

CONTENT

CHAPTER 1 GROUND WATER MONITORING	
INTRODUCTION TO GROUND WATER MODELING	1
INVESTIGATIVE PLANS	2
MONITORING PLANS	5
SITE REMEDIATION	7
REGULATION OF CONTAMINATED SITES	9
PREVENTION OF GROUND WATER CONTAMINATION	11
THE PERMIT SYSTEM	11
GROUND WATER SAMPLING	12
REFERENCES	13
CHAPTER 2 SOIL WATER MONITORING DEVICES	
THE UNSATURATED ZONE	15
SOIL WATER SAMPLERS	15
PRESSURE/VACUUM SOIL WATER SAMPLERS	16
PERCOLATE SOIL WATER SAMPLERS	19
PLACEMENT OF SOIL WATER SAMPLERS	21
INSTALLATION OF PRESSURE /VACUUM SAMPLERS	22
INSTALLATION OF PRESSURE/VACUUM SAMPLERS	23
SAMPLING PRESSURE/VACUUM SAMPLERS	24
TROUBLESHOOTING PRESSURE /VACUUM SAMPLERS	25
PERCOLATE SOIL WATER SAMPLERS	26
QUALITY ASSURANCE QUALITY CONTROL (QA/QC)	28
THE B.A.T. SYSTEM	29
SUMMARY	29
REFERENCES	29
CHAPTER 3 DESIGN AND INSTALLATION OF MONITORING WELLS	
LOCATING MONITORING POINTS	31
SOIL BORINGS	32
DRILLING FOR MONITORING POINT INSTALLATION	36
CLEANING DRILLING EQUIPMENT	40
PIEZOMETER INSTALLATION	42
MONITORING WELL INSTALLATION	43
RESISTANCE OF MATERIALS TO CHEMICAL ADSORPTION AND LEACHING	46
STRENGTH OF MATERIALS USED IN MONITORING WELL CONSTRUCTION	49
OTHER CONSTRUCTION CONSIDERATIONS	51
SELECTING A FILTER PACK AND SCREEN SIZE	51

KEEPING MONITORING WELL CONSTRUCTION MATERIALS CLEAN	52
CONSTRUCTION OF THE WELL	52
THE ANNULAR SEAL	53
GROUTING THE WELL	54
WELL COMPLETION DETAILS	56
SURVEYINGN THE WELLS	58
DEVELOPING THE WELL	59
HYDRAULIC CONDUCTIVITY TESTING METHODS	60
DOCUMENTATION	61
DRILLING CHECKLISTS	61
REFERENCES	66
CHAPTER 4 STATIC WATER LEVELS AND GEOCHEMICAL FIELD PARAMETERS	
INTRODUCTION	69
STATIC WATER LEVELS	69
GEOCHEMICAL FIELD PARAMETERS	74
REFERENCES	89
CHAPTER 5 EQUIPMENT AND TECHNIQUES USED FOR OBTAINING GROUND WATER SAMPLES	
INTRODUCTION	93
VERTICAL SOLUTE CONCENTRATIONS	94
GROUND WATER SAMPLE ACQUISITION DEVICES	95
CONSIDERATIONS FOR SELECTING SAMPLING EQUIPMENT AND A SAMPLING PROTOCOL	110
SUMMARY AND REVIEW	131
REFERENCES	132
CHAPTER 6 GROUND WATER SAMPLING PLANS	
INTRODUCTION	137
HEALTH AND SAFETY PLANS	137
SAMPLING PLANS AND CHECKLISTS	139
PRIOR TO GOING INTO THE FIELD	141
UPON ARRIVAL AT THE FIRST WELL IN THE SAMPLING NETWORK	143
ADEQUATELY LABEL THE REQUIRED BOTTLE TYPES	145
SAMPLING DOMESTIC AND PRODUCTION WELLS	160
REFERNCES	161
CHAPTER 7 QUALITY ASSURANCE/QUALITY COTROL AND LABORATORY ANALYSIS	
QUALITY ASSURANCE AND QUALITY CONTROL	163
LABORATORY ANALYSIS	169
METHODS FOR DETERMINING ORGANIC COMPOUNDS INGROND WATER	174
METHODS FOR DETERMINING METALS IN GROUND WATER	177
DATA MANAGEMENT AND THE ANALYTICAL REPORT	178

REFERENCES

181

INDEX

183