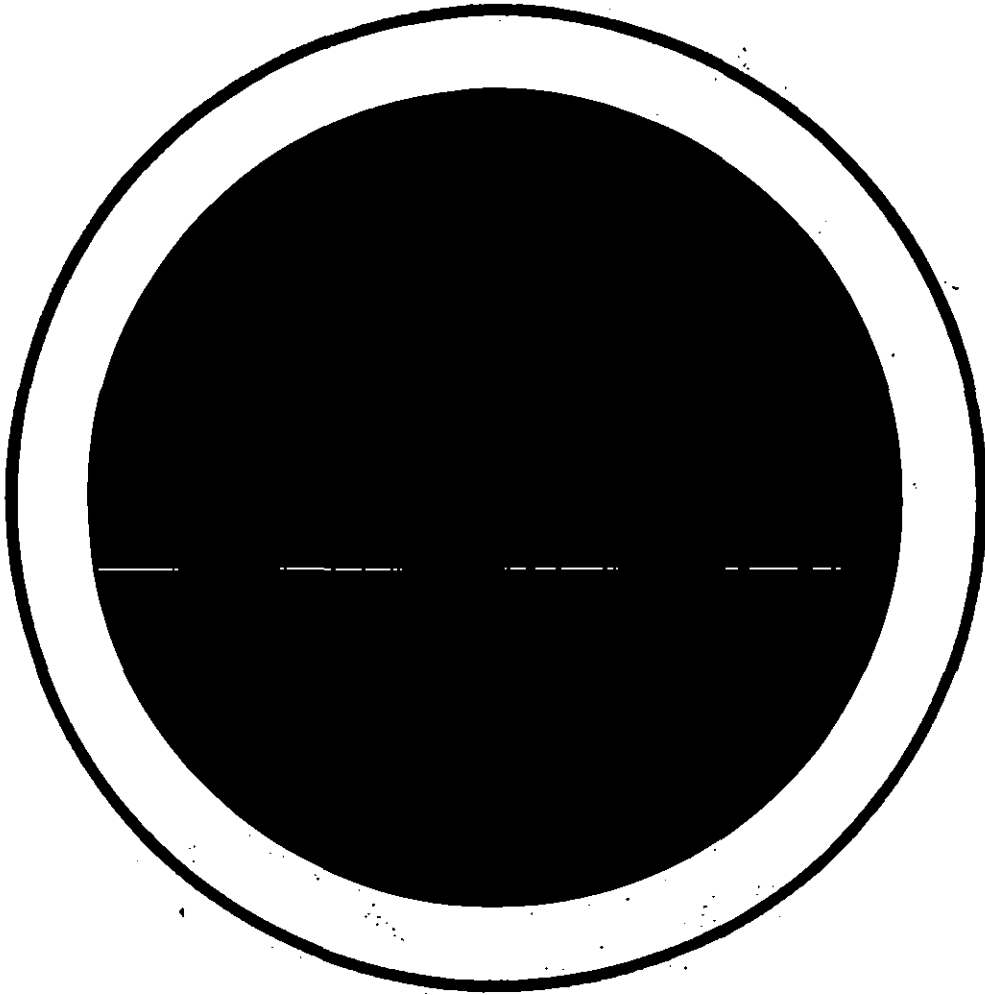


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INSTITUTE OF HYDROLOGY

COMPUTER TECHNIQUE
IN GROUNDWATER RESOURCE
STUDIES

USING THE
GROUNDWATER DATA FORMS
MARCH 1979

SUMMARY

Data collected during groundwater resource studies can conveniently be written onto coding forms in the field. The coding forms have been designed in such a way to minimize the number of different types of forms and also lead to data being put directly into the computer in a simple and efficient way. Data not falling into either the data categories or descriptions discussed in this text can be entered on the coding forms and also on to the data system as long as some preparatation work is done beforehand.

>

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KEY-FILE

For each study the KEY-FILE serves as an index. It is divided into information about the code words and the lithological abbreviations. Code words allow selection on particular parameters (basin, aquifer and source) and are assigned values by the user. Whereas the lithological abbreviations simplify the coding of the lithological data; a basic list is supplied which the user can amend if necessary.

The code word part of the index is not essential; it enables the user to make selections using the descriptive name instead of the corresponding numerical code value. Obviously the lithological abbreviations are not required unless there is lithology data. However if they are required, it is essential that the abbreviations are unique and any standard components or colours which are not required have a \emptyset entered in the "present" column.

GROUNDWATER DATA FORM - KEY

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PROJECT :

DATA TYPE: KEY - FILE (CODE DETAILS)

SYMBOL PRESENT

CARD 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
B	A	S	I	N									.	1					
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 4

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	Q	U	I	F	E	R								1					
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 6

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
S	O	U	R	C	E									1					
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

CARD 8

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

GROUNDWATER DATA FORM - KEY

PROJECT: MUQDISHO

4

DATA TYPE: KEY - FILE (CODE DETAILS)

	SYMBOL	PRESENT			
CARD 1	1 BASIN 12	13 14	15	16	17
	21 SHARBEELLE 32	33 34	35	36	37
	41 EASTERN 52	53 54	55	56	57
	61 NORTHERN 72	73 74	75	76	77
CARD 2	1	13 14	15	16	17
	21	33 34	35	36	37
	41	53 54	55	56	57
	61	73 74	75	76	77
CARD 3	1	13 14	15	16	17
	21	33 34	35	36	37
	41	53 54	55	56	57
	61	73 74	75	76	77
CARD 4	1 AQUIFER 12	13 14	15	16	17
	21 COASTAL SAND 32	33 34	35	36	37
	41 RIVER BEDS 52	53 54	55	56	57
	61 DUNE SANDS 72	73 74	75	76	77
CARD 5	1	13 14	15	16	17
	21	33 34	35	36	37
	41	53 54	55	56	57
	61	73 74	75	76	77
CARD 6	1	13 14	15	16	17
	21	33 34	35	36	37
	41	53 54	55	56	57
	61	73 74	75	76	77
CARD 7	1 SOURCE 12	13 14	15	16	17
	21 BOREHOLE 32	33 34	35	36	37
	41 DISUSED WELL 52	53 54	55	56	57
	61 SPRING 72	73 74	75	76	77
CARD 8	1	13 14	15	16	17
	21	33 34	35	36	37
	41	53 54	55	56	57
	61	73 74	75	76	77

GROUNDWATER DATA FORM - KEY

5

PROJECT:

DATA TYPE: KEY-FILE (LITHOLOGY)

		SYMBOL		PRESENT		
CARD 1	1 12 COMPONENTS	13 14	15	16	17	18 20
	21 32 BOULDERS	33 34	35	36	37	38 40
	41 52 GRAVEL	53 54	55	56	57	58 60
	61 72 SAND	73 74	75	76	77	78 80
CARD 2	1 12 CLAY	13 14	15	16	17	18 20
	21 32 LIMESTONE	33 34	35	36	37	38 40
	41 52 MARL	53 54	55	56	57	58 60
	61 72 BEDROCK	73 74	75	76	77	78 80
CARD 3	1 12 SILT	13 14	15	16	17	18 20
	21 32 	33 34	35	36	37	38 40
	41 52 	53 54	55	56	57	58 60
	61 72 	73 74	75	76	77	78 80
CARD 4	1 12 	13 14	15	16	17	18 20
	21 32 	33 34	35	36	37	38 40
	41 52 	53 54	55	56	57	58 60
	61 72 	73 74	75	76	77	78 80
CARD 5	1 12 COLOURS	13 14	15	16	17	18 20
	21 32 BLACK	33 34	35	36	37	38 40
	41 52 BROWN	53 54	55	56	57	58 60
	61 72 PINK	73 74	75	76	77	78 80
CARD 6	1 12 ORANGE	13 14	15	16	17	18 20
	21 32 YELLOW	33 34	35	36	37	38 40
	41 52 GREEN	53 54	55	56	57	58 60
	61 72 BLUE	73 74	75	76	77	78 80
CARD 7	1 12 PURPLE	13 14	15	16	17	18 20
	21 32 GREY	33 34	35	36	37	38 40
	41 52 WHITE	53 54	55	56	57	58 60
	61 72 	73 74	75	76	77	78 80
CARD 8	1 12 	13 14	15	16	17	18 20
	21 32 	33 34	35	36	37	38 40
	41 52 	53 54	55	56	57	58 60
	61 72 	73 74	75	76	77	78 80

GROUNDWATER DATA FORM - KEY

PROJECT: MUQDISHO

DATA TYPE: KEY-FILE (LITHOLOGY)

SYMBOL PRESENT

CARD 1
 1 COMPONENTS 12
 21 BOULDERS 32
 41 GRAVEL 52
 61 SAND 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 2
 1 CLAY 12
 21 LIMESTONE 32
 41 MARL 52
 61 BEDROCK 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 3
 1 SILT 12
 21 CARBONATE 32
 41 IRON OXIDE 52
 61 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 4
 1 12
 21 32
 41 52
 61 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 5
 1 COLOURS 12
 21 BLACK 32
 41 BROWN 52
 61 PINK 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 6
 1 ORANGE 12
 21 YELLOW 32
 41 GREEN 52
 61 BLUE 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 7
 1 PURPLE 12
 21 GREY 32
 41 WHITE 52
 61 BUFF 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

CARD 8
 1 RED 12
 21 RED-BROWN 32
 41 PALE GREEN 52
 61 GREEN/BROWN 72

13 14	15	16	17	18 20
33 34	35	36	37	38 40
53 54	55	56	57	58 60
73 74	75	76	77	78 80

GROUNDWATER DATA FORM - KEY

7

PROJECT:

DATA TYPE: SITE-LIST

	UNITS	PRESENT	CARD	POSITION		
CARD 1	1 12 LOCATION	13 14	15	16	17	18 20
	21 32 GRID REF	33 34	35	36	37	38 40
	41 52 BASIN	53 54	55	56	57	58 60
	61 72 AQUIFER	73 74	75	76	77	78 80
CARD 2	1 12 SOURCE	13 14	15	16	17	18 20
	21 32 CONTRACTOR	33 34	35	36	37	38 40
	41 52 CONSTR. DATE	53 54	55	56	57	58 60
61 72 DEPTH	73 74	75	76	77	78 80	
CARD 3	1 12 DATUM	13 14	15	16	17	18 20
	21 32 CASING TYPE	33 34	35	36	37	38 40
	41 52 DIAMETER	53 54	55	56	57	58 60
61 72 SCREEN TYPE	73 74	75	76	77	78 80	
CARD 4	1 12 DIAMETER	13 14	15	16	17	18 20
	21 32 NO. SCREENS	33 34	35	36	37	38 40
	41 52 DEPTH 1	53 54	55	56	57	58 60
61 72 LENGTH 1	73 74	75	76	77	78 80	
CARD 5	1 12 DEPTH 2	13 14	15	16	17	18 20
	21 32 LENGTH 2	33 34	35	36	37	38 40
	41 52 DEPTH 3	53 54	55	56	57	58 60
61 72 LENGTH 3	73 74	75	76	77	78 80	
CARD 6	1 12 DEPTH 4	13 14	15	16	17	18 20
	21 32 LENGTH 4	33 34	35	36	37	38 40
	41 52 	53 54	55	56	57	58 60
61 72 	73 74	75	76	77	78 80	
CARD 7	1 12 	13 14	15	16	17	18 20
	21 32 	33 34	35	36	37	38 40
	41 52 	53 54	55	56	57	58 60
61 72 	73 74	75	76	77	78 80	
CARD 8	1 12 	13 14	15	16	17	18 20
	21 32 	33 34	35	36	37	38 40
	41 52 	53 54	55	56	57	58 60
61 72 	73 74	75	76	77	78 80	

GROUNDWATER DATA FORM - KEY

PROJECT: MUQDISHO

DATA TYPE: SITE-LIST

		UNITS	PRESENT	CARD	POSITION	
CARD 1	1 LOCATION 12	13 14	15	16	17	18 20
	21 GRID REF 32	33 34	35	36	37	38 40
	41 BASIN 52	53 54	55	56	57	58 60
	61 AQUIFER 72	73 74	75	76	77	78 80
CARD 2	1 SOURCE 12	13 14	15	16	17	18 20
	21 CONTRACTOR 32	33 34	35	36	37	38 40
	41 CONSTR. DATE 52	53 54	55	56	57	58 60
	61 DEPTH 72	73 74	75	76	77	78 80
CARD 3	1 DATUM 12	13 14	15	16	17	18 20
	21 CASING TYPE 32	33 34	35	36	37	38 40
	41 DIAMETER 52	53 54	55	56	57	58 60
	61 SCREEN TYPE 72	73 74	75	76	77	78 80
CARD 4	1 DIAMETER 12	13 14	15	16	17	18 20
	21 NO. SCREENS 32	33 34	35	36	37	38 40
	41 DEPTH 1 52	53 54	55	56	57	58 60
	61 LENGTH 1 72	73 74	75	76	77	78 80
CARD 5	1 DEPTH 2 12	13 14	15	16	17	18 20
	21 LENGTH 2 32	33 34	35	36	37	38 40
	41 DEPTH 3 52	53 54	55	56	57	58 60
	61 LENGTH 3 72	73 74	75	76	77	78 80
CARD 6	1 DEPTH 4 12	13 14	15	16	17	18 20
	21 LENGTH 4 32	33 34	35	36	37	38 40
	41 GROUND ELEV. 52	53 54	55	56	57	58 60
	61 WATER STRUCK 72	73 74	75	76	77	78 80
CARD 7	1 TEST YIELD 12	13 14	15	16	17	18 20
	21 32	33 34	35	36	37	38 40
	41 52	53 54	55	56	57	58 60
	61 72	73 74	75	76	77	78 80
CARD 8	1 12	13 14	15	16	17	18 20
	21 32	33 34	35	36	37	38 40
	41 52	53 54	55	56	57	58 60
	61 72	73 74	75	76	77	78 80

EXAMPLES (SITE-LIST DATA)

1. Observation well number 14 disused borehole in Afgooye mango juice factory compound.

		<u>Code</u>
Grid reference 5144 2369	Basin Shabeelle	(1)
Depth 81 m		
Datum 83 m a.s.l.	Source Disused Borehole	(2)
Ground elevation 81.5m a.s.l.	[See KEY-FILE example]	
Water struck 15 m		
Contractor WDA, casing - mild steel		

2. Observation well number 15H NO2 NW of Balcad Rd

		<u>Code</u>
Grid reference 5444 2389	Basin Shabeelle	(1)
Depth 92.5 m	Source Borehole	(1)
Datum 74.45m a.s.l.	[See KEY-FILE example]	
Contractor Hydrotech, casing - mild steel,		
Casing dia 0.2m., screen - 0.02IN, screen dia 0.2m, screen depth 82m,		
length 6m, test yield 1500 m ³ /day.		

GROUNDWATER DATA FORM

PROJECT: MUQDISHO

DATA TYPE: SITE-LIST

1 10 11 20 21 30 31 40
① OBS WELL 14 ② DISUSED OB ③ SERVATION ④ BOREHOLE I
41 50 51 60 61 70 71 80
⑤ N THE AFGD ⑥ OYE MANGO ⑦ JUICE FACT ⑧ ORY COMPD.

1 10 11 20 21 30 31 40
① 51442369 ② ③ ④ 2
41 50 51 60 61 70 71 80
⑤ W.D.A ⑥ ⑦ 81. ⑧ 83.

1 10 11 20 21 30 31 40
① MILD STEEL ② ③ ④
41 50 51 60 61 70 71 80
⑤ ⑥ ⑦ ⑧

1 10 11 20 21 30 31 40
① ② 21.5 ③ 15. ④
41 50 51 60 61 70 71 80
⑤ ⑥ ⑦ ⑧

1 10 11 20 21 30 31 40
① OBS 15HNO2 ② OBSERVATIO ③ N WELL N.W ④ OF BALCAD
41 50 51 60 61 70 71 80
⑤ ROAD ⑥ ⑦ ⑧

1 10 11 20 21 30 31 40
① 54442389 ② ③ ④ 1
41 50 51 60 61 70 71 80
⑤ HYDROTECH ⑥ ⑦ 92.5 ⑧ 74.45

1 10 11 20 21 30 31 40
① MILD STEEL ② $\phi \cdot 2$ ③ $\phi \cdot 2$ IN ④ $\phi \cdot 2$
41 50 51 60 61 70 71 80
⑤ ⑥ 82. ⑦ 6. ⑧

1 10 11 20 21 30 31 40
① ② ③ ④ 15 ϕ
41 50 51 60 61 70 71 80
⑤ ⑥ ⑦ ⑧

11 GROUNDWATER DATA FORM - KEY

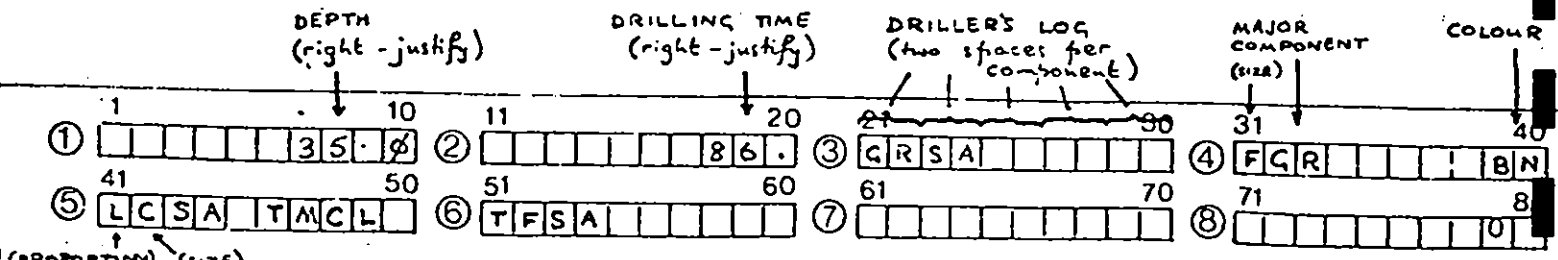
PROJECT :

DATA TYPE: LITHOLOGY

	CARD	POSITION
GRID REF.	1	1
DATE	1	2
DEPTH (METRES)		1
DRILLING TIME (MINUTES/METRE)		2
DRILLERS LOG		3
MAJOR COMPONENT (INCL. SIZE) AND COLOUR		4
SECONDARY COMPONENTS (INCL. PROPORTION AND SIZE)		5-8 (two per position)

Card 2 and subsequent cards - new card for each depth

PROPORTION: LARGE(L) MODERATE(M) TRACE(T)
 SIZE : COARSE(C) MEDIUM(M) FINE(F)
 (if SIZE not applicable eg SILT put M)



SECONDARY COMPONENTS (up to max. of eight - combine in other positions if necessary)

NOTE - IT IS ONLY NECESSARY TO RECORD INFORMATION AT THOSE DEPTHS WHERE CHANGES IN LITHOLOGY OR DRILLING TIME OCCUR

EXAMPLE (LITHOLOGY)

Grid Reference 6438 1724

15th October 1978

Depth : 30 m

Drilling time : 84 min m⁻¹

Driller's log : Gravel, sand

Major component : coarse gravel

Colour : brown

Secondary component : moderate

Proportion : fine sand

38 m

Drilling time: 91.5 min m⁻¹

Driller's log : gravel, clay, sand

Major component : medium gravel

Colour : brown

Secondary components : large trace trace Proportion fine sand
clay
marl

40 m

Drilling time : 88 min m⁻¹

Driller's log : sand

Major component : coarse sand

Colour : black

Secondary components: none

1	10	11	20	21	30	31	40
①	64381724	②	151078	③		④	
41	50	51	60	61	70	71	80
⑤		⑥		⑦		⑧	
1	10	11	20	21	30	31	40
①	30.	②	84.	③	GRSA	④	CGRBN
41	50	51	60	61	70	71	80
⑤	MFS A	⑥		⑦		⑧	
1	10	11	20	21	30	31	40
①	30.	②	91.5	③	GRCLSA	④	MGRBN
41	50	51	60	61	70	71	80
⑤	LFSA TMCL	⑥	TMMR	⑦		⑧	
1	10	11	20	21	30	31	40
①	40.	②	88.	③	SA	④	CSA BK
41	50	51	60	61	70	71	80
⑤		⑥		⑦		⑧	

GROUNDWATER DATA FORM - KEY

PROJECT :

DATA TYPE: CHEMISTRY (m.eq/l)

		UNITS	PRESENT	CARD	POSITION	
CARD 1	1 GRID REF 12	13 14	15	16	17	18 20
	21 SAMPLE 32	33 34	35	36	37	38 40
	41 DEPTH 52	53 54	55	56	57	58 60
	61 DATE 72	73 74	75	76	77	78 80
CARD 2	1 TDS 12	13 14	15	16	17	18 20
	21 COND 32	33 34	35	36	37	38 40
	41 PH 52	53 54	55	56	57	58 60
	61 CA 72	73 74	75	76	77	78 80
CARD 3	1 MG 12	13 14	15	16	17	18 20
	21 NA 32	33 34	35	36	37	38 40
	41 K 52	53 54	55	56	57	58 60
	61 CO3 72	73 74	75	76	77	78 80
CARD 4	1 HCO3 12	13 14	15	16	17	18 20
	21 OH 32	33 34	35	36	37	38 40
	41 SO4 52	53 54	55	56	57	58 60
	61 CL 72	73 74	75	76	77	78 80
CARD 5	1 NO3 12	13 14	15	16	17	18 20
	21 NO2 32	33 34	35	36	37	38 40
	41 52	53 54	55	56	57	58 60
	61 72	73 74	75	76	77	78 80
CARD 6	1 12	13 14	15	16	17	18 20
	21 32	33 34	35	36	37	38 40
	41 52	53 54	55	56	57	58 60
	61 72	73 74	75	76	77	78 80
CARD 7	1 12	13 14	15	16	17	18 20
	21 32	33 34	35	36	37	38 40
	41 52	53 54	55	56	57	58 60
	61 72	73 74	75	76	77	78 80
CARD 8	1 12	13 14	15	16	17	18 20
	21 32	33 34	35	36	37	38 40
	41 52	53 54	55	56	57	58 60
	61 72	73 74	75	76	77	78 80

EXAMPLE (CHEMISTRY DATA)

Sample number : 106 Grid reference : 6423 6041 19th July 1969

Depth 16.0m TDS 850 mg/l pH - no determination
 Calcium 50. meq/l Magnesium 79. meq/l Sodium 150. meq/l
 Potassium 3.9 meq/l Carbonate - no determination Bicarbonate 468. meq/l
 Hydroxide - no determination Sulphate 125. meq/l Chloride 180. meq/l
 Nitrate 2.0 meq/l Nitrite - no determination

Sample number : 43 Grid reference : 6137 8421 12th January 1969

Depth 18.0 TDS 805 mg/l pH 8.4
 Calcium 50 meq/l Magnesium 85. meq/l Sodium 108.5 meq/l
 Potassium 3.9 meq/l Carbonate 415. meq/l Bicarbonate - no determination
 Hydroxide - no determination Sulphate 43. meq/l Chloride 256. meq/l
 Nitrate 22.5 meq/l Nitrite 7 meq/l

1 10		11 20		21 30		31 40	
①	64236041	②	106	③	1600	④	190769
41 50		51 60		61 70		71 80	
⑤	850	⑥		⑦	500	⑧	790

1 10		11 20		21 30		31 40	
①	1500	②	307	③		④	4680
41 50		51 60		61 70		71 80	
⑤		⑥	1250	⑦	1800	⑧	200

1 10		11 20		21 30		31 40	
①		②		③		④	
41 50		51 60		61 70		71 80	
⑤		⑥		⑦		⑧	

1 10		11 20		21 30		31 40	
①	61378421	②	43	③	1800	④	120169
41 50		51 60		61 70		71 80	
⑤	8050	⑥	904	⑦	500	⑧	250

1 10		11 20		21 30		31 40	
①	10805	②	307	③	4150	④	
41 50		51 60		61 70		71 80	
⑤		⑥	430	⑦	2560	⑧	2205

1 10		11 20		21 30		31 40	
①	07	②		③		④	
41 50		51 60		61 70		71 80	
⑤		⑥		⑦		⑧	

16

GROUNDWATER DATA FORM - KEY

PROJECT

DATA TYPE: PUMPING TEST

	CARD	POSITION
GRID REF.	1	1
DATE	1	2
NUMBER OF STEPS	1	3
PUMP CAPACITY	1	4
PUMP SETTING	1	5
GRID. REF. OF PUMPED WELL	1	6
PUMPING RATE FOR STEP 1 (M ³ /DAY)	2	1
TIME OF END OF STEP 1 (MINUTES)	2	2
PUMPING RATE FOR STEP 2	2	3
TIME OF END OF STEP 2	2	4
PUMPING RATE FOR STEP 3	2	5
TIME OF END OF STEP 3	2	6
PUMPING RATE FOR STEP 4	2	7
TIME OF END OF STEP 4	2	8
<p>Repeat on card 3 for steps 5-8</p>		
TIME AFTER START OF TEST (MINUTES)		1
DRAWDOWN (METRES)		2
TIME		3
DRAWDOWN		4
TIME		5
DRAWDOWN		6
TIME		7
DRAWDOWN		8
<p>Card 4 and as many subsequent cards as necessary</p>		

EXAMPLE (PUMPING TEST DATA)

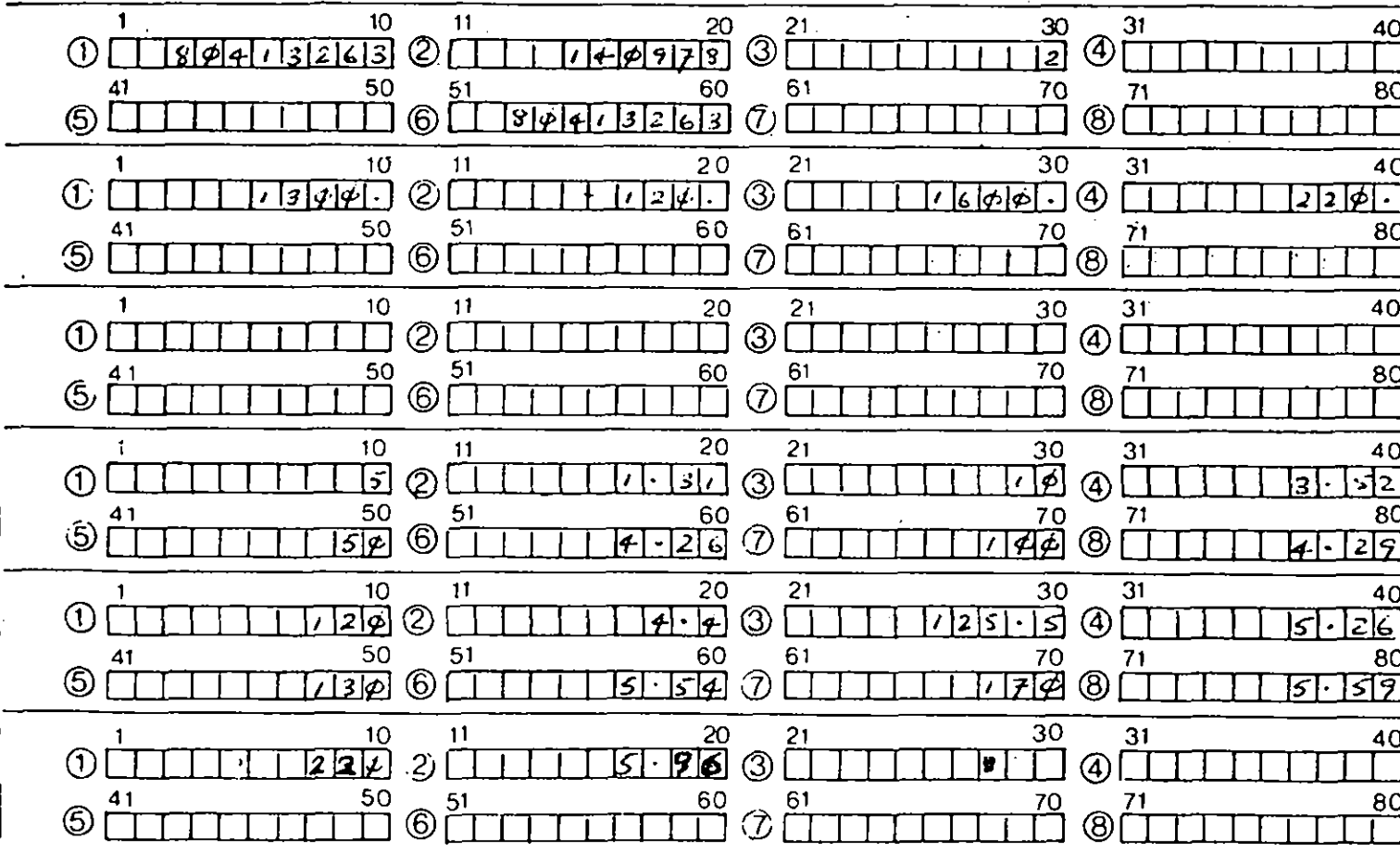
Grid reference 8041 3263

14 September 1978

2 steps : pumping at 1300 m³/day for 120 minutes
1600 m³/day for 100 minutes

Time after start (mins)	Drawdown (m)
5	1.31
10	3.52
50	4.26
100	4.29
120	4.4
125.5	5.26
130	5.54
170	5.59
220	5.96

at pumped well.



18

GROUNDWATER DATA FORM - KEY

PROJECT :

DATA TYPE: WATER LEVEL (metres)

	CARD	POSITION
GRID REF.		1
NUMBER OF READING TO FOLLOW		2
DATE READING	1	3
	1	4
DATE READING	1	5
	1	6
DATE READING	1	7
	1	8

If number of readings is greater than 3, continue on subsequent cards as necessary : dates in positions 1, 3, 5, 7 with corresponding readings in positions, 2, 4, 6, 8.

NB Each new grid reference appears in position 1 on a new card, but not necessarily on a new coding form.

EXAMPLES (WATER LEVEL DATA)

Grid reference 6483 7154 - one measurement:

12 October 1954 8.73m

①	1 10 6 4 8 3 7 1 5 4	②	11 20 	③	21 30 2 1 0 5 4	④	31 40 8 7 3
⑤	41 50 	⑥	51 60 	⑦	61 70 	⑧	71 80

Grid reference 5317 8784 - four measurements:

8 January 1976 84.81m 21 November 1975 82.46m
 13 March 1976 81.3 m 12 October 1976 80. m

①	1 10 5 3 1 7 8 7 8 4	②	11 20 4	③	21 30 0 8 0 1 7 6	④	31 40 8 4 8 1
⑤	41 50 2 1 1 7 5	⑥	51 60 8 2 4 6	⑦	61 70 1 3 0 3 7 6	⑧	71 80 8 1 3

①	1 10 2 1 0 7 6	②	11 20 8 0	③	21 30 	④	31 40
⑤	41 50 	⑥	51 60 	⑦	61 70 	⑧	71 80

Grid reference 5614 8431 - five measurements:

15 November 1968 34.37m 23 July 1968 32.74m
 4 March 1969 37.82m 19 December 1968 34.3 m
 1 January 1969 29.8m

and grid reference 5719 8314 - two measurements:

31 August 1969 8.47m 28 September 1969 8.53m

①	1 10 5 6 1 4 8 4 3 1	②	11 20 5	③	21 30 1 5 1 1 6 8	④	31 40 3 4 3 7
⑤	41 50 2 3 0 7 6 8	⑥	51 60 3 2 7 4	⑦	61 70 0 4 0 3 6 9	⑧	71 80 3 7 8 2

①	1 10 1 1 1 6 9	②	11 20 2 9 8	③	21 30 	④	31 40
⑤	41 50 	⑥	51 60 	⑦	61 70 	⑧	71 80

①	1 10 5 7 1 9 8 3 1 4	②	11 20 2	③	21 30 3 1 0 8 6 9	④	31 40 8 4 7
⑤	41 50 2 8 0 9 6 9	⑥	51 60 8 5 3	⑦	61 70 	⑧	71 80

20

GROUNDWATER DATA FORM - KEY

PROJECT :

DATA TYPE: CONDUCTIVITY (μmho)

	CARD	POSITION
GRID REF.		1
NUMBER OF READING TO FOLLOW		2
DATE	1	3
READING	1	4
DATE	1	5
READING	1	6
DATE	1	7
READING	1	8

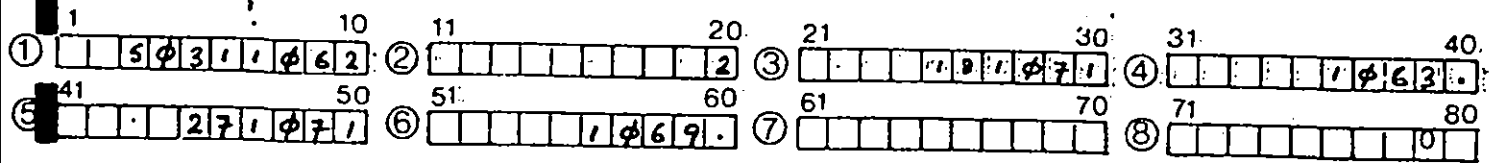
If number of readings is greater than 3, continue on subsequent cards as necessary : dates in positions 1, 3, 5, 7 with corresponding readings in positions, 2, 4, 6, 8.

NB Each new grid reference appears in position 1 on a new card, but not necessarily on a new coding form.

EXAMPLES (CONDUCTIVITY DATA)

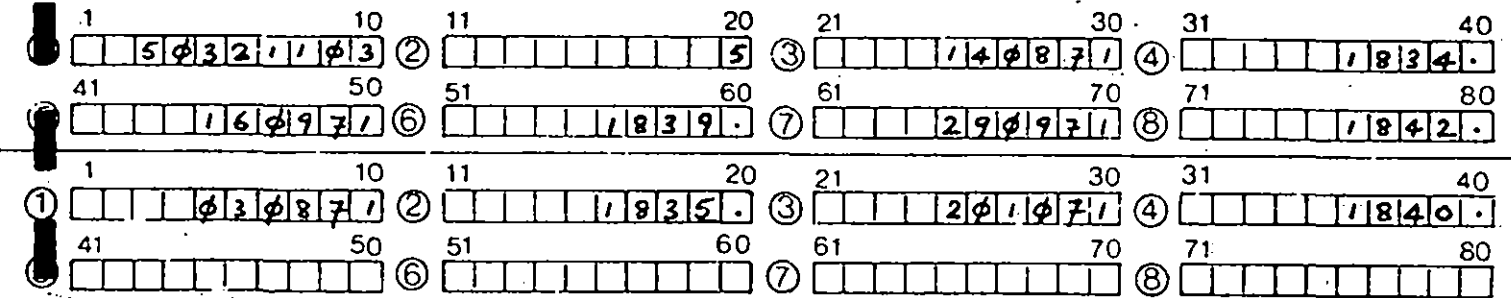
Grid reference 5031 1062 - two measurements:

18. October 1971 1063 μ mhos 27 October 1971 1069 μ mho



Grid reference 5032 1103 - five measurements

14 August 1971 1834 μ mho 16 September 1971 1839 μ mho
 29 September 1971 1842 μ mho 3 August 1971 1835 μ mho
 20 October 1971 1840 μ mho

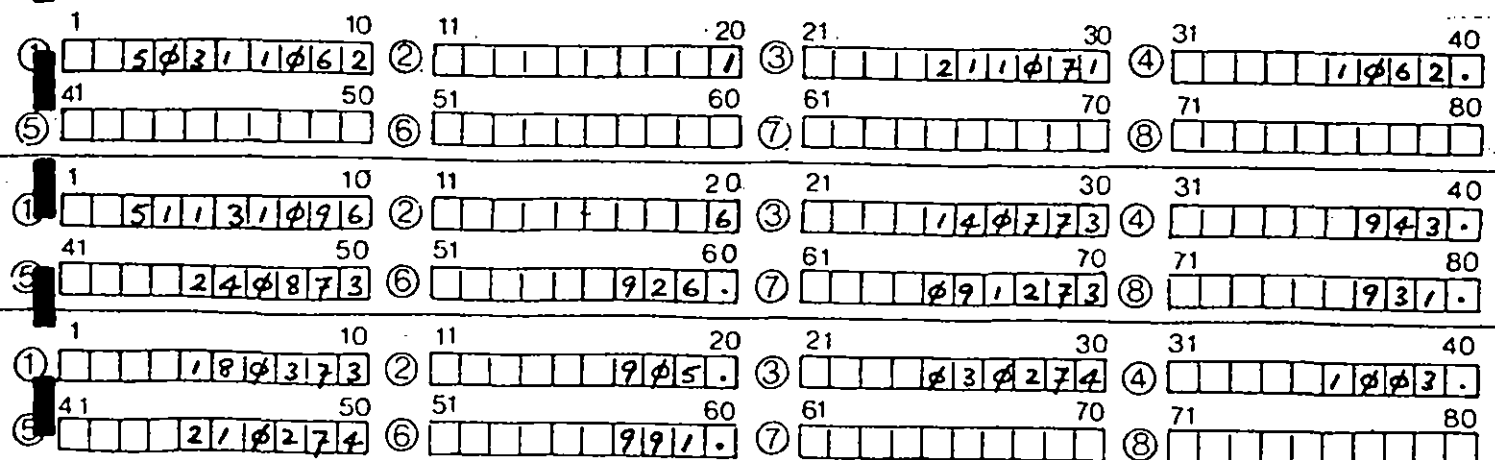


Grid reference 5031 1062 - one measurement

21 October 1971 1062 μ mho

and grid reference 5113 1096 - six measurements

14 July 1973 943 μ mho 24 August 1973 926 μ mho
 9 December 1973 931 μ mho 18 March 1973 905 μ mho
 3 February 1974 1003 μ mho 21 February 1974 991 μ mho



22

GROUNDWATER DATA FORM - KEY

PROJECT :

DATA TYPE: TEMPERATURE (°C)

	CARD	POSITION
GRID REF.		1
NUMBER OF READING TO FOLLOW		2
DATE READING		3 4
DATE READING	1 1	5 6
DATE READING	1 1	7 8

If number of readings is greater than 3, continue on subsequent cards as necessary : dates in positions 1, 3, 5, 7 with corresponding readings in positions, 2, 4, 6, 8.

NB Each new grid reference appears in position 1 on a new card, but not necessarily on a new coding form.

EXAMPLES (TEMPERATURE DATA)

Grid reference 3140 4060 - two measurements:

17 January 1973 5.4°C 23 January 1973 5.8°C

①	1	10	11	20	21	30	31	40
	3	1	4	φ	4	φ	6	φ
②								2
③					1	7	φ	1
④								5
⑤	41	50	51	60	61	70	71	80
⑥								5
⑦								
⑧								

Grid reference 3148 4193 - six measurements:

3 April 1968 8.9°C 14 May 1968 9.1°C
 26 May 1968 9.2°C 12 July 1968 9.6°C
 20 April 1968 8.8°C 27 April 1968 9.1°C

①	1	10	11	20	21	30	31	40
	3	1	4	8	4	1	9	3
②								6
③					φ	3	φ	4
④								8
⑤	41	50	51	60	61	70	71	80
⑥								9
⑦								
⑧								

①	1	10	11	20	21	30	31	40
②								9
③					2	φ	φ	4
④								8
⑤	41	50	51	60	61	70	71	80
⑥								9
⑦								
⑧								

Grid reference 3009 3962 - four measurements:

3 November 1970 6.8°C 17 December 1970 7.3°C
 11 January 1971 7.2°C 19 January 1971 7.4°C

and grid reference 2983 3900 - three measurements

13 August 1966 9.0°C 12 January 1967 11.2°C
 26 February 1964 10.4°C

①	1	10	11	20	21	30	31	40
	3	φ	φ	9	3	9	6	2
②								4
③					φ	3	1	1
④								6
⑤	41	50	51	60	61	70	71	80
⑥								7
⑦								
⑧								

①	1	10	11	20	21	30	31	40
②								7
③								
④								
⑤	41	50	51	60	61	70	71	80
⑥								
⑦								
⑧								

①	1	10	11	20	21	30	31	40
	2	9	8	3	3	9	φ	φ
②								3
③					1	3	φ	8
④								9
⑤	41	50	51	60	61	70	71	80
⑥								1
⑦								
⑧								

24

GROUNDWATER DATA FORM - KEY

PROJECT:

DATA TYPE: LOG-COND (μmho)

	CARD	POSITION
GRID REF.		1
DATE		2
DEPTH		3
READING		4
DEPTH		5
READING		6
DEPTH		7
READING		8

If number of readings is greater than 3 continue on subsequent cards as necessary : depths in positions 1, 3, 5, 7 with corresponding readings in positions 2, 4, 6, 8.

NB Each new grid reference appears in position 1 on a new card, but not necessarily on a new coding form.

EXAMPLE (CONDUCTIVITY-LOG DATA).

Grid Reference 6812 4324

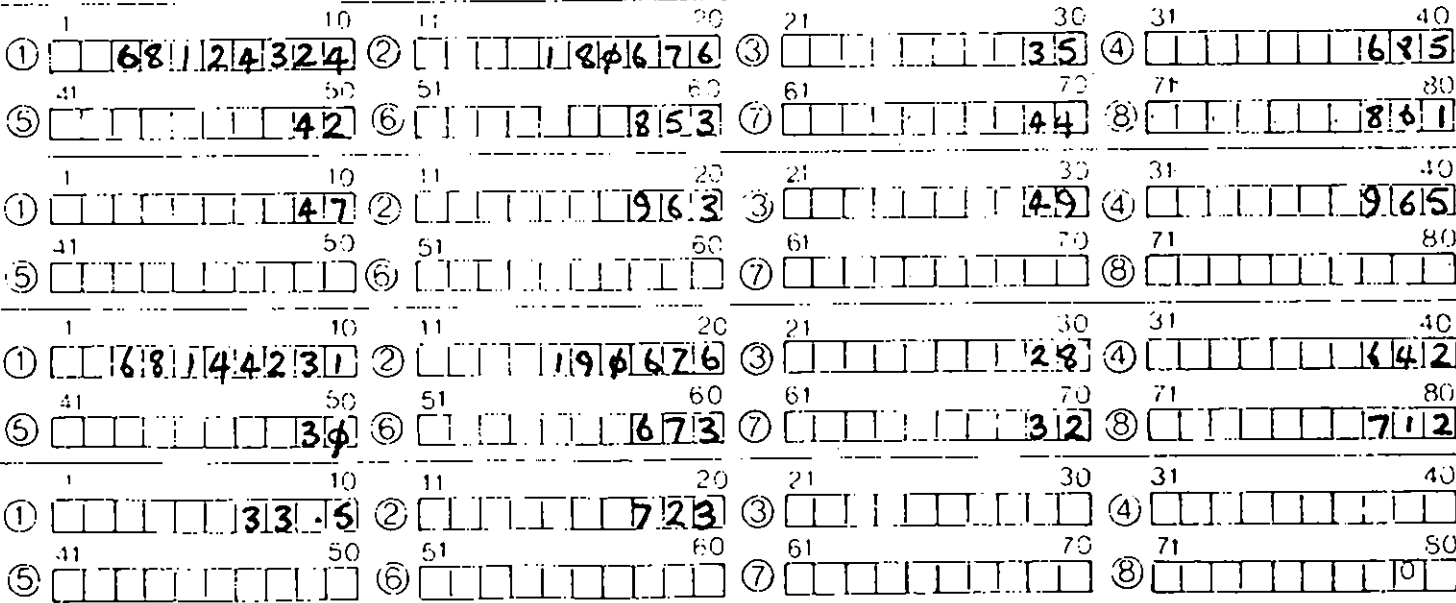
Date 18th June 1976

Measurements made at 35 m. of 685 μ hos, 42 m of 853 μ hos,
44 m of 861 μ hos, 47 m of 963 μ hos, 49 m of 965 μ hos and

Grid Reference 6814 4231

Date 19th June 1976

Measurements made at 28 m. of 642 μ hos, 30 m of 673 μ hos,
32 m of 712 μ hos, 33.5 of 723 μ hos.



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GROUNDWATER DATA FORM - KEY

PROJECT :

DATA TYPE: LOG-TEMP (°C)

	CARD	POSITION
GRID REF.		
DATE		2
DEPTH		
READING		4
DEPTH		
READING		6
DEPTH		
READING		8

If number of readings is greater than 3 continue on subsequent cards as necessary : depths in positions 1, 3, 5, 7 with corresponding readings in positions 2, 4, 6, 8.

NB Each new grid reference appears in position 1 on a new card, but not necessarily on a new coding form.

APPENDIX

GROUNDWATER DATA FORM

PROJECT:

DATA TYPE:

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	

①	1 10	②	11 20	③	21 30	④	31 40
	41 50		51 60		61 70		71 80
⑤		⑥		⑦		⑧	