

FOREIGN TRIP REPORT

A1. SUMMARY :

Report date : 5th October 2001
Traveler : Colin S Schulz
Destination : Nambour – Brisbane – Nauru – Brisbane - Nambour
Dates : 12th of September to 2nd of October 2001

A2. PURPOSE

This trip was part of the DOE¹ ARM² Program's continuing efforts to establish several ARCS³ sites in the Tropical Western Pacific (TWP) region. The first ARCS was installed on Manus Island in Papua New Guinea (PNG) in the summer of 1996 and the second ARCS was installed on the Island of Nauru in the Central Pacific in the fall of 1998.

This particular trip was to supervise installation of telecommunications cable from ARCS 2 site to Telco exchange. Other duties as required.

A3. ABSTRACT

The Department of Energy's ARM program has begun phased operations of Cloud and Radiation Testbed facilities in the TWP. TWP science considerations require that several observation stations be sited across the Pacific Basin from Indonesia to east of the dateline. To meet these requirements the ARM program is developing ARCS, which will operate in a semi-autonomous mode for long periods in remote locations. We began operations of the first ARCS on the island of Manus in PNG in the fall of 1996 and installed the second ARCS for Nauru Island in the central area of the TWP in 1998. Regularly scheduled maintenance, improvement and calibration visits are required for both sites by ARM Operations. Teams made up of technical personnel from several national labs participate in those visits, known as RESETs.

This report outlines the emergency maintenance visit by Colin Schulz.

B. REPORT

Meetings:

Before commencement of cable installation work meetings were held with the Director of Telecommunications to ensure that he was fully aware of the work to be carried out and that he concurred with our plans.

A meeting was held with the Director of Civil Aviation to ensure that he was fully aware of the scope of work proposed including cabling within the airport boundary.

A meeting was held with Nauru Phosphate Corporation electrical staff to determine the location of underground power cables and to ensure that their location was clearly marked before any excavation commenced.

A discussion was held with Rehabilitation drafting staff to ascertain the location of other underground services likely to be encountered along the excavation route.

ARCS 2 personnel were fully involved in all the above meetings and discussions.

Observations:

The progress of the cable laying was much slower than originally envisaged due to a number of factors.

Firstly access to the airport area was severely restricted at times due to much increased aircraft traffic over this period.

The serviceability of the backhoe / front end loader hired from Nauru Phosphate Corporation was very low due to numerous mechanical breakdowns.

It was not possible to commence any work on the overhead section of cabling due to unserviceability of the NPC "cherry picker" This machine had a faulty hydraulic cylinder seal just before we were to commence work and was still unavailable when I left Nauru.

It will not be possible to install any overhead cable until this unit is available. It would be most unwise to try and install the overhead cable without this due to safety issues with numerous road crossings and power cables along the pole route.

Up to the time that I left Nauru we were unable to locate pipes which were supposed to be buried under the road adjacent to the airport. We had intended to

use these to route the underground cable under the main road. If further search does not locate these pipes (which are shown on plans we saw) then it will be necessary to tunnel under the road for a new pipe crossing. NPC have experience in this method using a water jet.

Considerable time was spent troubleshooting the Kip & Zonen solar tracker which was not following the sun correctly. It is believed that these problems have now been solved after some reconfiguration and re-initialization of the system.

The major problem appeared to be an error in the handbook relation to minimum solar intensity to be used for satisfactory operation of the sun sensor. After consulting the manufacturer's representative in Canada, this was set to a level 3 times the original recommended intensity and this seemed to overcome the problems experienced after re-initialization and calibration.

The MPL was not forwarding its data to the ADAM system and after consultations with the instrument's mentor (Connor Flynn) a software problem was discovered and after re-booting the MPL computer normal operation was resumed.

Preliminary faultfinding was carried out on the "I Van" UPS reporting system and it was discovered that the line to the reporting PLC had a potential of 90 - 100 volts on it instead of the normal 0 - 5 volts. Further troubleshooting will be done during the next RESET visit.

The local display module for the EMWIN meteorological data system was updated to a later version. The original version in use in Nauru was giving intermittent file errors. The update cured this problem.

Opportunity was taken to thoroughly clean the QFAX and EMWIN computers and monitor as these had not been serviced since installation in 1999. As it happened they were not excessively dirty after this period.

The ARCS 2 staff were extremely busy during my visit due to being short staffed with two personnel being absent on training courses.

I would like to express my appreciation to them for their assistance that they were able to willingly offer during my visit.

Recommendations:

As the cable installation could not be completed in the allocated time it is recommended that the ARCS 2 staff continue with the installation as they are now quite familiar with the requirements.

The rate of progress that they will be able to make will be very much controlled by availability of the mechanical aids from NPC.

It has been suggested that another trip be planned to assist with the final commissioning of the new cable when the installation work is completed.

Health & Safety issues:

No health issues to report.

Following is a short note regarding ARM staff visits to Nauru given the situation existing on the island with foreign refugees being accommodated on Nauru.

The refugee camp is well removed from the normal areas that we would be called to work / travel in and present indications are that the refugees will not be permitted to go outside the camp area set up for them in the center of the island.

We have been led to believe that security arrangements at the camp are adequate to prevent them from going beyond the camp limits. Guards and a high security fence have been provided.

It would be wise to review the situation from time to time, but from my observations during my visit, there did not seem to be any undue risk associated with working in Nauru at that time.