev7**

Scope of Work:

The purpose of this Method of Procedure (MOP) is to upgrade the Un-Interruptible Power Supply (UPS) and install a new Remote Maintenance Bypass Switch (RMBS) cabinet and new UPS Electrical Distribution cabinet (Panel UDP) at the Milpitas Gas Transmission Terminal (MIL).

Impact to equipment:

Many systems supporting Station Instrumentation and controls will lose electrical supply while equipment is transferred to a temporary UPS and back to the new UPS Electrical Distribution system in support of changing out the listed electrical distribution equipment.

Work Summary:

PG&E will upgrade the Un-Interruptible Power Supply (UPS) and install a new Remote Maintenance Bypass Switch (RMBS) cabinet and new UPS Electrical Distribution cabinet (Panel UDP) at the MIL. This new electrical support and distribution equipment will increase electrical and gas transmission equipment reliability and improve the ability to maintain the UPS electrical distribution equipment and the critical equipment and components using the UPS system.

Risk:

An unexpected event such as an equipment failure, a human performance error, an earthquake, or other significant event could cause the MIL or UPS supported equipment at the MIL to lose utility or UPS or generator supplied electrical power. This risk is being managed by the development of this Method of Procedure (MOP) and by specific Gas Transmission clearances that will place critical gas transmission control valves in manual while system testing and during equipment de-installation and while new installations are performed . The overall risk of losing power unexpectedly to components that could adversely impact gas transmission functionality, reliability, or safety at the MIL is considered to be EXTREMELY LOW.

Some specific risks include, but are not limited to, the following:

1) Some control and monitoring systems at the MIL have a single power supply. They will need to be shut off in a managed way and transferred to several small temporary UPS's and then back onto the new UPS distribution infrastructure once it is installed. The MIL may lose some or all of its automated operational and control capabilities during these transitions.

2) A loss of utility power along with a UPS, Battery, Generator, or Temporary UPS failure during specific windows in this MOP could cause immediate loss of electrical power to the MIL or some of its equipment until the Generator or other component could be repaired or the MIL is transferred back to a utility power source.

3) There will be windows in the MOP where we do not have any permanent UPS support. In this situation, the MIL electrical load will rely on temp UPS Battery run time if we lose our utility power supply until the Generator is available. We will have a limited run time to restore utility power or generator power or the temporary UPS batteries will be depleted and electrical supply to the MIL temporary UPS supported equipment will be terminated until Generator or utility power is recovered.

4) Some MIL equipment has dual power supplies. We will transition one power supply at a time to temporary UPS's and back to the permanent new UPS once installed. If the primary power supply is weak or ready to fail this will usually occur when the secondary power supply source is being transferred.

Consequences:

If an unexpected event like a ground fault or loss of power to the MIL or an adverse impact to any particularly important specific component should occur, as outlined in the Risk section, the impact to the MIL's ability to operate could be SIGNIFICANT. An unexpected event could result in hardware failures, application problems, loss of program logic, a needed re-configuration of equipment, or possible database corruption could occur. The time required to recover any computing, switching functionality, monitoring, or other MIL functionality could be anywhere from several hours to several days, depending on the nature of the failure, availability of parts, and availability of technical personnel to fix the problem. All of this risks and consequences are being SIGNIFICANTLY reduced by putting the MIL in a manual valve operation mode with appropriate manpower available at the MIL ready to respond and by transferring monitoring and control to other Gas Distirbution Terminals under the authorization of the appropriate clearance (MIL-10-11)

Signed Master

Milpitas MIL

Contacts:

Name:	Company-Role	Phone:	Email / Mailing Address:
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Milpitas MIL			66 Ranch Dr, Milpitas, CA 95035
San Francisco		[redacted]	
Dan Menegus (DM)	PG&E		
Mark Kazimirsky (MK)	PG&E		
George Gaebler (GG)	PG&E		
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Dale Harrington (DH)	PG&E		
Steve Sheridan (SS)	PG&E		
Pete Beck (PB)	PG&E		
Oscar Martinez (OM)	PG&E		
William Schell (WS)	PG&E		
Doug Wise (DW)	PG&E DCF Specialist		
Paul Nielsen (PN)	PG&E DCF Manager		
Ian A. Gray (IG)	G.I.E		
Eli Yagor (EY)	Sequoia Engineering		
Dan Phalert (DP)	US Power		
Dave Slack (DS)	PG&E		

Signal MASTER

MIL UPS Replacement MOP 1 Pre-Work

Item#	Pre-work Preparations	Resp. Party	Post Date	Sign	Resolution/ Status	Date Completed
1	Perform MOP dry-run for proposed scope of work (walk down existing system with PG&E personnel and contractors).	ALL	10/11		MOP reviewed 10/5 & 10/11	10/11
2	Provide emergency contacts and lines of authority.	DW	10/5	DW	See Contact Sheet	10/5
3	Prepare and file clearance with Gas Transmission.	MK	10/5	O.M.	MIL 10-11filed and reported on	10/5
4	Verify all clearances have been approved.	MK &OM	10/5	O.M.	MIL 10-11filed and reported on	10/5
5	Confirm appropriate PG&E personnel will be available to oversee required work by contractor and vendor.	DH	10/5	DH		10/5
6	Confirm contingency plans and vendor agreements are in place for required work.	ALL	10/5	DH		10/5
7	Confirm Tools and Equipment are on site.	PB	10/5	PB		10/5
8	Verify all personnel have appropriate clothing / equipment to meet PG&E safety guidelines for electrical work (safety glasses, long sleeve HRC2 work clothes, arc flash face shield, rated gloves, insulated tools, appropriate meter). Note: licker type voltage meters cannot be used as the only voltage measurement method; auto-ranging features are not to be used.	PB	10/5	PB		10/5
9	Verify appropriate man-on-line tags and lockouts are available.	OM	10/5	O.M.		10/5
10	Record Breaker positions and equipment status in Panel EDP-C, UDP, the RMBS, ATS Switch, and Generators and record on attached Breaker/Equipment Checklis	DH				
11	Open or confirm openBKR A1 in Battery Transfer Switch	OM	10/5	O.M.		10/5
12	Take voltage readings on UPS batteries (ALCAD SD7) and log readings	DH	10/6	DH		10/6
13	Confirm battery status with battery Engineer and confirm authorization to charge and equalize batteries	DH & WS	10/6	DH		10/6
14	Close 60 amp BKR AT10 "BATT CHRG" in EDP-C and charge and equalize UPS Battery string	OM	10/6	O.M.		10/6
15	Move or confirmed moved PIC 32 chord cap from temp UPS #2 to temp Strip#3 off of temp UPS # 3	PB	N/A		left PIC 62 on UPS #2 on EMC 32	10/5
16	Move or confirm moved equipment on UDP BKR 14 (PS "A" and PS "B") has been transferred to temp UPS #2 connected to Block 39 #23,#24,#25	PB	10/4	PB		10/4
17	Measure voltage for LDL initially on load side of closed breaker in EDP-C to confirm voltage readings on meter	PB	10/5	PB		10/5

Signed MASTER

MIL UPS Replacement MOP 1 Pre-Work

Item#	Pre-work Preparations	Resp. Party	Post Date	Sign	Resolution/ Status	Date Completed
18	Open or confirm open 40 amp BKR RMBS-XFR in EDP-C (position 22,24) .	PB	10/5	PB	NOTE: Panel EDP-C Is ENERGIZED. Confirm proper electrical PPE Is used and proper work practices are followed for work inside this panel	10/5
19	LDL load side 40 amp BKR RMBS-XFR in EDP-C (position 22,24).	PB	10/5	PB		10/5
20	Remove 40 amp BKR RMBS-XFR on panel EDP-C and safe off conductor for future re-installation on new 30 amp BKR in EDP-C after BKR AT10 Is moved.	PB	10/5	PB	"Safe Off" requires wrapping wire ends with adequate insulation and securing appropriatly in panel	10/5
21	Open or confirm open 60 amp breaker BKR AT10 on panel EDP-C in position 20 in panel EDP-C .	PB	10/5	PB		10/5
22	LDL load side 60 amp BKR AT10 on panel EDP-C in EDP-C (position 20).	PB	10/5	PB		10/5
23	Remove 60 amp BKR AT10 on panel EDP-C in position 20 and install in position 24 in EDP-C .	PB	10/5	PB		10/5
24	Close 60 amp BKR AT10 "BATT CHRG" and charge and equalize UPS Battery string if UPS battery string needs continued charging and equalization	PB	10/5	PB		10/5
25	Install new 30 amp BKR RMBS-XFR in EDP-C in new position (position 20,22) .	PB & EY	10/5	PB		10/5
26	Label new 30 amp BKR RMBS-XFR in panel EDP-C on position 20,22 and re-lable BKR AT10 on position 24 and confirm field changes in red on panel schedules and field drawings	PB & EY & DH	10/5	EY		10/5
27	Confirm conductor from BKR RMBS-XFR to Transformer RMBS-XFR (k530) is unlanded on both ends	PB	10/5	PB		10/5
28	megger RMBS XFR conductor in (k530) 1000 volts	PB	10/5	PB		10/5
29	LDL Open side of BKR RMBS-XFR and tag BKR open MOL	PB OM	10/11	O.M	OSCAR HUNG MOL	10/5
30	Land conductor run from panel EDP-C to Transformer RMBS-XFR (k530) in correct configuration and label conductors on both ends. Leave conductor safed off in panel EDP-C for future landing on BKR RMBS-XFR	PB & EY	10/5	PB	Conductor 1A on pos 1A (H1) and Conductor 2B pos 2B (H2) on XFR input terminals: GRND from EDP-C grnd bus to transformer case	10/5
31	Confirm conductor from Transformer RMBS XFR (k532) to RMBS is unlanded on both ends	PB	10/5	PB		10/5
32	megger conductor from RMBS XFR to RMBS in (k532) 1000 volts	PB	10/5	PB		10/5
33	Land conductor run from Transformer RMBS-XFR to RMBS (k532) in correct configuration and label conductors on both ends.	PB & EY	10/5	EY	XFR output pos Conductor 1A (X1) and 2B(X2); RMBS conductor inpput from XFR pos 1A (800) pos 2B (801): run neutral from XFR (X0) to RMBS N15 : run GRND from XFR (X0) to RMBS 115M	10/5

Signed MASTER

MIL UPS Replacement MOP 1 Pre-Work

Item#	Pre-work Preparations	Resp. Party	Post Date	Sign	Resolution/ Status	Date Completed
34	Confirm correct labeling for BKR RMBS-XFR in EDP-C and Transformer RMBS-XFR and RMBS switch on equipment and confirm corrections on panel schedules and field drawings in red	PB PB & DH DH	10/11	DH PB		10/11
35	Open or confirm open BKR pos 1"Batt Supplying Load Alarm" in panel UDP and LDL load side of BKR	PB	10/5	PB		10/5
36	Lift and remove conductor from BKR 1"Batt Supplying Load Alarm" from panel UDP to the "Batt Supplying Load Alarm" box next to the UPS battery string and from the PLC	PB KEY	10/5	PB	lifted at alarm panel, will lift other end off UDP step 22 of MOP	10/5
37	Perform Battery ALBER testing and confirm UPS battery string sound	DP	10/8	DH	Dan Palmer of US Power found problems with battery string	10/8 *
38	Confirm UPS safe low voltage set point with US Power and record in MOP exucution step of Battery Load Bank test for refferal with Ametek	DW	10/8		Could not confirm low set pts due to BAD string & pending replacement of Batteries	10/8
39	Re-Confirm correct labeling for completed steps in this pre work section of MOP on equipment, on panel schedules, and in field drawings in red	PB & DH		PB DH		10/11

* Discussing options for Battery string replacement with Bill Schell. Will need temporary string before we can commission UPS.

Signed MASTER

MIL UPS Project

MOP# 1 Milpitas UPS & RMBS Replacement Project

Item #	Method of Procedure	Resp. Party	Date Time Sign	Resolution/ Status/ Notes:
Dependencies				
	Pre work is complete. Gas Transmission Clearance Team will be notified of work status at the beginning and end off each shift of work. Contingencies with Gas Transmission could postpone or terminate work before or during this MOP due to unforeseen circumstances effecting PG&E.	All	10/5 DW	Oscar calls on at Beginning & during steps that might impact gas Trans.
Impacts				
	Some systems will be cleared and de-energized and some services will be impacted and there will be degraded levels of electrical reliability during specific phases of this MOP .	All	10/5 DW	
MOP				
X	Sign onto clearance before working, advising Gas Transmission of possible conditions that could arise.	OM	10-5 O.M.	
2	Notify ISTS TCC that work is commencing	DW	10/11 DW	called & emailed Mike Choi
3	Confirm Live DC voltage @ UPS or on load side of battery BKR A1	PB	10/11 PB	
4	Open or confirm open battery BKR A1 and confirm open with Live Dead Live (LDL) BKR's A1, A2, B1, B2	OM	10-5 O.M.	
5	MOL BKR's A1, A2, B1, B2	OM	10-5 O.M.	
6	Remove all de-energized battery conductors from battery BKR's A1, A2, B1, B2 at old UPS and safe off and label with info tag or remove conductors	PB	10/11 PB	"Safe Off" requires wrapping wire ends with adequate insulation and securing appropriately in panel
7	Open or confirm open BKR UPS in panel EDP-C (80 amp)	OM	10-5 O.M.	
8	LDL conductor on BKR UPS in EDP-C	PB	10/11 PB	
9	Remove Conductor from BKR UPS in panel EDP-C and Safe Off and label conductor with info tag.	PB	10/11 PB	NOTE Panel EDP-C is energized so follow appropriate electrical safety rules for energized work in panel EDP-C
10	Remove MOL & BKR UPS (80 amp) that fed old UPS in EDP-C pos 7,9,11	PB OM	10-11-10 O.M.	See Clearance special instructions in MIL-UPS Panel Change Out
11	Open or confirm open all branch BKR's in panel UDP	OM	10-11-10 O.M.	
12	Open Main BKR in UDP	OM	10-11-10 O.M.	
13	LDL all conductors in UDP to confirm no back feeding of potential power from down stream sources	PB	PB 10/12	
14	Remove or confirm removed fuse from FU-18 and LDL alarm wiring to UPS to confirm no DC voltage	OM	10-5 O.M.	see DWG388273 sheet 2

Signed MASTER

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time Sign	Resolution/ Status/ Notes:
15	MOL or confirm MOL on Location where Fuse FU-18 is removed	O.M.	10-5 O.M.	
16	Remove alarm conductor from UPS to PLC and conduit as needed and safe off and label with info tag	PB	PB 10/12	NO INFO TAG NECESSARY
17	Lift and remove UPS battery alarm wiring from UPS	PB	PB 10/12	
18	Remove conductor and conduit from UPS to UDP panel (k531)	PB	PB 10/12	
19	Remove or confirm removed old UPS	PB	PB 10/12	
20	Place and anchor new UPS	PB	JM 10/12	
21	Confirm with Dan Menegus that troubleshooting is complete and that UDP work can commence	DM	DM 10/12	
22	Label and lift all conductors from branch breakers in UDP and safe off	PB	PB 10/12	
23	Replace Old UDP panel with new UDP panel	PB	PB 10/12	
24	Run new conduit and conductor from EDP-C to new UPS but do not land	PB	JM 10/13	
25	Label and Megger to 1000 volts conductor from EDP-C to new UPS leaving conductor safed off and conductors labeled in EDP-C for future landing on 40 amp BKR UPS Record resistance	PB	JM 10/13	AØ = 1GΩ BØ = 1GΩ CØ = 1GΩ
26	Land conductor from EDP-C in UPS only	PB & EY	JM 10/14 EY	A phase (BKR loc 7) to UPS 301 B phase (BKR loc 9) to UPS 302 C phase (BKR loc 11) to UPS 303 grnd from EDP-C bus to case grnd in UPS
27	verify that normal UPS output and UPS Bypass have dedicated grnd terminals in the UPS(193) or use common grnd	PB& EY	10/14 EY PB	
28	Run conduit & conductor from RMBS to UDP (k531)	PB	JM 10/14	
29	Label Megger to 1000 volts Conductor from RMBS to UDP and land (k531) Record resistance	PB	JM 10/14	AØ = 1GΩ BØ = 1GΩ CØ = 1GΩ Grnd = 1GΩ
30	Install Main Input BKR on UDP position 2,4 with a new 30 amp input BKR and label UDP Main Input	PB & EY	JM 10/14 EY	
31	Confirm conductor configuration for landing conductor from RMBS to UDP	PB & EY	PB 10/14 EY	Conductor 1A on RMBS output lands on pos 810 and BKR pos 2 in UDP : pos 2B of RMBS output lands on pos 811 and on pos 4 of UDP BKR: Neutral on N15 in RMBS to Neutral bus in UDP. Grnd on 115M in RMBS to Grnd bus in UDP
32	Land conductor (k531) from RMBS to UDP	PB	PB	
33	Run UPS static input conduit and conductor from RMBS to UPS (K533)	PB	PB 10/13	AØ = 1GΩ BØ = 1GΩ CØ = 1GΩ Grnd = 1GΩ
34	Label and Megger to 1000 volts INPUT conductor from RMBS to UPS (K533) Record resistance	PB	PB 10/13	

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MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time Sign	Resolution/ Status/ Notes:
35	Confirm conductor configuration for landing conductor from RMBS to UPS	PB & EY	EY 10/14 PB	Conductor 1A on RMBS output (Bypass 110) to UPS lands on pos 1A (110) Of UPS static input: pos 2B of RMBS output (Bypass 112) lands on pos 2B (112) Of UPS static input: Neutral on N15 in UPS and RMBS: grnd 193 in UPS & 115M in RMBS
36	verify that normal UPS output and UPS Bypass have dedicated grnd terminals in the UPS(193) or use common grnd	PB & EY 10/14		
37	Land conductor (k533) from RMBS to the UPS	PB	PB 10/14	
38	Run UPS output conduit and conductor from UPS to RMBS (K533A)	PB	JM 10/13	
39	Label and Megger to 1000 volts conductor from UPS to RMBS (K533A) Record resistance	PB	JM 10/13	AØ = 1GΩ BØ = 1GΩ CØ = 1GΩ Grnd = 1GΩ
40	Confirm conductor configuration for landing output conductor from UPS to RMBS	PB 10/14 PB & EY	EY	Conductor 1A on RMBS (Bypass Source input 199) lands on pos 1A Of UPS (AC output 199): Conductor 2B on RMBS (Bypass Source Input 197) lands on pos 1A Of UPS (AC output 197) Neutral on N15 in UPS and RMBS: grnd 193 in UPS & 115M in RMBS
41	verify that normal UPS output and UPS Bypass have dedicated grnd terminals in the UPS(193) or use common grnd	PB & EY	EY	
42	Land conductor (k533A) from RMBS to the UPS	PB	PB 10/14	
43	Run alarm conduit and conductor from UPS to PLC and RMBS per 388272 sheet 33 rev 5 note 5 and 489930 rev 5 note 5 (k534,k535,k536) Do not land conductor	PB	PB	
44	test alarm wiring from UPS to PLC and RMBS and land (k534,k535,k536)	PB	PB 10/14	
45	Install new UPS ground conduit and conductor to designated ground conduit and conductor on EDP-C ground conductor downstream on new junction box mounted below EDP-C	PB	PB 10/14	Follow rules for working on energized circuit while tapping into EDP-C ground to protect against possible ground fault energizing EDP-C ground conductor from a transient ground fault
46	Remove MOL on position where fuse FU-18 in PLC Installs	OM	O.M. 10-19	See Clearance special instructions in MIL-UPS Panel Change Out
47	Re-install fuse FU-18 in PLC	OM	O.M. 10-19	
48	Install Conduit and conductor from UPS to battery transfer switch A1 (k506)	PB	JM 10/13	
49	Label and Megger conductor from UPS to battery transfer switch A1 and land (k506) & Record resistance	PB	JM 10/13	AØ = 1GΩ BØ = 1GΩ [illegible]
50	Land DC Conductor from UPS to Open Battery BKR A1, positive conductor on +32 terminal and Negative conductor on -32 terminal in UPS	PB	PB 10/12	Installed with temp. Battery Bank
51	Install new 40 amp BKR UPS in EDP-C pos 7,9,11	PB	JM 10/13	
52	Confirm Open 40 amp BKR UPS, LDL	PB	JM 10/14	

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MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time Sign	Resolution/ Status/ Notes:
53	MOL Open 40 amp BKR UPS	OM	DMM 10-13 10	See Clearance special instructions in MIL-UPS Panel Change Out
54	Install 30 amp BKR RMBS-XFR in EDP-C	PB	PB 10/14	
55	Confirm Open 30 amp BKR RMBS-XFR in EDP-C, LDL	PB	PB 10/8	
56	MOL 30 amp BKR RMBS-XFR in EDP-C	OM	DMM 10-14-10	See Clearance special instructions in MIL-UPS Panel Change Out
57	Install temp 40 amp load bank BKR in UDP	PB	10-14-10	
58	Confirm conductor configuration for landing conductor from RMBS XFR to BKR RMBS-XFR in EDP-C	PB & EY	EY 10/14 PB	Conductor 1A (H1) in RMBS lands on BKR pos 20 in EDP-C: Conductor 2B (H2) in RMBS lands on BKR pos 22 in EDP-C: grnd from EDP-C bus to case grnd in XFR
59	Land conductor on 30 amp BKR RMBS-XFR from transformer RMBS-XFR in EDP-C to ~~the new UPS (k537)~~ BKR 20	PB & EY	PB 10/14	
60	Confirm conductor configuration for landing conductor from UPS BKR in EDP-C to UPS	PB PB & EY	10/15	A phase (BKR loc 7) to UPS 301 B phase (BKR loc 9) to UPS 302 C phase (BKR loc 11) to UPS 303 land ground from EDP-C grnd from EDP-C bus to case grnd in UPS
61	Land conductor from 40 amp BKR UPS in EDP-C to new UPS	PB	PB 10/15	
62	Complete final visual inspection of complete Electrical conductor path from EDP-C panel to UPS, Batteries, XFR, RMBS and UDP. Complete voltage checks and continuity test to confirm no ground fault or cross phase issues.	PB	PB 10/15	Voltage check to be completed at Gate control in UPS
63	connect load bank to OPEN temp load bank BKR in UDP	PB	PB 10/15	
64	Confirm with Ametek an external verification of system design and MOP procedure and the AMETEK is ready to proceed	AMTEK	EY 10/15	
65	Confirm with Ametek that Gas Operations will exercise all breakers and equipment external to the UPS and that all activity will be conveyed to and confirmed by PG&E prior to execution		EY 10/15	
66	**NOTE: This is the beginning of ENERGIZING the new system. Conditions will change as breakers are closed**			
67	Put RMBS switch to Position #3 Isolated Bypass	OM	DM 10/15	
68	Remove MOL Close BKR RMBS-XFR in EDP-C	OM	DMM 10/15	See Clearance special instructions in MIL-UPS Panel Change Out
69	Inspect condition of conductors and terminals and take voltage readings from EDP-C to the UDP input BKRs	PB	PB 10/15	
70	Close UDP main input BKR on position 2,4 Open or Confirm open all branch Breakers in UDP	OM	DM 10/15	
71	Inspect condition of conductors and terminals and take voltage readings in UDP	PB	PB 10/15	
72	Close temp Load bank BKR in UDP to energize load bank to 5 KW for 1hour	PB	PB 10/15	

~~CLOSE BKR UPS IN EDP-C~~

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MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time Sign	Resolution/ Status/ Notes:
73	Inspect conductors and terminals and take voltage readings and Thermal scan system (MDP)	PB	PB 10/15	
74	Open temp load bank BKR in UDP	OM	N/A	left system energized
75	Open BKR RMBS-XFR in EDP-C	OM	N/A	left system energized
76	Confirm battery bank is charged and ready for UPS commissioning	PB	PB 10/15	opened
77	Confirm Open or open 60 amp BKR AT10 "BATT CHRG" in EDP-C to isolate remote charger from UPS charging system and tag out with caution and information tag	OM	10/11 14:30 O.M.	~~Closed~~ early due to BAD BATTERY strings
78	Remove MOL & Close BKR UPS in EDP-C	OM	10/15 O.M.	See Clearance special Instructions in MIL-UPS Panel Change Out
79	Remove MOL and operate Battery Breaker A1 as needed in support of AMTEK commissioning during next two steps	OM	10/15 O.M.	See Clearance special Instructions in MIL-UPS Panel Change Out
80	no load commission UPS	AMTEK	10/16	
81	prepare Load Commissioning of UPS	AMTEK	10/15	
82	Confirm following steps OK with AMATEK	AMTEK	10/15	
83	Discuss and confirm operation of RMBS switch and conditions and position for Paralleling of UPS with utility load through RMBS	ALL	10/15	
85	Close BKR RMBS-XFR in EDP-C	OM	N/A	left system ENERGIZED
86	Put RMBS switch to Position # 1 "Normal Operation"	OM	O.M.	10/15
87	Close temp Load bank BKR in UDP to energize load bank	OM	O.M. 10-15	
88	Inspect conductors and terminals and take voltage readings and Thermal scan system	PB	PB 10/15	
89	Confirm UPS battery bank is charged and ready for load Temp bank.	PB		
90	Open BKR UPS in EDP-C to simulate loss of utility power for UPS and Battery bank load test of UPS "On Battery"	OM	O.M. 10-15	
91	Complete UPS Battery Load Test at 42 amps on the DC circuit for 2 hours. Record the results 30 MIN.	[signature]	10/15 10	30+ on AC INPUT 30 MIN ON BAT. FINAL AT 120.3V @ 42.5A
92	Inspect conductors and terminals and take voltage readings and Thermal scan system while UPS supports load on battery	PB	PB 10/15 10	
93	Open Battery BRK A1 to simulate loss of Battery while on UPS Battery and observe UPS transfer to Internal Bypass & Record results	OM	O.M. 10-15	AMETEK RECORDED RESULTS
94	Close Battery BKR A1 ON UPS	OM	O.M. 10-15	
95	Close BKR UPS in EDP-C to end Battery bank load test	OM	O.M. 10-15	
96	Discuss and confirm operation of RMBS switch and conditions and position for putting RMBS to "Bypass to Load" pos. 2.	ALL	B.J. PB 10/15 O.M.	

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MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time Sign	Resolution/ Status/ Notes:
97	Open Temp Load Bank BKR in UDP.	OM	O.M. 10-15	
98	LDL conductors on Load side of temp load bank BKR in UDP	PB	PB 10/15	
99	remove temp load bank conductors from UDP	PB	PB 10/15	
100	Test all UPS and RMBS Alarms following Alarm Test Script	PB&DH	10/18	
103	Confirm all systems are as expected with MIL Gas Operations and TCC Wire Chief once work has concluded and Sign off Clearance	MK DH	10/20/10 OFF	
104	Record Breaker positions and equipment status in Panel EDP-C, UDP, the RMBS, ATS Switch, and Generators and record on attached Breaker/Equipment Checklist	DW	10/19	
105	Remove all temporary conductors, old equipment, tools, and unused material and leave worksite in orderly manner	PB & DH	PB DH 10/18	
106	confirm all new Breakers and equipment is labeled effectively and is accurately reflected in field drawings and corrected in colored pen	DH & MK	10/21/10 DH	
107	Submit corrected field drawings to PG&E Engineer for final correction and submittal into PG&E Documentation System	MK		

10/5 Power Down UPS following UPS shutdown procesd — O.M. 10-15

10/15 Opened UPS BKR on EDP-C & hung MOL — O.M. 10-15

10/15 Open RMBS XFR on EDP-C & hang MOL & AT-1 BKR — O.M. 10-15

10/15 Open Battery BKR A-1 & hang MOL — O.M. 10-15

10/15 Switch Charger transfer switch to A position — O.M. 10-15

10/15 Close DC output BKR on DC Back up charger — O.M. 10-15

10/15 Close AC input BKR on DC Back up charger — O.M. 10-15

134.5V @ 8 amps

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MIL UPS Project

Item #	Follow Up Action Item	Resp Party
1	replace new temp labels with permanent labels	10/26/10 DH DW
2	confirm field drawings get corrected and a set to PG&E Engineers and Gas Transmission	MK
3	Develop UPS - RMBS procedure guide for MIL	DW & DH
4	Develop long term maintenance plan for MIL UPS, Batteries, ATS, Generator	MK
5	Develop plan for Breaker maintenance, coordination study, injection testing	MK
6	review and confirm Generator curve data to insure Generator synchronization is reliable	MK
7	LOTO Policy for Gas Transmission	DW & JG
8	No instruction in MIL Operating and Maintenance Instructions Dwg 089773 for UPS, ATS or Generators, only batteries	
9	Need to update MIL Operating and Maintenance Instructions Dwg 089773 for remote charger. Must be offline while UPS is	
10	Some maintenance records for specific mtc activities at the MIL need improving.	
11	Generator needs more description on how to perform operation, MTC, ATS testing	
12		
13		
14	UPS room lighting	
15	Power Supply PS 1 Low @ 23.9 Volts	
16	Confirm w/ Ametek that on loss of main supply, batteries take-over until end of bypass source.	
17		
18		
19		
20		
21		
22		
23		
24		

* MOP STEP 10.4

Milpitas Breaker & Equip Script (NORMAL OPERATION CHECKLIST)

Panel	BKR Name	BKR Name
Main Switch Board "MS"	INPUT breaker 800 amp CLOSED	DIST PANEL EDPM 400 amp CLOSED

Panel	BKR Name	
EDPM	EDPC 225 amp CLOSED	

Panel				Panel		
EDP-C	BKR Name	AMPS		EDP-C	BKR Name	AMPS
BKR pos	MAIN INPUT BKR	225A		BKR pos		
1				2		
3	CP	100A		4	EMC	100A
5	CLOSED			6	CLOSED	
7				8		
9	UPS	40A		10	VOP-2	60A
11	CLOSED			12	CLOSED	
13				14		
15	VOP-2	60A		16	VOP-3	60A
17	CLOSED			18	CLOSED	
19				20	RMBS-XFR	30A
21	OP HTR	20A		22	CLOSED	
23	CLOSED			24	ATS-10	60A OPEN

Milpitas Equip Script

UPS	Static Switch Inv to Load	Normal Green	Static Switch Bypass to Load	Normal Off	Inverter in Sync	Normal On
Battery Charg Float	Battery Charg Equalize	Battery Supply Load	Battery Input Open	Bypass Source Fail	Fan Failure	Low DC Voltage
Normal On	Normal Off	Normal Off	Normal Off	Normal Off	Normal Off	Normal Off
AC Input Breaker	Normal On (CLOSED)	Battery Input Breaker	Normal On (CLOSED)	Bypass Source AC Input Breaker	Normal On (CLOSED)	

Milpitas Breaker & Equip Script (NORMAL OPERATION CHECKLIST)

Battery Transfer Swtich	Battery Breaker A1 Normally Closed	Battery Breaker A2 Normally Open	Battery Breaker B1 Normally Open	Battery Breaker B2 Normally Open		Temp Enersys Battery Cab DC ON

RMBS Switch	Normal Source to Load	Bypass to Load	Isolated Bypass	Normal Source Available	Bypass Source Available	In Sync Normal on
	Normal On	Normal Off	Normal Off	Normal On	Normal On	Not In Sync Normal off

ATS1	Transfer Switch Position
Normal Source Available ON	Emergency Source Available OFF

ATS2	Transfer Switch Position
Normal Source Available GEN 1 OFF	Emergency Source Available GEN 2 OFF

Generator 1	Main Breaker CLOSED	toggle switch Position 3 AUTO	Position 1 RUN	Position 2 OFF/Reset	Position3 AUTO

Generator 2	Main Breaker CLOSED	toggle switch Position 3 AUTO	Position 1 RUN	Position 2 OFF/Reset	Position3 AUTO

Signed MASTER

Milpitas MIL UPS Project

Reviewers:

NAME	COMPANY – ROLE	SIGNATURE	DATE
JODY GARCIA	PG&E GT M&C		
Doug Wise	PG&E ISTS IS CS DCF		10/7/2010
Dale Harrington	PG&E Gas Engineering		10/7/10
Pete Beck	PG&E Gas Trans M&C		
Oscar Martinez	PG&E Gas Trans M&C		10-7-10
Eli Yagor	Sequoia Engineering		10-8-10
William Schell	PG&E Gas Engineering		10-8-10
Mark Kazimirsky	PG&E Gas Engineering		10/7/10
Dan Menegus	PG&E Gas Engineering		10-8-10

Revision History:

REV #	DESCRIPTION	DATE
0.1	Initial draft	9/30/2010
0.2	electical & engineering draft	9/30/2010
0.3	Gas Trans. Review & Engineering verification	10/4/2010
0.4	Final Mop Review	10/5/2010
0.5	Engineering Corrections	10/6/2010
0.6	MOL Corrections	10/6/2010
0.7	**Approved Signed Work Doc**	10/7/2010

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Milpitas MIL UPS Project

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Dale Harrington	PG&E Gas Engineering		10/7/10
Pete Beck	PG&E Gas Trans M&C		
Oscar Martinez	PG&E Gas Trans M&C		10-7-10
Eli Yagor	Sequoia Engineering		
William Schell	PG&E Gas Engineering		10-8-10
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Signature Master

UPS and RMBS Alarms Test Procedure

PRIOR TO COMMENCEMENT OF THIS MOP, SWITCH TEMP. BATTERY BANK TO THE NORMAL CHARGER IN THE UPS (Open 60 A breaker AT10, "BATT CHRG", in EDP-C, and switch CTS switch to 'Off"). Close Breaker A1 in BCS.

WHILE CARRYING OUT POWER SOURCE SWITCHING AND RMBS SWITCHING, FOLLOW THE ENGRAVED INSTRUCTIONS ON THE FACE OF THE UPS ENCLOSURE.

ALL ALARMS ARE WIRED TO THE PLC AS 'FAIL-SAFE' CIRCUITS, I.E. UNDER NORMAL CONDITIONS, ALL ALARM OUTPUTS ARE CLOSED, AND THE LED'S ON GENIUS BLOCK B50 WILL BE ON. DURING AN ALARM CONDITION, THE RESPECTIVE LED'S ON BLOCK B50 TURN OFF, INDICATING AN OPEN ALARM OUTPUT CONTACT AT THE UPS OR THE RMBS.

UPS ALARMS TESTS

Item#	Pre-work Preparations	Resp. Party	Sign	Resolution/ Status	Date Completed
1	Verify all existing clearances are understood by all parties.	All			10-19-10 20:30
2	Remove clearance tag on fuse block assembly in PS 1	OM	O.M.		10-19-10 20:35
3	Insert FU18 into its designated slot in PS1	OM	O.M		10-19-10 20:40
4	Verify 24V(+) available on TB44-35, below PS1	JM	JM		10-19-10 20:43
5	Verify voltage is present at Genius block B50 and that block is not faulted by observing the two LED's at the top of the block. Both LED's should be on.	JM/EY	JM / Ey		10-19-10 20:47
5	Observe designated inputs LED's light up: LED's 1 through 7, and LED's 9 through 14, corresponding to PLC inputs %I1097 through %I1103 and %I1105 through %I1110.	DH/EY	DH / Ey		10-19-10 20:50
6	Lift wire tagged "UPS-J7(3)(PLC-B50/6) from terminal J7-3 on UPS alarm board, simulating "Internal Comm. Error". Observe 1st input LED turned off.	PB/EY	PB / Ey		10-19-10 20:55
7	After verifying 1st input LED turned off, re-terminate wire on J7-3 and observe LED is on.	PB/EY	PB / Ey		20:57
8	Confirm that RMBS is in "Normal Operation" position/mode	OM	O.M.		10-19-10 20:50
9	In Panel EDP-C, open 40A UPS supply breaker. Battery bank will assume load, but static switch will NOT transfer. Also see RMBS test 1 below.	OM	O.M.		21:15 10-19-10
10	Observe 3rd input LED (%I1099) on Block B50, corresponding to "Battery Supplying Load", is off	DW/EY	DW / Ey		21:17 10-19-10
11	Close 40A UPS supply breaker. Confirm LED is on.	OM/EY	O.M. / Ey		10-19-10 21:20
12	In Panel EDP-C, open 40A UPS supply breaker and 30A RMBS-XFR breaker. The battery will be supplying load.	OM	O.M.		10-19-10 21:25
13	Observe 3rd input LED (%I1099) on Block B50, corresponding to "Battery Supplying Load", is off.	DW/EY	DW / Ey		10-19-10 21:25

UPS and RMBS Alarms Test Procedure

14	Observe 5th Input LED (%I1101), "UPS cooling fan failure" on Block B50 turned off.	DW/EY	DW EY		10-19-10 21:25	
15	Observe 6th Input LED (%I1102) on Block B50, Low DC Voltage, turned off	DW/EY	DW EY		10-19-10 21:25	
16	Close 30A RMBS-XFR breaker in EDP-C	OM	O.M.		21:27	
17	Close 40A UPS supply breaker	OM	O.M.		21:27	
18	Observe 3rd, 5th and 6th Input LED's are on	DW/EY	DW EY		10-19-10 21:27	
19	In Panel EDP-C, open 30A RMBS-XFR breaker. Also see step RMBS 2 below.	OM	O.M.		10-19-10 21:35	
20	Observe 4th Input LED (%I1100), "Bypass Source Fail", turned off.	DW/EY	DW EY		10-19-10 21:35	
21	Observe 10th Input LED (%I1106), "Bypass Source Available", turned off	DW/EY	DW EY		10-19-10 21:35	
22	Close 30A RMBS-XFR breaker in EDP-C	OM	O.M.		21:35	10-19-10
23	Observe 4th Input LED is on	DW/EY	DW EY		21:35	10-19-10
24	Observe 10th Input LED is on	DW/EY	DW EY		21:35	10-19-10
25	To simulate "UPS Cooling Fan Failure", refer to step 12 above.	EY	EY		10-19-10 21:25	
26	On UPS, open Battery Input breaker.	OM	O.M.		21:28	10-19-10
27	Observe 7th Input LED (%I1103) on Block B50, "Battery Breaker Open" turned off.	DW/EY	DW EY		10-19-10 21:29	
28	Observe 6th Input LED (%I1102) on Block B50, Low DC Voltage, turned off.	DW/EY	DW EY		10-19-10 21:29	
29	Close Battery Input breaker	OM	O.M.		21:30	10-19-10
30	Observe 6th LED is on.	DW/EY	DW EY		21:31	10-19-10
31	Observe 7th LED is on	DW/EY	DW EY		21:31	10-19-10
	RMBS ALARMS TEST					
Keep FU18 Inserted into the fuse block assembly for the RMBS alarms test						
32	"Normal Source Available" alarm test - Switch static bypass switch to Bypass to Load. In Panel EDP-C, open 40A UPS supply breaker.	OM	O.M.		10-19-10 21:45	
33	Observe 9th Input LED (%I1105), "Normal Source Available", turned off.	DW/EY	DW EY		21:46	10-19-10
34	Reclose 40A UPS supply breaker in Panel EDP-C.	OM	O.M.		21:45	10-19-10
35	Observe 9th Input LED turned on.	DW/EY	DW EY		21:45	10-19-10
36	"Bypass Source Available" alarm test - During Step 19 of UPS test, observe 10th Input LED (%I1106), "Bypass Source Available", turned off. When RMBS-XFR breaker in EDP-C is closed, observe 10th Input LED turned on.	DW/EY	DW EY		10-19-10 21:35	
37	"In Sync" alarm test - Switch RMBS to Bypass to Load, then to Isolated Bypass.	OM	O.M.		21:46 10-19-10	
38	Observe 11th Input LED (%I1107) on Block B50 turned off.	DW/EY	DW EY		21:46 10-19-10	
39	Observe 12th Input LED (%I1108) on Block B50 turned off.	DW/EY	DW EY		21:46 10-19-10	
40	Switch RMBS to 'Normal Operation'	OM	O.M.		21:46	10-19-10
41	Observe 11th LED turns on	DW/EY	DW EY		21:46	10-19-10
42	Observe 12th LED, Isolated Bypass, turns on	DW/EY	DW EY		21:46	10-19-10

UPS and RMBS Alarms Test Procedure

43	In Step 19 above, the "Isolated Bypass" alarm was tested. Repeat test by switching the static switch to 'Bypass to Load', then switch RMBS to 'Bypass to Load', then to 'Isolated Bypass' position.	OM	O.M.		10-19-10 21:35 21:47
44	Observe 12th LED on Block B50, 'Isolated Bypass' is turned off	DW/EY	DW EY		10-19-10 21:47
45	"Bypass to Load" alarm test - In Step 19 above, when the RMBS switch is in 'Bypass to Load' position, observe 13th input LED (%I1109) on Block B50 turns off. When RMBS selector switch is back in "Normal Operation", observe 13th input LED is turned on.	DW/EY	DW EY		10-19-10 21:35 21:48
46	"Normal Operation" alarm test – In Step 19 above, when the RMBS switch is in "Bypass to Load", observe the 14th input LED (%I1110) on Block B50 turns off. When the RMBS is returned to the "Normal Operation" position, observe the 14th input LED (%I1110) on Block B50 turned on.	DW/EY	DW EY		10-19-10 21:35 21:49
47					

SIGNED MASTER

Milpitas Gas Distribution Terminal (MIL)

Pacific Gas and Electric Company

Date: October 15, 2010

Re: PG&E – Milpitas Gas Transmission UDP replacement

Subj: **Method of Procedure (MOP) #2 - Rev 6**

Scope of Work:

The purpose of this Method of Procedure (MOP) is to upgrade the Un-Interruptible Power Supply (UPS) distribution to the Electrical Distribution cabinet (Panel UDP) and transfer critical equipment off temporary UPS's at the Milpitas Gas Transmission Terminal (MIL).

Impact to equipment:

Many systems supporting Station Instrumentation and controls will lose electrical supply while equipment is transferred from temporary UPS's back to the new UPS Electrical Distribution Panel (UDP).

Work Summary:

PG&E upgraded the Un-Interruptible Power Supply (UPS) and installed a new Remote Maintenance Bypass Switch (RMBS) cabinet and new UPS Electrical Distribution cabinet (Panel UDP) at the MIL. This new electrical support and distribution equipment will increase electrical and gas transmission equipment reliability and improve the ability to maintain the UPS electrical distribution equipment and the critical equipment and components using the UPS system. Critical MIL equipment needs to be transferred off of temporary UPS's back to desiganted circuits on Panel UDP off of the new UPS.

Risk:

An unexpected event such as an equipment failure, a human performance error, an earthquake, or other significant event could cause the MIL or UPS supported equipment at the MIL to lose utility or UPS or generator supplied electrical power. This risk is being managed by the development of this Method of Procedure (MOP) and by specific Gas Transmission clearances that will place critical gas transmission control valves in manual while system testing and during equipment de-installation and while new installations are performed . The overall risk of losing power unexpectedly to components that could adversely impact gas transmission functionality, reliability, or safety at the MIL is considered to be EXTREMELY LOW.

Some specific risks include, but are not limited to, the following:

1) Some control and monitoring systems at the MIL have a single power supply. They will need to be shut off in a managed way while transferred from small temporary UPS's back onto the new UPS distribution infrastructure once it is installed. The MIL may lose some or all of its automated operational and control capabilities during these transitions.

2) A loss of utility power along with a UPS, Battery, Generator, or Temporary UPS failure during specific windows in this MOP could cause immediate loss of electrical power to the MIL or some of its equipment until the Generator or other component could be repaired or the MIL is transferred back to a utility power source.

3) There will be windows in the MOP where we do not have any permanent UPS support. In this situation, the MIL electrical load will rely on temp UPS Battery run time if we lose our utility power supply until the Generator is available. We will have a limited run time to restore utility power or generator power or the temporary UPS batteries will be depleted and electrical supply to the MIL temporary UPS supported equipment will be terminated until Generator or utility power is recovered.

4) Some MIL equipment has dual power supplies. We will transition one power supply back to the permanent new UPS and panel UDP. If the primary power supply is weak or ready to fail this will usually occur when the secondary power supply source is being transferred.

Consequences:

If an unexpected event like a ground fault or loss of power to the MIL or an adverse impact to any particularly important specific component should occur, as outlined in the Risk section, the impact to the MIL's ability to operate could be SIGNIFICANT. An unexpected event could result in hardware failures, application problems, loss of program logic, a needed re-configuration of equipment, or possible database corruption could occur. The time required to recover any computing, switching functionality, monitoring, or other MIL functionality could be anywhere from several hours to several days, depending on the nature of the failure, availability of parts, and availability of technical personnel to fix the problem. All of this risks and consequences are being SIGNIFICANTLY reduced by putting the MIL in a manual valve operation mode with appropriate manpower available at the MIL ready to respond and by transferring monitoring and control to other Gas Distirbution Terminals under the authorization of the appropriate clearance (MIL-10-11)

Milpitas MIL

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MIL UDP Replacement MOP 2 Pre-Work

Item#	Pre-work Preparations	Resp. Party	Post Date	Sign	Resolution/ Status	Date Completed
1	Perform MOP dry-run for proposed scope of work (walk down existing system with PG&E personnel and contractors).	ALL				10/19/10 DW
2	Provide emergency contacts and lines of authority.	DW	10/20	DW	See Contact Sheet	10/21/10 DW
3	Prepare and file clearance with Gas Transmission.	OM	10-20	O.M.	MIL UDP PNL BK R 1, MIL UDP PNL BKR 3, MIL UDP PNL BKR 5, MIL UDP PNL BKR 6, MIL UDP PNL BK R 10, MIL UDP PNL BK R 11, MIL UDP PNL BK R 12, MIL UDP PNL BK R 13, MIL UDP PNL BK R 14, MIL UDP PNL BK R 15, MIL UDP PNL BK R 16, MIL UDP PNL ~~BK R 17~~, MIL UDP PNL BK R 18, MIL UDP PNL BK R 20, MIL UDP PNL BK R 22, MIL UDP PNL BK R 23	D 10/21/10
4	Verify all clearances have been approved.	MK &OM	10-20	O.M.	MIL UDP PNL BK R 1, MIL UDP PNL BKR 3, MIL UDP PNL BKR 5, MIL UDP PNL BKR 6, MIL UDP PNL BK R 10, MIL UDP PNL BK R 11, MIL UDP PNL BK R 12, MIL UDP PNL BK R 13, MIL UDP PNL BK R 14, MIL UDP PNL BK R 15, MIL UDP PNL BK R 16, MIL UDP PNL ~~BK R 17~~, MIL UDP PNL BK R 18, MIL UDP PNL BK R 20, MIL UDP PNL BK R 22, MIL UDP PNL BK R 23	D 11/12/10
5	Confirm Tools and Equipment are on site.	PB	10/20	PB		
6	Verify all personnel have appropriate clothing / equipment to meet PG&E safety guidelines for electrical work (safety glasses, long sleeve HRC2 work clothes, arc flash face shield, rated gloves, insulated tools, appropriate meter). Note: ticker type voltage meters cannot be used as the only voltage measurement method; auto-ranging features are not to be used.	PB	10/20	PB		
7	Verify appropriate man-on-line tags and lockouts are available.	OM	10-20	O.M.		
8	Attachment 1: UDP Schedule Attachment 2: Circuit Breaker Status Log (CBSL) ✓	DH	10-20	DH		

MIL UDP Replacement MOP 2 Pre-Work

Item#	Pre-work Preparations	Resp. Party	Post Date	Sign	Resolution/ Status	Date Completed
9	Record Breaker positions and equipment status in Panel EDP-C, UDP, the RMBS, ATS Switch, and Generators and record on attached Breaker/Equipment Checklis	DH	10/20	DH JW		
10	Install TB-PSA/B/C below MIMIC board Console next to PS-A and PS-B	PB	10/20	PB		
11	Connect UDP14 conductors to TB-PSA/B/C term 1/2/3 in MIMIC board next to PS-A and PS-B	PB	10/20	PB		
12	Connect conductors from UDP BKR 12 UDP12H, UDP12N, UDP12G to TB-PS-A/B/C Terms 4/5/6	PB	10/20	PB		
13	Connect conductorsfrom UDP BKR 16 UDP16H, UDP16N, UDP16G to TB-PS-A/B/C Terms 7/8/9	PB	10/20	PB		
14	confirm TB-39 wiring integrity is sound or repaired if necessary	DH	10/20	DH	Wire jumper will be replaced with bridge on comb during MOP. DH	
15	confirm all functionality of equipment on TB-39 to confirm risk and impact of lifting PS-C off of TB-39	DH	10/20	DH		
16	Connect the wires to all circuits that will be used in UDP per the UDP Schedule	PB	10/20	PB		
(17)	Confirm MOP 1 Rev 7 is complete	DH	10/20	DH	Steps 106 & 107 still working	

MIL UPS Project

MOP# 2 Milpitas UDP Panel and Temp UPS Replacement

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
Dependencies					
	Pre work is complete. Gas Transmission Clearance Team will be notified of work status at the beginning and end off each shift of work. Contingencies with Gas Transmission could postpone or terminate work before or during this MOP due to unforeseen circumstances effecting PG&E.	All	10/20/11	DH	
Impacts					
	Some systems will be cleared and de-energized and some services will be impacted and there will be degraded levels of electrical reliability during specific phases of this MOP .	All	10/20/11	DH	
MOP					
1	Sign onto clearance before working, advising Gas Transmission of possible conditions that could arise.	OM	10-20	O.M.	MIL UDP PNL BK R 1, MIL UDP PNL BKR 3, MIL UDP PNL BKR 5, MIL UDP PNL BKR 6, MIL UDP PNL BK R 10, MIL UDP PNL BK R 11, MIL UDP PNL BK R 12, MIL UDP PNL BK R 13, MIL UDP PNL BK R 14, MIL UDP PNL BK R 15, MIL UDP PNL BK R 16, MIL UDP PNL ~~BK R 17~~, MIL UDP PNL BK R 18, MIL UDP PNL BK R 20, MIL UDP PNL BK R 22, MIL UDP PNL BK R 23 DH 10/20/11
2	confirm that all valve controllers are in "MANUAL" and "LOCAL"	OM	10-20	O.M.	
3	Confirm UDP MAIN BKR is a 2 pole BKR landed on Position 2&4 in UDP	PB	10/20	P.B.	
4	confirm all needed distribution breakers planned on being used in UDP are installed and open.	PB	10/20	PB	
5	Close or confirm closed UDP BKR 2/4 Main & Measure voltage on output of UDP BKR 2/4	OM	10-20	O.M.	NOTE Panel UDP is energized so follow appropriate electrical safety rules for energized work in panel UDP
6	LDL the load side of all open distribution Breakers in UDP and confirm no voltage to open side of breakers	PB	10-20-11	JM	
7	coordinate and communicate V1 and V2 activity and emergency mitigation issues with SF Gas Control	OM	10-20	O.M.	
8	Valve in Instument air to keep gas valves V1 & V2 open	OM	10-20	O.M.	
	PS-A 24 VDC Transmitters			DH/MC	Notify Gas Control of next test

GAS CONTROL ASKED TO MONITOR L132 OUTLET PRESS BETWEEN 285—295 PSIG. IF OUTSIDE RANGE CALL GC TO ADVISE.

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
9	Confirm PS-A/B are functioning properly	PB	10/20 13:06	PB	Presently PS-A/B are powered by the same 120 VAC source. When work is complete they will each be powered by a separate UPD BKR
10	Confirm 120 VAC on TB-39 Term 26/27	PB	10/20 13:07	PB	This will be energized, 120 VAC during this procedure step
11	Turn off UPS-2 that supplies power to PS-A/B	OM	10-20 13:10	OM	
12	Disconnect and remove conductors that supply 120 VAC from TB-39 term 26/27	PB	10/20 13:11	PB	
13	Confirm 0 VAC on PS-A and PS-B are de-energized	PB	10/20 13:20	PB	
14	On TB-39, remove jumpers from 23 and 26 and between 24 and 27 and between 27 and 28	PB	10/20 13:10	PB	NO WORK DC WIRING IN THIS SECTION DH
15	Removed ~~Restore power to UPS-2~~ UPS-2 from this source	OM	17:08		Combine with PSB DH
16	Disconnect and remove jumper conductors between PS-A and PS-B across the power supplies	PB	13:12	PB	to TB-PSA/B/C Terms1/2
17	Confirm UDP BKR 14 is open	OM	14:17	O.M.	
18	Confirm Fused disconnect TB-PSA/B/C Term 1 is open	OM	14:17	O.M.	
19	Confirm UDP BKR 12 is open	OM	14:17	O.M.	
20	Confirm Fused disconnect TB-PSA/B/C Term 4 is open	OM	14:17	O.M.	
21	Connect conductors from TB-PS/A/B/C Termerinal 1/2/3 to PS-A input terminals	PB	14:22	PB	
22	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	1605 10-20	O.M.	MIL UDP PNL BKR 14
23	close UDP BKR 14	OM	~~14~~ 16:12	O.M.	
24	Close fused disconnect terminal TB-PSA/B/C Term1 to re-power PS-A and confirm PS-A working	OM	10/20 16:13	O.M.	
25	Confirm PS-A is functioning properly	OM	10-20 1658	O.M.	
26	Confirm 24 VDC instruments powered by PS-A/B are functioning properly	OM	10-20 1658	O.M.	Notify Gas Control that test is complete and confirm functionality
	PS-B 24 VDC Transmitters				Notify Gas Control of next test
27	Confirm PS-B is still OFF	PB	10/20 16:27	PB	
28	Connect conductors from TB-PS/A/B/C Termerinal 3/4/5 to PS-B input terminals	PB	10/20 14:22	PB	
29	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/20 1605	O.M.	MIL UDP PNL BKR 12
30	close UDP BKR 12	~~PB~~ OM	10-20 17:05	OM	
31	Confirm PS-B is functioning properly	OM	17:08 10-20	O.M.	
32	Open fused disconnect terminal TB-PSA/B/C Term1 to shut off PS-A	OM	10-26 17:09	O.M.	B' DID NOT PICK UP. * FUSE DISCONN. NOT COMPLETELY
13A	REWIRE DC OUTPUTS FROM PS-A/B TO INCORPORATE FUSE DISCONNECTS & REDUNDANCY MODULE	DH PB	15:30	DH PB	

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
33	Confirm 24 VDC instruments powered by PS-A/B are functioning properly powered by PS-B	OM	17:07	O.M.	
34	Close fused disconnect terminal TB-PSA/B/C Term 4 to re power PS-A and confirm PS-A working	OM	17:08	O.M.	Notify Gas Control that test is complete and confirm functionality
	PS-C MIMIC PNL 24 VDC				Notify Gas Control of next test
35	Confirm soliniod SV-1 for V1 and solinlod SV-2 for V2 are energized	OM	1826	O.M.	
36	Confirm 120 VAC at PS-C	PB	18:24	PB	
37	trace or determine by lifting conductor 33,34 and ringing 31 for PS-C conductors	PB	18:24	PB	This will be energized, 120 VAC during this procedure step
38	Disconnect and remove PS-C conductors from TB-39 Term 31/33/34 to PS-C input	PB	18:28	PB	
39	Confirm solinlod SV-1 for V1 and solinlod SV-2 for V2 are energized	OM	18:34	O.M.	
40	Confirm all of the Valve Status indicators on the MIMIC panel are functioning properly	OM	18:40	O.M.	
41	run new conductor from PS-C to TB PS A/B/C terminal 7H, 8N, 9G and land at PS-C	PB	10/20 20:18	PB	
42	connect new conductor from PS-C to TB PS A/B/C terminal 7H, 8N, 9G	PB	10/20 20:19	PB	
43	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/20 20:43	O.M.	MIL UDP PNL BKR 16
44	close UDP BKR 16	OM	10/20 20:43	O.M.	
45	Close fused disconnect terminal TB-PSA/B/C Term 7 to re power PS-C and confirm PS-C working	OM	20:48	O.M.	
46	Confirm 120 VAC at PS-C	PB	20:48	PB	
47	Confirm all of the Valve Status indicators on the MIMIC panel are functioning properly	OM	20:49	O.M.	Notify Gas Control that test is complete and confirm functionality
	Power Strip 1		10/21 10:32		Notify Gas Control of next test KISH
47A	Confirm Power Strip 1 is labeled	PB		PB	
48	Remove UPS# 2 Conductor from Power strip terminal block TB 39 terminal 23,24, 25	PB	10/21 13:10	JM	REMOVED IN STEP 14
49	Connect Conductor from Power strip terminal block TB 39 terminal 23,24, 25 powering Power strip 1 to UDP BKR 1.	PB	10/21 17:42	JM	~~[illegible]~~
50	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/20 17:45	O.M.	MIL UDP PNL BKR 1
51	close UDP Breaker 1	OM	17:45	O.M.	
52	Measure voltage on TB 39 terminal 23,24,25 (120 VAC) and on Power Strip 1	PB	17:46	PB	120 V
36A	SHUT OFF POWER TO PSC (ENC 32)	OM	18:30	O.M.	
36B	CONFIRM 0 VAC @ TB39 (10 & 12)	PB	1831	PB	

SW 36A

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
63	Confirm all instrumentation plugged into temporary Power Strip A & B are functioning properly	~~PB~~ OM	12:20	O.M.	
64	Move individual cord caps one at a time from power strip B to power strip 1 confirming each corresponding UIC label is correct and that the equipment loses voltage and re-energizes on Power Strip 1 and note on PWR STP 1 Schedule	PB		PB	GEORGE GARBER Ensure that Wayne Fong is on site to move individual cord caps in case there is an issue with the controllers
55	Move individual cord caps one at a time from power strip A to power strip 1 confirming each corresponding UIC label is correct and that the equipment loses voltage and re-energizes on Power Strip 1 and note on PWR STP 1 Schedule	PB		PB	GEORGE GARBER Ensure that Wayne Fong is on site to move individual cord caps in case there is an issue with the controllers
56	Confirm all instrumentation plugged into Power Strip 1 is functioning properly	PB	10/21 1:24p	PB	Notify Gas Control that test is complete and confirm functionality
	Power Strip 3				Notify Gas Control of next test
57	Confirm Power Strip 3 is labeled	PB	10/20		
58	Remove conductors from EMC panel to TB 39 terminals 17,18,19	PB	10/20 1800	PB	
59	Connect Conductor from UDP BKR 3 to TB 39 terminal 17,18,19	PB	10/20 19:16	PB	
60	MOVE Conductor from Power strip 3 FROM TB 39 terminal 10,12,13 to TB 39 Terminals 17,18,19	PB	10/20 19:20	PB	
61	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/20 19:27	O.M.	MIL UDP PNL BKR 3
62	close UDP Breaker 3	OM	19:27 10/20	O.M.	
63	Measure voltage on TB 39 terminal 17,18,19 (120 VAC) and on Power Strip 3	PB	19:35 10/20	PB	
64	Confirm all instrumentation plugged into temporary Power Strip C are functioning properly	PB	10/21	PB	
65	Move individual cord caps one at a time from power strip C to power strip 3 confirming each corresponding UIC label is correct and that the equipment loses voltage and re-energizes on Power Strip 3 and note on PWR STP 3 Schedule	PB	10/21		
66	Confirm all instrumentation plugged into Power Strip 3 are functioning properly	OM	10/21 1:26	~~10/21~~	Notify Gas Control that test is complete and confirm functionality

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
	Power Strip 5		10/21 10:32		Notify Gas Control of next test
67	Confirm Power Strip 5 is labeled	PB	10/21 10:35	PB	
68	Confirm all Console instrumentation plugged into Power Strip 5 are functioning properly	OM	10/21 10:38	O.M.	
69	LDL conductors on Load side of EMC BKR 23 and open	PB	10/21 10:43	PB	
70	remove conductors from EMC 23 BKR and safe off and label location on conductors and on the EMC panel	PB	10/21 10:45	PB	
71	remove conductors from EMC 23 to terminal block TB-39 Term 14,15,16 and safe off conductors	PB	10/21 10:46	PB	
72	relable BKR 23 in EMC as spare and on panel schedule and drawings	PB	10/21	PB	
73	Connect Conductor from Power strip terminal block TB-39 Term 14,15,16 powering Power strip 5 to UDP BKR 5	PB	10/21 10:56	PB	
74	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21 10:58	O.M.	MIL UDP PNL BKR 5
75	close UDP Breaker 5	OM	10/21 10:59	O.M.	1
76	Measure voltage on TB-39 Term 14,15,16 (120 VAC) and on Power Strip 5	PB	10/21 11:02	PB	122.1
77	Confirm all Console instrumentation plugged into temporary Power Strip 5 are functioning properly and note on PWR STP 5 schedule	OM	11:02	P O.M.	Notify Gas Control that test is complete and confirm functionality
	Tcom Rack 3	PB		9:37	Notify Gas Control of next test
78	Confirm TCOM RACK 3 Power Strip is labeled	PB	10/21 9:37	PB	
79	Connect Conductors from TCOM RACK 3 Power Strip to UDP BKR 11	PB	10/19 9:35	PB	COMPLETED PM ENG PWR STRIP
80	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21	9:39 O.M.	MIL UDP PNL BKR 11
81	Close UDP BKR 11	OM	10/21	[illegible]	121.3V
82	Move individual chord caps for TCOM RACK 3 equipment from temporary power strip to TCOM RACK 3 Power strip	PB	10/22 11:15	DW	Moving the individual cord caps for TCOM RACK 3 will be done by and ISTS Tech
68A	OPEN EMC BKR 23	OM	10/21/10 10:42	O.M.	

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
83	Confirm all TCOM RACK 3 equipment plugged in to TCOM RACK 3 Power Strip is functioning	OM	10/22 11:20	DW	Notify Gas Control that test is complete and confirm functionality
	TCOM Rack 4				Notify Gas Control of next test
84	Confirm TCOM RACK 4 Power Strip is labeled	PB	10/21 9:38	PB 9:38	
85	Connect Conductors from TCOM RACK 4 Power Strip to UDP BKR 13	PB	10/19 9:40	PB	COMPLETED DURING PREWORK
86	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21	9:12 O.M.	MIL UDP PNL BKR 13
87	Close UDP BKR 13	OM	10/21	9:13	122.5 VAC
88	Move individual chord caps for TCOM RACK 4 equipment from temporary power strip to TCOM RACK 4 Power strip	PB	10/22 11:15	DW	Moving the individual cord caps for TCOM RACK 4 will be done by and ISTS Tech
89	Confirm all TCOM RACK 4 equipment plugged in to TCOM RACK 4 Power Strip is functioning	OM	10/22 11:20	O.M.	Notify Gas Control that test is complete and confirm functionality
	TCOM rack 5			9:30	Notify Gas Control of next test
90	Confirm TCOM RACK 5 Power Strip is labeled	PB	10/21 9:58	PB	
91	Connect Conductors from TCOM RACK 5 Powere Strip to UDP BKR 15	PB	10/19 9:55	PB	COMPLETED DURING PREWORK
92	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21 9:49	9:14 O.M.	MIL UDP PNL BKR 15
93	Close UDP BKR 15	OM	10/21 9:16	O.M.	121.3 VAC
94	Move individual chord caps for TCOM RACK 5 equipment from temporary power strip to TCOM RACK 5 Power strip	PB	10/22 11:15	DW	Moving the individual cord caps for TCOM RACK 5 will be done by and ISTS Tech
95	Confirm all TCOM RACK 5 equipment plugged in to TCOM RACK 5 Power Strip is functioning	OM	10/22 11:20	DW	Notify Gas Control that test is complete and confirm functionality

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
	PLC B		21:04	O.M.	Notify Gas Control of next test
96	Confirm PLC A is in control	OM	20:57	O.M	
97	Confirm PLC B is operational	OM	20:57	O.M.	
98	Open fused disconnect at TB-B Term 1	OM	21:05	O.M.	
99	Confirm PLC B is OFF	OM	21:05	O.M.	
100	Unplug chord cap from Temp UPS 7 that powers PLC B	OM	21:07	O.M.	
101	Confirm 0 VAC at TB-B Term 1/2/3	PB	21:07	PB	
102	Disconnect chord cap from TB-B Term 1/2/3	PB	21:08	PB	
103	Connect conductors UDP23H/N/G at TB-B Term 1/2/3 & BKR 23 in UDP	PB	21:08	PB	
104	REPLACE MOL TAG WITH CAUTION TAG & INTEST Close UDP BKR 23	OM	21:23 21:23	O.M. O.M.	
105	Close fused disconnect at TB-B Term 1	OM	21:24	O.M.	
106	Confirm PLC B is operational	OM	21:24 10:20	O.M.	1130 Notify Gas Control that test is complete and confirm functionality
	PLC A			08:53 O.M.	Notify Gas Control of next test
107	Confirm PLC A is in control	OM		8:53	O.M.
108	Confirm PLC B is operational	OM		8:53	O.M.
109	Open fused disconnect at TB-A Term 1	OM		8:55	O.M.
110	Confirm that PLC A is OFF	OM		8:57	O.M.
111	Confirm PLC B is in control, Confirm communication to SCADA Confirm communication to Controllers Confirm Communication to Chromatographs	OM		9:10 O.M.	
112	Unplug chord cap from Temp UPS 7 that powers PLC A	OM	10/14	9:15 O.M.	
113	Confirm 0 VAC at TB-A Term 1/2/3	PB	PB	9:15	
114	Determinate plug chord from TB-A Term 1/2/3	PB	PB	9:17	
115	Connect conductors UDP22H/N/G at TB-A Term 1/2/3 & BKR 22 in UDP	PB	PB	9:25	
116	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/14	9:27 O.M.	MIL UDP PNL BKR 22
117	Close UDP BKR 22	OM	10/14	9:27 O.M.	122.4VAC

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
118	Close fused disconnect at TB-A Term 1	OM	10/21 9:28	O.M.	
119	Confirm PLC A is operational	OM	10/21 9:25	O.M.	
120	Confirm PLC A is in control, Confirm communication to SCADA Confirm communication to Controllers Confirm Communication to Chromatographs	OM	0927 10-21	O.M.	Notify Gas Control that test is complete and confirm functionality
	A PLC DID NOT TAKE CONTROL				
	PLC 120 V I/O MODULES	10/21 14:43		O.M. 1443	Notify Gas Control of next test
121	Confirm PLC 120 V I/O Modules are functioning properly	OM	10/21 14:45	O.M.	
122	Unplug cord cap from Temp UPS 5 that supplies TB-46 Term 4/5/6	PB	10/21 1446	PB	0 VAC
123	Confirm PLC 120 V I/O Modules are off	OM	14:46	O.M.	
124	Determinate plug chord from TB-46 Term 4/5/6	PB	14:48	PB	
125	Connect conductors UDP20H, UDP20N, UDP20G to TB-46 Term 4/5/6 & BKR 20 in UDP	PB	10/21 14:50	PB	
126	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21 15:04	O.M.	MIL UDP PNL BKR 20
127	Close UDP BKR 20	OM	10/21 15:06	O.M.	
128	Confirm PLC 120 V I/O Modules are functioning properly 126.1 VAC	OM	10/21 15:08	O.M.	Notify Gas Control that test is complete and confirm functionality
	Chrom A/B & Station HMI		10/21 1:30	O.M.	Notify Gas Control of next test
129	Confirm Chromatograph A & B and Station HMI are functioning properly	OM	1:31	O.M.	
130	Disconnect plug chord from Temp UPS 4 that supplies power to Fuse F5 and TB-5 Term 14/15	OM	1:31	O.M.	
131	Confirm Chromatograph A & B and Station HMI are OFF	OM	1:31	O.M.	
132	Confirm 0 VAC at Fuse 5 and TB-5 Term 14/15	PB	1:33	PB	
133	Connect conductors UDP18H to Fuse F5 and UDPN18, UDP18G to TB-5 Term 14/15 & BKR 18 in UDP	PB	10/21 15:13	PB	
134	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21 1515	O.M.	MIL UDP PNL BKR 18

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
135	close UDP BKR 18	OM	10/21 15:15	O.M.	
136	Confirm Chromatograph A & B and Station HMI are functioning properly	OM	10/21 15:31	O.M.	Notify Gas Control that test is complete and confirm functionality
	PS-1 24 VDC for PLC Input Devices		10/21 15:08	O.M.	Notify Gas Control of next test
137	Confirm PS-1 is functioning properly	OM	15:41	15:89 O.M.	
138	Confirm 120 VAC at TB-46 Term 7/8	PB	15:89	PB	
139	Unplug cord from Temp UPS 5	OM	15:09	O.M.	
140	Confirm 0 VAC at TB-46 Term 7/8	PB	15:09	PB	
141	Disconnect plug chord from TB-46 Term 7/8	PB	15:10	PB	
142	Connect conductors UDP10H, UDP10N, UDP10G to TB-46 Term 7/8/11	PB	10/21 15:25	PB	
143	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21 15:27	O.M.	MIL UDP PNL BKR 10
144	close UDP BKR 10	OM	10/21 15:28	O.M.	
145	Confirm 120 VAC at TB-46 Term 7/8	PB	10/21 15:28	PB	121.5 VAC
146	Confirm PS-1 is functioning properly	OM	15:33	O.M.	Notify Gas Control that test is complete and confirm functionality
	Chromatograph & PLC Workstation		10/21 12:11	O.M.	Notify Gas Control of next test
146	Confirm Chromatograph & PLC Work Stations are functioning properly	OM	10/21 12:14	O.M.	
147	Replace MOL Tag with Caution Tag and go into Test per Work Procedure 4100-10	OM	10/21 12:14	O.M.	MIL UDP PNL BKR 6
148	close UDP BKR 6	OM	10/21 12:15	O.M.	
149	Confirm 120 VAC at Chromatograph & PLC Workstation Receptacle	OM	10/21 12:15	O.M.	122.2 VAC
150	Move 6 plug strip servicing the Chromatograph & PLC Workstation equipment from the EMC receptacle and plug it into the new Chromatograph & PLC Workstation Receptacle	PB	10/21 12:45	PB	
151	Confirm Chromatograph & PLC Work Stations equipment is functioning properly	OM	10/21 12:50	O.M.	Notify Gas Control that test is complete and confirm functionality

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
152	Confirm all systems on UDP distribution are working as expected in preperation for ATS,Generator, UPS functional test	OM	0818 10-22	O,M.	
153	Open 400 amp BKR Dist Panel EDP-M in the Main SwitchBoard "MS"	OM		O,M.	835 open - failed test Both BKR 1-1 open
154	Observe ATS 1 starting Gen 1 and ATS 2 picking up Gen 1 as lead.	OM		O,M.	8:40 closed EDP-M 9:10 Open test success
155	Observe Gen 1 supporting load for 5 minutes	OM		O,M.	9:10 - 9:16
156	Verify all UDP systems stayed energized and confirm UPS carried Load on Battery prior to Gen Start.	OM		O,M.	9:10
157	Confirm Gen and UPS alarms at MIL station and with SF gas control	OM		O,M.	GAS control only sees Gen starts but not ~~Gen 2~~ Gen 2 was in lead
158	Place Gen 1 toggle switch to the OFF/Test position.	OM		O,M	9:20 GEN 2 took over load
159	observe Gen 2 start and transfer to lead through ATS 2.	OM		O,M	9:25 worked as designed
160	Verify all UDP systems stayed energized and confirm UPS carried Load on Battery prior to Gen 2 Start.	OM		O,M	Worked as Designed
161	Confirm UPS and Gen alarms at MIL station and with SF gas control	OM		O,M	seens GEN only until PLC is re-programed
162	place Gen 1 toggle switch to the Auto position and observe results	OM		O,M	2 stayed in lead
163	Close 400 amp BKR Dist Panel EDP-M in the Main SwitchBoard "MS"	OM		O,M.	9:30 9:35 ATS switch hunting
164	Confirm all electical systems ATS, Generator, UPS, UDP returned to normal and expected state.	OM		O,M	9:40 GEN shut off after cool down
165	Confirm all systems are as expected with MIL Gas Operations and TCC Wire Chief once work has concluded and Sign off Clearance	DW & OM	1845 10-25	D,M.	EXCEPT PLC ALARMS for UPS &
166	Tag and Remove all temporary pigtails used for Temp UPSs Tag & remove all temporary UPS's	PB	10/22/10 11:30	JH	RMBS need to BE PROGRAMMED
167	Confirm and Record Expected Breaker and Equipment positions in Breaker Equipment Schedule sheet	DH	10/22/10 11:40	DH	GOOD TO GENIUS BLOCKS.
168	Remove all temporary conductors where possible and tag as obsolete at both ends any that cannot be removed	PB	PB		
169	Remove old equipment, tools and unsued material and leave worksite in orderly manner	PB	PB		
170	Confirm all new Breakers and equipment is labeled efectively and is accurately reflected in field drawings colored pencil	DH	10/27/10 10:55	DH	

MIL UPS Project

Item #	Method of Procedure	Resp. Party	Date Time	Sign	Resolution/ Status/ Notes:
171	Submit corrected field drawing to PG&E Engineer for final correction and submittal into PG&E Documentation System	DH			

MIL UPS Project

Item #	Follow Up Action Item	Resp Party
1	replace new temp labels with permanent labels	DH
2	confirm field drawings get corrected and a set to PG&E Engineers and Gas Transmission	MK
3	Develop UPS - RMBS procedure guide for MIL	DW & DH
4	Develop long term maintenance plan for MIL UPS, Batteries, ATS, Generator	MK
5	Develop plan for Breaker maintenance, coordination study, injection testing	MK
6	review and confirm Generator curve data to insure Generator synchronization is reliable	MK
7	LOTO Policy for Gas Transmission	DW & JG
8	No instruction in MIL Operating and Maintenance Instructions Dwg 089773 for UPS, ATS or Generators, only batteries	
9	Need to update MIL Operating and Maintenance Instructions Dwg 089773 for remote charger. Must be offline while UPS is energized	
10	Some maintenance records for specific mtc activities at the MIL need improving.	
11	Generator needs more description on how to perform operation, MTC, ATS testing	
12		
13	Test UPS Alarms From Genius	
14	Blocks into SCADA	
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

Milpitas MIL UPS Project

Reviewers:

NAME	COMPANY – ROLE	SIGNATURE	DATE
Jody Garcia	PG&E MIL Supervisor	[redacted]	10/18/10
Doug Wise	PG&E ISTS IS CS DCF		10/19/10
Dale Herrington	PG&E Gas Engineering		10/18/10
Pete Beck	PG&E Gas Trans M&O		10/18/10
Oscar Martinez	PG&E Gas Trans M&C		10/19/10
William Schell	PG&E Gas Engineering		10/18/10
Mark Kezimirsky	PG&E Gas Engineering		10/18/10
Dan Menegus	PG&E Gas Engineering		10/18/10

Revision History:

REV #	DESCRIPTION	DATE
0.1	Initial draft	10/11/2010
0.2	gas transmission review	10/12/2010
0.3	Peer review	10/14/2010
0.4	TB 39 addition	10/16/2010
0.5		
0.6	FINAL - ISSUED FOR USE	10.19.10
0.7		

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Milpitas MIL UPS Project

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NAME	COMPANY – ROLE	SIGNATURE	DATE
Jody Garcia	PG&E MIL Supervisor		
Doug Wise	PG&E ISTS IS CS DCF		
Dale Harrington	PG&E Gas Engineering	[redacted]	10/18/10
Pete Beck	PG&E Gas Trans M&C		10/18/10
Oscar Martinez	PG&E Gas Trans M&C		10/18/10
William Schell	PG&E Gas Engineering		
Mark Kazimirsky	PG&E Gas Engineering		10/18/10
Dan Menegus	PG&E Gas Engineering		

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Oscar Martinez	PG&E Gas Trans M&C		10/18/10
William Schell	PG&E Gas Engineering		10/18/10
Mark Kazimirsky	PG&E Gas Engineering		10/18/10
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0.5		
0.6		
0.7		

ATTACHMENT 1
UDP SCHEDULE
Milpitas Terminal

LOAD	TB/TERM	Descrip	BRKR	AMP		PH		AMP	BRKR	Descrip	TB/TERM	LOAD
1.1 A	TB-39 Term 22,23,24	PWR STRIP 1 (20 Plugs) CONTROLLERS	1	20		A		30	2	MAIN IN		7.86 A
0.87 A	TB-39 Term 17,18,19	PWR STRIP 3 (20 Plugs) CONTROLLERS	3	20		B		30	4	MAIN IN		9.09 A
1.08 A	TB-39 Term 14,15,16	PWR STRIP 5 (60 Plugs) MIMIC PANEL	5	20		A		20	6	CHROMATAGRAPH & PLC WORK STATION		0,46 A
		SPARE	7	20		B		20	8	SPARE		
		SPARE	9	20		A		20	10	PS-1 24V PLC	TB-46 Term 7,8,6	0.85 A
0.72 A		COMM RM BAY A RACK 3	11	15		B		20	12	PS-B	TB-PSA/B/C Term 4,5,6	0.60 A
1.1 A		COMM RM BAY A RACK 4	13	15		A		20	14	PS-A	TB-PSA/B/C Term 1,2,3	0.56 A
3.35 A		COMM RM BAY A RACK 5	15	20		B		20	16	PS-C	TB-PSA/B/C Term 7,8,9	1.35 A
		SPARE	17	20		A		20	18	CHROM A/B & STA HMI	TB-5 Fu5,14,15	2.02 A
		SPARE	19	20		B		20	20	PLC 2 120V I/O MOD	TB-46 Term 7,8,9	1.35 A
		SPARE	21	20		A		20	22	PLC-A	TB-A Term 1,2,3	0.34 A
0.35 A	TB-B Term 1,2,3	PLC-B	23			B		20	24	SPARE		
		BLANK	25			A			26	BLANK		

Total Load
Phase A: VA
Phase B: VA
Total: VA

ATTACHMENT 1
UDP SCHEDULE
Milpitas Terminal

		BLANK	27			B			28	BLANK		
		BLANK	29			A			30	BLANK		

Total Load
Phase A: VA
Phase B: VA
Total: VA

ATTACHMENT 2
CIRCUIT BREAKER STATUS LOG
UDP PANEL
Milpitas Terminal

Brkr #	Brkr Amp	10/20 12:28	10/20 16:12	10/20 16:30	10/20 16:40	10/20 16:48	10/20 16:52	10/20 17:02	17:04	17:07	17:05
1	20	open									CLS/O.M.
2	30	CLOSED									
3	30	open									
4	20	CLOSED									
5	20	Open									
6	20	open									
7	20 SP	open									
8	20 SP	open									
9	20 SP	open									
10	20	open									
11	15	open									
12	20	open								CLS/O.M.	
13	15	open									
14	20	open	CLS/OPN	OPN/O.M.	CLS/O.M.	OPN/O.M.	CLS/O.M.				
15	20	open									
16	20	open						CLS/O.M.	OPN/O.M.		
17	20 SP	open									
18	20	open									
19	20 SP	open									
20	20	open									
21	20 SP	open									
22	20	open									
23	20	open									
24	20 SP	open									
25	~~BLANK~~	open									
26	~~BLANK~~	open									
27	BLANK										
28	BLANK										
29	BLANK										
30	BLANK										

ATTACHMENT 2
CIRCUIT BREAKER STATUS LOG
UDP PANEL
Milpitas Terminal

Brkr #	Brkr Amp	10/20/10 19:27	10/20/10 21:27	10/20/10 20:03	10/21/10 9:27	10/21/10 9:41	10/21/10 9:43	10/21/10 9:45	10/21/10 10:59	10/21/10 12:15	10/21/10 15:10	10/21/10 15:16	10/21/10 15:25
1	20												
2	30												
3	30	CLS/											
4	20												
5	20								CLS/				
6	20									CLS/			
7	20 SP												OPN
8	20 SP												OPN
9	20 SP												OPN
10	20												CLS
11	15					CLS/							
12	20												
13	15						CLS/						
14	20												
15	20							CLS/					
16	20			CLS									
17	20 SP												OPN
18	20										CLS/		
19	20 SP												OPN
20	20											CLS/	
21	20 SP												OPN
22	20				CLS/								
23	20		CLS/2330m.										
24	20 SP												OPN
25	BLANK												
26	BLANK												
27	BLANK												
28	BLANK												
29	BLANK												
30	BLANK												

X MOP step 54, 55, 65 Oct 21, 2010

13:23 Cisco Router - strip #3 JXMX

Milpitas UIC Commisioning Script

	Valve	Strip	Time	ID	P	S	V	X	Y
1	7R	UPS #1-B	12:21	PIC07D	294.9	299.8	99.6	299.8	99.6
	After	#1		PIC07D	294.9	299.8	99.6	299.8	99.6
2	7	UPS #1-B	12:26	LIC07L	99.6	80.0	100.0	80.0	99.3
	After	#1		LIC07L	99.6	80.0	100.0	80.0	99.3
3	8R	UPS #1-B	12:18	PIC08D	294.7	299.8	-1.2	299.8	-0.7
	After	#1		PIC08D	294.4	299.8	-1.2	299.8	-0.7
4	8	UPS #1-B	12:19	LIC08L	-1.2	20.0	-0.8	20.0	0.0
	After	#1		LIC08L	-1.2	20.0	-0.8	20.0	0.0
5	9R	UPS #1-B	12:08	PIC09D	291.3	264.8	100.0	264.8	100.0
	After	#1		PIC09D	291.1	264.8	100.0	264.8	100.0
6	9	UPS #1-B	12:09	LIC09L	100.0	80.0	99.9	80.0	99.6
	After	#1		LIC09L	100.0	80.0	99.9	80.0	99.6
7	10R	UPS #1-B	11:57	PIC10D	290.0	289.8	100.0	289.8	100.3
	After	#1		PIC10D	290.0	289.8	100.0	289.8	100.3
8	10	UPS #1-B	12:04	LIC10L	100.1	80.0	100.0	80.0	100.1
	After	#1		LIC10L	100.1	80.0	100.0	80.0	100.1
9	11R	UPS #1-B	12:28	PIC11D	292.2	264.8	100.1	264.8	99.6
	After	#1		PIC11D	292.2	264.8	100.1	264.8	99.6
10	11	UPS #1-B	12:30	LIC11L	100.2	80.0	103.3	80.0	100.1
	After	#1		LIC11L	100.2	80.0	103.3	80.0	100.1
11	12R	UPS #1-B	12:32	PIC12D	290.1	289.8	100.0	289.8	99.5
	After	#1		PIC12D	289.9	289.8	100.0	289.8	99.5
12	12	UPS #1-B	12:35	LIC12L	100.1	80.0	100.0	80.0	99.5
	After	#1		LIC12L	100.1	80.0	100.0	80.0	99.5
13	13R	UPS #1-A	12:40	PIC13D	290.7	249.8	-9.7	249.8	0.0
	After	#1		PIC13D	290.4	249.8	-9.7	249.8	0.0
14	13	UPS #1-A	12:42	LIC13L	-9.7	20.0	-3.3	20.0	0.0
	After	#1		LIC13L	-9.7	20.0	-3.3	20.0	0.0
15	14R	UPS #1-A	12:43	PIC14D	290.3	259.8	-4.1	259.8	-0.5
	After	#1		PIC14D	290.3	259.8	-4.1	259.8	-0.5

Milpitas UIC Commisioning Script

	Valve	Strip	Time	ID	P	S	V	X	Y
16	14	UPS #1-A	12:46	LIC14L	-4.1	20.0	-3.3	20.0	-0.3
	After	#1		LIC14L	-4.1	20.0	-3.3	20.0	-0.3
17	17R	UPS #3-C	12:56	PIC17D	290.4	289.8	100.0	289.8	100.5
	After	#3		PIC17D	290.4	289.8	100.0	289.8	100.5
18	17	UPS #3-C	12:58	LIC17L	100.0	80.0	100.0	80.0	100.2
	After	#3		LIC17L	100.0	80.0	100.0	80.0	100.2
19	21R	UPS #3-C	13:00	PIC21D	289.8	289.8	100.0	289.8	104.0
	After	#3		PIC21D	289.8	289.8	100.0	289.8	104.0
20	21	UPS #3-C	13:03	LIC21L	100.1	80.0	0.0	80.0	-0.5
	After	#3		LIC21L	100.1	80.0	0.0	80.0	-0.5
21	27R	UPS #3-C	13:04	PIC27D	289.6	289.8	100.0	289.8	98.3
	After	#3		PIC27D	289.6	289.8	100.0	289.8	98.3
22	27	UPS #3-C	13:07	LIC27L	100.2	80.0	100.0	80.0	98.4
	After	#3		LIC27L	100.2	80.0	100.0	80.0	98.4
23	29	UPS #3-C	12:49	PIC29D	289.8	264.8	100.6	264.8	100.3
	After	#1		PIC29D	289.8	264.8	100.6	264.8	100.3
24	38	UPS #3-C	13:09	PIC38D	288.4	289.8	100.0	289.8	99.6
	After	#3		PIC38D	288.2	289.8	100.0	289.8	99.6
25	40	UPS #3-C	13:11	PIC40D	288.8	279.8	101.0	279.8	99.8
	After	#3		PIC40D	288.8	279.8	101.0	279.8	99.8
26	62	UPS #3	13:15	PIC62D	289.7	264.8	-3.3	264.8	-0.4
	After	#3		PIC62D	289.7	264.8	-3.3	264.8	-0.4

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		[illegible]	10/21/10 1800
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	[illegible]	18:00
3	At the control panel switch the UIC from LOC to CON	V-10R	[illegible]	18:02
4	Confirm on Citect	V-10R		18:02
5	Confirm that the valve is fully open	V-10R		18:02
6	Confirm that the Pressure SP equal to the the actual pressure	V-10R	N/A	
7	Switch from MAN to AUTO	V-10R	[illegible]	18:02
8	Confirm on Citect	V-10R		18:02
9	Change D/S set point by ten PSI from Citect	V-10R		18:03
10	Confirm that the new set point received by the controller	V-10R		18:03
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-10R		18:07
12				
13	Change controller output by 10%	V-10		18:10
14	Confirm that the controller output changed in Citect	V-10		18:10
15	Restore controller output to original setting	V-10		18:10
16	Confirm that the controller output changed in Citect	V-10		18:11
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		C, G	10/21/10 18:00
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	C, G	18:04
3	At the control panel switch the UIC from LOC to CON	V-9R		18:07
4	Confirm on Citect	V-9R		18:02
5	Confirm that the valve is fully open	V-9R		18:02
6	Confirm that the Pressure SP equal to the the actual pressure	V-9R	N/A	
7	Switch from MAN to AUTO	V-9R	C.G	18:02
8	Confirm on Citect	V-9R		18:02
9	Change D/S set point by ten PSI from Citect	V-9R		18:03
10	Confirm that the new set point received by the controller	V-9R		18:03
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-9R		18:07
12				
13	Change controller output by 10%	V-9		18:09
14	Confirm that the controller output changed in Citect	V-9		18:09
15	Restore controller output to original setting	V-9		18:10
16	Confirm that the controller output changed in Citect	V-9		18:10
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		CyCy	10/21/10 17:53
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	CyCy	17:53
3	At the control panel switch the UIC from LOC to CON	V-8R	CyCy	17:53
4	Confirm on Citect	V-8R	√	17:53
5	Confirm that the valve is fully closed	V-8R	√	17:54
6	Confirm that the Pressure SP equal to the the actual pressure	V-8R	N/A	
7	Switch from MAN to AUTO	V-8R	CyCy	17:52
8	Confirm on Citect	V-8R		17:53
9	Change D/S set point by ten PSI from Citect	V-8R		17:55
10	Confirm that the new set point received by the controller	V-8R		17:55
11	Return the valve controler to the original state (LOC, MAN, Closed) and original set point	V-8R		17:57
12				
13	Change controller output by 10%	V-8		17:57
14	Confirm that the controller output changed in Citect	V-8		17:58
15	Restore controller output to original setting	V-8		√ 17:58
16	Confirm that the controller output changed in Citect	V-8	√	√ 17:59
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.			10/21/10 17:53
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All		17:53
3	At the control panel switch the UIC from LOC to CON	V-7R		17:54
4	Confirm on Citect	V-7R		17:54
5	Confirm that the valve is fully open	V-7R		17:54
6	Confirm that the Pressure SP equal to the the actual pressure	V-7R	N/A	~~17:54~~
7	Switch from MAN to AUTO	V-7R		17:54
8	Confirm on Citect	V-7R		17:54
9	Change D/S set point by ten PSI from Citect	V-7R		17:55
10	Confirm that the new set point received by the controller	V-7R		17:55
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-7R		17:56
12				
13	Change controller output by 10%	V-7		17:59
14	Confirm that the controller output changed in Citect	V-7		17:59
15	Restore controller output to original setting	V-7		17:59
16	Confirm that the controller output changed in Citect	V-7		
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		GG	10/21/10 17:45
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	GG	17:45
3	At the control panel switch the UIC from LOC to CON	V-11R	GG	17:45
4	Confirm on Citect	V-11R	GG	17:46
5	Confirm that the valve is fully open	V-11R	G	17:47
6	Confirm that the Pressure SP equal to the the actual pressure	V-11R	N/A	17:46
7	Switch from MAN to AUTO	V-11R	G	17:45
8	Confirm on Citect	V-11R	G	17:46
9	Change D/S set point by ten PSI from Citect	V-11R	G	
10	Confirm that the new set point received by the controller	V-11R	G	17:47
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-11R	G	17:50
12				
13	Change controller output by 10%	V-11	G	17:50
14	Confirm that the controller output changed in Citect	V-11	G	17:51
15	Restore controller output to original setting	V-11	G	17:51
16	Confirm that the controller output changed in Citect	V-11	G	17:51
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		GG	10/24/10 17:45
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	GG	17:45
3	At the control panel switch the UIC from LOC to CON	V-12R	G	17:45
4	Confirm on Citect	V-12R	G	17:46
5	Confirm that the valve is fully open	V-12R		17:47
6	Confirm that the Pressure SP equal to the the actual pressure	V-12R	N/A	17:47
7	Switch from MAN to AUTO	V-12R		17:45
8	Confirm on Citect	V-12R		17:46
9	Change D/S set point by ten PSI from Citect	V-12R		17:47
10	Confirm that the new set point received by the controller	V-12R		17:47
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-12R		17:49
12				
13	Change controller output by 10%	V-12		17:51
14	Confirm that the controller output changed in Citect	V-12		17:51
15	Restore controller output to original setting	V-12		17:57
16	Confirm that the controller output changed in Citect	V-12		17:57
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		GG	10/21/10 17:34
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	GG	17:35
3	At the control panel switch the UIC from LOC to CON	V-13R	GG	17:36
4	Confirm on Citect	V-13R	GG	17:37
5	Confirm that the valve is fully closed	V-13R	GG	17:37
6	Confirm that the Pressure SP equal to the the actual pressure	V-13R	N/A	17:38
7	Switch from MAN to AUTO	V-13R	GG	17:38
8	Confirm on Citect	V-13R		17:39
9	Change D/S set point by ten PSI from Citect	V-13R		17:39
10	Confirm that the new set point received by the controller	V-13R		17:39
11	Return the valve controler to the original state (LOC, MAN, Closed) and original set point	V-13R		17:39
12				
13	Change controller output by 10%	V-13		17:42
14	Confirm that the controller output changed in Citect	V-13		17:42
15	Restore controller output to original setting	V-13		17:42
16	Confirm that the controller output changed in Citect	V-13		17:42
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		GG	10/21/10 , 7:34
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	GG	17:35
3	At the control panel switch the UIC from LOC to CON	V-14R	GG	17:36
4	Confirm on Citect	V-14R	GG	17:37
5	Confirm that the valve is fully closed	V-14R	GG	17:37
6	Confirm that the Pressure SP equal to the the actual pressure	V-14R	N/A GG	17:38
7	Switch from MAN to AUTO	V-14R	GG	17:38
8	Confirm on Citect	V-14R	GG	17:39
9	Change D/S set point by ten PSI from Citect	V-14R	GG	17:39
10	Confirm that the new set point received by the controller	V-14R	GG	17:39
11	Return the valve controler to the original state (LOC, MAN, Closed) and original set point	V-14R	GG	17:39
12				
13	Change controller output by 10%	V-14	GG	17:43
14	Confirm that the controller output changed in Citect	V-14	GG	17:43
15	Restore controller output to original setting	V-14	GG	17:43
16	Confirm that the controller output changed in Citect	V-14	GG	17:44
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		SG	10/21/10 18:37
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All		18:37
3	At the control panel switch the UIC from LOC to CON	V-29		18:38
4	Confirm on Citect	V-29		18:35
5	Confirm that the valve is fully open	V-29		18:38
6	Confirm that the Pressure SP equal to the the actual pressure	V-29		18:38
7	Switch from MAN to AUTO	V-29		18:38
8	Confirm on Citect	V-29		18:35
9	Change D/S set point by ten PSI from Citect	V-29		18:38
10	Confirm that the new set point received by the controller	V-29		18:38
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-29		18:35
12				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		CG	10/21/10 18:12
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	CG	10/21/10 18:12
3	At the control panel switch the UIC from LOC to CON	V-17R		18:12 *
4	Confirm on Citect	V-17R		18:13
5	Confirm that the valve is fully open	V-17R		18:14
6	Confirm that the Pressure SP equal to the the actual pressure	V-17R		18:17
7	Switch from MAN to AUTO	V-17R		18:12
8	Confirm on Citect	V-17R		18:13
9	Change D/S set point by ten PSI from Citect	V-17R		18:18
10	Confirm that the new set point received by the controller	V-17R		18:18
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-17R		18:18
12				
13	Change controller output by 10%	V-17		18:19
14	Confirm that the controller output changed in Citect	V-17		18:19
15	Restore controller output to original setting	V-17		18:20
16	Confirm that the controller output changed in Citect	V-17	X	18:20
17				
18				
19				
20				
21				

* when changed to console at UIC-17R, Citect showed both console AND LOCAL, LOCAL DIDN'T CHANGE

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		GG	10/21/10 18:20
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	GG	18:20
3	At the control panel switch the UIC from LOC to CON	V-21R	GG	18:20
4	Confirm on Citect	V-21R	GG	18:21
5	Confirm that the valve is fully open	V-21R		18:21
6	Confirm that the Pressure SP equal to the the actual pressure	V-21R		18:21
7	Switch from MAN to AUTO	V-21R		18:21
8	Confirm on Citect	V-21R		18:21
9	Change D/S set point by ten PSI from Citect	V-21R		18:21
10	Confirm that the new set point received by the controller	V-21R		18:21
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-21R		18:21
12				
13	Change controller output by 10%	V-21		18:22
14	Confirm that the controller output changed in Citect	V-21		18:23
15	Restore controller output to original setting	V-21		18:23
16	Confirm that the controller output changed in Citect	V-21	↓	↓ 18:24
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		[illegible]	10/21/10 18:24
2	Confirm that all valves are In Local at the valves so they will not respond to any controller changes	All		
3	At the control panel switch the UIC from LOC to CON	V-27R		18:24
4	Confirm on Citect	V-27R		18:24
5	Confirm that the valve is fully open	V-27R		18:24
6	Confirm that the Pressure SP equal to the the actual pressure	V-27R		18:24
7	Switch from MAN to AUTO	V-27R		18:24
8	Confirm on Citect	V-27R		18:24
9	Change D/S set point by ten PSI from Citect	V-27R		18:25
10	Confirm that the new set point received by the controller	V-27R		18:25
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-27R		18:25
12				
13	Change controller output by 10%	V-27		18:26
14	Confirm that the controller output changed in Citect	V-27		18:26
15	Restore controller output to original setting	V-27		18:26
16	Confirm that the controller output changed in Citect	V-27		18:27
17				
18				
19				
20				
21				

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		CG	10/21/10 18:27
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All		
3	At the control panel switch the UIC from LOC to CON	V-38		18:29
4	Confirm on Citect	V-38		18:29
5	Confirm that the valve is fully open	V-38		18:29
6	Confirm that the Pressure SP equal to the the actual pressure	V-38		18:29
7	Switch from MAN to AUTO	V-38		18:29
8	Confirm on Citect	V-38		18:29
9	Change D/S set point by ten PSI from Citect	V-38		18:30
10	Confirm that the new set point received by the controller	V-38		18:30
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-38		18:30
12				

* LOC Display on Citect did not change, but Allowed SP change when in console of the

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		GG	10/21/10 18:27
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All	GG	18:27
3	At the control panel switch the UIC from LOC to CON	V-40		18:27
4	Confirm on Citect	V-40		18:28 *
5	Confirm that the valve is fully open	V-40		18:28
6	Confirm that the Pressure SP equal to the the actual pressure	V-40		18:28
7	Switch from MAN to AUTO	V-40		18:27
8	Confirm on Citect	V-40		18:28
9	Change D/S set point by ten PSI from Citect	V-40		18:30
10	Confirm that the new set point received by the controller	V-40		18:30
11	Return the valve controler to the original state (LOC, MAN, Open) and original set point	V-40	V	18:30
12				

* On Citect, LOC indicator did not change to CON when UIC-40 changed to console. However, SP change allowed when in CON at UIC-40.

Milpitas Gas Valve Commisioning Script

#	Method of Procedure	Valve Name	Sign	Date Time
	MOP			
1	Confirm Signed onto clearance before working, advising Gas Transmission of possible conditions that could arise.		[illegible]	10/21/10 18:34
2	Confirm that all valves are in Local at the valves so they will not respond to any controller changes	All		18:34
3	At the control panel switch the UIC from LOC to CON	V-62		18:34
4	Confirm on Citect	V-62		18:35
5	Confirm that the valve is fully closed	V-62		18:35
6	Confirm that the Pressure SP equal to the the actual pressure	V-62		18:35
7	Switch from MAN to AUTO	V-62		18:34
8	Confirm on Citect	V-62		18:35
9	Change D/S set point by ten PSI from Citect	V-62		18:35
10	Confirm that the new set point received by the controller	V-62		18:35
11	Return the valve controler to the original state (LOC, MAN, Closed) and original set point	V-62		18:36
12				
13				
14				
15				
16				