Tasmania Department Of Resources and Energy

Division of Mines and Mineral Resources — Report 1990/22

SWAMP: Subterranean Water Automatic Monitoring Program

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INTRODUCTION

The Engineering Geology and Groundwater Section of the Division of Mines and Mineral Resources is conducting a statewide groundwater resources monitoring program. To enable the collection of data on on a regular basis, remote data loggers have been installed in localities around the State to help form a model of statewide underground water resources.

The use of the UNIDATA data loggers together with the UNIDATA water probes enables the collection of data on a three-hourly interval. The data is stored in internal memory and can be retrieved at monthly intervals using a laptop computer. The program for the statewide groundwater resources is code named SWAMP (Subterranean Water Automatic Monitoring Program).

INSTALLATION

Each monitoring installation contains a Unidata 6508C water depth probe which measures head of water up five metres and the temperature of the water. The probe is connected to a UNIDATA 6003B data logger which has 32K of memory fitted. Each installation has a site identification number, so as to distinguish it as a unique installation. A table of the depth at which each probe is set, the identification number, and the location of the probe is given in Appendix A.

USERS GUIDE

At this point in time you should have read or be reading the Field Manual for the Toshiba laptop computer (Sedgman and Weldon, 1990) to be able to operate the retrieval program. At the prompt:

INSTALLATION >

type:

SWAMP <CR>

the screen display should look like this:

INSTALLATION >SWAMP <CR>

This should now start the data retrieval and resetting of the data logger. Follow the instructions in the field manual and you should have no problems.

MAINTENANCE

Little or no maintenance is required on these installations. If, however, it is shown from the results obtained that no data has been collected, the water level of the borehole should be checked manually to see if the probe is out of the water. If it is found that this is the case, some of the probes can be lowered a few more metres. A list of these probes and the extent to which they can be lowered is given in Appendix A. If the probe is at full length it must be disconnected and returned to the office for an extension to be fitted (details on probe connections are given in Appendix B).

REFERENCE

SEDGMAN, R. J.; WELDON, B. D. 1990. Field manual for the Toshiba laptop computer with Version 2.02 software. Revision 1. *Rep. Div. Mines Miner. Resour. Tasm.* 1990/24.

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APPENDIX A

Location information

Location	Site No.	Probe depth (m)	Max. probe extension (m)	Solar panel installed	Date installed
Togari	1	5	9	Yes	27/9/90
Montagu	2	5	9	No	27/9/90
Tayatea	3	9	9	No	27/9/90
South Forest	4	7	7	No	27/9/90
Calder	5	30	30	No	27/9/90
Hampshire	6	9	9	No	27/9/90
Ridgley	7	10	10	No	27/9/90
Chudleigh	8	5	10	Yes	27/9/90
Osmaston	9	14	14	No	27/9/90
Hagley	10	5	10	No	27/9/90

APPENDIX B

Probe connections

Connector No.	*Connection*
1	Solar panel (if connected)
2	Solar panel (if connected)
13	Red wire and resistor connection (+ supply)
36	Yellow wire and other end of resistor connection (thermistor)
39	Blue wire (signal from depth probe)
41	Green wire (signal ground)

APPENDIX C

Scheme definition

Serial #3283 Version 2.021

Scheme Name: SWAMP
Description: Subteranian Water Automatic Monitoring Program

Directory For Data is B:\SWAMP
Store a Comment with Data: No
Logger to Computer Communication is Direct using serial port com1 at 9600 baud
Site Identification Option is Fitted
Logger Model used is 6003 (Version 11,12)

Instrument: 6508C Water depth 5 m
Transducer on a0 measures Depth 5 m (Depth)
Transducer on a1 measures Red Therm 15k (Temp)

Logger Memory Size is 64K
Logger Scan Rate is 5 seconds
Logger Buffer Type is LINEAR (stop when full)
Logger Program Type is Fixed
Log Interval Log Interval is 3 hours
Log Depth Depth 5 m
Log Temp Red Therm 15k
Total of 2 entries, 2 bytes logged, 32767 log entries giving a max logging time of 4095 days 21 hours
A battery pack will last approximately 12 months

Plot to scrn:
Mode: CGA 640 x 200 B/W
Title: Plot Depth Site I.D No. [val(b254)]
Time Format: hh:mm:ss mth dd, 19yy
Time Base (X Axis): Autoscale
Plot Description: Time (X Axis) Vs.
Depth Depth 5 m

Plot to scrn:
Mode: CGA 640 x 200 B/W
Title: Plot Water Temp Site I.D. No. [val(b254)]
Time Format: hh:mm:ss mth dd, 19yy
Time Base (X Axis): Autoscale
Plot Description: Time (X Axis) Vs.
Temp Red Therm 15k

Plot to scrn:
Mode: CGA 640 x 200 B/W
Title: plot Site I.D. No. [val(b254)]
Time Format: hh:mm:ss mth dd, 19yy
Time Base (X Axis): Autoscale
Plot Description: Time (X Axis) Vs.
Depth Depth 5 m
Temp Red Therm 15k

Report to scrn:
Title: Screen Print Site I.D No. [val(b254)]
File Format: Print
Time Format: hh:mm dd-mo-yy

Report to B:\swamp\swamp$z.wk0
Title: Lotus File Site I.D. [val(b254)]
File Format: Print
Time Format: hh:mm dd-mo-yy

APPENDIX D

Control Program

```
echo off
cls
echo:
echo:                 ****************************************
echo:                 * CONNECT BATTERY TESTER TO LOGGER NOW *
echo:                 * IF BATTERY VOLTAGE SHOWS LESS THAN 7 *
echo:                 * REPLACE LOGGER WITH A REPLACEMENT    *
echo:                 * AND TEMINATE PROGRAM .               *
echo:                 ****************************************
echo:
echo IF THE BATTERY IS O.K THEN SIMPLY
pause
cls if "%1"=="load" goto one
pdlio swamp_u
echo:
echo:
echo                   *********************
echo                   *   W A R N I N G   *
echo                   *********************
echo:
echo:
echo If a **Timeout on input** error has occurred you must exit from the
echo program immediately. To do this press the CTRL and SCROLL LOCK keys
echo together. At the subsequent 'Terminate batch job (Y/N)?' prompt
echo respond with a Y.  Check the cable connections and start again.
echo:
echo If there is no  **Timeout on input**   error then simply
pause
cls
if not "%1"=="display" goto one
echo SWAMP data logger display
pdlout SWAMP.dcf #
:one
cls
pdlio SWAMP_L
pause
autoexec
```