

TWP ARCS-1 Site RESET VISIT-5M Report

*Manus: 25 February – 12 March 1999
PNG NWS Momote Station, Manus Province
Papua New Guinea*

CONTENTS:

1. *Introduction:*
2. *TWP Operations/Reset Management:*
3. *RESET Preparation:*
4. *Tasks Performed:*
 - A. Audit-In Site Condition
 - B. Generator (GENSET) Modifications
 - C. ADaM/EVE
 - D. Calibration/Comparison Testing
 - E. Instrument Change-Out
 - F. H2 Generator/RBL Reconnaissance for RESET-6
 - G. Brusag Leveling Plate Installation
 - H. NIP Alignment Monitoring
 - I. MPL Troubleshooting/Condensation Monitoring
 - J. SDL Computer Replacement
 - K. WSI Semi-Annual Maintenance
 - L. Bank Signature Authority Acquisition
 - M. Software Y2K Compliance Check
 - N. New MFRSR Head Installation
 - O. MWR Activity
 - P. E-Van AC Unit Repair
 - Q. Inmarsat-C Trouble Shooting and Repair
 - R. MMCR Preparation for RESET-6
 - S. Purchase Australian Electrical Fixtures
 - T. Observers Meeting/Training
 - U. Other
 - V. Audit Out
5. *Next RESET Visit:*
6. *Lessons Learned:*
7. *Attachments:*
 - A. Attachment 1—Audit In Site Condition Report
 - B. Attachment 2—Audit-Out Form
 - C. Attachment 3—RESET-5M Tasking Details

1.0 INTRODUCTION:

MANUS TASKS

The main goals of the TWP Operations RESET-5M Visit (routine) to ARCS-1 at Momote Airport on Manus, PNG were the following: 1) generator modifications, 2) instrument calibration and change-out, 3) comparison testing, 4) SDL computer replacement, 5) instrument maintenance, and 6) Y2K compliance checks. Details of the RESET visit planning are found in Attachment 3.

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 Manus Members:

- Peggy Malone, TWP RESET Lead, Daily Reporting, (25 Feb – 12 Mar)
- Fred Helsel, TWP RESET Team Member, Daily Reporting (25 Feb – 05 Mar)
- Bill Porch, TWP RESET Team Member, Calibration (25 Feb – 12 Mar)

PNG On-Site Observers:

- Geasa Stoesel, OIC
- Francis Anuma
- David Akia
- Mary John

Others On-site:

- Ken Zorika, PNG NEW
- Tao Gabi, PNG NWS

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.

MANUS TASKS PERFORMED:

A. Audit-In Site condition Report: (Malone)

2/26:

- Completed Report and faxed site form to TWPPPO. (See Attachment 1.)

B. Generator (GENSET) Modification: (Helsel)

2/26:

- Installed new external tank float.
- Vented external tank.

2/27:

- Missing fitting for fuel line change over; but completed modification to bypass “Day Tank” by altering fitting.

2/27:

- Put in EPA canister for GENSET bypass fumes.
- Changed large fuel filters.

- Added oil temperature gage.
- Hastings Rep., Ruben, performed generator maintenance.

3/2:

- Replaced battery for the weekly test module and set transfer switch delay back to grid from one minute to 20 minutes.

3/3:

- Finished generator tasks and cleaned up generator room.

C. Adam/Eve: (Malone)

2/26:

Tapes cleaned on both Adam and Eve.

2/27:

- Cleaned air filter as part of maintenance activities; Helsel and Porch received trouble shooting lessons.

2/28:

- Fixed scripts so the SDL is not sent over Inmarsat-B.
- Synced up Adam and Eve.
- Wrote up instructions for Helsel to use in Nauru to do same.
- Wrote up instructions to get RESET personal laptops onto the ARCS network.

3/2:

- Cleaned up staging area.

3/6:

- Rotated a single drive.

3/11:

- Cleaned drives again.
- Synced up Adam and Eve again.
- Performed backup on Adam and Eve again.

3/1:

- Troubleshot Adam/Eve failover problem and replaced "specialty cable."
- Continued to test solution. (This helped rebooting.)
- Completed staging a configuration backup.

D. Calibration/Comparison Testing: (Porch)

2/26

- Calibrated the Cal logger: 1) set time on the Cal logger and 2) changed a calibration coefficient.
- Updated calibration procedures.

2/27

- Placed cal logger configuration file on **dmf.arm.gov** using the ISP from the site; file is under **/pub/reset5/calibration**.
- Placed cal logger and comparison instruments on stand .
- PNG engineered another connector and cable for PSP.

2/28:

- Calibrated SKYRAD and GNDRAD.
- Setup new PIR/PSP/NIP for comparison; now collecting comparison data.
- Entered calibration coefficients for dataloggers.
- Flipped GRNRAD DIR:PSP over at 0:31GMT

3/1:

- Built cables for anemometers.
- Calibrated anemometers.
- Re-engineered cable for PSP.

3/2:

- Calibrated the TRH, ORG, and barometer.
- Ran chilled mirror RH comparisons.
- Calibrated SKY and GND IRTs.
- Calibrated CEIL.
- Changed logger configuration files.

3/4:

- Entered new PSP factors into loggers as per C. Cornwall's instructions.
- Setup spare MFRSR on SKYRAD stand.

3/5:

- Began filling out calibration records.
- Got data from cal logger.

3/6:

- Finished calibration records and placed them on dmf.arm.gov.
- Placed latest and greatest configuration files on dmf.arm.gov.

3/7:

- Began disassembling calibration equipment.
- Turned GRNRAD PSP & PIR back down.

3/8:

- Finished disassembling calibration equipment.
- Changed cal logger configuration as per D. Hart's request.
- Completed comparison testing.

E. Instrument Change-Out: (Porch)

3/1:

- Replaced anemometers.

3/7:

- Completed changeout of radiometers.
- Packed radiometers for return to AIS.

3/8:

- Replaced NETRAD due to hole in top of dome and water inside bottom of dome.

3/10:

- Tore down the spare MFRSR.
- Changed GRNRAD configuration file to reflect new NETRAD.

F. H2 Generator/RBL Reconnaissance for RESET-6: (Helsel)

3/3:

- Completed inspection and took photos of hydrogen generator in preparation of RESET-6.
- Completed planning to provide H2 generator with ARCS power.

G. Brusag Leveling Plate Installation: (Helsel)

2/27:

- Installed leveling plate.

2/28:

- Greased Brusag shading arm.

H. NIP Alignment Monitoring: (Helsel)

2/27:

- NIP appears to be the same before and after the Brusag leveling plate installation.

I. MPL Troubleshooting/Condensation Monitoring: (Helsel)

2/27:

- Noticed rust marks on two screws that are used on the MPL overhead assembly.
- Completed SDL computer replace.
- Sent test messages to ADaM.

3/2:

- Requested new observer to clean corrector plate.

3/3:

- Cleaned condensation from corrector plate with new observer.

3/4:

- MPL compressor does not work on the right side.
- Porch had ideas about the condensation and contacted Flynn.
- Installed bulb-light back on MPL telescope; were using light for other purposes in the van for awhile. (Light was in location and ON when RESET left.)

3/6:

- MPL computer encountered technical difficulties.
- Porch thought he solved the condensation problem and conferred with C. Flynn.

3/8:

- MPL computer doing better, but still needs special attention.

3/9:

- MPL computer is now operational.
- Performed pin hole alignment for optimal beam output.

3/10:

- MPL had condensation on it.

J. SDL Computer Replacement: (Malone)

3/6:

- When we bring up the SDL, we get the following message: "Message resend process is currently running. Try again in a few minutes." Will consult with B. Perkins.

3/9

- Sent several test messages.

3/11:

- Did not find the spare floppy drive that Perkins thought was still at the site.
- Shipping old SDL Mac back to AIS.

K. WSI Semi-Annual Maintenance: (Malone)

2/26:

- WSI MO drive OK. Copied data from hard disk to MO for shipment to PNNL.

2/27:

- Checked that all MO disks are formatted.
- Changed desiccant in white box; old desiccant was gone.
- Cleaned filter on white box, computer, and AC unit.
- Need to replace filter on white box at next RESET visit; the salt is eating it away.
- Believe condensation is occurring in the white box; viewed water run marks down the side of the camera. (F. Helsel has ideas on this subject.)

L. Bank Signature Authority Acquisition: (Malone, Helsel)

3/3:

- Visited PNG BC Bank and dropped off signature authority form for all RESET personnel to be able to write checks on the company account if necessary.

M. Software Y2K compliance Check: (Malone)

2/28:

- WSI computer passes.
- WSI buffer computer's floppy drive is non-operational and therefore not tested.
- MWR computer does not like either of my Y2K programs. (This computer was later replaced by Porch's laptop on 3/10, but it also is non-Y2K compliant.)
- CEIL computer passes.

3/1:

- MWR computer will support Y2K with manual intervention at 01/01/0000.
- BBSS computer will support Y2K with manual intervention at 01/01/0000.
- Observer computer passes.

N. New MFRSR Head Installation: (Helsel)

2/27:

- New head installed.
- Completed installation of new logger board.
- Head was way out of level, but the head is now level; still need to verify band shading.

2/28:

- Data on put ***dfm.arm.gov***.

O. MWR Activity: (Helsel)

2/27:

- Started MWR computer software upgrade and encountered problems; e-mailed problems to V. Morris.
- MWR collection turned OFF at ADaM.

2/28:

- Replaced the Teflon window on the MWR.

3/1:

- MWR computer software, versions 3.28 and 3.30, misbehaved the same way as first try on 2/27; reverted back to old software and turned ADaM collection back ON.

3/2:

- Installed new version 3.30 and it is running, but taking data on MWR computer only. However, then the MWR computer eventually died.
- Started ADaM MWR ingest software upgrade but to allow TIP mode; need more software from A. Koontz.
- Added ***ftpcom_binary*** entry for ***mpl***, ***vceil***, and ***mwr***.

3/3:

- Encountered problems with ADaM MWR ingest software upgrade; contacted A. Koontz.

3/4:

- A. Koontz will complete ADaM MWR ingest software upgrade via Inmarsat-B.

3/9:

- Changed *perl* scripts for default binary mode.
- Completed bin entry for ftp.com.

3/10:

- Replaced with B. Porch's laptop; laptop became operational today.

P. E-Van AC Unit Repair: (Helsel)

2/28:

- Repaired AC unit; bypassed low temp switch and replaced condensator motor.
- Noticed that most AC condensator motors and fans in poor shape; will take photos tomorrow.

Q. Other

2/26:

- Started Inmarsat-C troubleshooting; need to question R. Edwards about steps in procedure.

2/27:

- Completed investigation; will confirm messages to BNL with R. Edwards.

3/1:

- Received Inmarsat-C e-mail that I sent to myself.

3/4:

- Had problems again with Inmarsat-C but think they are fixed again.
- Will communicate problems to R. Edwards.

3/9:

- Inmarsat-C is working.

3/11:

- Viewed a "Link failed" message; will send information to R. Edwards.
- Message was fixed by recycling power to the unit.

R. MMCR Preparation for RESET-6: (Malone/Koontz)

3/10:

- Completed MMCR H&S Goes table setup in prep for RESET-6 MMCR installation.
- Completed "modify reduce data.c." (via Inmarsat-B).

S. Purchase Australian Electrical Fixtures: (Helsel)

3/24:

- Purchased 240 V Australian outlet for ARCS-3 integration.

T. Observers Meeting/Training: (Malone)

3/6:

- Trained two observers for about 2-3 hours .

3/7:

- Trained two observers for most of the day.

3/8:

- Requested observers to send an SDL report before they left the site today.

3/9:

- Trained all three observers for two hours this afternoon; two observers found and fixed "RESET created problems" during daily rounds.
- Observers turned on and off the Inmarsat-B unit. Trained the observers on the rules concerning the Inmarsat-B.

3/10:

- Trained three observers on ISS and forms.

3/11:

- Trained three observers.
- Finished Monthly resupply list.

3/12:

- Left procedure with observers as how to reboot the new MWR computer that included making the MWR software run properly. Thanks to C.

U. Other

2/26:

- Performed BBSS computer maintenance.

2/27:

- Replace SKYRAD, shaded PIR ventilator and PIR desiccant.

3/2:

- Worked unsuccessfully to do BCR update.
- Ceilometer computers returned to original state.

3/4:

- Fixed ceilometer.
- Set up Observers tool box.

3/5:

- Retrieved digicora SYSGEN for B. Lesht.

3/8:

- Recovered MPL computer by reloading the OS.

3/10:

- Dismantled skycam for shipment back to AIS.

3/12:

- Attempted, unsuccessfully, to change GIRNRAD IRT settings; procedure did not work.
- Returned configuration back to original to match logger.

V. Audit-Out: (Malone)

3/4:

- Tool inventory in preparation for RESET-6 identified need for the following:
 - hack saw
 - channel lock pliers set
 - needle-nose pliers set
 - needle-nose electronic wire set
 - four each - dikes (side cutters)
 - restock for hole saw kit - $\frac{3}{4}$ - 1 $\frac{1}{4}$ approximately
 - terminal lug set
 - soldering irons
 - survey kit
- Instrument inventory completed.
- Only have one spare radiometer ventilator

3/11:

- Audit-out completed.
- Completed replacement forms.

3/12:

- Pictures taken.

5.0 NEXT RESET VISIT:

The following items should be considered for inclusion in the task planning for the next RESET visit:

- Move Observer training.
- Replenish tool supply.
- Install RBL.
- Maintain H2 generator.
- Replace MPL compressor (shading dome)
- Take Brusag MFRSR mound to site.
- Reconfiguration GRNRAD IRT.
- Replace Porch's laptop with MWR PC.
- Send electronic files of shipping forms to Pearse.
- Check corrosion on SKYRAD power boxes.
- Repair MPL roof damage (use locally-purchased material).
- Correct anemometer cables; get correct supplies.

6.0 LESSONS LEARNED:

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

- Avoid last-minute RESET taskings.
- Procedures needed for RESET people to FTP, etc.
- Need spare cable connectors for comparison testing setups.

7.0 ATTACHMENTS:

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

Attachment 1—Audit-In/Out Form

Attachment 2—Audit Out Form

Attachment 3—RESET-5M Tasking Details

RESET-5M

Team:

Peggy Malone — Lead, Daily Reporting

Fred Helsel — Daily Reporting

Bill Porch — Calibration

1. Audit-in - Malone
2. Generator tank mods - Helsel
 - Bypass day tank
 - Install new external tank float
 - Vent external tank
3. Generator mods - Helsel
 - Verify settings on transfer switch
 - Add oil temp gage
4. ADaM/EVE - Malone
 - Tape drive rotation, cleaning
 - Sync up ADaM and EVE
 - Troubleshoot failover problem
 - Back up ADaM/EVE
5. Calibration: - Porch
 - Calibrate all instruments.
6. Instrument Change-out: - Porch
 - Radiometers (PSP, PIR, MFRSR) - those on the stand and the spares.
 - Return replaced radiometers to AIS.
 - Replace anemometers.
7. Comparison Testing: - Porch
 - Radiometers(PSP, PIR)
 - NET
 - Barometer
6. Inspect H2 Generator - Helsel
 - 3 phase power, etc.
7. Install Brusag leveling plate - Helsel
8. Monitor NIP alignment - Helsel
9. Monitor MPL condensation - Helsel
10. SDL computer replacement - Malone
 - "Old" SDL Computer (Mac 540C) is being returned to Manus. Should be able to plug-in and go.
 - "Replacement" SDL Computer (Powerbook G3) and all peripherals should be returned to AIS. Items for return listed below.
 - Laptop w/ plug-in Battery and plug-in CD inserted (shipped June 98)
 - Plug-in Floppy Drive (shipped June 98)
 - Power Supply and Power Chord (shipped June 98)

- Battery Charger (Shipped Fall 98)
 - Spare Lilon Battery (Shipped late 98)
 - Battery Charger Power Supply and Power Chord (shipped late 98)
 - use the G3 box which 540c was recently shipped in to return G3.
11. WSI semiannual maintenance - Malone
 - Check that MO disks are formatted.
 12. Go to bank for signature authority - Malone, Helsel
 13. Software Y2K compliance check - Malone
 14. Install new MFRSR head - Helsel
 - New logger board
 - Check for level and alignment
 15. MWR - Helsel
 - Heater repair
 - Upgrade computer software
 - ADaM ingest software upgrade (tip mode)
 - Verify bin entry for ftp.com
 16. Measure site layout - Helsel
 - for balloon launching and
 - new Y-Van power
 17. E-Van AC unit repair - Helsel
 18. Trouble shoot and repair Inmarsat C. - Malone
 19. MMCR prep for RESET-6 - Malone, Koontz
 - H&S GOES table setup (via Inmarsat B)
 - Install mmcrDAC (via Inmarsat B)
 - Modify reduce_data.c (via Inmarsat B)
 20. Install video - Helsel
 21. Purchase Australian fixtures in Brisbane - Helsel
 22. Meet with Observers, train as necessary - Malone
 23. Turn Inmarsat B OFF after use!!! - Malone
 24. Audit out - Malone
 - Tool inventory
 - Instrument inventory
 - Spares inventory
 - Fluke at Manus?
 - MWR fan/heater unit?
 - Survey kit?

Go over with Observers:

- *Don't get into local management and politics.*
- *Tape mailings - review*
- *Rounds-when you clean domes, note it in the rounds.*
- *Go over sonde usage (currently > 1 sonde per day).*