H_2 Generator Maintenance Report (RESET-11M)

by Grant Jeffery of Australian BOM

Manus Site (ARCS-1) 14 July – 21 July 2000

HYDROGEN GENERATOR

Routine maintenance carried out:

- Cell specific gravities checked and adjusted
- Air filter cleaned
- Coalescing filter replaced
- Pre-water filter replaced
- De-ionising filters checked
- Compressor oil replaced
- Fan motor bearings oiled
- Air inlet screen cleaned
- Complete system checks carried out, adjustments made as required and results recorded.
- Teledyne gas analyser and fittings checked for calibration and serviceability
- Spares holdings were checked - see below

Results of checks following maintenance were as follows:

- High Pressure Cutoff switch - 700kPa
- Gas holder pump down time - 4 minutes 39 seconds into 600kPa
- Cell SGs 1-1260 2-1250 3-1260 4-1260 5-1265
- Cells leak test - no leaks
- Gas holder leak test - no leaks
- Moisture in storage tanks - 10mL in No4 only
- Maximum and idle currents 250A and 30A respectively

Additional work:

- Inlet and outlet manometers cleaned and fluid replaced
- All cell electrolyte level sight tubes replaced
- High pressure cut-off switch adjusted from 600kPa to 700kPa (the standard pressure)
- Gasholder disassembled and cleaned out (to remove algae)
- Water seal disassembled, inspected and cleaned.
- Cell No5 filling tap fitting replaced with stainless steel NPT hex nipple.
- The thread in the cell top had become partly stripped and the face sealing swagelok fitting was no longer secure.
- Cleaned all cell vent tubes and connecting tubes
- Adjusted S14 microswitch (compressor start)
- Extensive corrosion control and painting carried out
- Hydrogen generator room lighting repaired

- Teledyne Gas Analyser Span adjustment knob found lose such that it did not lock - adjusted and tightened

REMOTE BALLOON LAUNCHER (RBL)

- The RBL was checked for condition and operation - satisfactory.
- Flow rate was checked
- Blower fan and launch enclosure lighting operated correctly
- All hydrogen lines were checked for leaks - none found
- Sprinkler system operated correctly
- The String Unwinder Inhibitor stap has deteriorated - no spare was found so several will be dispatched.

SPARE HOLDINGS CHECK

The following Hydrogen generator and RBL spares and equipment were found on site:

- In Hydrogen Generator room:
- 4 pairs of rubber gloves
- Hydrometer (in poor condition)
- 6 containers of KOH flakes
- 50 Litre electrolyte mixing container with lid
- Manometer fluid container 1/3 full
- Box spanner for cell fittings
- Protective spectacles
- Approximately 2 Litres of vinegar in a 20L container
- Vinegar spray bottle containing 500mL vinegar

In Storage Van in first bay, bottom shelf, LHS:

- Protective Coveralls
- Full face respirator mask and one filter cartridge
- 5 pre water string filters
- 2 coalescing filters
- 7 one litre containers compressor oil
- Cell jumper lead set
- 6 cell vent tubes
- 3 de-ionising filter cartridges
- 1 water supply pump control
- 4 syringes
- 1 M 3/8 inch tubing for water reticulation
- 3 M 1/2 inch tubing
- 5 spare sight tubes
- 20 brass 3/8 inch swagelok ferrules
- 1 red indicator lamp lens
- 1 indicator lamp assembly

- 1 swagelok face sealed cell tap adapter
- 1 relay, K5 current overload for control module
- 1 control module complete with regulator
- 1 10K current control potentiometer
- 1 relay coil for K1 and K2 contactors
- 5 negative rectifier diodes
- 5 positive rectifier diodes
- 2 cell blanking tubes
- 1 gasket, compressor cylinder to crankcase
- 4 300A rectifier fuses
- Various aspirator assembly bits
- RBL test hose
- RBL pressure gauge
- RBL filler nozzel o rings
- M8 allen key for RBL Launch enclosure light
- RBL Launch enclosure light assembly complete
- 1 RBL Launch enclosure light tube
- RBL rotating beacon complete
- 5 light globes for rotating beacon
- 3 filler nozzles and spikes (in use)

In old shed adjacent to balloon shed:

- 3 cells - one disassembled incomplete and two assembled complete in an unknown condition

The following items need to be supplied:

- Compressor V belt P/No 4L500 OHS N1
- Spare Cell for Teledyne Gas Analyser
- Snoop gas leak check fluid
- Vinegar
- Spare hydrometer
- Extra Respirator Filter cartridge Cat 465721

RECOMMENDATIONS/ACTION ITEMS

- There is no spare cell for the Teledyne gas Analyser (one used on the previous visit) - recommend a spare be procured. Action - to be discussed.
- RBL String Unwinder Inhibitor Strap has failed - replacement plus spares to be sent. Action - BOM
- No spare String Unwinder Inhibitor Cords found on site - spares to be sent. Action - BOM
- Hydrogen Generator spares to be replenished. Action - BOM