

APPENDIX H

Gas Sampling Techniques
September 2002
OME Resources Australia P/L

Process undertaken in response to Mr Bendalls commands for sampling of stratigraphic borehole: Hunterston # 1 gasses and formation fluids.

1. Well circulated with drilling fluid of following physical characteristics:
mw = 8.4 ppg, pH = 8.5, vis = 32 sec/qt
2. 3 x 9m stands of NQ pipe pulled from bore to prevent sanding in or bogging of rods in faulted highly deformed ground towards bottom of hole)
3. Annular preventer on BOP stack shut in on NQ rods. Flare and kill lines closed.
4. Well left to percolate out any gas or formation fluids of lighter density to top of enclosed system for period of one week.
5. Valve assembly fitted to choke manifold allowing gas test sample canisters to be fitted.
6. Accumulator - diverter exhaust assembly fitted as per Mr Bendalls instructions to diverter on top of BOP stack. Valve assembly fitted to accumulation chamber on diverter to allow sampling of accumulated gasses.
7. Commencement of sampling procedure for Hunterston # 1 saw gas sampling canisters as provided by GSLM fitted to sample points as indicated above.
8. Suction and supply tanks emptied of drilling fluid and filled with fresh water.
9. SIDPP and SICP recorded while pumping to charge well with pressure for sampling of air-gas-formation fluid discharge at flare line - choke manifold sample point (see attached data sheet).
10. Well kept shut in while pump rate of 88 litres/min (19.44 gallons/min) used to pressurise drilling fluid to drive fluids out of well. (SIDPP pressure initially 0 to 600 psi, until ball in back end blown off and tube seated). Continued pumping saw zero SIDPP pressure built up as borehole became pressurised.
11. Once pressure variations recorded on SIDPP and SICP, samples D#1 and D#2 taken from flare line - choke manifold sample point. During sampling of D#2, borehole fluid was returned to surface (vented through choke manifold) and some taken into sample canister.
12. Upon return of borehole fluid to surface, pumping stopped and flare line shut in. Accumulator bag opened and pumping resumed to circulate drilling fluid out of borehole.
13. Fresh water used during pumping to circulate drilling fluid out of borehole. Pumping continued at pump rate of 88 litres/min (19.44 gallons/min).
14. After pumping of fresh water saw returns take on fresh water properties at surface, pumping continued for a further hour (two times bottoms up time) and well was shut in.
15. Well was left shut in with fresh water occupancy in preparation for a further round of formation fluid - gas sampling at a later date.

hunterston # 1

sample data recorded on gas canisters supplied by gslm

sample point	choke manifold	choke manifold	divertor assembly
sample type	D#1	D#2	D#3
pressure	60 kpa	80kpa	0 kpa
temperature	16C	16C	16C
date	13-Sep-02	13-Sep-02	13-Sep-02
time	3.50pm	4.00pm	5.30pm
sampled by	dg	dg	dg
pressure (atm)	968mb	969mb	967mb

pump data recorded by andy horbach and dave geary

time sec	minutes	sidpp	sicp	sample
0		0	0	4.00pm
30		0	0	
60	1	0	0	4.01pm
90		0	0	
120	2	50	0	4.02pm
150		100	0	
180	3	100	0	4.03pm
210		500	0	
240	4	600	0	tube seated 4.04pm
270		0	0	
300	5	0	0	4.05pm
330		0	0	
360	6	0	0	4.06pm
390		0	0	
420	7	50	0	4.07pm
450		50	0	
480	8	50	0	4.08pm
510		100	0	
540	9	100	0	4.09pm
570		150	0	
600	10	150	60	D#1 @ choke manifold
630		150	60	
660	11	150	60	4.11pm
690		150	70	
720	12	200	70	4.12pm
750		200	80	D#2 @ choke manifold
780	13			fluids returned to surface
810				

pumping stopped, bag opened, circulation continued at pump rate of 88 litres/min
fresh water returned to surface after flushing borehole, continued to flush until 6.00pm