

ARM Manus Research Station

Site Visit 04011M Report

Visit Duration: 01 November to 12 November

Manus Island, Papua New Guinea

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## SV-0411M

<b>Site:</b> MANUS	<b>Proposed Dates on Site:</b> 11/01-11/12
<b>Team Members:</b> Troy Culgan Rex Pearson	<b>Ship or hand carry prior to SV:</b> Cal gear, H2Gen cylindars
	<p><b>Safety:</b> Major Hazards: AC electricity.</p> <p>Hazard Controls: BOM Electrolyser Handbook, BM Electrolyzer Operations/Maintenance Training, ASNZS 4836/2001-Safe Working on LV Electrical Installations, 2 man rule.</p>

### Site Tasks

<i>Priority</i>	System	Date Completed (dd/Month)	Service Time in Hours	<b>Tasks/Assoc Hazards-Controls</b> <small>For each priority item insert new line(row) for each date/time entry</small>
1	CAL			<b>Record configurations before and after calibration</b>
		5-Nov-04	0.5	Sky, Gndrad and Smet configurations (.csi files) collected
		7-Nov-04	2	Ceillometer calibration checked and config recorded
		7-Nov-04	0.5	MWR config recorded
		7-Nov-04	0.5	BBSS sysgen recorded
2	CAL			<b>Provide Cal Kit inventory list</b>
		31-Oct-04	2	Checked ventilators - 9 on site
		8-Nov-04	2	Completed as part of audit out
3	DAQ			<b>Check the wiring on the Cal logger Td and Tc</b>
		31-Oct-04	1	Checked and ok
		6-Nov-04	2	Found PIR1 input on callogger 2 faulty. Logger will need to be repaired.
4	MWR			<b>Install new desktop computer (Dell)</b>
		31-Oct-04	2	Checked all vans - not able to locate
		31-Oct-04	0.5	Dick Pearse rang and advised the MWR computer was at his office
		1-Nov-04	3	MWR computer installed and data being collected. FTP password needs to be checked - email sent to Ron Reed.
		2-Nov-04	2	Passwords corrected and collections/ingest now normal.
		4-Nov-04	0.5	Checking on time sync - appears to be intermittant. Checked and operating normally
5	SKYRAD			<b>Calibration/comparison skyrad radiometers</b>
		1-Nov-04	7	Radiometers placed on cal stand, ventilators wired up, cal logger system installed, fiber connected and logger laptop configured - data being collected as of 0100z.
		2-Nov-04	4	Continued calibration checks/data collection
		4-Nov-04	4	Instruments swapped, configs updated

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		5-Nov-04	3	Checks on PIR channel1 of callogger 2 to see why PIR1 is reading low
		6-Nov-04	2	Skyrad returned to normal, comparison equipment stored.
6	GNDRAD			Calibration/comparison grnrad radiometers
		1-Nov-04	1	Gndrad instruments inverted at 0040z
		4-Nov-04	2	Instruments swapped, configs updated
		6-Nov-04	1	Gndrad restored to normal at 2318z 5Nov04
7	SMET			Calibration/comparison smet instruments and logger
		3-Nov-04	6	Smet checks completed
8	AWS			AWS Maintenance/None
		6-Nov-04	5	AWS maintenance completed. Changed earthing on temperature probe as per engineering instruction (Almos 22-1) from BoM.
9	H2GEN			H2Gen Maintenance/ KOH,H2,Electrical- BOM Handbook, ASNZS 4836/2001, 2 man rule
		2-Nov-04	2	Replace RBL blower fan
		4-Nov-04	4	H2Gen maintenance commenced
		5-Nov-04	8	Completed H2 gen maintenance, spares audit to be completed.
		8-Nov-04	2	Completed spares audit
10	H2GEN			Change H2GEN Cylindars/ KOH,H2,Electrical- BOM Handbook, ASNZS 4836/2001, 2 man rule
		5-Nov	6	Change out of H2 bottles completed, purging completed, and gas generation recommenced.
11	BBSS			Install Digicora MW15 upgrade kit
		1-Nov-04	0.5	Chased up delivery of MW15 upgrade kit - equipment is in Manus but customs clearance has not been obtained yet
		1-Nov-04	0.3	Now have the exemption certificate for hand delivery to Dick Pearse
		3-Nov-04	2	Picked up mod kit & Suominet system etc - from town
		7-Nov-04	5	Digicora upgrade completed
12	GPS			Install Suominet GPS
		01-Nov-04	0.5	Chased up delivery of MW15 upgrade kit - equipment is in Manus but customs clearance has not been obtained yet
		1-Nov-04	0.3	Now have the exemption certificate for hand delivery to Dick Pearse
		6-Nov	7	Suominet system installed. Tested via web browser.
13	ORG			Install ORG Model 815
14	GENSET			Oversee intallation of new GENSET by Hastings Deering (08-12Nov04)
		8-Nov		Hastings Deering guys arrived
		9-Nov	20	Genset change out commenced

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		9-Nov	6	Town power failed at 0242z. At 0250z commenced shutdown of I Van instruments. MMCR, MWR and WSI initially shutdown. Ceilometer and MPL were shutdown about 10 minutes later. SDS UPS was monitored together with the Loggernet PC. It was realised that the ISS airconditioners were still running. It appears they run from the airport genset as does the electrolyser. Power cords were run from the ISS van to the D van and the I Van. This has stopped the D Van shutdown and the Ceilometer and MPL were brought back on line at 0430z.
		9-Nov	2	Genset operational at 0730z. All instruments restored to service
		10-Nov		Grid power still out - unable to do any further genset work.
		11-Nov	8	Genset maintenance completed
15	SMET			Investigate and repair logger power issues
		31-Oct-04	1	Initial checks commenced
		02-Nov-04	3	Checked all currents etc - no obvious reason for failure of power supply. Replaced power module and restored to normal
		3-Nov	3	Smet calibration completed
16	AWS			Assess, Inspect, Change Out TRH Probe
		10-Nov-04	1	Probe functioning normally
17	CEIL			Change out internal battery
		6-Nov-04	1	Change ceilometer battery
18	CEIL			Check Ceilometer
		31-Oct-04	2	Checked laptop and commenced defrag at 0400z - ceilometer off line. Defrag completed and ceilometer restored at 0530z
		4-Nov-04	0.5	W.Porch advised current data is indicating ok
		5-Nov-04	0.5	No further signs of data problems
		9-Nov-04	3	Dropouts re-occurred. Re-configured IBM600 laptop (CorePC) bought from Darwin as a ceilometer laptop and installed in place of existing laptop. Setup FTP and Timesync .
19	AC			Maintenance by AE Smith (06-12Nov04)
		8-Nov-04		AE Smith arrived
		9-Nov-04	9	AC maintenance commenced
		10-Nov-04	9	AC maintenance continued between rain showers
		11-Nov-04	9	Completed - unable to apply finsaver to outdoor units as goods did not arrive from PoM.
20	GENSET			Assess Fuel Tank for Painting
		4-Nov-04	0.5	No signs of rust - tanks look in good condition
21	GENSET			Cycle Diesel Fuel through Racor Filters
		9-Nov	0.5	Procedure not recommended by Mark Gleedhill. He advises it is better to leave the fuel settled and if there is a suspicion there is some water in the fuel it is better to put in an inhibitor.

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22	GENSET			Change out Battery #1 of 2 (3 yrs old as of 26May04)
		11-Nov		Insufficient acid on site. Diesel techs are happy with the condition of the batteries
23	GENSET			Change out Racor Filters in Fuel Transfer Dolly
		11-Nov	0.5	Complete
24	GENSET			Check 12V batteries with Hydrometer
		11-Nov	0.5	Completed
25	GENSET			Change out Diesel Fuel Tank Gage
		4-Nov-04	1	Gage covers changed out
26	H2GEN			Change out Sensor Cell in Gas Tester/Analyzer
		5-Nov-04	1	Sensor changed out
27	H2GEN			Change out Internal Battery in Gas Tester/Analyzer
		5-Nov	0.5	Unable to locate spare battery - has one been sent ?
28	HOGEN			Install preliminaries - water catchment reticulation, scope of works (refer to Nitschke)
		11-Nov	4	Site checked out - will send info to Dick Pearse to obtain quotes for roof gutter work (arranged this with Dick as contractor was not in town). Site works scoped.
29	IRT			Change out Skyrad Gold Mirror
		3-Nov	1	Changed and compared against black body
30	MMCR			Corrosion check on Exterior MMCR Components - Untape waveguide, inspect, and re-tape
		11-Nov	1	Completed
31	MMCR			Take images of Waveguide
		11-Nov	0.5	Completed
32	OTHER			Inspect All Site Cables with Inspection Procedure
		10-Nov-04	2	Cables inspected - all ok
33	WSI			Desiccant Cylinder in White Box
		2-Nov-04	0.5	Completed
34	WSI			Replace Dehumidifier Anticorrosion cartridge
		02-Nov-04	0.5	Completed
35	WSI			Replace Metal Screen Filters in Blue Box
		02-Nov-04	0.5	Completed
36	WSI			Change out 450 & 650 nm filters
		02-Nov-04	1	Unable to locate filters - have they been sent ??
37	ES&H			Restock Fist Aid Kit
		7-Nov-04	2	First aid kits checked and restocked
38	ES&H			Install intrinsically safe smoke alarm in the Hydrogen Generator area/Replace intrinsically safe lights
		1-Nov-04	1	Replace the intrinsically safe fluoro lamps in the H2 shed
		5-Nov-04	0.2	Kim Nitsche advised not to progress this item further
39	ES&H			Cover black "battery chargers" above "Solar Power Control" with Plexiglass

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		9-Nov-04	1	Exposed terminals are low voltage. Temporary cover in place and measurements taken to make a correct cover
40	ES&H			Repair wiring for MMCR shutdown button outside
		8-Nov-04	1	Repaired and cable tied up
41	ES&H			Install fluorescence tube protectors for Y-Van
		2-Nov-04	2	Removed existing fittings (due to faulty holders) and replaced - fitted tube protectors
42	ES&H			Remove old desiccant and ship it back to Darwin for disposal
		7-Nov-04	0.5	Completed
43	ES&H			Purchase a Rubber-Maid type dishpan and place it to hold bottles with battery acid
		7-Nov-04	0.5	Completed
44	ES&H			Paint the fiberglass power panel box
		10-Nov-04	3	Existing boxes washed to remove mould in preparation for painting
		11-Nov-04		Unable to paint due to weather. Equipment left on site for Hymson to complete
45	ES&H			Hydro-test or replace the hydrogen storage cylinders
		5-Nov	0	Same as item 10
46	ES&H			Clearly label all containers and bottles in the Electrolyzer room
		7-Nov-04	1	Completed
47	OTHER			Determine requirements for installing PABX for facility phone system; scope VHF antenna restoration
		10-Nov-04	3	Completed
48	SAM			Repair SAM monitoring system
		31-Oct-04	2	Commenced work on repairing SAM system
		1-Nov-04	2	SAM system operational except for goes connection.
		4-Nov-04	3	Attempted to get GOES transmission going. Advised Richard Eagan to see if transmissions are being received
		6-Nov-04	0.5	Brian Ermold advised transmissions were not being received
		7-Nov-04	4	Additional checks - found ZOC not running - enabled it - advised Brian to recheck transmissions
		9-Nov-04	1	Brian confirmed packets are being received at Wollops. Temporary repair made on antenna coax connector in the SDS rack. Will need a N type male for RG213 on the next trip.
49	Nauru Gndrad			Repair Nauru Gndrad system
		3-Nov-04	5	Work with Nauru to repair Gndrad system
50	MFRSR			Check shadowband alignment
		4-Nov-04	0.5	Shadowband aligned. Was slightly out at solar noon
51	EH&S			Replace rusted fire extinguishers
		7-Nov-04	1	Replace rusted out fire extinguishers on D & I vans

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52	AWS Metconsole			<b>Repair system after power crash</b>
		11-Nov-04	8	Motconsole computer crashed in the power changes over the last day or so. We were unable to restore the unit and suspected the system disk may be damaged. Downloaded a new system disk from Darwin and tried to install but same problem occurred. We ended up installing the Metconsole system on the laptop we were using for the calibration system. Restored to service at 0500z today.
53	SHIPPING			<b>Items to be shipped following visit:</b>
				<b>Cal kit to LANL (via Darwin then SGP)</b>
		11-Nov-04		Radiometers packed and delivered to DickPearse for shipment
		11-Nov-04		Cal Logger, Laptops etc packed and delivered to Dick Pearse for shipment
54	FUTURE NEEDS			<b>List items needed for future visits (spares, etc)/ None</b>
				N type male connector for RG213 coax