

Customer Name:		Stanford University	
Project location:	CIS	420 Via Palou Mall	
	McCullough	476 Lomita Mall	
		Stanford , CA 94305	
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March 2008 Sensor Replacement

Sensors replaced over two days 4/22-23/08

- Replaced water damaged FMK Satellites in room 113x
 - MST 10 - Installed used, customer supplied FMK 9002-9012-6500 HF
 - The span adjustment needed was 2.8, achieved max. 1.9
 - Installed the original FMK SN 2307
 - MST 14 - installed customer supplied FMK 9002-9012-5800 HCL for detection of BCL3
 - Gas type changed from CL2
 - **Old HCL sensor installed, will send a replacement sensor and bill existing PO.**
 - MST 18 - replaced damaged FMK 9002 NH3 with customer spare SN out 6166; In 6098
 - MST 44 - Satellite 9602 appears okay
 - Send 20 mA (full scale) for all 4 heads and Ted verified HiAlarm and 20 mA received

MST 60 - span adjustment pot broken, removed and replaced from customer supplied unit with help from Ted Berg.

MST 12 - zero pot is very hard to adjust and may need to be replaced at some point.

MST 42 - Lost communication with system, read 20.9% v/v at head but 0% v/v on TGO. Reset the Satellite and comm restored.

MST 77 - 9602-5800 HCL SN: 10721-814 replacement sensor stayed in "sensor warmup". Will return and ship a warranty exchange to Leonard.

- RMA#

MST 29 - Point disabled in TGO, sensor is old, left the FMK out of monitor so the point can't accidentally be enabled in the TGO

Digital Satellite can NOT EVER BE REPLACED as you would an Analog Satellite. To troubleshoot or repair contact Honeywell Analytics at 847-955-8200.

CIS CLEAN ROOM										
Manufacture date code is the last 3 digits of the s/n i.e. xxx-507 (5 = year 2005; 07 = 7th week of the year)										
ID TAG	LOCATION / EQUIPMENT	TARGET GAS	CELL TYPE	TYPE	SERIES	CELL P/N	OLD CELL	NEW CELL	DATE INSTALLED	NOTES
D21	Implanter	BF3	HF		Analog	*9012-6500				FMK REMOVED; REMOVED IN TGO SYSTEM
D26	Rm. 106 Ambient	F2	F2	FMK	Analog	*9012-6400				POINT DISABLED
D27	L116 ASM EPI	HCl	HCl	FMK	Analog	9012-5800	10819320-741	10993770-815	23-Apr-2008	
D28	L116 ASM EPI	NH3	NH3	FMK	Analog	9012-6704	10902081-736	10998571-815	23-Apr-2008	
D29	L116 ASM EPI	WF6	HF	FMK	Analog	9012-6500	10910629-738	10970212-810	23-Apr-2008	
D30	WBDIFF	HCl	HCl	FMK	Analog	9012-5800	10867156-741	10993773-815	23-Apr-2008	
D33	PlasmaQuest	HCl	HCl	FMK	Analog	9012-5800	10912905-741	10993735-815	23-Apr-2008	Sensor saddle in tool - Tool Owner Caesar okayed sensor replacement during operation.
D34	Lam	HBr	HBr	FMK	Analog	9012-7000	10912014-741	10981246-813	23-Apr-2008	Sensor saddle in tool - Tool Owner Caesar wants the process paused during the sensor change.
D35	AMT 5000	HBr	HBr	FMK	Analog	9012-7000	10912622-741	10981248-813	23-Apr-2008	
D36	AMT 5000	Cl2	Cl2	FMK	Analog	9012-5300	10908238-738	1098174-815	23-Apr-2008	
D37	AMT 5000	HCl	HCl	FMK	Analog	9012-5800	10879562-741	10980592-812	23-Apr-2008	
D38	AG4108	NH3	NH3	FMK	Analog	9012-6704	10902083-736	10998578-815	23-Apr-2008	
MST 71	TEL	H2	H2	Satellite	Analog	9602-5101	22124-704	10970-816	23-Apr-2008	
MST 72	TEL	H2	H2	Satellite	Analog	9602-5101	29260-713	10968-816	23-Apr-2008	
MST 73	PLASMA QUEST 2 TOOL	H2	H2	Satellite	Analog	9602-5101	41187-726	10969-816	23-Apr-2008	
MST 74	PLASMA QUEST 2 AMB	H2	H2	Satellite	Analog	9602-5101	41188-726	10967-816	23-Apr-2008	
MST 75	PLASMA QUEST 2 AMB	CL2	CL2	Satellite	Analog	9602-5300	41929-727	9741-812	23-Apr-2008	
MST 76	PLASMA QUEST 2 TOOL	CL2	CL2	Satellite	Analog	9602-5300	41927-727	9742-812	23-Apr-2008	
MST 77	PLASMA QUEST 2 AMB	HCL	HCL	Satellite	Analog	9602-5800	41135-727	46344-735 Temporary	23-Apr-2008	10721-814 Stayed in "Sensor Warmup" - Will ship back and have a Warranty Exchange Sensor shipped.
MST 78	PLASMA QUEST 2 TOOL	HCL	HCL	Satellite	Analog	9602-5800	41135-727	10716-814	23-Apr-2008	
SERVICE ISLE										
D20	Tylan # 2	HCl	HCl	FMK	Analog	9012-5800	10912909-741	10981294-811	23-Apr-2008	
D31	Service Isle Ambient	NH3	NH3	FMK	Analog	9012-6704	10802080-736	10998576-815	23-Apr-2008	
D32	Service Isle Ambient	HCl	HCl	FMK	Analog	9012-5800	10912906-741	10993777-815	23-Apr-2008	
D39	THERMCO K FACTOR 1.24 FOR H2	H2	LEL	Satellite	Analog	9602-9900	1286-628	48026-738	19-Oct-2007	MODIFY K FACTOR TO 1.24 FOR H2 during sensor change. Replace annually in September. If not zero then perform zero calibration.
D40	Tylan K FACTOR 1.24 FOR H2	H2	LEL	Satellite	Analog	9602-9900	1285-628	48027-738	19-Oct-2007	MODIFY K FACTOR TO 1.24 FOR H2 during sensor change. Replace annually in September. If not zero then perform zero calibration.
D41	THERMCO	HCl	HCl	Satellite	Analog	9602-5800	46348-735	10117-814	23-Apr-2008	
MST 69	EPI 2 Exhaust Duct	HCl	HCl	Satellite	Analog	9602-5800	46344-735	10720-814	23-Apr-2008	
MST 70	EPI 2 Exhaust Duct	H2	H2	Satellite	Analog	9602-5101	44562-732	10966-816	23-Apr-2008	

CIS BASEMENT

ID TAG	LOCATION / EQUIPMENT	TARGET GAS	SENSOR TYPE	TYPE	SERIES	CELL P/N	OLD CELL	NEW CELL	DATE INSTALLED	NOTES
D22	Cabinet 14	SiCl4	HCl	FMK	Analog	9012-5800	10867017-736	10993774-815	23-Apr-2008	
D24	Cabinet 47	WF6	HF	FMK	Analog	*9012-6500				POINT DISABLED
MST 54	Ambient	O2	O2	Satellite	Digital	9602-5500		10215-813	23-Apr-2008	
MST 55	Ambient-Freight Elevator	O2	O2	Satellite	Digital	9602-5500		10214-813	23-Apr-2008	
MST 56	Ambient	O2	O2	Satellite	Digital	9602-5500		10221-813	23-Apr-2008	
MST 57	Ambient Above-Freight Elevator	H2	H2	FMK	Analog	9012-5101	10864755-728	10987331-814	23-Apr-2008	
MST 58	Ambient Above-Column E5	H2	H2	FMK	Analog	9012-5101	10864752-728	10987334-814	23-Apr-2008	
MST 59	Piping Rack	H2	H2	FMK	Analog	9012-5101	10864760-728	10987326-814	23-Apr-2008	
MST 61	Ambient Above-Column G6	H2	H2	FMK	Analog	9012-5101	1086595-732	10987330-814	23-Apr-2008	
MST 62	Substation-Column F5	H2	H2	FMK	Analog	9012-5101	10864758-728	10987324-814	23-Apr-2008	
MST 64	Column	H2	H2	FMK	Analog	9012-5101	10864751-728	10987335-814	23-Apr-2008	
MST 68		HCL	HCL	Satellite	Analog	9602-5800	46351-735	10726-814	23-Apr-2008	

CIS INTERSTITIAL

ID TAG	LOCATION / EQUIPMENT	TARGET GAS	SENSOR TYPE	TYPE	SERIES	CELL P/N	OLD CELL	NEW CELL	DATE INSTALLED	NOTES
MST 60	227A	H2	H2	FMK	Analog	9012-5101	10864759-728	10987333-814	23-Apr-2008	
MST 63	EPI Scrubber Room	H2	H2	FMK	Analog	9012-5101	10864753-728	10987332-814	23-Apr-2008	

CISX

ID TAG	LOCATION / EQUIPMENT	TARGET GAS	SENSOR TYPE	TYPE	SERIES	CELL P/N	OLD CELL	NEW CELL	DATE INSTALLED	NOTES
MST 47	B 107X	O2	SAT	Satellite	Digital	9602-5500	26678-710	10220-813	23-Apr-2008	
MST 48	B 105X	O2	SAT	Satellite	Digital	9602-5500	26688-710	10219-813	23-Apr-2008	
MST 49	B 106X	O2	SAT	Satellite	Digital	9602-5500	26680-710	10218-813	23-Apr-2008	
MST 50	B 108X	O2	SAT	Satellite	Digital	9602-5500	26681-710	10217-813	23-Apr-2008	
MST 10	113X	HF	HF	FMK	Analog	9012-6500	10910630-738	10970231-810	23-Apr-2008	
MST 14	113X	BCL3	HCL	FMK	Analog	9012-5800	10908239-738	10912623-741	23-Apr-2008	Sensor Type Changed from Cl2 to HCL for BCL3. Will send a replacement HCL sensor and bill existing PO.
MST 18	113X	NH3	NH3	FMK	Analog	9012-6704	10902082-732	10998575-815	23-Apr-2008	
MST 35	113X HOOD	H2	H2	FMK	Analog	9012-5101	10864597-732	10987327-814	23-Apr-2008	
MST 44	113X	O2	SAT	Satellite	Digital	9602-5500	32312-718	10208-813	23-Apr-2008	
MST 09	110X	HCl	HCl	FMK	Analog	9012-5800	10912908-741	10993769-815	23-Apr-2008	
MST 29	110X Ambient	AsH3	AsH3	FMK	Analog	*9012-6000				POINT DISABLED
MST 30	110X Ambient	B2H6	B2H6	FMK	Analog	9012-6200	10907368-742	10968858-817	23-Apr-2008	
MST 31	110X Ambient	GeH4	SAT	Satellite	Analog	9602-6900	48039-738	11924-816	23-Apr-2008	
MST 32	110X Ambient	PH3	PH3	FMK	Analog	9012-6100	10899418-741	10975791-815	23-Apr-2008	
MST 36	110X	H2	H2	FMK	Analog	9012-5101	10864756-728	10987337-814	23-Apr-2008	
MST 39	110X	H2	H2	FMK	Analog	9012-5101	10864757-728	10987337-814	23-Apr-2008	
MST 43	110X	O2	SAT	Satellite	Digital	9602-5500	26683-710	10213-813	23-Apr-2008	
MST 11	121X Ambient	HCl	HCl	FMK	Analog	9012-5800	10903124-741	10981205-811	23-Apr-2008	

MST 41	122X	O2	SAT	Satellite	Digital	9602-5500		10210-813	23-Apr-2008	
MST 42	121X	O2	SAT	Satellite	Digital	9602-5500	26687-710	10211-813	23-Apr-2008	
MST 51	122X Ambient	NH3	NH3	FMK	Analog	*9012-6704				POINT DISABLED
MST 52	120X	NH3	NH3	FMK	Analog	*9012-6704				POINT DISABLED
MST 38	213X	H2	H2	FMK	Analog	9012-5101	10864761-728	10987325-814	23-Apr-2008	
MST 45	213X	O2	SAT	Satellite	Digital	9602-5500	26689-710	10212-813	23-Apr-2008	
MST 46	217X	O2	SAT	Satellite	Digital	9602-5500	26684-710	10209-813	23-Apr-2008	
MST 65	213X	O2	SAT	Satellite	Digital	9602-5500	26677-710	10216-813	23-Apr-2008	
MST 66	213X -Tool	BF3	SAT	FMK	Analog	*9602-6500				POINT DISABLED
MST 67	213X - Ambient	BF3	SAT	FMK	Analog	*9602-6500				POINT DISABLED

GAS VAULT 115X

ID TAG	LOCATION / EQUIPMENT	TARGET GAS	SENSOR TYPE	TYPE	SERIES	CELL P/N	OLD CELL	NEW CELL	DATE INSTALLED	NOTES
MST 1	C 8	SiH2Cl2	HCl	Satellite	Digital	9602-5800	46287-735	10722-814	22-Apr-2008	
MST 2	C 46	SiH2Cl2	HCl	Satellite	Digital	9602-5800	45285-735	10725-814	22-Apr-2008	
MST 3	C 48	SiH2Cl2	HCl	Satellite	Digital	9602-5800	46286-735	10727-814	22-Apr-2008	
MST 15	C 9	NH3	NH3	Satellite	Digital	9602-6704	45238-733	11580-815	22-Apr-2008	
MST 16	C 43	NH3	NH3	Satellite	Digital	9602-6704	45237-733	11579-815	22-Apr-2008	
MST 17	C 54B	NH3	NH3	Satellite	Analog	9602-6704	46509-735	11581-815	22-Apr-2008	
MST 19	C 51	B2H6	B2H6	Satellite	Analog	9602-6200	45479-736	11903-816	22-Apr-2008	
MST 20	C 53A	PH3	PH3	Satellite	Digital	9602-6101	46791-736	11973-816	22-Apr-2008	
MST 21	C 53B	B2H6	B2H6	Satellite	Analog	9602-6200	46478-735	11902-816	22-Apr-2008	
MST 22	C 59	GeH4	GeH4	Satellite	Analog	9602-6900	48041-738	11243-815	22-Apr-2008	
MST 23	C12-B	GeH4	GeH4	Satellite	Analog	9602-6900	47020	11241-815	22-Apr-2008	
MST 24	C12-A	AsH3	AsH3	Satellite	Digital	9602-6001	46029-735	11308-815	22-Apr-2008	
MST 25	C-3	PH3	PH3	Satellite	Digital	9602-6101	45792-736	11974-816	22-Apr-2008	
MST 26	C 30	GeH4	GeH4	Satellite	Analog	9602-6900	48040-736	11242-815	22-Apr-2008	
MST 27	C31-A	B2H6	B2H6	Satellite	Analog	9602-6200	45480-736	11904-816	22-Apr-2008	
MST 28	C-13	PH3	PH3	Satellite	Digital	9602-6101	45793-736	11975-816	22-Apr-2008	
MST 40	Corridor	O2	O2	Satellite	Analog	9602-5500	26691-710	10207-814	22-Apr-2008	

GAS VAULT 116

ID TAG	LOCATION / EQUIPMENT	TARGET GAS	SENSOR TYPE	TYPE	SERIES	CELL P/N	OLD CELL	NEW CELL	DATE INSTALLED	NOTES
MST 53	C 10B	HBr	HBr	FMK	Analog	9012-7000	10912623-741	10981245-813	22-Apr-2008	Replaced span pot
MST 4	C 39	HCl	HCl	Satellite	Analog	9602-5800	46347-735	10718-814	22-Apr-2008	
MST 5	AMBIENT	HF	HF	Satellite	Analog	9602-6500	48115-737	12185-815	22-Apr-2008	
MST 6	C 60	HCl	HCl	Satellite	Analog	9602-5800	46350-735	10724-814	22-Apr-2008	
MST 7	C 62	BCl3 (HCL Sensor)	BCl3 (HCL Sensor)	Satellite	Analog	9602-5800	46345-735	10723-814	22-Apr-2008	
MST 8	C 2	HCL	HCL	FMK	Analog	9012-5800	107931136-736	1098059-812	22-Apr-2008	
MST 12	C 10A	Cl2	Cl2 10ppm	FMK	Analog	9012-5300	10908251-738	10998175-815	22-Apr-2008	Bad zero pot
MST 13	C 58B	BCl3	HCL	Satellite	Analog	9602-5800	46346-735	10719-814	22-Apr-2008	

FMK Sensor P/N	GAS	QUANTITY	SAT P/N	GAS	QUANTITY
9012-5300	Cl2	2	9602-5800	HCl	12
9012-6200	B2H6	1	9602-6101	PH3	3
9012-7000	HBr	3	9602-9900	LEL	2
9012-5101	H2	12	9602-6900	GeH4	4
9012-6500	HF	2	9602-6704	NH3	3
9012-6100	PH3	1	9602-6500	HF	1
9012-6704	NH3	4	9602-6200	B2H6	3
9012-5800	HCl	11	9602-5101	H2	5
Changes: 4/22/08 9012-5300 CL2 -1 MST 14 - Sensor type changed 4/22/08 9012-5800 HCL +1 MST 14 - Sensor type changed			9602-5500	O2	15
			9602-5300	CL2	2
			9602-6001	AsH3	1
			CIS Total Sensor		
			McCullough TL Sensors		
			7		
			GRAND TOTAL		94

O2 9602-5500 REPLACED ANNUALLY in March

CH4 9602-9900 REPLACED ANNUALLY in September

See McCullough worksheet for individual sensor count.

McCullough							
Manufacture date code is the last 3 digits of the s/n i.e 507 - 5 = year 2005; 07 = 7th week of the year							
ID TAG/Location	Gas Type	Satellite S/N	Sensor P/N	Old Cell S/N	New Cell S/N	Install Date	NOTES
TGD-116A	H2	5566	9602-5100	45136-733	4171-806	22-Apr-2008	
TGD-116B	NH3	5546	*9602-6702	11989-506			POINT DISABLED
TGD-116C	AsH3	5524					POINT DISABLED
TGD-116D	Cl2	5533					POINT DISABLED
TGD-116E	F2	5558					POINT DISABLED
TGD-116F	CO	5565					POINT DISABLED
TGD-116G	NO	5540					POINT DISABLED
TGD-116H	H ₂ S Organic	5525					POINT DISABLED
TGD-116I	O2	5530	9602-5500	48663-739	6151-808	22-Apr-2008	
GD-102	O2	5557	*9602-5500	3990-506			POINT DISABLED 5/6/2005
GD-004	O2	5531	9602-5500	48664-739	6150-808	22-Apr-2008	
Moore							
ID TAG/Location	Gas Type	Satellite S/N	Sensor P/N	Old Cell S/N	New Cell S/N	Install Date	NOTES
TGD-068A	NH3	5538	*9602-6702	10626			POINT DISABLED
TGD-068C	NH3	5566	*9602-6702				POINT DISABLED
GD-80	O2	5526	9602-5500	48665-739	6149-808	22-Apr-2008	
172-A	H2	5537	9602-5100	451350733	4170-806	22-Apr-2008	
172-B	O2	5536	9602-5500	48667-739	6148-808	22-Apr-2008	
GD-180	O2	5534	9602-5500	48666-739	6147-808	22-Apr-2008	
GD-280	O2	5522	*9602-5500	4203-516			POINT DISABLED
TGD-285A	CO	4809					POINT DISABLED
TGD-285B	NO	5540					POINT DISABLED
TGD-285C	H ₂ S Organic	4814					POINT DISABLED
TGD-285D	CO	4803					POINT DISABLED
TGD-285E	NO	4819					POINT DISABLED
TGD-285F	H ₂ S Organic	4810					POINT DISABLED
TGD-290A	CO	4809					POINT DISABLED
TGD-290B	CO	4809					POINT DISABLED

MST P/N	GAS	QUANTITY
9602-5100	H2	2
9602-6702	NH3	0
9602-5500	O2	5
9602-6001	AsH3	0
9602-5300	Cl2	0
9602-6400	F2	0
9602-5400	CO	0
9602-7200	NO	0
9602-5201	H2S	0
871917	IPA Filter	0
Total Sensors/Filters		7

Stanford March 2008 MST Sensor Order

Please complete order only

McCullough

MST P/N	GAS	QUANTITY
9602-5100	H2	2
9602-6702	NH3	
9602-5500	O2	5
9602-6001	AsH3	
9602-5300	Cl2	
9602-6400	F2	
9602-5400	CO	
9602-7200	NO	
9602-5201	H2S	
871917	IPA Filter	0
Total Sensors/Filters		7

CIS Bldg

FMK Sensor P/N	GAS	QUANTITY	SAT P/N	GAS	QUANTITY
9012-5300	Cl2	3	9602-5800	HCl	12
9012-6200	B2H6	1	9602-6101	PH3	3
9012-7000	HBr	3	9602-9900	LEL	0
9012-5101	H2	12	9602-6900	GeH4	4
9012-6500	HF	2	9602-6704	NH3	3
9012-6100	PH3	1	9602-6500	HF	1
9012-6704	NH3	4	9602-6200	B2H6	3
9012-5800	HCl	10	9602-5101	H2	5
			9602-5500	O2	15
			9602-5300	CL2	2
			9602-6001	AsH3	1
CIS Total Sensor					85
McCullough TL Sensors					7
GRAND TOTAL					92