

Contents

1	Introduction.....	1
2	Site description.....	5
3	HG-C Phase 1 (water injection).....	7
3.1	Experimental results and data evaluation	7
3.2	Original TOUGH2 code.....	11
3.2.1	Modelling grid and boundary conditions.....	11
3.2.2	Reference case	14
3.2.3	Parameter variation	18
3.2.4	Parameter fit.....	25
3.3	Variable permeability model.....	27
3.3.1	Model description.....	27
3.3.2	Parameter fit.....	27
3.4	Chapter summary	29
4	HG-C Phase 2 (gas injection).....	31
4.1	Experimental results and data evaluation	31
4.2	Applying the variable permeability model.....	33
4.3	Pathway dilation model	34
4.3.1	Conceptual model.....	35
4.3.2	Mathematical model.....	37
4.3.3	Parameter fit	40
4.3.4	Parameter variation	43
4.3.5	Alternative parameter fit.....	52
4.4	Models with increased phase interaction	54
4.5	Tube-chamber model 1.....	56
4.5.1	Model description.....	56

4.5.2	Results	59
4.6	Chapter summary	61
5	HG-D Phase 2 (gas injection)	63
5.1	Experimental data and interpretation	63
5.2	Tube-chamber model 2.....	67
5.2.1	Model description.....	67
5.2.2	Results	69
6	Discussion	71
7	Conclusions	77
	Acknowledgements	81
	References	83
	List of figures	87
	List of tables	91