TWP ARCS-2 Site
RESET VISIT-5N Report

Nauru: 08 March – 19 March 1999
PNG NWS Headquarters, Port Moresby,
NAURU ARCS Site, Republic of Nauru

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1.0 INTRODUCTION:

The main goals of the TWP Operations RESET-5N Visit (nonroutine) to ARCS-2 at Nauru PNG were the following: 1) generator (GENSET) tank modifications, 2) H2 generator modification and maintenance**,** 3) Observer Training, and 4) ADaM(adam and eve) instrument maintenance. Details of the RESET visit planning are found in Attachment 2.

This Report is organized according to the planned tasks or work units performed during the RESET Visit. Within these work units the activities accomplished is arranged chronologically. Most of the information was put together by the RESET-5 members based on the actual visit, daily reports.

2.0 TWP OPERATIONS / RESET MANAGEMENT:

Once an ARCS Site is established the Operations part of TWP is responsible for keeping the site running and reporting data. Operations also coordinates equipment retrofits at these established sites. This is accomplished by the local NWS personnel at the site, routine RESET visits and nonroutine RESET visits.

Routine RESET visits are scheduled on approximately six-month intervals and are focused mainly on routine maintenance, instrument calibration, instrument replacement, and training. A formal audit-in is performed upon arrival and audit -out before departure.

Nonroutine RESET visits are intended for technical nonroutine tasks such as emergency repairs, retrofits, or the addition of new instruments.

The work on a RESET visit is performed by the RESET Team, but many times in close coordination with the local on-site observers. The Team holds a daily tasking meeting each morning at the site using the proposed RESET visit tasking schedule. After each day's work, the team meets to summarize what was done and an assigned Team member writes a "Daily Report" to be e-mailed back to TWP personnel in the US. Because of the time-zone differences, necessary calls to instrument mentors in the US are done in the morning.

RESET-5 Nauru Members:
- Fred Helsel, Lead, Daily Reporting (08Mar – 19Mar)
- Peggy Malone, Daily Reporting (15Mar – 19Mar)

Nauru IDI On-Site Observers:
- Nicholas Duburiya, OIC
- Megan Aliklik
- Henry Harris

- Franklin Teimitsi

Others On-Site:
- Paul Johnston, NOAA
- Grant Jeffrey, Australian BOM

3.0 RESET PREPARATION:

Preparation for RESET visits requires a long lead time to line up reservations, visas, shots, medication, documentation, procedures, and training plans. Close coordination with AIS/ATSS, instrument mentors, and shipping personnel is critical well before the departure date. Prioritization and task rejection is a difficult and important part of RESET visit preparation.

Tasks Performed:

A. Audit-In/Site Condition Report: (Helsel)

3/16:
- Completed Audit-In/Site Condition Report (see Attachment 1).

B. Observers Training: (Helsel)

3/15:
- Trained Observers.

3/16:
- Trained Observers to remove data from staging area.

3/18:
- Trained Observers to replace MWR fan housing (it was screaming).

C. H2 Generator Modifications/Repairs: (Jeffery)

3/12:
- Completed H2 generator modifications.
- Located broken Reed switch that is the cause of H2 generator malfunction.

D. SAM Problems

3/11:
- Updated SAM software.
- Found problem why SAM fails often: power outage inverter was turned OFF.
- Turned inverter ON.

E. Generator (GENSET) Modifications: (Helsel)

3/8:
- Added temperature and pressure gage to GENSET.
- Found generator in OFF position (not good).

3/17:
- Partially completed changing hoses, but still needs additional fitting to swap out hose; return hose is complete.

F. Adam/Eve Activity: (Malone)

3/8:
- Deleted files in Adam staying area to unclog Adam.

3/12:
- Deleted more files in Adam staying area.

3/18:
- Synced up Adam and Eve
- Performed backup of Adam and Eve.

G. MFRSR Level Check: (Helsel)

3/11:
- Completed leveling of MFRSR.
- Leveled bubble; bubble was within circle but near the edge, +/- ¼ degree OFF; centered bubble within circle.)

H. MMCR Action: (Helsel)

3/8:
- Installed MMCR roof “access to radar” warning signs.

3/9:
- Checked radar antenna; fabric is OK, but one tab is lifting off the top location NE Quadrant.

3/12:
- Repaired interface module.

3/13:
- Installed MMCR power supply; had problems starting up TWT.

3/14:
- Found 2 pieces of solder behind a coax cable against a PC board; seems to be source of problems (had lots of help from Paul Johnston).

I. WSI Activity: (Helsel)

3/14:
- Completed replacement of occultor arms; found lots of moisture and corrosion inside.
- Fixed spectra filters.

3/15:
- Worked on the stack spectra filters; the spectra wheel sticks and need advice.
- Performed backup of WSI files and removed them from ADaM to make more room.

3/16:
- Removed sticker from end of motor and spectra wheel seems to work (20 cycles).
- Completed WSI routine maintenance.

3/18:
- WSI charged with Nitrogen and ARC drive sealed up; WSI now up and running.
- Observers formatted MO disks and trained.

J. SDL Activity: (Malone)

3/8:
- Updated “Rounds Checklist” in Observers Manual.

3/16:
- Completed and paid for LANL PPP connection at cenpac (ISP).
- Installed SDL modem in E-Van.

3/18:
- Completed SDL software upgrade.

K. MPL Compressor: (Helsel)

3/10:

- Completed investigation of MPL shade compressor; found compressors were plugged into UPS (this is not good since it puts induction loads on UPS; could have caused UPS failure) and found no leaks and it seems to be operating fine.
- Marked valve with paint to help troubleshooting later.

L. INMARSAT B Trouble-Shooting: (Helsel)

3/16:

- Completed troubleshooting with G. Wilcox in PNNL.

M. MWR Computer Upgrade: (Malone)

3/16:

- Completed installing version 3.30.
- Created backup disk of MWR directory site.

N. Phone Checks: (Helsel)

3/10:

- Completed phone problem investigation; found 3276 (phone) and 3278 (fax) labels swapped.
- Nauru Telecom looked at 3278, which seemed to be dead and got it working.
- Replaced terminal block with crimp connectors and wired 3277 into E-Van for SDL. All phones are now working.
- Removed cordless phone because of poor performance.
- Added 3277 (data) line to E-Van to allow plug-in fax.
- Added two new phones in D-Van.

O. ADaM Modem Installation for ISP Communication: (Helsel)

3/18:

- Completed modem installation for ISP communication for ADaM in D-Van.
- Installed IPS software from tapes.

P. BBSS Upgrade with new Firmware: (Malone)

3/17:

- Upgraded BBSS with new Firmware.
- Got SYSGEN (old and new) from Digicora to give to Lesht.
- Faxed TTB, etc. to Ackerman via Koontz for Nauru ‘99

Q. Topside Nauru '99 Preparation Tasks: (Helsel)

3/9:
- Visited and photographed topside sites, #1, #2, and #3.
- Got boat shuttle prices for Apple
- Got topside met station battery prices.

R. Gas Cylinders: (Helsel)

3/12:
- Bottles already labeled Hydrogen and Nitrogen.
- Put bottles in racks and strapped up loose cylinders.

S. Computer Y2K Compliance Testing: (Malone)

Not done this trip.

T. ADaM Printer On-Line Completion: (Malone)

Not done this trip; continue to print from Observer computer printer.

U. AERI blower Repair: (Helsel)

3/10:
- Completed repair; replaced belt.

V. Faulty Anemometer Replacement: (Helsel)

3/13:
- Replaced high anemometer with one shipped over for RESET trip; spare anemometer on-site had no calibration sheet.
- Had difficulty in replacing due to length of cables; rebuilt cable.

3/14:
- Replaced anemometer WSP 1 and changed logger slope from .09758 to .09642 and intercept from .33 to .38 as per R.M. Young's calculation sheet; SMET EPROM program is now V990314.00.

W. UPS Modules Failure: (Helsel)

3/10:
- UPS module in I-Van died after power outage.
- Powered UPS up and recharged batteries

3/12:
- Performed further UPS testing.

3/16:
- Received repaired UPS module.
- Discovered UPS module was damaged in shipping and decided not to install, but to send it back (UPS at Nauru OK now).
- Decided to stay with UPS that is currently in place.

X. Observers Meeting/Training: (Malone)

3/18:
- Completed.

Y. Other:

3/8:
- Relabeled “data tape” mailer envelopes
- Paid for TWP vehicle maintenance.
- Performed backup Observer computer files.
- Created “system” discs for Observers and ceilometer computer.

Z. Audit-Out: (Helsel)

3/18:
- Completed (see Attachment 2, Audit-Out Form).

5.0 NEXT RESET VISIT:

The following items should be considered for inclusion in the task planning for the next RESET visit:
- GENSET hose and fittings to complete changeout.
- Get spare helium regulator for cylinders.
- Get Australian oil, air, and fuel filters for TWP vehicle.
- MMCR antenna latch for repair.
- Redo D-Van phone jacks of ADaM.
- Get “man(WSI) 006.00” for Nauru files.
- Fix INMARSAT-B penetration leak in D-Van.
- Fix AERI hatch; it doesn’t close during rain.

6.0 LESSONS LEARNED:

The following observations were made by the RESET members that should be considered for future TWP installations and operations:

- Redesign anemometer cable and connectors.

7.0 ATTACHMENTS:

- Attachment 1—Audit-In/Site Conditions Report
- Attachment 3—Audit-Out Form
- Attachment 2—RESET-5N Tasking Details

Attachment 1—Audit-In/Site Conditions Report

Attachment 2—Audit-Out Form

Attachment 3—RESET-5N Tasking Details

***RESET-5 Nauru Members*:**

1. Fred Helsel, Lead, Daily Reporting (08Mar – 19Mar)
2. Peggy Malone, Daily Reporting (15Mar – 19Mar)

Nauru Tasks:

1. Audit-in - Malone
2. Train new observer to Rounds (if hired) - Helsel
3. Train others on new stuff (see attached) - Helsel
4. H2 Generator mods - Maxfield
5. H2 Generator routine maintenance - Maxfield, Helsel
6. Generator tank mods - Helsel
    - Change hoses
7. Generator - Helsel
    - Add temp and pressure gage
8. ADaM/EVE - Malone
    - Sync up ADaM/EVE
    - Backup ADaM/EVE
9. Check MFRSR for level - Helsel
10. MMCR action - Helsel
    - Install warning signs
    - Repair interface module
    - Check antenna fabric
    - Receive spare antenna fabric
11. WSI - Helsel
    - Fix occultor arm
    - Maintenance
    - Format MO disks
12. SDL - Malone
    - Software upgrade
    - Update Rounds checklist in Observer Manual
    - LANL PPP connection if possible
    - Install modem
13. Update Daily Rounds checklists in Manual - Malone
14. Check Skyrad power dist. box for corrosion - Helsel
15. MPL shade compressor investigation - Helsel
16. Inmarsat B troubleshooting - Helsel
17. Replace GOES computer battery - Malone
    - Lexon like Ceilometer computer
18. MWR computer upgrade - Malone
19. Check phones - Helsel
20. Install modem for ISP communication - Helsel
21. Upgrade BBSS w/new firmware - Malone

22. Topside Nauru recon - Helsel
23. Label red “Hydrogen” and green “Nitrogen” bottles - Helsel
24. Y2K test on all computers - Malone
25. Put printer on-line to ADaM - Malone
26. Backup Observer computer - Malone
27. U-Van electrical meter/transformer meter check - Helsel
28. Repair AERI blower - Helsel
29. Replace faulty Anemometer - Helsel
    - Recalibrate SMET logger
30. Re label tape mailers with Creel labels - Malone
31. Meet with Observers, training - Malone
32. Turn Inmarsat B OFF after use!!! - Malone
33. Audit out - Helsel