

A NATIONAL GROUND-WATER DATA BASE FOR SOUTH AFRICA
- TECHNICAL SPECIFICATIONS

by

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Dr P J T Roberts	Water Research Commission (Chairman)
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NATIONAL GROUND-WATER DATA BASE

TECHNICAL SPECIFICATIONS

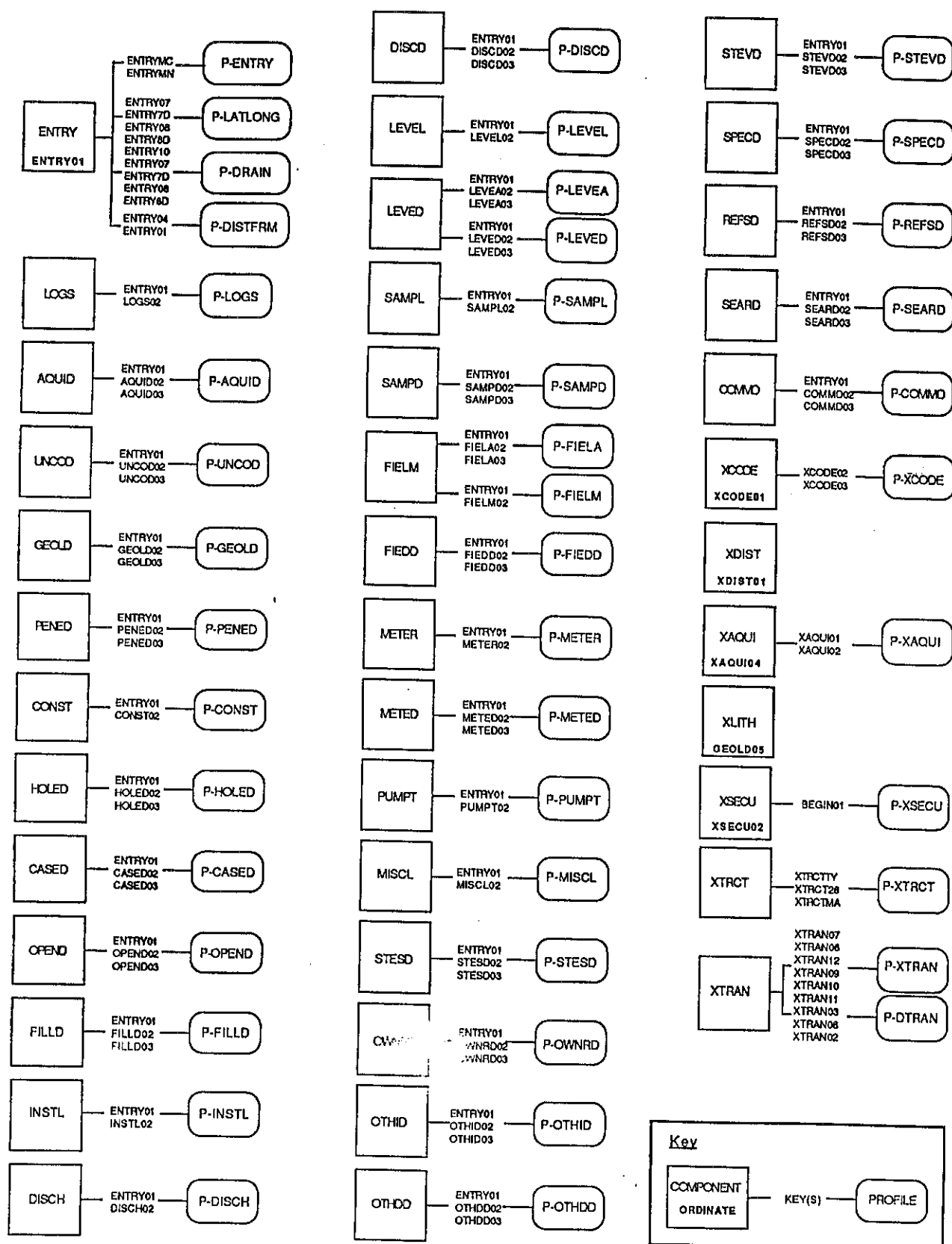
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1 COMPONENTS IN LOGICAL SEQUENCE

BEGIN	Log-on Screen
SITE	Main menu Screen
ENTRY	Entry Data
LOGS	Logs Header
PENED	Penetration rate Repeating group
AQUID	Aquifer Repeating group
GEOLD	Geology Repeating group
CONST	Construction Header
HOLED	Hole Repeating group
CASED	Casing Repeating group
OPEND	Openings Repeating group
FILLD	Fill Repeating group
INSTL	Installation Header
DISCH	Discharge rate Header
DISCD	Discharge rate Repeating group
LEVEL	Water-level Header
LEVED	Water-level Repeating group
LEVEA	Water level (automatic)
SAMPL	Water sample Header
SAMPD	Water sample Repeating group
FIELM	Field measurement Header
FIEDD	Field measurement Repeating group
FIELA	Field measurement (automatic)
METER	Meter reading Header
METED	Meter reading Repeating group
PUMPT	Pumping test Header
MISCL	Miscellaneous Header
STESD	Site selection Repeating group
OWNRD	Owner repeating group
OTHID	Other identifier Repeating group
OTHDD	Other data Repeating group
STEVD	Site visits Repeating group
SPECD	Special cases Repeating group
REFSD	References Repeating group
SEARD	Search status Repeating group
COMMD	Comments Repeating group
XINQU	Inquiry set-up Screen
XCODE	General codes
XDIST	Province and District codes
XAQUI	Aquifer codes
XLITH	Lithology codes
XTRCT	Inquiry extract parameters
XSECU	User security codes

Components, profiles and ordinates of the data base



LOGON - Menu-Assisted Resource Control 11:19 AM MARC

Welcome.

Please enter your user code []

...and your password []

LOGON MARC PLEASE DEPRESS *XMT* TO DETACH TERMINAL []

Figure 1.1: LOGON -and LOG-OFF Screens

MARC - MENU-ASSISTED RESOURCE CONTROL		10:48 AM																																											
Action: [ON BOREHOLE		1																																											
H0me Prev GO Parent C0mnd		(Press SPCFY for Help)																																											
<table border="0"> <tr> <td>Session]</td> <td>Windows]</td> <td>Files]</td> </tr> <tr> <td>TEACH What is MARC?</td> <td>WINDOW Current Windows</td> <td>DIR List My Files</td> </tr> <tr> <td>SPLIT Print Backup File</td> <td>CANDE Cande Window</td> <td>COPY Copy File</td> </tr> <tr> <td>BYE Log Off</td> <td>ON Change Window</td> <td>CHANGE Change File Name</td> </tr> <tr> <td>USER Usercode/Password</td> <td></td> <td>REMOVE Remove File</td> </tr> <tr> <td>FAMILY Show Family</td> <td>Jobs and Tasks]</td> <td>SEC Change Security</td> </tr> <tr> <td>CHFAM Change Family</td> <td>IE InfoExec</td> <td>INFO Show File Info</td> </tr> <tr> <td>SC Session Control</td> <td>TOOLS Application Tools</td> <td>FILE File Management</td> </tr> <tr> <td></td> <td>UTIL System Utilities</td> <td></td> </tr> <tr> <td>Messages]</td> <td>RUN Run a Task</td> <td>System Software]</td> </tr> <tr> <td>SEND Send Message</td> <td>START Start a WFL Job</td> <td>SHOW Show Print Queue</td> </tr> <tr> <td>MSG Read Message</td> <td>JDC Job Disp/Control</td> <td>PS Printing System</td> </tr> <tr> <td>NEWS Read News</td> <td></td> <td>COMS COMS Displays</td> </tr> <tr> <td></td> <td></td> <td>SYSINF System Info</td> </tr> </table>				Session]	Windows]	Files]	TEACH What is MARC?	WINDOW Current Windows	DIR List My Files	SPLIT Print Backup File	CANDE Cande Window	COPY Copy File	BYE Log Off	ON Change Window	CHANGE Change File Name	USER Usercode/Password		REMOVE Remove File	FAMILY Show Family	Jobs and Tasks]	SEC Change Security	CHFAM Change Family	IE InfoExec	INFO Show File Info	SC Session Control	TOOLS Application Tools	FILE File Management		UTIL System Utilities		Messages]	RUN Run a Task	System Software]	SEND Send Message	START Start a WFL Job	SHOW Show Print Queue	MSG Read Message	JDC Job Disp/Control	PS Printing System	NEWS Read News		COMS COMS Displays			SYSINF System Info
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USER Usercode/Password		REMOVE Remove File																																											
FAMILY Show Family	Jobs and Tasks]	SEC Change Security																																											
CHFAM Change Family	IE InfoExec	INFO Show File Info																																											
SC Session Control	TOOLS Application Tools	FILE File Management																																											
	UTIL System Utilities																																												
Messages]	RUN Run a Task	System Software]																																											
SEND Send Message	START Start a WFL Job	SHOW Show Print Queue																																											
MSG Read Message	JDC Job Disp/Control	PS Printing System																																											
NEWS Read News		COMS COMS Displays																																											
		SYSINF System Info																																											
Choice: [																																													
Unisys B7900:432 MARC 37.230.706 (COMS 37.230.725) NETWORK.																																													
User = WIGB; Session = 520.																																													

< TERMINAL CONFIGURATION OPTIONS (TCOS VER 2.3)	
Data Comm Options:	
[Y] Beep on NAK	[Y] Receive Mode Hold
[Y] DC1 RCV Mode Hold	[Y] SPCFY Key Sends ASCII
[N] Trans Numbers Enabled	[Y] 0/1 Trans No.(Y) @/A(N)
Screen Formatting Options:	
[Y] Auto Forms Skip	[N] Forms Xmt To Cursor
[N] Lower Case Lockout	[N] Dcom LF->CR [Y] Dcom CR->LF
[1F] Open Alt Form Delim	[1E] Close Alt Form Delim
[N] Line-At-A-Time Xmit	[N] SOH Clears Screen
[N] HT [N] CR [N] ETX Write From Dcom	
[Y] Cursor Wraparound	[N] HT [N] CR Write From Kybd
[N] ETX Advance Cursor	[N] Fixed Tabs
[N] CLEAR = Clear Form	[Y] Kybd CR/LF
[Y] SOH Exit Form Mode	[N] VT Page Advance
[N] FF = Clear Tabs	[N] DC2 Adv DCP(Y) DC2 Frm Tog(N)
[Y] Tab Retain	
[N] Video Option	^]
Copyright (C) 1987,1988 Diginet Systems (Pty) Ltd.	

Figure 1.2: MARC- and Terminal Configuration Options Screens

<N000JNational Ground-water Data Base [1f]

<TBEGIN000011070CT88J<B810J

NATIONAL GROUND-WATER DATABASE

DEVELOPED BY:

Institute for Ground-water Studies
University of the Orange Free State
Bloemfontein 1987

v3.0 (July 1987)

Important announcement from Data Base Administrator:

Identification 1 Password 1f@1

I
G
UOFS

Figure 1.3: Page 2 and Page 1 of the first Data Base Screens


```
<T1<139J<SITE J<000067J<23AUG85J
Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]
```

E N T R Y

```
Site identification code      map no  sequence no
                             [      ] ^    0J
```

```
Default Reporting institution [XXXXJ
```

```
Current computer date       <19850823J
```

```
TAB OVER NEXT TWO FIELDS UNLESS CHANGING/DELETING AN EXISTING
HEADER, REPEATING GROUP OR NEXT SCREEN <SEE: User Manual>
```

```
Header sequence number      ^    0J
```

```
Repeating group number      ^    0J
```

```
Use HELP for listing of possible next screen numbers on page 2
```

```
Next screen number ^ 10J[0J
```

```
<T1<139J<ENTRYJ<000067J<23AUG85J [ADD]
Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code
```

E N T R Y <D E T A I L>

```
Site id code    <2424AD00006J Map no [2424ADJ Number on map      ^    6J
```

```
Distr & farm no [      ] Site name[      ]
```

```
Topo setting    [ ] Latitude ^24J ^    0J Longitude      ^24J ^    0J
```

```
Accuracy        [ ] Drainage region [      ] Altitude ^9999.99J[+] method [ ]
```

```
Site: type      [ ] selector      [      ] Diameter          ^    0J
```

```
Completed: depth^    0J date ^    0J information source [ ]
```

```
Site status [ ] purpose [ ] Water use: consumer [ ] application [ ]
```

```
Reporting institution [IGS ] Equipment [      ] Potability [ ]
```

```
Date: entered <19850823J updated <19850823J Comment [      ]
```

```
Next screen number ^ 22J[0J
```

Figure 1.4: Entry Header and Detail Screens (Screens 1 and 10)

<TJ<139J<LOGS J<000068J<23AUG85J
 Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

L O G S

Site id code <2424AD00006J
 Header seq no ^ 1J
 Reporting institution [IGS J
 Date record entered <19850823J[0J

<TJ<139J<PENEDJ<000202J<30AUG85J
 Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

P E N E T R A T I O N R A T E <D E T A I L>

KEY <2424AD00001J ^ 1J
 Repeating group number ^ 1J
 Depth to top ^ 0J
 Depth to bottom ^ 0J
 Diameter of interval ^ 0J
 Penetration rate ^ 0J
 Comment [J Next screen number ^ 0J[0J

Figure 1.5: Logs Header and Penetration Rate Detail Screens (Screens 20 and 21)

<TAQUID000018120CT88J<8810J
Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

A Q U I F E R < D E T A I L >

KEY	<2926DA99999J	^	1J
Repeating group number		^	1J
Depth to top		^	0J
Depth to bottom		^	0J
Aquifer code		[	]
Comment		[	]

Next screen number ^ 0J[0J

Figure 1.6: Aquifer Detail Screen (Screen 22)

<TUNCOD000020120CT881<88101

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

UNCONSOLIDATED <DETAIL>

KEY <2926DA99999> ^ 2]

Repeating group number ^ 1]

Depth to top ^ 0]

Lithology code []

Colour: prim. [] sec. []

Texture []

Feature: prim. [] sec. [] attrib. []

Sorting []

Roundness []

Sieve analysis %: clay silt sand granl pebbi cobbl boulder
^ 0] ^ 0] ^ 0] ^ 0] ^ 0] ^ 0] ^ 0]

Comment []

Next screen number ^ 01[0]

<TBEOOLD000026120CT881<88101

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

CONSOLIDATED <DETAIL>

KEY <2926DA99999> ^ 4]

Repeating group number ^ 1]

Depth to top ^ 0]

Lithology code []

Colour: prim. [] sec. []

Texture []

Feature []

Comment []

Next screen number ^ 01[0]

Figure 1.7: Unconsolidated -and Consolidated Detail Screens (Screens 23 and 24)

<T1><1391><CONST><0002051><30AUG85>

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

C O N S T R U C T I O N

Site id code	<2424AD00001>	Header seq number	^ 31
Piezometer number	^01	Reporting Institution	[IGS]
Date record entered	<19850830>	Date of construction	^ 01
Contractor [		Data source	[]
Method - construction []		Type of finish	[]
Method - development []		Duration - development	^ 01
Special treatment []		Cost of construction	^ 01
Comment [			

<T1><1391><HOLED1><0002061><30AUG85>

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

H O L E < D E T A I L >

KEY	<2424AD00001>	^ 31
Repeating group number	^ 11	
Depth to top	^ 01	
Depth to bottom	^ 01	
Diameter	^ 01	
Comment [		
		Next screen number ^ 01001

Figure 1.8: Construction Header and Hole Detail Screens (Screens 30 and 31)

<T1<1391<CASED1<0002071<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

C A S I N G < D E T A I L >

KEY <2424AD0000011 ^ 31

Repeating group number ^ 11

Depth to top ^ 01[+]

Depth to bottom ^ 01

Diameter ^ 01

Material []

Thickness ^ 01

Comment []

Next screen number ^ 01[0]

<T1<1391<OPEND1<0002081<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

O P E N I N G S < D E T A I L >

KEY <2424AD0000011 ^ 31

Repeating group number ^ 11

Depth to top ^ 01

Depth to bottom ^ 01

Diam of open interval ^ 01 Material []

Type of openings [] Length ^ 01

Width ^ 01 Horizontal dist betw openings ^ 01

Vertical dist betw openings ^ 01 Method made []

Comment [] Next screen number ^ 01[0]

Figure 1.9: Casing- and Openings Screens (Screens 32 and 33)

<T1<1391<FILLD1<0002091<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

F I L L <D E T A I L>

KEY <2424AD000011 ^ 31

Repeating group number ^ 11

Depth to top ^ 01

Depth to bottom ^ 01

Type of fill []

Comment []

Next screen number ^ 01[0]

<T1<1391<INSTL1<0002171<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

I N S T A L L A T I O N

Site id code <2424AD000011 Record sequence no ^ 11

Reporting Institution [IGS] Date entered <198508301

Date of installation ^ 01 Type of installation []

Depth to intake ^ 01 Type of power []

Power rating 01 Manufacturer []

Serial number [] Power meter number []

Monitoring facility [] Data source []

Comment [] Next screen number ^ 01[0]

Figure 1.10: Fill Detail and Installation Header Screens (Screens 34 and 40)

<T1<1391<DISCH1<0000771<23AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

DISCHARGE RATE

Site id code <2424AD000061

Header seq no ^ 11

Reporting institution [IGS]

Date entered <198508231

Type []

Method []

Information source [] [01]

<T1<1391<DISCD1<0002141<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

DISCHARGE RATE <DETAIL>

KEY <2424AD000011 ^ 11

Repeating group number ^ 11

Date ^ 01

Time ^24001

Rate of discharge ^ 01[+]

Comment []

Next screen number ^ 01[01]

Figure 1.11: Discharge Rate Header and Detail Screens (Screens 50 and 51)

<TJ<139J<LEVELJ<000079J<23AUG85J
 Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

W A T E R - L E V E L

Site id code <2424AD00006J
 Header seq no ^ 1J
 Piezometer no ^0J
 Reporting institution [IGS]
 Date entered <19850823J
 Method []
 Status []
 Collar ^99.99J[+]
 Information source [][0]

<TJ<140J<LEVEDJ<000712J<25NOV85J ^B511J
 Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

W A T E R - L E V E L <D E T A I L>

KEY <2424AD00021J ^ 2J
 Repeating group number ^ 1J
 Date ^ 0J
 Time ^2400J
 Level ^ 0J[+]
 Comment []
 Next screen number ^ 0J[0]

Figure 1.12: Water-Level Header and Detail Screens (Screens 60 and 61)

<TJ<139J<SAMPLJ<000218J<30AUG85J
Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

W A T E R S A M P L E

Site id code <2424AD00001J
Header seq no ^ 1J
Reporting Institution [IGS J
Date record entered <19850830J[0J

<TJ<139J<SAMPDJ<000219J<30AUG85J
Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

W A T E R S A M P L E <D E T A I L>

KEY <2424AD00001J ^ 1J
Repeating group number ^ 1J
Date of sampling ^ 0J
Time of sampling ^2400J
Sample number []
Comment []

Next screen number ^ 01[0J

Figure 1.13: Water Sample Header and Detail Screens (Screens 70 and 71)

```
<T1<0121<FIELM1<0126961<07JUL861 ^86071
Accepted codes: ADD, CHS, DEL or IND -'HOME' cursor to change code [ADD]

      F I E L D   M E A S U R E M E N T

Site id code          <2424AA0000081
Header seq no         ^  11
Reporting Institution  [IGS ]
Date: entered         <198607071[01]
```

```
<T1<0121<FIEDD1<0126961<07JUL861 ^86071
Accepted codes: ADD, CHS, DEL or IND -'HOME' cursor to change code [ADD]

      F I E L D   M E A S U R E M E N T   <D E T A I L>

KEY   <2424AA0000081          ^  01
Repeating group number   ^  11
Date of measurement     ^      01
Time of measurement      ^24001
Parameter measured      [  ]
Reading                 ^      01
Comment                 [      ]

Next screen number      ^  01[01]
```

Figure 1.14: Field Measurement Header and Detail Screens (Screens 80 and 81)

<TLEVA000014070CT881<88101

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code []

WATER - LEVEL (AUTOMATIC)

KEY <198810070001

Date	Time	Level
^999999991	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01
^ 01	^24001 ^	01

Next screen number ^ 01[0]

<TFIELA000014070CT881<88101

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code []

FIELD MEASUREMENT (AUTOMATIC)

KEY <198810070001

Date	Time	Par	Readno	Depth
^999999991	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01
^ 01	^24001 [] ^	01	^	01

Next screen number ^ 01[0]

Figure 1.15: Water-level (automatic) and Field Measurement (automatic) (Screens 62 and 82)

<T1<139]<METER]<000220]<30AUG85]

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

METER

READING

Site id code

<2424AD000001]

Header seq no

^ 1]

Reporting Institution

[IGS]

Date: entered

<19850830]

Type of meter

[]

Comment

[]

<T1<139]<METED]<000221]<30AUG85]

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

METER

READING

<DETAIL>

KEY <2424AD000001]

^ 1]

Repeating group number

^ 1]

Date of reading

^ 0]

Time of reading

^2400]

Reading

^ 0]

Comment

[]

Next screen number

^ 010]

Figure 1.16: Meter Reading Header and Detail Screens (Screens 90 and 91)

<TJ<139J<PUMPTJ<000098J<23AUG85J

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

P U M P I N G T E S T

Site id code <2424AD00006J
 Header seq no ^ 1J
 Reporting institution [IGS J
 Date: record entered <19850823J pumping started ^ 0J
 Method tested [J
 Depth to intake ^ 0J
 Recommended abstraction ^ 0J
 Transmissivity ^ 0J
 Storativity ^ 0J
 Comment [J Next screen number ^ 0J[0J

<TJ<139J<MISCLJ<000222J<30AUG85J

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

M I S C E L L A N E O U S

Site id code <2424AD00001J
 Header seq no ^ 1J
 Reporting Institution [IGS J
 Date record entered <19850830J[0J

Figure 1.17: Pumping Test- and Miscellaneous Screens (Screens 100 and 110)

<TJ<140J<STESDJ<000533J<05NOV85J

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

S I T E S E L E C T I O N < D E T A I L >

KEY <2424AD00001J ^ 4J

Repeating group number ^ 1J

Description and recommendation

[

]

Next screen number ^ 0J[0J

<TJ<139J<OWNRDJ<000224J<30AUG85J

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

N A M E O F O W N E R < D E T A I L >

KEY <2424AD00001J ^ 1J

Repeating group number ^ 1J

Ownership date ^ 0J

Name of owner

[

]

Next screen number ^ 0J[0J

Figure 1.18: Site Selection- and Name of Owner Detail Screens (Screens 111 and 112)

<T1<1391<0THID1<0002251<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

OTHER IDENTIFIER <DETAIL>

KEY <2424AD000011 ^ 11

Repeating group number ^ 11

Other identifier []

Assignor []

Next screen number ^ 01131

<T1<1391<0THDD1<0002261<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

OTHER DATA <DETAIL>

KEY <2424AD000011 ^ 11

Repeating group number ^ 11

Data type []

Type of logger []

Location []

Format []

Next screen number ^ 01131

Figure 1.19: Other Identifier- and Other Data Detail Screens (Screens 113 and 114)

<TJ<139J<STEVDJ<000227J<30AUG85J

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

S I T E V I S I T S <D E T A I L>

KEY <2424AD00001J ^ 1J

Repeating group number ^ 1J

Date of visit ^ 0J

Visitor []

Next screen number ^ 01[0J

<TJ<139J<SPECDJ<000228J<30AUG85J

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

S P E C I A L C A S E S <D E T A I L>

KEY <2424AD00001J ^ 1J

Repeating group number ^ 1J

Number of holes ^ 0J

Depth: deepest hole ^ 0J shallowest hole ^ 0J

Method of construction [] Diameter of group ^ 0J

Length pond/tunnel/drain ^ 0J Strike pond/tunnel/drain ^ 0J

Dip of tunnel/drain ^ 01[+J Depth of lateral collector ^ 0J

Length of lateral ^ 0J Mesh of screen in lateral ^ 0J

Next screen number ^ 01[0J

Figure 1.20: Site Visits- and Special Cases Screens Detail Screens (Screens 115 and 116)

<T1<1391<REFSD1<0002291<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

REFERENCES <DETAIL>

KEY <2424AD000011 ^ 11

Repeating group number ^ 11

Reference <Map/Section/Report>

[

]

Next screen number ^ 01[0]

<T1<1391<SEARD1<0002301<30AUG851

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code [ADD]

SEARCH STATUS <DETAIL>

KEY <2424AD000011 ^ 11

Repeating group number ^ 11

Record type and period searched

[

]

Next screen number ^ 01[0]

Figure 1.21: References- and Search Status Detail Screens (Screens 117 and 118)

```
<TCOMMD000002412OCT88><8810>  
Accepted codes: ADD, CHG, DEL or INQ -'HOME' cursor to change code<IADD>  
  
C O M M E N T S      D E T A I L >  
  
KEY    <2926DA99999>   ^   11  
Repeating group number ^   11  
Comment  
  
                                ]  
  
Next screen number     ^   01[&
```

```

<TXINQU000014070CT881^8810]
      NATIONAL GROUND - WATER DATA BASE

      INQUIRY SCREEN

Title of request [                                     ]
Requested by   [                                     ]      Date <19881007]
-----
Single sites from [                                     ] to [                                     ]
OR
Grid = Latitude: minimum ^ 0] ^ 0] maximum ^ 0] ^ 0]
      Longitude: minimum ^ 0] ^ 0] maximum ^ 0] ^ 0]
OR
Province [ ] District [ ] Farm [ ] OR [ ] Drainage region [ ]
-----
Site type [ ] Completion/Digitized date: from ^ 0] to ^19881007]
-----
Choose options: mark with 'X' or a number [ ] DATA [ ] STATISTICS
[ ] ENTRY [ ] LOGS [ ] CONSTRUCTION [ ] INSTALLATION
[ ] DISCHARGE [ ] LEVEL [ ] SAMPLE [ ] FIELD MEASUREMENT
[ ] METER READING [ ] PUMPING TEST [ ] MISCELLANEOUS [ ] ALL DATA
-----
Output to: [ ] Printer file <P> or Transmission file <T> Go now! [N] <Y/N>
-----
Return to BEGIN <leave blank for another Inquiry, else Y [ ][@]

```

Figure 1.22: Comments- and XINQU Screens (Screen 119 and 850)

```
<TJ<140J<XAQUIJ<000600J<11NOVB5J [ADD]
```

NATIONAL GROUND-WATER DATA BASE
Aquifer code maintenance

```
Aquifer group code ^ 0J
Aquifer code      [    ]
Aquifer name      [                                ]
Record number     ^  0J  <for internal use>[0]
```

```
<TJ<140J<XCODEJ<000600J<11NOVB5J [ADD]
```

Accepted codes: ADD, CHG, DEL or INQ - 'HOME' cursor to change code

NATIONAL GROUND-WATER DATA BASE

General code maintenance screen

```
Code reference number ^  0J
Code list number      ^  0J
Code                  [    ]
Code expansion/description [                                ] [0]
```

Figure 1.23: XAQUI- and XCODE Screens

```

<TJ<140J<XDISTJ<000600J<11NOVB5J [ADD]

  NATIONAL  GROUND - WATER  DATA  BASE

      District code maintenance screen

District code number [   ]

District name [                               ]C0J

```

```

<TJ<140><XLITH><000600><11NOV85> [ADD]

      NATIONAL GROUND-WATER DATA BASE
      Lithology code maintenance

      Lithology code [    ]
      Lithology name [          ] [0]

```

```

<TJ<140J<XSECUJ<000600J<11NDVB5J [ADD]
  NATIONAL  GROUND-WATER  DATA  BASE

Master password      ]
User number      ^    0J
User identifier  [          ]
User password      ]
Security level    [ ]
Create date      <19851111J
Expiry date      ^      0J[0J

```

```

<TXCONV000015070CT88J<8810J[ADD]
  NATIONAL  GROUND-WATER  DATA  BASE

  Conversion from Flow Station Number to Site Id Number

Flow station  [          ]
Site id      [          ]

Next screen number ^ 01[01

```

Figure 1.25: XSECU- and XCONC Screens

2. DATA DICTIONARY

EXPLANATION

1 ITEM NUMBER

Assigned by IGS for User Manual cross-reference.

2 DESCRIPTION

Description of item as given on the data sheet and specifications.

3 REQUIRED/OPTIONAL CODE (R/O)

One of the following codes:

- A field may not be "missing" and is allocated by the computer
- R field may not be "missing" (required).
- O field may be "missing" (optional).
- X field not stored in data base, allocated by computer when writing records into flat files and always equal to the record number.

4 RECORD CODE (Rec)

A 3-digit record code that is equal to the output record identifier of a single line record or the first line of a multiple line record. An asterisk (*) in this column indicates that second and subsequent data strings in transmission files start with data fields from column one.

5 FIELD NUMBER (#)

The number of the field within a record.

6 START COLUMN (Col.)

Column in which field starts.

7 FIELD TYPE (Type)

One of the following codes:

- N integer
- F floating point real number (with decimal point)
- D date (YYYYMMDD) - a special kind of integer
- T time (hhmm) - a special kind of integer
- C alpha-numeric code to be validated against a code list
- S string - no validation possible

8 FORMAT

Alphanumeric characters are indicated by the letter A, numeric characters by D and signed fields by the letter S. For fields longer than one character this letter may either be repeated or the number of repetitions may be indicated by a number preceding the respective letter. The position of the decimal point is shown where applicable.

9 MAXIMUM

Applicable to field types N and F only. Maximum value that this field may be. If the value of this parameter is equal to the maximum value possible then no value is given.

10 MINIMUM

Applicable to field types N and F only. Minimum value that this field may be. If the value of this parameter is equal to the minimum value possible then no value is given.

11 MISSING VALUE

In the case of optional fields, this value is stored on the database if the value is "missing". Not applicable to required items.

12 LINC INTERNAL NAME

Name by which this field is known within the LINC database. This name will appear alongside LINC-generated error messages when loading data.

000 BATCH

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
0.0. 1	Output record id number	X	000	1	1	N	3D	000	000	-	
0.0. 2	Transaction code	R	000	2	4	C	3A			-	
0.0. 3	Batch number	R	000	3	7	N	6D			-	
0.0. 4	Description	R	000	4	13	S	30A			-	
	Number of records	R	000	5	43	N	4D		1	-	

1 SITE

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
1.0. 1	Output record id number	X	001	1	1	N	3D	001	001	-	SITE01
1.0. 2	Map code	R	001	2	4	S	6A	3432DD	2216AA	-	SITE02
1.0. 3	Number on 1 : 50 000 map	A	001	3	10	N	5D			-	SITE03
1.0. 4	Reporting institution	R	001	4	15	C	4A			-	SITE04
1.0. 5	Date record entered	A	001	5	19	D	8D	21000000	19000000	-	SITE05
1.0. 6	Header sequence number	A	001	6	27	N	3D			-	SITE06
	Repeating group number	A	001	7	30	IN	3D			-	

10 ENTRY

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
1.0. 1	Output record id number	X	010	1	1	N	3D	010		-	
1.0. 2	Site id code	A	010	2	4	S	11A	3432DD99999	2216AA00001	-	ENTRY01
1.0. 3	Map code	A	010	3	15	S	6A	3432DD	2216AA	-	ENTRY02
1.0. 4	Number on 1 : 50 000 map	A	010	4	21	N	5D			-	ENTRY03
1.0. 5	Province, district & farm no.	O	010	5	26	S	7A			-	ENTRY04
1.0. 6	Site name	O	010	6	33	S	42A			-	ENTRY05
1.0. 7	Topographic setting	O	*	1	1	C	1A			-	ENTRY06
1.0. 8	Latitude	R	*	2	2	F	DD.5D	34.99999	22.00000	-	ENTRY07
1.0. 9	Longitude	R	*	3	10	F	DD.5D	32.99999	16.00000	-	ENTRY08
1.0. 10	Coordinate accuracy	R	*	4	18	C	1A	4	0	-	ENTRY09
1.0. 11	Drainage region	R	*	5	19	S	4A			-	ENTRY10
1.0. 12	Altitude	O	*	6	23	F	SDDDD.DD	4000.	-4000.	blank	ENTRY11
1.0. 13	Method of measurement	O	*	7	31	C	1A			9999.99	ENTRY12
1.0. 14	Site type	R	*	8	32	C	1A			blank	ENTRY13
1.0. 15	Site selector	O	*	9	33	C	3A			-	ENTRY14
1.0. 16	Nominal diameter	O	*	10	36	N	4D			blank	ENTRY15
1.0. 17	Depth completed	O	*	11	40	F	3D.DD			0	ENTRY16
1.0. 18	Completion date	O	*	12	46	D	8D	21000000	19000000	0	ENTRY17
1.0. 19	Depth information source	O	*	13	54	C	1A			blank	ENTRY18
1.0. 20	Status of site	O	*	14	55	C	1A			blank	ENTRY19
1.0. 21	Purpose of site	O	*	15	56	C	1A			blank	ENTRY20
1.0. 22	Water use: consumer	O	*	16	57	C	1A			blank	ENTRY21
1.0. 23	Water use: application	O	*	17	58	C	2A			blank	ENTRY22
1.0. 24	Reporting institution	A	*	18	60	C	4A			-	ENTRY23
1.0. 25	Equipment	O	*	19	64	C	1A			blank	ENTRY24
1.0. 26	Potability	O	*	20	65	C	1A			blank	ENTRY25
1.0. 27	Date record entered	A	*	1	1	D	8D	21000000	19000000	-	ENTRY26
1.0. 28	Date record updated	A	*	2	9	D	8D	21000000	19000000	-	ENTRY27
	Comment	O	*	3	17	IS	12A			blank	ENTRY28

20 LOGS

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
2.0.1	Output record id number	X	020	1	1	N	3D	020	020	-	ENTR Y01
2.0.2	Site id code	A	020	2	4	S	11A	3432DD99999	2216AA00001	-	LOGS02
2.0.3	Header sequence number	A	020	3	15	N	3D			-	LOGS03
2.0.4	Reporting institution	A	020	4	18	C	4A			-	LOGS04
	Date of entry	A	020	5	22	D	8D	21000000	19000000	-	

21 PENETRATION RATE

2.1.1	Output record id number	X	021	1	1	N	3D	021	021	-	ENTR Y01
2.1.2	Site id code	A	021	2	4	S	11A	3432DD99999	2216AA00001	-	PENED02
2.1.3	Header sequence number	A	021	3	15	N	3D			-	PENED03
2.1.4	Repeating group number	A	021	4	18	N	3D			-	PENED04
2.1.5	Depth to top of interval	R	021	5	21	F	3D,DD			-	PENED05
2.1.6	Depth to bottom of interval	R	021	6	27	F	3D,DD			-	PENED06
2.1.7	Diameter of interval	R	021	7	33	N	4D			-	PENED07
2.1.8	Penetration rate	R	021	8	37	F	3D,DD			-	PENED08
	Comment	O	021	9	43	S	12A			blank	

22 AQUIFER

2.2.1	Output record id number	X	022	1	1	N	3D	022	022	-	ENTR Y01
2.2.2	Site id code	A	022	2	4	S	11A	3432DD99999	2216AA00001	-	AQUID02
2.2.3	Header sequence number	A	022	3	15	N	3D			-	AQUID03
2.2.4	Repeating group number	A	022	4	18	N	3D			-	AQUID04
2.2.5	Depth to top of aquifer	R	022	5	21	F	3D,DD			-	AQUID05
2.2.6	Depth to bottom of aquifer	O	022	6	27	F	3D,DD			0.	AQUID06
2.2.7	Aquifer code	O	022	7	33	C	6A			blank	
	Comment	O	022	8	39	S	12A			blank	AQUID07

20 LOGS (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
23 UNCONSOLIDATED											
2.3. 1	Output record id number	X	023	1	1	N	3D	023	023	-	ENTRY01
2.3. 2	Site id code	A	023	2	4	S	11A	3432DD99999	2216AA00001	-	UNCOD02
2.3. 3	Header sequence number	A	023	3	15	N	3D			-	UNCOD03
2.3. 4	Repeating group number	A	023	4	18	N	3D			-	UNCOD04
2.3. 5	Depth to top of interval	O	023	5	21	F	3D.DD			-	UNCOD05
2.3. 6	Lithology code	R	023	6	27	C	4A			-	UNCOD06
2.3. 7	Colour (primary)	O	023	7	31	C	1A			blank	UNCOD07
2.3. 8	Colour (secondary)	O	023	8	32	C	1A			blank	UNCOD08
2.3. 9	Texture	O	023	9	33	C	2A			blank	UNCOD09
2.3. 10	Feature (primary)	O	023	10	35	C	2A			blank	UNCOD10
2.3. 11	Feature (secondary)	O	023	11	37	C	2A			blank	UNCOD11
2.3. 12	Feature attribute	O	023	12	39	C	1A			blank	UNCOD12
2.3. 13	Sorting	O	023	13	40	C	2A			blank	UNCOD13
2.3. 14	Roundness	O	023	14	42	C	2A			blank	UNCOD14
2.3. 15	Sieve analysis (1)	O	023	11	44	N	2D			0	UNCOD15
2.3. 16	Sieve analysis (2)	O	023	12	46	N	2D			0	UNCOD16
2.3. 17	Sieve analysis (3)	O	023	13	48	N	2D			0	UNCOD17
2.3. 18	Sieve analysis (4)	O	023	14	50	N	2D			0	UNCOD18
2.3. 19	Sieve analysis (5)	O	023	15	52	N	2D			0	UNCOD19
2.3. 20	Sieve analysis (6)	O	023	16	54	N	2D			0	UNCOD20
2.3. 21	Sieve analysis (7)	O	023	17	56	N	2D			0	UNCOD21
	Comment	O	023	18	58	S	12A			blank	UNCOD22

20 LOGS (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
24 CONSOLIDATED											
2.3. 1	Output record id number	X	024	1	1	N	3D	024	024	-	
2.3. 2	Site id code	A	024	2	4	S	11A	3432DD99999	2216AA00001	-	ENTRY01
2.3. 3	Header sequence number	A	024	3	15	N	3D			-	GEOLD02
2.3. 4	Repeating group number	A	024	4	18	N	3D			-	GEOLD03
2.3. 5	Depth to top of interval	O	024	5	21	F	3D.DD			-	GEOLD04
2.3. 6	Lithology code	R	024	6	27	C	4A			-	GEOLD05
2.3. 7	Colour (primary)	O	024	7	31	C	1A			blank	GEOLD06
2.3. 8	Colour (secondary)	O	024	8	32	C	1A			blank	GEOLD07
2.3. 9	Texture	O	024	9	33	C	2A			blank	GEOLD08
2.3. 10	Feature	O	024	10	35	C	2A			blank	GEOLD09
	Comment	O	023	11	37	S	12A			blank	GEOLD17

30 CONSTRUCTION

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
3.0. 1	Output record id number	X	030	1	1	N	3D	030	030	-	ENTRY01
3.0. 2	Site id code	A	030	2	4	S	11A	3432DD99999	2216AA00001	-	CONST02
3.0. 3	Header sequence number	A	030	3	15	N	3D			-	CONST03
3.0. 4	Piezometer number	O	030	4	18	N	1D			0	CONST04
3.0. 5	Reporting institution	A	030	5	19	C	4A			-	CONST05
3.0. 6	Date record entered	A	030	6	23	D	8D	21000000	19000000	-	CONST06
3.0. 7	Date of construction	R	030	7	31	D	8D	21000000	19000000	-	CONST07
3.0. 8	Name of contractor	O	030	8	39	S	24A			-	CONST08
3.0. 9	Construction data source	O	030	9	63	C	1A			blank	CONST09
3.0. 10	Method of construction	O	*	1	1	C	1A			blank	CONST10
3.0. 11	Type of finish	O	*	2	2	C	1A			blank	CONST11
3.0. 12	Method of development	O	*	3	3	C	1A			blank	CONST12
3.0. 13	Duration of development	O	*	4	4	N	2D			0	CONST13
3.0. 14	Spec. development treatment	O	*	5	6	C	1A			blank	CONST14
3.0. 15	Cost of construction	O	*	6	7	F	5D,DD			0.	CONST15
	Comment	O	*	7	15	S	12A			blank	CONST15

31 HOLE

3.1. 1	Output record id number	X	031	1	1	N	3D	031	031	-	ENTRY01
3.1. 2	Site id code	A	031	2	4	S	11A	3432DD99999	2216AA00001	-	CONST02
3.1. 3	Header sequence number	A	031	3	15	N	3D			-	CONST03
3.1. 4	Repeating group number	A	031	4	18	N	3D			-	CONST04
3.1. 5	Depth to top of interval	O	031	5	21	F	3D,DD			-	CONST05
3.1. 6	Depth to bottom of interval	R	031	6	27	F	3D,DD			-	CONST06
3.1. 7	Diameter of hole	R	031	7	33	N	4D			-	CONST07
	Comment	O	031	8	37	S	12A			blank	CONST07

30 CONSTRUCTION (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
32 CASING											
3.2. 1	Output record id number	X	032	1	1	N	3D	032	032	-	ENTRY01
3.2. 2	Site id code	A	032	2	4	S	11A			-	CASED02
3.2. 3	Header sequence number	A	032	3	15	N	3D	3432DD99999	2216AA00001	-	CASED03
3.2. 4	Repeating group number	A	032	4	18	N	3D			-	CASED04
3.2. 5	Depth to top of interval	O	032	5	21	F	SDDDD,DD			-	CASED05
3.2. 6	Depth to bottom of interval	R	032	6	28	F	3D,DD			-	CASED06
3.2. 7	Diameter of interval	R	032	7	34	N	4D			-	CASED07
3.2. 8	Casing material	O	032	8	38	C	1A			blank	CASED08
3.2. 9	Wall thickness of casing	O	032	9	39	F	DD,D			0.	CASED09
3.2. 9	Comment	O	032	10	43	S	12A			blank	CASED09
33 OPENINGS											
3.3. 1	Output record id number	X	033	1	1	N	3D	33	033	-	ENTRY01
3.3. 2	Site id code	A	033	2	4	S	11A			-	OPEND02
3.3. 3	Header sequence number	A	033	3	15	N	3D	3432DD99999	2216AA00001	-	OPEND03
3.3. 4	Repeating group number	A	033	4	18	N	3D			-	OPEND04
3.3. 5	Depth to top of interval	R	033	5	21	F	3D,DD			-	OPEND05
3.3. 6	Depth to bottom of interval	R	033	6	27	F	3D,DD			-	OPEND06
3.3. 7	Diameter of open interval	R	033	7	33	N	4D			-	OPEND07
3.3. 8	Material in this interval	O	033	8	37	C	11A			blank	OPEND08
3.3. 9	Type of openings	R	033	9	38	C	A			-	OPEND09
3.3. 10	Length of openings	O	033	10	39	N	3D			0	OPEND10
3.3. 11	Width of openings	O	033	11	42	F	D,D			0.	OPEND11
3.3. 12	Hor. dist. between openings	O	033	12	45	N	3D			0	OPEND12
3.3. 13	Vert. dist. between openings	O	033	13	48	N	3D			0	OPEND13
3.3. 14	Method openings made	O	033	14	51	C	1A			blank	OPEND14
3.3. 14	Comment	O	033	15	52	S	12A			blank	OPEND14

30 CONSTRUCTION (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
34 FILL											
3.4. 1	Output record id number	X	034	1	1	N	3D	034	034	-	ENTRY01
3.4. 2	Site id code	A	034	2	4	S	11A	3432DD99999	2216AA00001	-	FILLD02
3.4. 3	Header sequence number	A	034	3	15	N	3D			-	FILLD03
3.4. 4	Repeating group number	A	034	4	18	N	3D			-	FILLD04
3.4. 5	Depth to top of interval	O	034	5	21	F	3D.DD			-	FILLD05
3.4. 6	Depth to bottom of interval	R	034	6	27	F	3D.DD			-	FILLD06
3.4. 7	Diameter of open interval	R	034	7	33	C	1A			-	FILLD07
	Comment	O	034	8	34	S	12A			blank	

40 INSTALLATION

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
4.0. 1	Output record id number	X	040	1	1	N	3D	040	040	-	ENTRY01
4.0. 2	Site id code	A	040	2	4	S	11A	3432DD99999	22 16AA00001	-	INSTL02
4.0. 3	Header sequence number	A	040	3	15	N	3D			-	INSTL03
4.0. 4	Reporting institution	A	040	4	18	C	4A			-	INSTL04
4.0. 5	Date record entered	A	040	5	22	D	8D	210000000	190000000	-	INSTL05
4.0. 6	Date of installation	R	040	6	30	D	8D	210000000	190000000	-	INSTL06
4.0. 7	Type of installation	R	040	7	38	C	1A			-	INSTL07
4.0. 8	Depth to pump intake	O	040	8	39	F	3D.DD			0.	INSTL08
4.0. 9	Type of power	O	040	9	45	C	1A			blank	INSTL09
4.0. 10	Power rating	O	040	10	46	N	4D			0	INSTL10
4.0. 11	Manufacturer	O	040	11	50	S	18A			blank	INSTL11
4.0. 12	Serial number	O	*	1	1	S	12A			blank	INSTL12
4.0. 13	Power meter number	O	*	2	13	S	12A			blank	INSTL13
4.0. 14	Monitoring facility	O	*	3	25	C	1A			blank	INSTL14
4.0. 15	Installation data source	O	*	4	26	C	1A			blank	INSTL15
	Comment	O	*	5	27	S	12A			blank	INSTL15

50 DISCHARGE RATE

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
5.0.1	Output record id number	X	050	1	1	N	3D	050	050	-	ENTRY01
5.0.2	Site id code	A	050	2	4	S	11A	3432DD99999	2216AA00001	-	DISCH02
5.0.3	Header sequence number	A	050	3	15	N	3D			-	DISCH03
5.0.4	Reporting institution	A	050	4	18	C	4A			-	DISCH04
5.0.5	Date record entered	A	050	5	22	D	8D	21000000	19000000	-	DISCH05
5.0.6	Type of discharge	R	050	6	30	C	1A			-	DISCH06
5.0.7	Method discharge measured	O	050	7	31	C	1A			blank	DISCH07
	Discharge information source	O	050	8	32	C	1A			blank	DISCH07

51 DISCHARGE RATE

5.1.1	Output record id number	X	051	1	1	N	3D	051	051	-	ENTRY01
5.1.2	Site id code	A	051	2	4	S	11A	3432DD99999	2216AA00001	-	DISCD02
5.1.3	Header sequence number	A	051	3	15	N	3D			-	DISCD03
5.1.4	Repeating group number	A	051	4	18	N	3D			-	DISCD04
5.1.5	Date of measurement	R	051	5	21	D	8D	21000000	19000000	-	DISCD05
5.1.6	Time of measurement	O	051	6	29	T	4D	2359	0	2400	DISCD06
5.1.7	Discharge rate	R	051	7	33	F	SDDDD			-	DISCD07
	Comment	O	051	8	40	S	12A			blank	DISCD07

60 WATER-LEVEL

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
6.0.1	Output record id number	X	060	1	1	N	3D	060	060	-	ENTRY01
6.0.2	Site id code	A	060	2	4	S	11A	3432DD99999	2216AA00001	-	LEVEL02
6.0.3	Header sequence number	A	060	3	15	N	3D			-	LEVEL03
6.0.4	Piezometer number	O	060	4	18	N	ID			0	LEVEL04
6.0.5	Reporting institution	A	060	5	19	C	4A			-	LEVEL05
6.0.6	Date record entered	A	060	6	23	D	8D	21000000	19000000	-	LEVEL06
6.0.7	Method of measurement	O	060	7	31	C	1A			blank	LEVEL07
6.0.8	Water-level status	O	060	8	32	C	1A			blank	LEVEL08
6.0.9	Collar elevation	O	060	9	33	F	SDD,DD			99.99	LEVEL09
	Water-level info. source	O	060	10	39	C	1A			blank	LEVEL09

61 WATER-LEVEL

6.1.1	Output record id number	X	061	1	1	N	3D	061	061	-	ENTRY01
6.1.2	Site id code	A	061	2	4	S	11A	3432DD99999	2216AA00001	-	LEVEL02
6.1.3	Header sequence number	A	061	3	15	N	3D			-	LEVEL03
6.1.4	Repeating group number	A	061	4	18	N	3D			-	LEVEL04
6.1.5	Date of measurement	R	061	5	21	D	8D	21000000	19000000	-	LEVEL05
6.1.6	Time of measurement	O	061	6	29	T	4D	2359	0	2400	LEVEL06
6.1.7	Water-level	R	061	7	33	F	SDD,DD			-	LEVEL07
	Comment	O	061	8	40	F	12A			blank	LEVEL07

60 WATER-LEVEL (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
62 LEVELS FROM DIGITIZER											
6.2.1	Output record id number	X	062	1	1	N	3D	062	062	-	
6.2.2	Site id code	A	062	2	4	S	11A	3432DD99999	2216AA00001	-	ENTRY01
6.2.2	Date of measurement	R	062	3	15	D	8D	21000000	19000000	-	LEVEA02
6.2.3	Time of measurement	O	062	4		T	4D	2359	0	-	LEVEA03
6.2.4	Water-level	R	062	5		F	SDDD.DD			2400	LEVEA04
6.2.5	Date of measurement	R	062	6	15	D	8D	21000000	19000000	-	LEVEA05
6.2.6	Time of measurement	O	062	7		T	4D	2359	0	-	LEVEA06
6.2.7	Water-level	R	062	8		F	SDDD.DD			2400	LEVEA07
6.2.8	Date of measurement	R	062	9	15	D	8D	21000000	19000000	-	LEVEA08
6.2.9	Time of measurement	O	062	10		T	4D	2359	0	-	LEVEA09
6.2.10	Water-level	R	062	11		F	SDDD.DD			2400	LEVEA10
6.2.11	Date of measurement	R	062	12	15	D	8D	21000000	19000000	-	LEVEA11
6.2.12	Time of measurement	O	062	13		T	4D	2359	0	-	LEVEA12
6.2.13	Water-level	R	062	14		F	SDDD.DD			2400	LEVEA13
6.2.14	Date of measurement	R	062	15	15	D	8D	21000000	19000000	-	LEVEA14
6.2.15	Time of measurement	O	062	16		T	4D	2359	0	-	LEVEA15
6.2.16	Water-level	R	062	17		F	SDDD.DD			2400	LEVEA16
6.2.17	Date of measurement	R	062	18	15	D	8D	21000000	19000000	-	LEVEA17
6.2.18	Time of measurement	O	062	19		T	4D	2359	0	-	LEVEA18
6.2.19	Water-level	R	062	20		F	SDDD.DD			2400	LEVEA19
6.2.20	Date of measurement	R	062	21	15	D	8D	21000000	19000000	-	LEVEA20
6.2.21	Time of measurement	O	062	22		T	4D	2359	0	-	LEVEA21
6.2.22	Water-level	R	062	23		F	SDDD.DD			2400	LEVEA22
6.2.23	Date of measurement	R	062	24	15	D	8D	21000000	19000000	-	LEVEA23
6.2.24	Time of measurement	O	062	25		T	4D	2359	0	-	LEVEA24
6.2.25	Water-level	R	062	26		F	SDDD.DD			2400	LEVEA25
6.2.26	Date of measurement	R	062	27	15	D	8D	21000000	19000000	-	LEVEA26

60 WATER-LEVEL (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
6.2.27	Time of measurement	O	062	28		T	4D	2359	0	2400	LEVEA15
6.2.28	Water-level	R	062	29		F	SDDD.DD				LEVEA16
6.2.29	Date of measurement	R	062	30	15	D	8D	21000000	19000000	-	LEVEA11
6.2.30	Time of measurement	O	062	31		T	4D	2359	0	2400	LEVEA12
6.2.31	Water-level	R	062	32		F	SDDD.DD				LEVEA13
6.2.32	Date of measurement	R	062	33	15	D	8D	21000000	19000000	-	LEVEA14
6.2.33	Time of measurement	O	062	34		T	4D	2359	0	2400	LEVEA15
6.2.34	Water-level	R	062	35		F	SDDD.DD				LEVEA10
6.2.35	Date of measurement	R	062	36	15	D	8D	21000000	19000000	-	LEVEA11
6.2.36	Time of measurement	O	062	37		T	4D	2359	0	2400	LEVEA12
6.2.37	Water-level	R	062	38		F	SDDD.DD				LEVEA13

70 WATER SAMPLE

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
7.0.1	Output record id number	X	070	1	1	N	3D	070	070	-	ENTRY01
7.0.2	Site id code	A	070	2	4	S	11A	3432DD99999	2216AA00001	-	SAMPL02
7.0.3	Header sequence number	A	070	3	15	N	3D			-	SAMPL03
7.0.4	Reporting institution	A	070	4	18	C	4A			-	SAMPL04
	Date record entered	A	070	5	22	D	8D	21000000	19000000	-	SAMPL04

71 WATER-SAMPLE

7.1.1	Output record id number	X	071	1	1	N	3D	071	071	-	ENTRY01
7.1.2	Site id code	A	071	2	4	S	11A	3432DD99999	2216AA00001	-	SAMPL02
7.1.3	Header sequence number	A	071	3	15	N	3D			-	SAMPL03
7.1.4	Repeating group number	A	071	4	18	N	3D			-	SAMPL04
7.1.5	Date of sampling	R	071	5	21	D	8D	21000000	19000000	-	SAMPL05
7.1.6	Time of sampling	O	071	6	29	T	4D	2359	0	2400	SAMPL06
7.1.7	Sample number	R	071	7	33	S	8D			-	SAMPL07
	Comment	O	071	8	41	S	12A			blank	SAMPL07

80 FIELD MEASUREMENT

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
8.0.1	Output record id number	X	080	1	1	N	3D	080	080	-	ENTRY01
8.0.2	Site id code	A	080	2	4	S	11A	3432DD99999	2216AA00001	-	FIELM02
8.0.3	Header sequence number	A	080	3	15	N	3D			-	FIELM03
8.0.4	Reporting institution	A	080	4	18	C	4A			-	FIELM04
	Date record entered	A	080	5	22	D	8D	21000000	19000000	-	

81 FIELD MEASUREMENT

8.1.1	Output record id number	X	081	1	1	N	3D	081	081	-	ENTRY01
8.1.2	Site id code	A	081	2	4	S	11A	3432DD99999	2216AA00001	-	FIEDD02
8.1.3	Header sequence number	A	081	3	15	N	3D			-	FIEDD03
8.1.4	Repeating group number	A	081	4	18	N	3D			-	FIEDD08
8.1.5	Parameter measured	R	081	5	21	C	1A			-	FIEDD04
8.1.6	Date of measurement	R	081	6	22	D	8D	21000000	19000000	-	FIEDD05
8.1.7	Time of measurement	O	081	7	30	T	4D	2359	0	2400	FIEDD09
8.1.8	Depth to top of interval	R	081	8	36	F	3D,DD			-	FIEDD10
8.1.9	Depth to bottom of interval	O	081	9	42	F	3D,DD			0.	FIEDD06
8.1.8	Reading	R	081	10	48	F	4D,D			-	FIEDD07
8.1.9	Comment	O	081	11	54	S	12A			blank	

80 FIELD MEASUREMENT (cont.)

Item number	Description	R/O	Rec #	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
82 FIELD MEASUREMENT FROM AUTOMATIC RECORDER										
8.2.1	Output record id number	X	082	1	N	3D	082	082	-	ENTRY01
8.2.2	Site id code	A	082	2	S	11A	3432DD99999	2216AA00001	-	FIELA02
8.2.3	Date of measurement	R	082	3	D	8D	21000000	19000000	-	FIELA03
8.2.4	Time of measurement	O	082	4	T	4D	2359	0	-	FIELA04
8.2.5	Parameter measured	R	082	5	C	1A	2400	0	-	FIELA05
8.1.6	Reading	R	082	6	F	4D.D	-	-	-	FIELA06
8.2.7	Depth of measurement	R	082	7	F	3D.DD	-	-	-	FIELA07
8.2.8	Date of measurement	R	082	8	D	8D	21000000	19000000	0.00	FIELA08
8.2.9	Time of measurement	O	082	9	T	4D	2359	0	-	FIELA09
8.2.10	Parameter measured	R	082	10	C	1A	2400	0	-	FIELA10
8.1.11	Reading	R	082	11	F	4D.D	-	-	-	FIELA11
8.2.12	Depth of measurement	R	082	12	F	3D.DD	-	-	-	FIELA12
8.2.13	Date of measurement	R	082	13	D	8D	21000000	19000000	0.00	FIELA13
8.2.14	Time of measurement	O	082	14	T	4D	2359	0	-	FIELA14
8.2.15	Parameter measured	R	082	15	C	1A	2400	0	-	FIELA15
8.1.16	Reading	R	082	16	F	4D.D	-	-	-	FIELA16
8.2.17	Depth of measurement	R	082	17	F	3D.DD	-	-	-	FIELA17
8.2.18	Date of measurement	R	082	18	D	8D	21000000	19000000	0.00	FIELA18
8.2.19	Time of measurement	O	082	19	T	4D	2359	0	-	FIELA19
8.2.10	Parameter measured	R	082	20	C	1A	2400	0	-	FIELA20
8.1.21	Reading	R	082	21	F	4D.D	-	-	-	FIELA21
8.2.22	Depth of measurement	R	082	22	F	3D.DD	-	-	-	FIELA22
8.2.23	Date of measurement	R	082	23	D	8D	21000000	19000000	0.00	FIELA23
8.2.24	Time of measurement	O	082	24	T	4D	2359	0	-	FIELA24
8.2.25	Parameter measured	R	082	25	C	1A	2400	0	-	FIELA25
8.1.26	Reading	R	082	26	F	4D.D	-	-	-	FIELA26
	Depth of measurement	R	082	27	F	3D.DD	-	-	-	FIELA27

80 FIELD MEASUREMENT (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
8.2.27	Date of measurement	R	082	28	15	D	8D	21000000	19000000	-	FIELA27
8.2.28	Time of measurement	O	082	29		T	4D	2359	0	2400	FIELA28
8.2.29	Parameter measured	R	082	30		C	1A			-	FIELA29
8.2.30	Reading	R	082	31		F	4D.D			-	FIELA30
8.1.31	Depth of measurement	R	082	32		F	3D.DD			0.00	FIELA31
8.2.32	Date of measurement	R	082	33	15	D	8D	21000000	19000000	-	FIELA32
8.2.33	Time of measurement	O	082	34		T	4D	2359	0	2400	FIELA33
8.2.34	Parameter measured	R	082	35		C	1A			-	FIELA34
8.2.35	Reading	R	082	36		F	4D.D			-	FIELA35
8.1.36	Depth of measurement	R	082	37		F	3D.DD			0.00	FIELA36
8.2.37	Date of measurement	R	082	38	15	D	8D	21000000	19000000	-	FIELA37
8.2.38	Time of measurement	O	082	39		T	4D	2359	0	2400	FIELA38
8.2.39	Parameter measured	R	082	40		C	1A			-	FIELA39
8.2.40	Reading	R	082	41		F	4D.D			-	FIELA40
8.1.41	Depth of measurement	R	082	42		F	3D.DD			0.00	FIELA41
8.2.42	Date of measurement	R	082	43	15	D	8D	21000000	19000000	-	FIELA42
8.2.43	Time of measurement	O	082	44		T	4D	2359	0	2400	FIELA43
8.2.44	Parameter measured	R	082	45		C	1A			-	FIELA44
8.2.45	Reading	R	082	46		F	4D.D			-	FIELA45
8.1.46	Depth of measurement	R	082	47		F	3D.DD			0.00	FIELA46
8.2.47	Date of measurement	R	082	48	15	D	8D	21000000	19000000	-	FIELA47
8.2.48	Time of measurement	O	082	49		T	4D	2359	0	2400	FIELA48
8.2.49	Parameter measured	R	082	50		C	1A			-	FIELA49
8.2.50	Reading	R	082	51		F	4D.D			-	FIELA50
8.1.51	Depth of measurement	R	082	52		F	3D.DD			0.00	FIELA51

80 FIELD MEASUREMENT (cont.)

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
8.2.52	Date of measurement	R	082	53	15	D	8D	21000000	19000000	-	FIELA52
8.2.53	Time of measurement	O	082	54		T	4D	2359	0	2400	FIELA53
8.2.54	Parameter measured	R	082	55		C	1A				FIELA54
8.2.55	Reading	R	082	56		F	4D.D			-	FIELA55
8.1.56	Depth of measurement	R	082	57		F	3D.DD			-	FIELA56
8.2.57	Date of measurement	R	082	58	15	D	8D	21000000	19000000	0.00	FIELA57
8.2.58	Time of measurement	O	082	59		T	4D	2359	0	-	FIELA58
8.2.59	Parameter measured	R	082	60		C	1A			2400	FIELA59
8.2.60	Reading	R	082	61		F	4D.D			-	FIELA60
8.1.61	Depth of measurement	R	082	62		F	3D.DD			0.00	FIELA61

90 METER READING

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
9.0.1	Output record id number	X	090	1	1	N	3D	090	090	-	ENTRY01
9.0.2	Site id code	A	090	2	4	S	11A	3432DD99999	2216AA00001	-	METER02
9.0.3	Header sequence number	A	090	3	15	N	3D			-	METER03
9.0.4	Reporting institution	A	090	4	18	C	4A			-	METER04
9.0.5	Date record entered	A	090	5	22	D	8D	21000000	19000000	-	METER05
9.0.6	Type of meter read	R	090	6	30	C	A			-	METER06
	Comment	O	090	7	31	S	12A			blank	METER06

91 METER READING

9.1.1	Output record id number	X	091	1	1	N	3D	091	091	-	ENTRY01
9.1.2	Site id code	A	091	2	4	S	11A	3432DD99999	2216AA00001	-	METER02
9.1.3	Header sequence number	A	091	3	15	N	3D			-	METER03
9.1.4	Repeating group number	A	091	4	18	N	3D			-	METER04
9.1.5	Date of reading	R	091	5	21	D	8D	21000000	19000000	-	METER05
9.1.6	Time of reading	O	091	6	29	T	4D	2359	0	2400	METER06
9.1.7	Reading	R	091	7	33	F	8D,DD			-	METER07
	Comment	O	091	8	44	S	12A			blank	METER07

100 PUMPING TEST

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
10.0. 1	Output record id number	X	100	1	1	N	3D	100	100	-	ENTR Y01
10.0. 2	Site id code	A	100	2	4	S	11A	3432DD99999	2216AA00001	-	PUMPT02
10.0. 3	Header sequence number	A	100	3	15	N	3D			-	PUMPT03
10.0. 4	Reporting institution	A	100	4	18	C	4A			-	PUMPT04
10.0. 5	Date record entered	A	100	5	22	D	8D	210000000	190000000	-	PUMPT05
10.0. 6	Date pumping test started	A	100	6	30	D	8D			-	PUMPT06
10.0. 7	Method tested	R	100	7	38	C	A			-	PUMPT07
10.0. 8	Depth to pump intake	O	100	8	39	F	3D,DD			0.	PUMPT08
10.0. 9	Rec. abstraction rate	O	100	9	45	F	3D.D			0.	PUMPT09
10.0. 10	Transmissivity	O	100	10	50	N	3D			0	PUMPT10
10.0. 11	Storativity	O	100	11	53	N	3D			0	PUMPT11
10.0. 11	Comment	O	100	12	56	S	12A			blank	PUMPT11

110 MISCELLANEOUS

Item number	Description	R/O	Rec	#	Col.	Type	Format	Maximum value	Minimum value	Missing value	LINC name
11.0. 1	Output record id number	X	110	1	1	N	3D	110	110	-	ENTRY01
11.0. 2	Site id code	A	110	2	4	S	11A	3432DD99999	2216AA00001	-	MISCL02
11.0. 3	Header sequence number	A	110	3	15	N	3D			-	MISCL03
11.0. 4	Reporting institution	A	110	4	18	C	4A			-	MISCL04
11.0. 4	Date record entered	A	110	5	22	D	8D	21000000	19000000	-	MISCL04

111 SITE SELECTION

11.1. 1	Output record id number	X	111	1	1	N	3D	111	111	-	ENTRY01
11.1. 2	Site id code	A	111	2	4	S	11A	3432DD99999	2216AA00001	-	STESD02
11.1. 3	Header sequence number	A	111	3	15	N	3D			-	STESD03
11.2. 4	Repeating group number	A	111	4	18	N	3D			-	STESD04
11.2. 4	Description & recomm.	R	*	1	1	S	60A			-	STESD04

112 NAME OF OWNER

11.2. 1	Output record id number	X	112	1	1	N	3D	112	112	-	ENTRY01
11.2. 2	Site id code	A	112	2	4	S	11A	3432DD99999	2216AA00001	-	OWNRD02
11.2. 3	Header sequence number	A	112	3	15	N	3D			-	OWNRD03
11.2. 4	Repeating group number	A	112	4	18	N	3D			-	OWNRD04
11.2. 5	Ownership date	O	112	5	21	D	8D	21000000	19000000	0	OWNRD05
11.2. 5	Name of owner	R	*	1	1	S	60A			-	OWNRD05

110 MISCELLANEOUS (cont.)

Item number	Description	Format	Maximum value	Minimum value	Missing value	LINC name
113 OTHER IDENTIFIER						
Output record id number						
11.3. 1	Site id code	3D	113	113	-	ENTRY01
11.3. 2	Header sequence number	11A	3432DD99999	2216AA00001	-	OTHDD02
11.3. 3	Repeating group number	3D			-	OTHDD03
11.3. 4	Other identifier	12A			-	OTHDD04
11.3 5	Assignor	42A			blank	OTHDD05

114 OTHER DATA

Output record id number						
11.4. 1	Site id code	X	114	1	1	N
11.4. 2	Header sequence number	A	114	2	4	S
11.4. 3	Repeating group number	A	114	3	15	N
11.4. 4	Data type	A	114	4	18	N
11.4. 5	Type of logger	R	114	5	21	C
11.4. 6	Location	O	114	6	22	S
11.4. 7	Format	R	114	7	34	S
		O	114	8	76	C
						A

110 MISCELLANEOUS (cont.)

Item number	Description	Format	Maximum value	Minimum value	Missing value	LINC name
115 SITE VISITS						
Output record id number						
11.5. 1	Site id code	3D	115	115	-	ENTRY01
11.5. 2	Header sequence number	11A	3432DD99999	2216AA0000	-	STEV02
11.5. 3	Repeating group number	3D			-	STEV03
11.5. 4	Date of visit	8D	21000000	19000000	-	STEV04
11.5. 5	Visitor	42A			-	STEV05
116 SPECIAL CASES						
Output record id number						
11.6. 1	Site id code	3D	116	116	-	ENTRY01
11.6. 2	Header sequence number	11A	3432DD99999	2216AA0000	-	SPEC02
11.6. 3	Repeating group number	3D			-	SPEC03
11.6. 4	Number of holes etc. in group	3D			-	SPEC04
11.6. 5	Depth of the deepest hole	DD			-	SPEC05
11.6. 6	Depth of shallowest hole	DDD.DD			-	SPEC06
11.6. 7	Method of holes constructed	DDD.DD			0.	SPEC07
11.6. 8	Diameter of group	A			blank	SPEC08
11.6. 9	Length of pon, tunnel or drain	DDDD.DD			0.	SPEC09
11.6.10	Strike of pond, tunnel or drain	DDD.DD			-	SPEC10
11.6.11	Dip of tunnel or drain	3D	359	0	999	SPEC11
11.6.12	Depth of lateral collector	SDD	+90	-90	99	SPEC12
11.6.13	Length of lateral collector	DDD.DD			0.	SPEC13
11.6.13	Mesh of screen in lateral	DD.DD			0.	SPEC14

110 MISCELLANEOUS (cont.)

Item number	Description	Format	Maximum value	Minimum value	Missing value	LINC name
117 REFERENCES						
Output record id number						
11.7. 1	Site id code	X 3D	117	117	-	ENTRY01
11.7. 2	Header sequence number	A 11A	3432DD99999	2216AA0000	-	REFSD02
11.7. 3	Repeating group number	A 3D			-	REFSD03
11.7. 4	Reference	R 60A			-	REFSD04
118 SEARCH STATUS						
Output record id number						
11.8. 1	Site id code	X 3D	118	118	-	ENTRY01
11.8. 2	Header sequence number	A 11A	3432DD99999	2216AA0000	-	SEARD02
11.8. 3	Repeating group number	A 3D			-	SEARD03
11.8. 4	Record type & search period	R 42A			-	SEARD04
119 COMMENTS						
Output record id number						
11.9. 1	Site id code	X 3D	119	119	-	ENTRY01
11.9. 2	Header sequence number	A 11A	3432DD99999	2216AA0000	-	COMMD02
11.9. 3	Repeating group number	A 3D			-	COMMD03
11.9. 4	Comments	R 60A			-	COMMD04

110 MISCELLANEOUS (cont.)

Item number	Description	Format	Maximum value	Minimum value	Missing value	LINC name
113 OTHER IDENTIFIER						
Output record id number						
11.3. 1	Site id code	X 3D	113	113	-	ENTRY01
11.3. 2	Header sequence number	A 11A	3432DD99999	2216AA00001	-	OTHDD02
11.3. 3	Repeating group number	A 3D			-	OTHDD03
11.3. 4	Other identifier	R 12A			-	OTHDD04
11.3. 5	Assignor	O 42A			blank	OTHDD05
114 OTHER DATA						
Output record id number						
11.4. 1	Site id code	X 3D	114	114	-	ENTRY01
11.4. 2	Header sequence number	A 11A	3432DD99999	2216AA0000	-	OTHDD02
11.4. 3	Repeating group number	A 3D			-	OTHDD03
11.4. 4	Data type	R A			-	OTHDD04
11.4. 5	Type of logger	O 12A			blank	OTHDD05
11.4. 6	Location	R 42A			-	OTHDD06
11.4. 7	Format	O A			blank	OTHDD07
115 SITE VISITS						
Output record id number						
11.5. 1	Site id code	X 3D	115	115	-	ENTRY01
11.5. 2	Header sequence number	A 11A	3432DD99999	2216AA0000	-	STEVD02
11.5. 3	Repeating group number	A 3D			-	STEVD03

3 FUNCTIONAL DECOMPOSITION

(Components in alphabetical sequence)

AQUID - Aquifer Repeating group

1. Valid ENTRY must exist.
2. LOGS Header must exist.
3. Aquifer code must be in XAQUI Table.
4. If Depth to bottom is given then it must be $>$ Depth to top of interval.
5. Depth to top must $\neq$ zero.
6. Depth to top of interval must be $\geq$ Depth completed stored in ENTRY unless Depth completed = 0.

BEGIN - LOG-ON SCREEN

1. Identification must exist in XSECU.
2. Password must match that attached to Identification in XSECU.
3. Identification expiry date in XSECU must not be exceeded by current date.

CASED - Casing Repeating group

1. Valid ENTRY must exist.
2. CONST Header must exist.
3. Casing material code must be in XCODE Table (17).
4. Depth to bottom must $\neq$ zero.
5. Diameter of casing must $\neq$ zero.
6. A Hole Repeating group must exist. If it does not, return to the main menu.
7. Depth to top of interval must be $\geq$ Depth to bottom stored previously in ENTRY unless this is Repeating group 1 or unless the diameter of the interval differs from the diameter previously stored in ENTRY.
8. Diameter of interval may not increase with increasing depth.
9. Depth to bottom of interval must be $\leq$ Depth to bottom of Hole stored in ENTRY.
10. Depth top top and bottom of most recent interval are stored in ENTRY as well as being stored here.
11. Diameter of most recent interval is stored in ENTRY as well as being stored here.

COMMD - Comments Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.

CONST - Construction Header

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).
3. Date constructed must be valid date (see below for further functional decomposition of valid date on page 10).
4. Data source code must be in XCODE Table (5).
5. Construction method code must be in XCODE Table (13).
6. Type finish code must be in XCODE Table (14).
7. Method development code must be in XCODE Table (15).
8. Special treatment code must be in XCODE Table (16).
9. Date constructed must $\neq$ zero.
10. If Date constructed is $>$ Date completed (in ENTRY) then Date completed is changed to equal Date constructed.

DISCD - Discharge rate Repeating group

1. Valid ENTRY must exist.
2. DISCH Header must exist.
3. Date measured must be a valid date.
4. Time measured must be a valid time.
5. Date measured must $\neq$ zero.
6. Discharge rate must $\neq$ zero.
7. Date measured must be after Date completed.

DISCH - DISCHARGE RATE HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).
3. Information source code must be in XCODE Table (5).
4. Type discharge code must be in XCODE Table (23).
5. Method discharge code must be in XCODE Table (24).
6. Date measured must be a valid date.

ENTRY - ENTRY DATA

1. Latitude must be valid (see page 10).
2. Longitude must be valid (see page 11).
3. Map code must be valid and within quarter-degree square of latitude/longitude of site.
4. Completion date must be valid.
5. Topographic setting code must be in XCODE Table (1).
6. Coordinate accuracy code must be in XCODE Table (32).
7. Method measurement code must be in XCODE Table (2).
8. If Altitude is not "missing" then Method measurement code may not be blank.
If Altitude is "missing" then Method of measurement code must be blank.
9. Altitude must be "missing" or valid.
10. Site type code must be in XCODE Table (3).
11. Depth information source code must be in XCODE Table (5).
12. Status code must be in XCODE Table (6).

13. Purpose code must be in XCODE Table (7).
14. Consumer code must be in XCODE Table (8).
15. Equipment code must be in XCODE Table (11).
16. Potability code must be in XCODE Table (12)).
17. Site selector code must be in XCODE Table (4).
18. Application code must be in XCODE Table (9).
19. Reporting institution code must be in XCODE Table (10).
20. District code must be in XDIST.
21. Map code may not be blank.
22. Number on map must $\neq$ zero.
23. (See also page 9 for the SITE screen which prepares data for this screen).
24. Drainage region code may not be blank.
25. The following values must be maintained on the ENTRY record:
 - Bottom of deepest interval - Penetration rate
 - Bottom of deepest interval - Aquifer
 - Top of deepest interval - Geology
 - Bottom of deepest interval - Hole
 - Bottom of deepest interval - Casing
 - Bottom of deepest interval - Openings
 - Bottom of deepest interval - Fill
 - Diameter of deepest Hole

FIEDD - Field measurement Repeating group

1. Valid ENTRY must exist.
2. FIELM Header must exist.
3. Date measured must $\neq$ zero.
4. Date measured must be valid date.
5. Parameter measured code must be in XCODE Table (27).
6. Time measured must be a valid time.
7. Reading must $\neq$ zero.

FIELM - Field measurement (automatic)

1. Valid ENTRY must exist.
2. On ADD transaction, record with key (ENTRY01, FIELA02 and FIELA03) must not exist before.
3. On CHG/INQ/DEL transaction, record with key (ENTRY01, FIELA02 and FIELA03) must exist.
4. Date measured must be valid date or = "0".
5. FIELA02 may not be "0".
6. Time measured must be a valid time, i.e. minutes from 0 to 59 and hours from 0 to 24.
7. RECORDER VALUES must be rounded up to 2 decimals.

FIELM - FIELD MEASUREMENT HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).

FILLD - Fill Repeating group

1. Valid ENTRY must exist.
2. CONST Header must exist.
3. Type of fill code must be in XCODE Table (20).
4. Depth to bottom must be $>$ Depth to top of interval.
5. Depth to bottom of interval is required.
6. If Type of fill code = X (Bottom closed) then Depth to bottom is not required.
7. An Openings Repeating group must exist. If it does not, return to the main menu.
8. Depth to top of interval must be $\leq$ Depth to bottom, stored previously in ENTRY unless this is Repeating group 1 or unless Type of fill code = x.
9. Depth to bottom of interval must be $\leq$ Depth to bottom of Hole stored in ENTRY.
10. Depth to top and bottom of most recent interval are stored in ENTRY as well as being stored here.

GEOLD - Consolidated Repeating group

1. Valid ENTRY must exist.
2. LOGS Header must exist.
3. Depth to top of interval must be $\leq$ Depth completed stored in ENTRY unless Depth completed = 0.
4. Lithology code must be in XLITH Table.
5. Primary colour code must be in XCODE (33).
6. Secondary colour code must be in XCODE (34).
7. If Secondary colour code is not blank then Primary colour code may not be blank.
8. If Primary colour code (black) then Secondary colour code must be blank.
9. If Primary colour code (white) then Secondary colour code must be blank.
10. Texture code must be in XCODE Table (35).
11. Feature code must be in XCODE Table (36).

HOLED- Hole Repeating group

1. Valid ENTRY must exist.
2. CONST Header must exist.
3. Depth to top may not = 0 unless the Repeating group number = 1.
4. Depth to bottom must be $>$ Depth to top of interval.
5. Diameter must be $>$ zero.
6. If Date of construction for the Header of this Repeating group is $>$ Date of construction in ENTRY then the new Date of construction is stored in ENTRY, Depth to bottom is stored in Depth completed of ENTRY and "C" in Depth information source.
7. If the Date of construction for the Header of this Repeating group = Date of construction in ENTRY and Depth to bottom is $>$ then Depth completed in ENTRY then Depth to bottom is stored in Depth completed of ENTRY and "C" in Depth information source.

8. If Transaction code = CHG and the value previously stored in Depth to bottom = Depth completed in ENTRY then Depth completed in Entry is also changed and "C" is stored in Depth information source.
9. If Transaction code = DEL and if Depth to bottom = Depth completed in ENTRY then 0.00 is stored in Depth completed and the Depth information source is changed to " ".
10. Diameter of hole may not increase with increasing depth.
11. Depth to top and bottom of most recent interval are stored in ENTRY as well as being stored here.

INSTL - INSTALLATION HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).
3. Type installation code must be in XCODE Table (11).
4. Type power code must be in XCODE Table (21).
5. Monitoring facility code must be in XCODE Table (22).
6. Data source code must be in XCODE Table (5).
7. Date installed must be a valid date.
7. Water-level must be $\leq$ Depth to bottom of Hole stored in ENTRY.
8. Date measured must be after Date completed.

LEVED - Water-level Repeating group

1. Valid ENTRY must exist.
2. LEVEL Header must exist.
3. Date measured must be a valid date.
4. Date measured must be $>$ zero.
5. Time without date not allowed.
6. Time must be valid.
7. Water-level must be $\leq$ Depth completed in ENTRY unless Depth completed = zero.

LEVEA - Water level (automatic)

1. Valid ENTRY must exist.
2. On ADD transaction, record with key (ENTRY01, LEVEA02 and LEVEA03) must not exist before.
3. On CHG/INQ/DEL transaction, record with key (ENTRY01, LEVEA02 and LEVEA03) must exist.
4. Date measured must be valid date or = "0".
5. LEVEA02 may not be "0".
6. Time measured must be a valid time, i.e. minutes from 0 to 59 and hours from 0 to 24.
7. Water levels must be rounded up to 2 decimals.

LEVEL - WATER-LEVEL HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).

3. Information source code must be in XCODE Table (5).
4. Method measurement code must be in XCODE Table (25).
5. Status code must be in XCODE Table (26).

LOGS - LOGS HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).
3. Date of log must $\neq$ zero.
4. Date of log must be valid date.

METED - Meter reading Repeating group

1. Valid ENTRY must exist.
2. METER Header must exist.
3. Date measured must $\neq$ zero.
4. Date measured must be a valid date.
5. Time must be a valid time.
6. Meter reading must $\neq$ zero.

METER - METER READING HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).
3. Meter type code must be in XCODE Table (28).

MISCL - MISCELLANEOUS HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).

OPEND - Openings Repeating group

1. Valid ENTRY must exist.
2. CONST Header must exist.
3. Material code must be in XCODE Table (14).
4. Type openings code must be in XCODE Table (18).
5. Method made code must be in XCODE Table (19).
6. Depth to bottom must be $>$ Depth to top of interval.
7. Depth to top of interval must $\neq$ zero.
8. Depth to bottom of interval must $\neq$ zero.
9. Diameter must $\neq$ zero.
10. A Casing Repeating group must exist. If it does not, return to the main menu.
11. Depth to top of interval must be $\leq$ Depth to bottom stored previously in ENTRY unless this is Repeating group 1 or unless the diameter of this interval differs from the diameter previously stored in ENTRY.
12. Diameter of interval may not increase with increasing depth.
13. Depth to bottom of interval must be $\leq$ Depth to bottom of Hole stored in ENTRY.

14. Depth to top and bottom of most recent interval are stored in ENTRY as well as being stored here.
15. Diameter of most recent interval is stored in ENTRY as well as being stored here.

OTHDD - Other data Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.
3. Data type code must be in XCODE Table (30).
4. Format code must be in XCODE Table (31).

OTHID - Other identifier Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.
3. Other identifier may not be blank.

OWNRD - Owner Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.
3. Ownership date must be valid date.
4. Owner may not be blank.

PENED - Penetration rate Repeating group

1. Valid ENTRY must exist.
2. LOGS Header must exist.
3. Depth to bottom of interval is required.
4. Depth to bottom must be $>$ Depth to top of interval.
5. Depth to bottom of interval must be $\geq$ Depth completed stored in ENTRY unless Depth completed = 0.
6. Diameter of interval must be $>$ zero.
7. Penetration rate must be $>$ zero.

PUMPT - PUMPING TEST HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).
3. Date started must $\neq$ zero.
4. Date started must be a valid date.
5. Method tested code must be in XCODE Table (29).
6. Date started must be after Completion date.

REFSD - References Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.

SAMPD - Water sample Repeating group

1. Valid ENTRY must exist.
2. SAMPL Header must exist.
3. Date sampled must be a valid date.
4. Date sampled must $\neq$ zero.
5. Time sampled must be a valid time.
6. Sample number may not be blank.

SAMPL - WATER SAMPLE HEADER

1. Valid ENTRY must exist.
2. Reporting institution must be in XCODE Table (10).

SEARD - Search status Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.

SITE -MAIN MENU SCREEN

1. Get current computer date and format to YYYYMMDD.
2. Reporting institution must be in XCODE Table (10).
3. Latitude of map number must be valid.
4. Longitude of map number must be valid.
5. Half degree code must be valid (A,B,C, or D).
6. Quarter degree code must be valid (A,B,C, or D).
7. If Number on map equals zero then determine next number for that map.
Transaction type must be ADD.
8. If Number on map is $>$ zero then check that it does not exist already (if
Transaction type is ADD). If it does exist, then allocate next available
number.

SPECD - Special cases Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.
3. Method construction code must be in XCODE Table (13).
4. Number of holes must be $>$ zero.
5. This Repeating group may not repeat within the same MISCL Header.

STESD - Site selection Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.
3. Date selected must be a valid date.
4. Description may not be blank.
5. This Repeating group may not repeat within the same MISCL Header.

STEVD - Site visits Repeating group

1. Valid ENTRY must exist.
2. MISCL Header must exist.
3. Date visit must be a valid date.
4. Date visit must $\neq$ zero.
5. Visitor may not be blank.

UNCOD - Unconsolidated Repeating group

1. Valid ENTRY must exist.
2. LOGS Header must exist.
3. Depth to top of interval must be $\leq$ Depth completed stored in ENTRY unless Depth completed = 0.
4. Geological formation code must be in XLITH Table.
5. Primary colour code must be in XCODE (33).
6. Secondary colour code must be in XCODE (34).
7. If Secondary colour code is not blank then Primary colour code may not be blank.
8. If Primary colour code (black) then Secondary colour code must be blank.
9. If Primary colour code (white) then Secondary colour code must be blank.
10. Texture code must be in XCODE Table (35).
11. Primary and Secondary feature code must be in XCODE Table (36).
12. If Secondary feature code is not blank then Primary feature code may not be blank.
11. Feature attribute code must be in XCODE (37).
12. Sorting code must be in XCODE (38).
13. Roundness code must be in XCODE (39).
14. Sum of the seven Sieve analysis percentages must be either 100 or zero.

XINQU - INQUIRY SCREEN

1. If one grid limit is given, all four are required.
2. Latitude minimum must be $<$ latitude maximum.
3. Longitude minimum must be $<$ longitude maximum.
4. Output option must be P or T.

FUNCTIONAL DECOMPOSITION OF VALID DATE

1. If Date = zero then no validation is carried out.
2. Must be > 19000000 .
3. Must be $\leq$ Run date.
4. If Day is given then Month must be between 1 and 12.
5. Month must be ≤ 12 .
6. Day must be $\leq$ number of days in the month (leap year test for February included).
7. Note that all dates are 8 digits long and in the format YYYYMMDD.

FUNCTIONAL DECOMPOSITION OF VALID TIME

1. If Time = 2400 then do not validate further (missing Time).
2. Hours must be between 0 and 23, inclusive.
3. Minutes must be between 0 and 59, inclusive.

FUNCTIONAL DECOMPOSITION OF VALID LATITUDE DEGREES

1. Latitude degrees must be ≥ 22 .
2. Latitude degrees must be ≤ 34 .

FUNCTIONAL DECOMPOSITION OF VALID LONGITUDE DEGREES

1. Longitude degrees must be ≥ 16 .
2. Longitude degrees must be ≤ 32 .

4 POPULATIONS OF DATA SETS

Numbers of records allowed per data set as in May 1988. These volumes can be increased when necessary.

ENTRY	51 000
LOGS 50 000	
PENED	20 000
AQUID	40 000
UNCOD	25 000
GEOLD	200 000
CONST	12 000
HOLED	10 000
CASED	10 000
OPEND	2 000
FILLD	500
INSTL	500
DISCH	30 000
DISCD	30 000
LEVEL	30 000
LEVED	40 000
LEVEA	100 000
SAMPL	3 000
SAMPD	10 000
FIELM	10 000
FIEDD	1 000
FIELA	10 000
METER	1 000
METED	4 100

PUMPT	500
MISCL	50 000
STESD	6 000
OWNRD	50 000
OTHID	50 000
OTHDD	500
STEVD	500
SPECD	50
REFSD	5 000
SEARD	55 000
COMMD	10 000
XCODE	600
XDIST	1 000
XAQUI	1 000
XLITH	1 000
XSECU	1 000
XTRCT	1 000
XTRAN	40 000
XCONV	2 000

5 MAINTENANCE

5.1 PROGRAM MAINTENANCE

Tasks for a maintenance programmer include the following:

1. orientation and familiarization with existing system,
2. correction of errors reported by users,
3. changes and additions requested by users,
4. maintenance of documentation with respect to corrections and changes,
5. re-compilations after system software upgrades,
6. checking of audit trails and LINC logs,
7. initialization of XTRAN data set after printing of LOGGER report and acceptance by user,
8. incrementing of data set populations when necessary,
9. development of interface between Burroughs and IBM PC-compatible for file transfer and
10. finalization of GLI batch data loading facility.

Of these tasks, the first is a one-time effort for a programmer who is not familiar with the system. All the other tasks will have to be dealt with on a contingency basis as and when necessary but it is anticipated that an average input of about one day per week will be necessary.

To give some idea of the size of the Ground-water Data base system, the following statistics are provided. The existing system consists of the following:

1. about 1 000 lines of ALGOL/FORTRAN source statements,
2. 4 DO-files,
3. 30 JOB-files,
4. 96 DMS II structures and
5. 42 LINC components.

5.2 CODE MAINTENANCE

1 XCODE - CODE LISTS

This screen is only accessible from the main menu by the Data base administrator's User id code. All the general codes used by the system (excepting Lithology, District and Aquifer) are stored in this component.

1.1 Code reference number

Each code is given a unique reference number, which is the ordinate of the component, for facilitating retrieval. Format is NNNN. This field is required.

New numbers must be allocated between existing numbers so that the lists are maintained in a logical sequence. Initially codes were allocated reference numbers in increments of 2 with each Code list starting with NN 01 to allow for expansion. NN represents the Code list number.

1.2 Code list number

Each code list has been numbered. A list of XCODE tables in numerical sequence is given in the Table on page 5. Tables are referred to by these numbers in the section on Functional decomposition. Format is NNN.

1.3 Code

This is the code value. It may be blank, if appropriate. Format is 4A.

Notes

If required, records may be marked for deletion under CANDE and they will then be deleted as part of the normal deletion process.

Looping within this screen is terminated by entering "ESC" in the Transaction field or "BEGIN" in the page 2 screen.

2 XDIST - DISTRICT CODES

This screen is only accessible from the main menu by the Data base administrator's User id code. Registration district codes are stored in this component.

2.1 District code

The District code in format 3A is stored in this field. As it is the ordinate of the component it must be entered together with INQ in the Transaction field to recall an existing code. The first character indicates the Province and the second and third character the District within the Province. This field is required.

2.2 District name

The District name in format 40A is stored in this field.

Notes

If required, records may be marked for deletion under CANDE and they will then be deleted as part of the normal deletion process.

Looping within this screen is terminated by entering "ESC" in the Transaction field or "BEGIN" in the page 2 screen.

3 XAQUI - AQUIFER CODES

This screen is only accessible from the main menu by the Data base administrator's User id code.

3.1 Aquifer group code

This is a 2-digit code (format NN) identifying the group to which the aquifer belongs. Groups are numbered consecutively from 1. This field is required.

3.2 Aquifer code

This is a 4-character code (format 4A) which, together with the group code, uniquely identifies an aquifer. This field is required.

3.3 Aquifer name

This is a description of the aquifer in format 40A.

3.4 Aquifer record number

For reference, each aquifer record has been allocated a number in the format 3N. This number is required and is the ordinate of the component. New numbers must be allocated at the end of the list. As this field is the ordinate of the component, it must be entered together with INQ in the Transaction field to recall an existing Aquifer code record.

Notes

If required, records may be marked for deletion under CANDE and they will then be deleted as part of the normal deletion process.

Looping within this screen is terminated by entering "ESC" in the Transaction field.

In the Aquifer Repeating group, where these codes are applied, the Aquifer group code and Aquifer code are always treated as a single 6-character code.

For completeness, codes for Aquifer groups have been created in addition to the Aquifer codes. These have been given numeric codes to differentiate them from actual Aquifer codes. The Aquifer code in these cases is the Aquifer group code with leading zeros to make it a 4-digit number.

4 XLITH - LITHOLOGY CODES

This screen is only accessible from the main menu by the Data base administrator's User id code.

4.1 Lithology code

This is the field in which Lithology codes are stored. It is in the format 4A. As this is the ordinate of the component, it must be entered together with INQ in the Transaction field to recall an existing lithology code record..

4.2 Lithology description

This is a description of the lithology code in format 40A.

Notes

If required, records may be marked for deletion under CANDE and they will then be deleted as part of the normal deletion process.

Looping within this screen is terminated by entering "ESC" in the Transaction field or "BEGIN" in the page 2 screen.

5 XSECU - USER IDENTIFICATIONS AND PASSWORDS

This screen is only accessible from the main menu by the Data base administrator's Reporting institution code. Furthermore the master password has to be entered before any transaction will be processed.

5.1 Master password

This is the master password as defined in S/LINC/BOREDB1 and is displayed in secured video on the screen. Format is 6A. This field is required.

5.2 Record number

Records in this component are numbered sequentially by the Data base administrator. This number becomes the ordinate of the record and is in the format 6N. This field is required. As this is the ordinate, it must be entered together with INQ in the Transaction field to recall an existing XSECU record.

5.3 User identifier

This is the name or other identifier of the user of the Data base in the format 20A. This field is required.

5.4 Password

This is the password attached to the user identifier. It is in the format of 6A and displayed in secured video on the screen. This field is required.

5.5 Inquiry/Update indicator

This is either "I" to indicate that inquiries only are allowed by this user or "U" to indicate that updates are allowed by this user. This field is required.

5.6 Create date

This field is filled in by the computer and user intervention is not possible. It is always equal to run-date.

5.7 Expiry date

A date in the format YYYYMMDD, later or equal to create date. This field is required. Records with expiry dates < run date will be removed automatically by the Delete program.

6. MASTERPASSWORD AND REPORTING INSTITUTION

The Master password is defined on line 1050600 of S/LINC/BOREDB. If it is changed, then the program has to be recompiled.

5.3 XCODE TABLES IN NUMERICAL SEQUENCE

WITH INDICATION WHERE THE TABLES ARE USED.

1. Topographic setting (ENTRY).
2. Method of measurement; altitude (ENTRY).
3. Site type (ENTRY).
4. Site selector (ENTRY)
5. Information source (ENTRY, etc).
6. Status of site (ENTRY, etc).
7. Purpose of site (ENTRY).
8. Water use: consumer (ENTRY).
9. Water use: application (ENTRY).
10. Reporting institution (ENTRY and all Headers).
11. Equipment (ENTRY).
12. Potability (ENTRY).
13. Method of construction (CONST).
14. Type of finish (CONST & OPEND).
15. Method of development (CONST).
16. Special development treatment (CONST).
17. Casing material (CASED).
18. Type of openings (OPEND).
19. Method of openings made (OPEND).
20. Type of fill (FILLD).
21. Type of power (INSTL).
22. Monitoring facility (INSTL).
23. Type of discharge (DISCH).
24. Method discharge measured (DISCH).
25. Method of measurement (LEVEL).
26. Water-level status (LEVEL).
27. Parameter measured (FIELM).
28. Type of meter read (METER).
29. Method tested (PUMPT).
30. Data type (OTHDD).
31. Format (OTHDD).
32. Coordinate accuracy (ENTRY).
33. Primary colour (GEOLD).
34. Secondary colour (GEOLD).
35. Texture (GEOLD).
36. Feature (GEOLD).

6 TRANSACTION LOGS

Transaction logs are records of every updating transaction processed by the computer. LINC records these transactions. There are two ways to extract transaction logs from the system. The first makes use of a Burroughs-supplied program - BOREDB/LINCLOG and the second uses LOGGER written specially to facilitate vetting of data loaded to the system in both Batch and On-line modes. Both of these transaction logging systems will be needed by the Data Base Administrator.

6.2.1 BOREHOLE/LINCLOG

To run this program under CANDE see page 620 of the LINC Installations and operations manual (No 1163953).

6.2.2 LOGGER

LINC

This program can be run under LINC and under CANDE. Under LINC the following command has to be transmitted in line-at-a-time mode from a clean page:

RUN LOGGER <XMT>.

Thereafter the Id code of the user whose log is required, the begin date of the log and whether all details (A) are required or the summary (S) only. The printer file(s) are stored under LINCBD on the backup file. Once the message is received that the job is completed, the printer file can be printed by entering the instruction

U PRINT XXX LINCBD/= ON BACKUP <XMT>.

Note that files from all users are stored under LINCBD.

CANDE

To run this program under CANDE, get the file D/LIRC/LOGGER and list it:

G D/LIRC/LOGGER <XMT>

L <XMT>.

Then change the user number *n* in line 1500, the requested starting date in line 1600 and an 'A' (if all detail is required) or a 'S' (if a summary only is wanted) in line 1700. Transmit and save the new values in the working file.

00001500<n> <XMT>

00001600<YYYYMMDD> <XMT>

00001700A <XMT>

SA <XMT>.

Thereafter the logger program can be run with the following command:

ST J/LIRC/LOGGER (25, "XX") <XMT>

where XX is any suitable name from 1 to 17 characters long under which the printout is to be stored.

To print the log report, enter:

U PRINT NNN TERM / 000number1 / 000number2 /= ON
BACKUP <XMT>

where NNN = printer number,
 TERM = Terminal name (e.g. NET15)
 number1 = CANDE session number and
 number2 = task number of the program.

Enter P, R or N for Print, Remove or Next following the guidelines given on page 5 of Chapter 1.6 Inquiries.

This program prints each selected transaction record as it appears after the transaction has taken place. Records are sorted by the following keys, each in ascending order:

Global source (System variable, i.e. G for GLI and T for Terminal)

Component number (e.g. 010 for ENTRY)

Site id code

Header number (if applicable)

Repeating group number (if applicable)

Global unique number (System variable, a transaction number which appears on the top line of each screen).

EXAMPLE OF PRINTOUT FROM BORED8/LOG COMMAND

LOG NUMBER 01

TUESDAY 21 JAN 86 NATIONAL GROUND-WATER DATA BASE

** INPUT REQUIREMENTS WERE - LOG =01 PRINT=ALL

** I N P U T L O G ** LINC10 LOG NUMBER=001 PAGE 1

GLB-SOURCE =T
INPUT-DATE =21JAN86
BEGIN02 =HH

GLB-STAND =100
BEGIN01 =HENNIE

ISPEC =BEGIN

** LOG SYNC NUMBER 000001
TRANNO =003281

GLB-SOURCE =T
INPUT-DATE =21JAN86
SITE03 =IGS
SITE04 =850

GLB-STAND =100
SITE01 =ADD
SITE04 =19860121

ISPEC =SITE
SITE01 =
SITE05 =0

** LOG SYNC NUMBER 000002
TRANNO =003281
SITE02 =0
SITE06 =0

GLB-SOURCE =T
INPUT-DATE =21JAN86
XINQU02 =KI
XINQU03 =19860121
XINQU09 =0
XINQU11 =0
XINQU14 =167
XINQU06 =19860121
XINQU19 =
XINQU23 =
XINQU27 =
XINQU31 =

GLB-STAND =100
ACTMTH =8601
XINQU07 =
XINQU9A =0
XINQU1A =0
XINQU15 =
XINQU16 =X
XINQU20 =
XINQU24 =
XINQU28 =

ISPEC =XINQU
XINQU01 =FARM
XINQU08 =0
XINQU10 =0
XINQU12 =0
XINQU04 =
XINQU17 =
XINQU21 =
XINQU25 =
XINQU29 =X

** LOG SYNC NUMBER 000003
TRANNO =003281
XINQU8A =0
XINQU0A =0
XINQU15 =TR
XINQU05 =
XINQU18 =0
XINQU22 =
XINQU26 =
XINQU30 =P

GLB-SOURCE =T
INPUT-DATE =21JAN86
XINQU02 =KI
XINQU03 =19860121
XINQU09 =30
XINQU11 =25
XINQU14 =
XINQU06 =19860121
XINQU19 =
XINQU23 =
XINQU27 =
XINQU31 =Y

GLB-STAND =100
ACTMTH =8601
XINQU07 =
XINQU9A =24999
XINQU1A =74999
XINQU15 =
XINQU16 =X
XINQU20 =
XINQU24 =
XINQU28 =

ISPEC =XINQU
XINQU01 =30258A
XINQU08 =30
XINQU10 =25
XINQU12 =
XINQU04 =
XINQU17 =
XINQU21 =
XINQU25 =
XINQU29 =X

** LOG SYNC NUMBER 000004
TRANNO =003282
XINQU8A =00000
XINQU0A =50000
XINQU15 =
XINQU05 =
XINQU18 =0
XINQU22 =
XINQU26 =
XINQU30 =P

SUCCESSFUL, CLOSE0000005

TUESDAY 21 JAN 86 NATIONAL GROUND-WATER DATA BASE

** STATION STATS ** LINC10 LOG NUMBER-001 PAGE

STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS

100 4 0:

EXAMPLE OF PRINTOUT FROM BOREDB/LOG COMMAND LOG NUMBER 02

TUESDAY 21 JAN 86 NATIONAL GROUND-WATER DATA BASE

** INPUT REQUIREMENTS WERE - LOG =02 PRINT=ALL

** I N P U T L O G ** LINC10 LOG NUMBER=002 PAGE 1

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=BEGIN	TRANNO	** LOG SYNC NUMBER 000001
INPUT-DATE	=21JAN86	BEGIN01	=HENNIE				
BEGIN02	=HH						

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=SITE	TRANNO	** LOG SYNC NUMBER 000002
INPUT-DATE	=21JAN86	SITE01	=IND	SITE01	=3025BB	SITE02	=0122
SITE03	=IGS	SITE04	=19860121	SITE05	=01	SITE06	=01
SITENX	=061						

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=LEVED	TRANNO	** LOG SYNC NUMBER 000003
INPUT-DATE	=21JAN86	ACTMTH	=8601	LEVED01	=ESC	ENTRY01	=3025BB00122
LEVED02	=1	LEVED03	=1	LEVED04	=19770321	LEVED05	=2400
LEVED06	=5.10	LEVED07	=	LEVEDNX	=0		

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=SITE	TRANNO	** LOG SYNC NUMBER 000004
INPUT-DATE	=21JAN86	SITE01	=IND	SITE01	=3025BB	SITE02	=0130
SITE03	=IGS	SITE04	=19860121	SITE05	=01	SITE06	=01
SITENX	=061						

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=LEVED	TRANNO	** LOG SYNC NUMBER 000005
INPUT-DATE	=21JAN86	ACTMTH	=8601	LEVED01	=CHG	ENTRY01	=3025BB00130
LEVED02	=1	LEVED03	=1	LEVED04	=19770321	LEVED05	=2400
LEVED06	=20.	LEVED07	=	LEVEDNX	=0		

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=LEVED	TRANNO	** LOG SYNC NUMBER 000006
INPUT-DATE	=21JAN86	ACTMTH	=8601	LEVED01	=ESC	ENTRY01	=3025BB00130
LEVED02	=1	LEVED03	=1	LEVED04	=19770321	LEVED05	=2400
LEVED06	=11.9	LEVED07	=	LEVEDNX	=0		

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=LEVED	TRANNO	** LOG SYNC NUMBER 000009
INPUT-DATE	=21JAN86	ACTMTH	=8601	LEVED01	=IND	ENTRY01	=3025BB00130
LEVED02	=1	LEVED03	=1	LEVED04	=19770321	LEVED05	=2400
LEVED06	=11.90	LEVED07	=	LEVEDNX	=918		

GLB-SOURCE	=T	GLB-STNNO	=100	ISPEC	=LEVED	TRANNO	** LOG SYNC NUMBER 000010
INPUT-DATE	=21JAN86	ACTMTH	=8601	LEVED01	=ESC	ENTRY01	=3025BB00130
LEVED02	=1	LEVED03	=1	LEVED04	=19770321	LEVED05	=2400
LEVED06	=11.90	LEVED07	=	LEVEDNX	=918		

TUESDAY 21 JAN 86 NATIONAL GROUND-WATER DATA BASE
STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS: STATION INPUT ERRORS
100 59 2:
** STATION STATS ** LINCIO LOG NUMBER-002 PAGE 1

PAGE 1

[illegible]

EXAMPLE OF PRINTOUT FROM LOGGER/LIRC COMMAND (1. PART OF PROGRAM)

ENTRY	MAP C	MAP N	FARM	SITE NAME	TOPO	LATITUDE	LONGITUDE	DRAIN	METH	SEL
DEPTH	INFO PUR	APP	EDUI	DATE E	DATE U	COMMENT	ACC	ALT	TYP	DIAM
3025BR00363 3025BR	363	OTR	274	HEATHER DOWNS						
33.50 19600000 R G P N AI	IGS	W	19860120	19860120						
3025BR00364 3025BR	364	OTR	274	HEATHER DOWNS						
18.30 19600000 R G P N AI	IGS	W	19860120	19860120						
3025BR00365 3025BR	365	OTR	402	DE DAM						
6.10 19490000 R G P N AI	IGS	W	19860120	19860120						
3025BR00366 3025BR	366	OTR	402	DE DAM						
5.50 19650000 R G P N AI	IGS	W	19860120	19860120						
3025BR00367 3025BR	367	OTR	402	DE DAM						
36.60 00000000 R G P N AI	IGS	W	19860120	19860120						
3025BR00368 3025BR	368	OTR	274	HEATHER DOWNS						
0.00 00000000	IGS	19860120	19860120	BFRT/DYKE						
3025BR00369 3025BR	369	OTR	116	VAN ZIJLSSPRUIT						
30.50 00000000 R G P N DA	IGS	W	19860120	19860120	BFRT					
3025BR00370 3025BR	370	OTR	223	GELUK						
15.20 19480000 R G P N AI	IGS	S	19860120	19860120						
3025BR00371 3025BR	371	OTR	223	GELUK						
18.30 00000000 R U	IGS	W	19860120	19860120						
3025BR00372 3025BR	372	OTR	223	GELUK						
18.30 19690000 R G P N AI	IGS	W	19860120	19860120	POWERHEAD					
3025BR00373 3025BR	373	OTR	223	GELUK						
15.20 00000000 R G P N AI	IGS	W	19860120	19860120						
3025BR00374 3025BR	374	OTR	223	GELUK						
15.20 19470000 R G P N AI	IGS	C	19860120	19860120						
3025BR00375 3025BR	375	OTR	167	SPREUWCONTEIN						
0.00 00000000	IGS	19860120	19860120	BFRT/DYKE						
3025BR00376 3025BR	376	OTR	46	ERF DEEL						
18.30 00000000 R G P N AI	IGS	19860120	19860120	BFRT						
3025BR00377 3025BR	377	OTR	15	KLEIN MATJESVLEI						
18.30 00000000 R G P N AI	IGS	C	19860120	19860120	BFRT					
3025BR00378 3025BR	378	OTR	230	WERTIARD						
20.00 00000000 R G P N AI	IGS	W	19860120	19860120	BFRT					

EXAMPLE OF PRINTOUT FROM LOGGER/LIRC COMMAND
(1. PART OF PROGRAM)

DISCHARGE RATE	HDR	REP	DATE	M TIME	RATE	COMMENT
3025BR00363	1	1	19600000	2400	8.83	A
3025BR00364	1	1	19600000	2400	2.52	A
3025BR00365	1	1	19490000	2400	12.62	A
3025BR00370	1	1	19480000	2400	7.57	A
3025BR00370	1	2	19480000	2400	7.53	A
3025BR00372	1	1	19690000	2400	2.53	A
3025BR00374	1	1	19470000	2400	7.57	A
3025BR00389	1	1	19740000	2400	2.53	A
3025BR00391	1	1	19740000	2400	0.75	A

LEVEL HEADER	HDR	REP	DATE	M TIME	COLLR
PZ	STAT	SRCE			
3025BR00006	1	0	19851015	99.99	A
3025BR00006	1	0	19851015	99.99	A
3025BR00043	1	0	19860120	99.99	A
3025BR00563	1	0	19860120	99.99	A
3025BR00370	1	0	19860120	99.99	A
3025BR00372	1	0	19860120	99.99	A
3025BR00389	1	0	19860120	99.99	A
3025BR00391	1	0	19860120	99.99	A

WATER-LEVEL	HDR	REP	DATE	M TIME	LEVEL	COMMENT
3025BR00006	1	1	19770302	2400	7.00	A
3025BR00006	1	1	19770302	2400	7.00	A
3025BR00036	1	1	19770325	2400	1.20	A
3025BR00043	1	1	19400000	2400	6.60	C
3025BR00043	1	2	19770302	2400	15.00	A
3025BR00363	1	1	19600000	2400	3.10	A
3025BR00370	1	1	19480000	2400	23.00	A
3025BR00372	1	1	19690000	2400	6.00	A
3025BR00389	1	1	19740000	2400	1.30	A
3025BR00391	1	1	19740000	2400	15.00	A
3025BR00391	1	2	19770000	2400	12.00	A

SAMPLE HEADER	HDR	REP	DATE	E
3025BR00390	1	1	19860120	A
3025BR00405	1	1	19860120	A

[illegible]

```

O = 25
S1 = "K1"
00000200 OPTION=(BDRASE);RDNAME= #S1 ;
00000300 %
00000400 % JOB DECK FOR RUNNING LOGGER
00000500 %
00000600 % DESTNAME=NET16 ;
00000700 CLASS=0 ;
00000800 TASK: T ;
00000900 INTEGER I ;
00001000 STRING S2 ;
00001100 S2 := "OUTPUT WILL BE FOUND UNDER " & S1 & "/"= ON BACKUP" ;
00001200 DISPLAY S2 ;
00001300 I := MYSELF(SOURCESTATION) ;
00001400 T (STATION = I) ;
00001500 RUN BOREDB/LOGGER LT1 ;
00001600 END JOB

```

J O B S U M M A R Y

JAN 20, 1986

14:39:04

BOJ

9917

LOGGER.

JOB ENTERED SYSTEM: JAN 20, 1986 14:39:03 FROM WFL 35.260

QUEUE: 25

ORIGINATING LSN: 226 MCS: 1

PRIORITY: 50

USERCODE: WIGS.

SUBSYSTEM: LINC

9917 DISPLAY:OUTPUT WILL BE FOUND UNDER K1/= ON BACKUP.

9917 STACK EXTENDED FROM 412 TO 570 WORDS.

14:39:05

BOJ

9920

(WIGS)BOREDB/LOGGER ON W36.

CODE COMPILED: DEC 6, 1985 15:36:50 BY COBOL74 35.250

TASK TYPE: COROUTINE(CALL)

PRIORITY: 50

USERCODE: WIGS.

SUBSYSTEM: LINC

9920 STACK EXTENDED FROM 715 TO 895 WORDS.

9920 STACK EXTENDED FROM 895 TO 1000 WORDS.

9920 STACK EXTENDED FROM 1000 TO 1100 WORDS.

9920 (WIGS)BOREDB/LOGGER ON W36.

PROCESSOR TIME: 00:00:16.809 USERCODE: WIGS.

I/O TIME: 00:00:19.341 LINES PRINTED: 920.

READYQ TIME: 00:00:39.400 AVERAGE MEMORY USAGE: CODE=6606, DATA=7255

INITPRIT TIME: 00:00:05.113 MEMORY INTEGRAL: CODE=238.806, DATA=262.272

OTHERPRIT TIME: 00:00:00.144 DATA & CODE ALLOWED IN & OCCUPIED: LOCAL 2.

ELAPSED TIME: 00:02:52.726 INITIAL PRITS: 3104, OTHER PRITS: 42.

COSTS :

CENTRAL PROCESSOR :

I/O PROCESSOR :

SAVE MEMORY :

PLAY MEMORY :

TOTAL COST :

R1,66

R0,74

R0,89

R0,43

R0,04

R3,76

14:39:06
14:39:11
14:39:12
14:39:26
14:41:58

EOT

9920
9920
9920
9920
9920

14:41:59

EOJ 9917

LOGGER.

PROCESSOR TIME: 00:00:00.138 USERCODE: W165.
I/O TIME: 00:00:00.449 AVERAGE MEMORY USAGE: CODE=83, DATA=114B
READYO TIME: 00:00:00.120 MEMORY INTEGRAL: CODE=0.049, DATA=0.675
INITPBIT TIME: 00:00:00.047 DATA & CODE ALLOWED IN & OCCUPIED: LOCAL 2.
ELAPSED TIME: 00:02:54.789 INITIAL PBITs: 33.

COSTS :

CENTRAL PROCESSOR : R0.01
I/O PROCESSOR : R0.02

TOTAL COST : R0.03

***** TOTAL COSTS FOR JOB 9917 *****
*
* CENTRAL PROCESSOR : R1.67 17 SECS *
* I/O PROCESSOR : R0.76 20 SECS *
* LINES PRINTED : R0.89 920 LINES *
* SAVE MEMORY : R0.43 6689 WORDS *
* OLAY MEMORY : R0.04 8403 WORDS *
* TOTAL COST : R3.79 *
*
*PBR*****231184*

7 LINC CODING STANDARDS

(Based on Burroughs Advanced LINC Instructor Guide - 1983 with acknowledgments)

1 COMMENTS

1. 1 Separate each Section and ISPEC with a heading.
1. 2 Use comments for any complicated logic or notes for further testing.
1. 3 Use TEACH/HELP screens for narrative of the screen's actions and for additional operator information.

2 CONSISTENCY

2. 1 Use "=" when information follows the LINC/LIRC command, e.g. "POS=23".
2. 2 Use ";" when no additional value follows the command e.g. "END;".
2. 3 Indent nested levels of GROUP items 3 spaces.
2. 4 Indent all conditional and loop commands 3 spaces.

3 ABBREVIATIONS

3. 1 Abbreviate all commands in the Data section.
3. 2 Do not abbreviate any other commands.

4 OPTION and USER SECTION

4. 1 Include all of the Options rather than using default values.

5 PROFILE SECTION

5. 1 Group all the Profiles for each Component together.

6 GLOBAL SECTION

6. 1 Group the following - Elementary data items, Global work, Keywords, Group data items, Global logic
6. 2 All elementary data items begin with "GD-".
6. 3 All global work data items begin with "GW-".
6. 4 All group items begin with "GP-".
6. 5 All keywords begin with "KW-".
6. 6 All global logic has a ":GL" in columns 78-80.

6. 7 Include any constant used in multiple ISPECs in Global data e.g. GD-INQ (INQ), GGD-MENU (MENU) , GD-ASTERISK (*****), GD-1 (1) ED = N , GD-NOT-FND (*****).

7 COMPONENTS and EVENTS

7. 1 All of the Components should be in alphabetical order.
7. 2 All of the Events should be in alphabetic order after the Components.
7. 3 All US=INPUT inquiry screens should be Memo components.
7. 4 Put the ISPEC name in columns 67-72.

8 DATA SPECIFICATIONS

8. 1 Do not qualify data names unless ordinates.
8. 3 Line up the attributes and maintain a set sequence e.g.
 LI = 07 POS =.40 LE = 07 ED =.RA;
 LI =.08 POS = 30 LE = 04 ED =.RA.
8. 4 Keep all the displays in LINE and POS order and all the data in LINE and POS order
8. 5 Keep Displays and Data in screen LINE and POS order
8. 6 All fields should be right aligned.
8. 7 Do not use signed fields on data entry screens if avoidable. Make them unsigned
 US = INPUT on screen and signed USAGE = OUTPUT in the database.
8. 8 For inquiry screens make each line POS = 80 LE = 78 to eliminate delimiters.

9 LOGIC

9. 1 Surround loops with blank lines.
9. 2 Do not use multiple lines on one statement.
9. 3 Use GLOBAL LOGIC for logic in more than one screen and do not repeat logic in more than one screen if avoidable.
9. 4 Indent conditional statements and loops.
9. 5 Comment as much as possible.
9. 6 Each label should begin with "LAB-".

10 LIRC

10. 1 Include some documentation/narrative at the beginning.
10. 2 Try to put as much logic as possible within the frame.
10. 3 Separate each frame with "-----" or "*****".

- 10 4 SETUP.DATA begin with SD-.
- 10 5 Group SETUP.DATA begin with SG-.
- 10 6 ACCEPT data begins with AX-.

11 EFFICIENT LINC

- 11. 1 Any literal used twice should be GLOBAL DATA or SETUP DATA.
- 11. 2 There is usually a way to avoid repetitive logic in a single ISPEC using a BEGIN.LOOP and a JUMP.TO. This is especially important with DT; LU; FLAG; AUTOs which generate many lines of COBOL.
- 11. 3 Break all loops as soon as possible.
- 11. 4 Only keep the lowest level of profiles
 - eg. by customer by ispec by date gives three profiles
 - by name by number for deletes and LU; FROM.
- 11. 5 Group your flags together.
- 11. 6 Do not do several DT; TOTAL for many totals, do a DT; EVERY and code the add routines so that the detail is only read once.
- 11. 7 Be careful with COPY.FROM where it is easy to read more records than you need to (see reference manual).
- 11. 8 Use subroutine for the logic needed in several different screens if it occurs in pre-screen logic.
- 11. 9 Global data tables should have most frequent data first.
- 11.10 Don't have profiles which are used in infrequent LIRCs. Do a sort instead.

8 QUME QVT109 TERMINAL STATUS LINE SETTINGS

The Status line setting for the QUME when used as a Ground-water Data base terminal are given below. To change the status line, press the Ctrl-Shift-Setup keys simultaneously. Once the cursor is in the Main Status Line, one can move it to any field in any of the seven Status Lines by pressing the cursor position arrow keys. When the configuration of the Status Lines is changed the new configuration can be written into memory by pressing Shift-S. Shift-D returns all values to the default values (see QVT Operator's Manual) while Shift-R recalls the previously saved configuration. By pressing the Setup key a second time the cursor will also exit the Status Line.

MAIN STATUS LINE

ON LINE	
CHAR MODE	
FDX	
PROT	OFF
KB	ON
AUX	OFF
MON	OFF
GRAPH	OFF

SET 1 STATUS LINE

SCROLL JUMP	(optional)
REPEAT ON	
CLICK	OFF (optional)
MARGIN BELL	OFF (optional)
E O M	NUL
COMPOSE	OFF

SET 2 STATUS LINE

LINE WRAP	OFF
LINE FEED	OFF
SCROLL	ON
DISPLAY PE	OFF

STD VID
X-ON ONLY

SET 3 STATUS LINE (HOST)

DATA BIT	8
BIT8	0
PARITY	OFF
PARITY BIT	ODD
STOP BIT	1
BAUD RATE	9600

SET 4 STATUS LINE (AUX)

DATA BIT	8
BIT8	0
PARITY	ON
PARITY BIT	ODD
STOP BIT	1
BAUD RATE	19200

SET 5 STATUS LINE

CURSOR	BLOCK
CURSOR	STEADY
HERE IS:	
TIME	ON
FREQ	60

SET 6 STATUS LINE

XPARENT	OFF
KB TYPE:	US
STATUS LINE	OFF
EMULATION	QVT109
F1:	A@M

9 NOTES

9.1 NOTES FOR DATAPOINT PROGRAMMER

1. File must be transferred to WGROND PACK.
2. Record size = 14 words.
3. Block size = 420 words.
4. File title as given on Batch header sheet but under the (WIGS) Usercode.
5. The first record in a file must be a Batch header.
6. Thereafter data records must be encoded in the order given.
7. The first data record of each site entered must contain the Site id code (Map number in the case of ENTRY). All succeeding data records of the *same site must* have a *blank* Site id code.
8. Header record numbers and Repeating group numbers should always be coded with zero.
9. All alpha fields are left-justified.
10. All numeric fields are right-justified and left space filled.

9.2 PROGRAM MAINTENANCE NOTES

LIRC PROGRAMS

There are four LIRC programs for extracting data from the Data base, BOREDB/PRINTIDCODE, BOREDB/TRANSMITFILE, BOREDB/PRINTGRID and BOREDB/PRINTFARM. The first does all printer reports by Site id code and the second all transmission file reports, the third and fourth do extracts to printer by data sets according to Grid and Farm number respectively. Both make extensive use of copy books in their generation. The copy books should not be resequenced! Note that some of these copy books are also used by the Delete program.

GLI NOTES

BOREDB/PROGRAM must be in the mix before this job is attempted. The preparation of negative numbers for GLI is complex. The procedure is explained in the B1000 Series LINC Installation and Operations Manual on page 2 - 17.

ACTUAL DELETION OF RECORDS

Deletion of records is done by the following command under CANDE:

ST J/LIRC/DELETE (25,"XX")

where XX is replaced by the directory name under which the output file is to be created on BACKUP (PACK). See INQUIRIES (6.1) for further detail of directory naming conventions.

As each record is deleted, a copy of it is written to a file under the directory XX on BACKUP. This file should be printed out (with U PRINT, see Inquiries) and kept as a record of data deleted from the data base.

LOGGER AND DUMPDB PROGRAMS

DUMPDB dumps the entire contents of the Data base to a printer backup file. It should only be used during development testing.

LOGGER prints a record of every transaction processed since a particular date, sequenced by User number.

DBOPEN UTILITY

A utility which opens the Data base when STARTed is provided (J/UTIL/DBOPEN). A single parameter, Queue, is required.

This program keeps the Data base open until

? < mix no> HI<F19>

is transmitted. This utility makes testing faster because individual programs are saved the overhead of opening the Data base each time they are executed.

The source of this program is S/UTIL/DBOPEN.

FILE VERSIONS

A program is provided which tests last access dates of nominated files against dates stored in a reference file. The purpose is to identify old versions of files which may have found their way to the disk pack and to identify files that have been removed in error.

This program (P/UTIL/FILEDATES) should be run daily and any errors should be investigated without delay.

The reference file is D/UTIL/FILEDATES ON WDATA. If necessary, files may be added to or taken out of the reference file.

Last access dates later than those on the reference file are reported and the reference file is updated (this is not an error condition).

SYSTEM BACKUP

A Job deck (J/UTIL/BACKUP) is provided which makes a copy to magnetic tape of all disk files on WGROND under the WIGS usercode. Two parameters must be provided: Queue and a Serial number to identify the copy. The tape label is WIGSYMMDDNN where the date is obtained from the system and NN is the serial number provided as a parameter.

The Data base should not be in use when this copy is made. Audit and log files on WDATA pack are not copied by this job deck although the Data base is copied.

Once in production, on-line dumps of the Data base should be taken.

Arrangements have been made for a cycle of six tapes to be retained by the Tape Library. No Term or Security copies are retained at present.

LIST OF DO-FILES AND WHAT THEY DO

DO/GO	Start of day routine - to be run daily after logging on in the morning
DO/INQ	Runs DMINQUIRY under CANDE
DO/COMP	Compiles LOADPARAMS2 program
DO/LIRC	Processes INQUIRY (XTRCT) files.

EXAMPLE OF PRINTOUT FROM DELETE COMMAND

[illegible]

10 REFERENCE MANUALS

SUBJECT (MANUAL NAME)	DATE OF MANUAL	REFERENCE NUMBER
ALGOL Reference manual	Dec 1984	5011760
B7900 Systems capabilities and features	July 1984	1166170
B7900 System operator's guide	May 1985	1182151
CANDE Operations manual	Dec 1984	5014962
CANDE Reference manual	Dec 1984	5014541
COBOL ANSI-74 reference manual	Dec 1984	5014442
COBOL Language manual	Dec 1984	5001464
COMS Programmers guide (relative to MARC 3.5)	Dec 1984	1154531
Disk Subsystem software overview	Dec 1984	1169711
DMSII DASDL Reference manual	May 1985	1163805
DMSII Data dictionary reference manual	Nov 1984	1177128
DMSII Database certification software ops guide	Dec 1984	1164050
DmsII Inquiry software operation guide	Dec 1984	1164035
DMSII Inquiry reference manual	Dec 1984	5001472
DMSII Interpretive interface user's manual	Sept 1977	1163813
DMSII User language interface software ops guide	Dec 1984	5012230
DMSII Utilities and operations guide	Dec 1984	1163839
ERGO Capabilities manual	Dec 1984	1163847
ERGO User's manual	Dec 1984	1154291
I/O Subsystem reference manual	Sept 1983	5014483
LINC Help information (LINCII)	Dec 1984	
LINC Installation and operations manual (LINCII)	JUL 1985	1163953
LINC Reference manual (LINCII)	JUL 1985	1163961
LINC Report reference manual (LINCII)	JUL 1985	1163979
MARC Manual assisted resource control user's guide	Dec 1984	1169588
System Software site management reference manual	Dec 1984	5014418
System Software support reference manual	Dec 1984	5014434
System Software utilities reference manual	Dec 1984	5014426
WFL Reference manual	Feb 1984	5011794

If you are interested in any of the above manuals, please contact your local BURROUGHS Systems services representative or the BURROUGHS logistics department in Johannesburg at (011) 442211 for more information. The following manual is available from Tecnetics at (011) 7891211.

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