

**ARM Nauru Research Station
RESET Visit 13N Report**

Visit Duration: 07 May 2001 – 17 May 2001

Denig District, Republic of Nauru

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A. Introduction

The main goals of the TWP Operations RESET13-N Visit (routine) to ARCS-1 at Nauru were the following:

This Report is organized according to the planned tasks or work units performed during the RESET Visit. Within these work units the activities accomplished are arranged chronologically. Most of the information was put together by the RESET-13N members based on the actual visit, daily reports.

B. TWP Operations Management and RESET Visits

Once an ARCS Site is established, TWP Operations maintains the site and performs data reporting. TWP Operations also coordinated equipment retrofits at the established sites, accomplished by local NWS site personnel, routine RESET visits, and non-routine RESET visits.

Routine RESET Visits

Routine 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.

Non-Routine RESET Visits

Non-routine visits are intended for technical non-routine tasks such as emergency repairs, retrofits, and/or the addition of new instruments.

The work on the RESET visit is performed by the RESET team, but often in close coordination with the local on-site Observers. The team holds a daily, morning tasking meeting at the site using the proposed RESET visit, tasking schedule. After each day's work, the team meets to summarize work activities and an assigned team member writes a "Daily Report" and e-mails the report to TWP personnel in the U.S. Because of time-zone differences, necessary calls to instrument mentors in the U.S. are done in the morning.

Reset Members

- Bill Kornke
- Fred Helsel
- Kevin Widener
- Larry Yellowhorse
- John Glowacki (BOM)
- Rex Pearson (BOM)
- Troy Culgan (BOM)
- Nicholas Duburiya and the Observers (PNG NWS)
- Hastings Deering Person

C. Tasks Performed

1. Site Audit in

07May

- Glowacki assessed site condition and performed Audit In.
- Sun faded the flammable tags on the Hydrogen Van.
- Moderate to severe corrosion of aluminum surfaces.
- Compressor motor capacitors U/S (unserviceable)

09May

- Reference compressor motor capacitor (noted as unserviceable earlier), the compressor is the general purpose compressor. Compressor Manufacturer: Campbell Hausfeld; Model: WL602101AJ; sn:L6/25/96-03423; Pump: WL340002AJ.

10May

- Config files obtained from Ceil, MWR, SMET, Skyrad, Gmrad, Skyspare / Glowacki, Culgan.

11May

- Config files obtained from AERI, BBSS / Culgan, Glowacki.

2. Train new BOM Personnel (Kornke).

07May

- Met with personnel, went over site rules, safety briefing
- Culgan(BOM) assigned to do daily reporting.
- Informal site walk through, general infrastructure outline.
- Unpacked RESET-13 boxes.

11May

- BBSS Sysgen configuration procedure training with BOM.

17May

- Train new BOM personnel complete on Nauru, to continue on Manus.

3. Shaded PSP “Black & White” replacement (Kornke).

08May

- Shaded PIR to go offline from 20:30 UTC, 09May for approximately 8 hours to do comparison data for black/white PSP. Preparation commenced.

09May

- Installed Black/White PSP (sn 32977) for comparative data collection. PIR removed for this purpose. Start changeover 0300 UTC; 0340 UTC start Black/White PSP data collection / Kornke, BOM.

10May

- Black/White comparative data collected, but as yet unable to FTP to the TWP data site.

17May

- B/W diffuse PSP made permanent (PSP sn 3127F3 replaced with B/W PSO sn 33271). / Culgan, Glowacki
- We have the skyrad config and today's data (it was a fairly sunny day).

4. ADaM HD swap (Observers/BOM)

10May

- Task completed.

5. GOES Laptop timing troubleshoot, swap out, core config(Widener/BOM)

11May

- GOES Laptop timing troubleshooting. Check dimension 4 time server software on GOES/SAM laptop, performed manual sync, changed auto sync from 15 minute to once every minute to observe sync process, autosyncing successful. Restored autosync timing to 15 minute intervals. We will continue to monitor laptop for timing drift, but so far none detected.

6. MMCR Pulse controller repair (Widener)

10May

- MMCR Pulse controller repair in progress / Widener.

11May

- MMCR Pulse controller repair continues. Two faulty RF circulators replaced. Unit set to work 05:50 UTC. / Widener, Pearson.

12May

- MMCR transmitter repair continues. / Widener, Pearson.

13May

- MMCR transmitter repair continues ; Unable to repair onsite, requires replacement up/down converter. Kevin Widener will arrange for a replacement unit and provide procedures to observers(Nick) to perform replacement task. / Widener, Pearson.

16May

- The MMCR is down due to a failed Coherent Up/Down Converter (CUDC). I found that the +15 vdc power supply failed but the failure was due to a component within the CUDC. NOAA/ETL is shipping the spare CUDC to SGP for shipment to Nauru. I went over with Nicholas and Henry how to replace it and have written detailed instructions for the replacement and recalibration. In the event that they cannot perform the recalibration, my recommendation is to fly Rex from Darwin back for two days to complete this. I am training Rex on the calibration.
- I brought a spare pulse controller board because we were seeing pulse faults. The board in the MMCR is a prototype so I replaced all of the ICs instead of the board that I brought. We need to get a schematic of the prototype board on site for troubleshooting. I have asked Ken Moran for this.
- I replace two failed rf switches. I only brought two so I am concerned that if we have I switch problem at Manus, I won't be able to bring the radar up there. I have asked Ken Moran to ship two switches by express delivery to my hotel in Brisbane. Hopefully they will be there when I arrive on Friday.
- I am leaving the MMCR running with the TWTA turned off so that we can continue to monitor the status prior to the replacement of the CUDC. There appears to be problems with the MMCR ingest on the site data system.
- I inspected the radome and antenna and all is well. The radome is holding up nicely and the inside of the antenna is dry!

17May

- MMCR Coherent up/down converter replacement and calibration procedure complete. Training of Observers to enable install of converter completed. / Widener

7. Install MMCR OS-2 Y2K upgrade(Widener)

11May

- OS/2 upgrade fix pack 4.2 / Widener, Pearson.

8. Modify MMCR software (Widener)

9. Review MMCR documents w/Observers, BOM (Widener)

10. Reinstall Cimel(Kornke)

14May

- Reinstall Cimel: Unable to complete cannot locate housing

16May

- Installed using temporary enclosure.

17May

- I noticed the CIMEL rain sensor was again asserted (1) at the end of the day, so you may see that on the GOES. We don't know if it is the ocean front location or what. There seems to be no coatings or damage. We replaced it with the rain sensor from the old MWR and it's working fine but won't know for sure until the morning. Can you find out if there is a sensitivity adjustment? We have observer the CIMEL doing its scans and the target is dead on.

11. Island effect site reconnaissance (Widener)

15May

- Island effect site reconnaissance; Andrew and Kevin have looked over site, negotiations for site lease under way. Task complete. /Widener, Kaierua

12. UPS battery replacement (Helsel/BOM)

08May

- Preparation for battery replacement
- Battery stand assembled / Pearson, Glowacki

09May

- Second UPS battery stand assembled / Pearson, Glowacki

12May

- UPS battery replacement I-Van in progress. Unit to be tested assembled battery stand not required. /Kornke, BOM

13May

- UPS battery replacement I-Van in progress. Unit to tested under 80% load conditions for a period of 25 minutes. Also simulated multiple transient power outages. All tests appear to be successful. /Kornke, BOM

14May

- UPS battery replacement D-Van / BOM

17May

- The Inverter failure indicated on the SAM earlier today was just me straightening out the I/O plugs on the back I had to unplug to get things untangled. The UPS are rock solid.

13. Install new E-Van batteries outside

07May

- Preparation commenced / Yellowhorse, Pearson

08May

- Tidbit temperature logger installed in E-Van external battery housing to assess battery environmental conditions.
- Task completed.

09May

- Setup and adjust 24 Volt charge circuit for field batteries / Pearson.

14. TRH probe comparison measurements(Kornke).

11May

- TRH temperature comparison measurements complete. Method was using non aspirated open air conditions using a Vaisala HMP 35 probe (sn. R5010003) with hand held unit HMI 31 (sn. So320016) to compare with installed probe HMP45D (sn. 693977). Comparisons were taken over a 15 minute period at 5 minute intervals, with a 30minute pre comparison setting time. Results were relative humidity within 1%, temperature within 0.1 degC / Kornke, Culgan.
- Task complete

15. Prepare Skystand for AC Power for Scietec tracker (Helsel)

14May

- Preparing Skystand for AC Power for Scietec tracker; in progress /Helsel

15May

- Prepared Skystand for AC Power for Scietec tracker; trench has been dug by Reset team. Helsel has begun conduit work.

16May

- Prepared Skystand for AC Power for Scietec tracker; conduit laid, cable run.

16. MFRSR memory status check (Widener)

07May

- 2Meg memory card found – Kornke, Glowacki

17. Drawing book checking, redmark, photos(Yellowhorse w/BOM)

17May

- Drawing book checking, redmark, photos completed / Yellowhorse, BOM

18. Put new shipping forms on Observer laptop (BOM/Observers)

09May

- Completed – BOM, Observers

19. Routine Maintenance tasks (Yellowhorse w/BOM)

a) Changeout generator 12v batteries (H Deering w/Yellowhorse)

b) Change all AC unit filters

14May

- Task Complete

c) MMCR maintenance list(on CD of RESET Manual)

17May

- MMCR maintenance list (on CD of RESET Manual); AERI maintenance list (on CD of RESET Manual) Larry Jones will organize.

d) Change out Netrad Domes (Observers)

15May

- Changed out Netrad Domes (water contaminated) /BOM

e) WSI manual maintenance(Yellowhorse)

14May

- Task Complete

f) Oil coolant pump bearings on WSI (Kornke)

14May

- Task Complete

g) Replace metal screen filters in WSI Blue Box (Kornke)

14May

- Task Complete

h) Inspect and lube solar tracker arm(Yellowhorse)

11May

- Inspected and lubed the solar tracker arm / Yellowhorse, Glowacki.

i) MWR heater and/or fan assembly changeout (Helsel)

10May

- MWR heater/fan assembly changeout, complete equipment restart at 23:40 UTC / Pearson, Culgan, Kornke.

j) AERI maintenance list(on CD of RESET Manual)

16May

- AERI maintenance complete / BOM, Yellowhorse.

k) Check for water in logger, etc. boxes(Yellowhorse)

14May

- Task Complete

17May

- AERI interferometer window clean as instructed by Connor Flynn, LW SW responsivity flags indicate red and awaiting reply from Connor. / Glowacki, Widener

20. Replace one AC unit on D, E, I, and U Vans(Yellowhorse).

08May

- AC units replaced on D Van and I Van / Yellowhorse

09May

- AC units replaced on E Van and U Van / Yellowhorse

21. Replace AERI AC unit (Yellowhorse)

10May

- Task completed / Yellowhorse.

22. Repair Diesel Generator valves(H Deering w/Helsel)

15May

- Repair Diesel generator valves. The new head has been installed and genset was in service in time for this afternoon schedule power outage /Hastings Deering

16May

- Emergency Generator Maintenance and changeout battery complete / (Hastings/Deering).

17May

- Emergency Generator Transfer switch replaced and calibrated.
- Emergency Generator cooling system flush, turbo oil leak repaired, lamp replacements / Nielson of H/D

23. MWR moisture sensor adjustment (Kornke)

10May

- Task completed / Kornke, Culgan.

24. Emergency Generator / calibrate Transfer switch (H Deering w/Kornke/Yellowhorse)

25. Emergency Generator Maintenance / changeout battery (Hastings/Deering)

26. Radiometer spare ventilator repair (Kornke)

09May

- Spare ventilator repaired, upgrade hardware to silicon bronze(unrelated to the bad ventilator reported in the Audit In) / Culgan.

27. Phone system reconnaissance for future mods (Kornke)

15May

- Phone system reconnaissance for future mods; there is nothing salvageable nor does the design bear any semblance to the new Manus system. I suggest we start from scratch when the new telephone lines

28. Ship back equipment (redmarked drawing books, etc.)

17May

- I have gathered the stuff to be shipped back. Unless informed otherwise, we have removed the entire Inmarsat-B system and will be shipping that also. The site has been left in good condition.

29. Hand carry labeler to Manus(Yellowhorse)

30. Other:

08May

- UVB replaced 03:30 UTC, 08May, completed / Pearson, Glowacki.

09May

- BBSS GOES transmitter checked, no obvious fault, (visual inspection, fuses checked) equipment to be returned for repair.

11May

- Reference GOES transmitter (Digicora) checked. This was not in response to a task, but as a request from Larry Yellowhorse. BBSS Sysgen configuration procedure training with BOM.
- AERI failed to communicate due to an unscheduled power failure of A-Van. Communication restored by a controlled shutdown and restart of AERI computer.
- MWR, Ceilometer laptops shutdown due to loss of power, cause unknown.
- SMET communication box mounting brackets retapped and silicon bronze hardware installed. SMET power enclosure checked and correct / Glowacki.

14May

- INMARSAT-B removed and to shipped back to SGP.Helsel,Kornke
- GOES/SAM transmitter relocated to ADAM rack/Helsel,Kornke,BOM

16May

- ADAM had no problems and is ok there was no back ups done do to the lack of tapes. (I suggest that tapes should be ordered and observers do level 0 backups of the file server weekly)
- I believe the 4mm tape drives are still attached to ADAM and EVE in Nauru. You may want have the next reset bring the correct terminators, just in case they can't find the one's there and remove the 4mm tape drives.

31. Audit out

17May

- Audit out complete / Kornke, BOM.
 - Spares inventory
 - Config files from Rad Loggers, MFRSR, Ceil, MWR, etc(w/Porch).
 - Replacement records
 - Relabel faded labels