

Groundwater Database

Metadata, Data Dictionary & Standards Summary

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GWDB Structure and Concepts

The following information is provided to explain the structure of the Groundwater Database (GWDB) and the terminology used in this manual.

Database

A Database consists of data organised in a planned manner. A Database Management System is a collection of programs that help you organise and use your information in a planned way.

Data means information, such as a location or property description.

A summary of the technical details of the bores in the GWDB are stored in specially designed "subject" tables. For example, all strata details for all bores are stored in the **Strata Log table**.

Fields

One piece of information is placed in a field e.g. Registered Number (RN). A field is made up of one or more characters e.g. alphabetic, numeric, brackets, etc.

Rows

Data from one or more fields make up a horizontal row e.g. a Strata Log row in the Groundwater Database is composed of the following fields

- Registered Number
- Record
- Top of Strata
- Bottom of Strata
- Description

Table

A number of rows with the same field structure make up a table e.g. a number of Strata Log rows.

The Groundwater Database is a relational database, consisting of a series of tables related to each other, by means of the registered number of the bore.

Identification Data

The information required to identify a row in a table varies from one table to another. The most common Identification Data for records in the Database are:

- Registered Number
- Pipe
- Date
- Record

A full description of each item follows.

Registered Number

Every facility in the Groundwater Database has been assigned a Registered Number (RN). Its purpose is to uniquely identify the facility. The facility could be a production bore, a test bore, a surface water facility or anything about which it is desirable to record data in a format acceptable to the Database.

The Registered Number is the identifier common to all tables. It allows the rows in different tables for a particular facility to be linked together. It is present for every record in the Database.

There exists a convention of allocating eight and nine digit numbers to Department of Natural Resources and Mines (DNRM) investigation bores. The first four digits are the surface water drainage basin and sub-basin.

Pipes

The length of casing installed and used to access the aquifer is referred to as the pipe. Pipes use letters to distinguish them.

Single Pipe

A single pipe refers to a bore that operates as if it has a single length of casing. However, by definition in the Groundwater Database, a bore with several different diameter casings joined concentrically to effectively form a single pipe will be called a single pipe bore. See Example 2 on page 19.

For a bore containing a single pipe the PIPE field will contain an A.

Multiple Pipes

A multiple pipe bore is where a single hole passes through a number of aquifers and a number of pipes are inserted to monitor each individual aquifer. Each pipe is separated from the others in such a way that each one acts as if it was a single pipe bore. A multiple pipe bore is given the one RN and each pipe identified as A, B, C etc. with A being the deepest, B the second deepest and so on. See Example 3 on page 20.

In a multiple hole situation where there is more than one hole containing pipes (e.g. nested spears) with the same RN, the pipe identification A, B, C etc. must be extended across all holes. The pipe identification must follow the depth convention. See example 4 on page 21 and example 5 on page 22.

No Pipe

Pipes with a value of X refer to a borehole before it is completed with a Pipe. An example would be a conductivity measurement taken during drilling.

For the **Casing Table** the PIPE field should contain an X for records about material not directly related to a pipe. For example grout, gravel pack etc.

If a surface water facility is to be recorded in a table that has Pipe in the identification data, the field must be completed with X.

Date

Because date is a reserved word in the database system, RDATE is used as the field name in the tables. For many of the tables it is important to distinguish between data recorded at

different times for the same facility. This is done by using the date on which the particular action took place.

If the *day* in the date cannot be ascertained the first day of the month may be adopted.

If the *month* cannot be ascertained January may be adopted.

If the *year* cannot be found the year 2100 may be adopted.

Record

The Record is a number between 1 and 999 inclusive, depending on the table. It is the next highest level of unique identification, after Date.

Record numbers are used to identify and distinguish rows in a table that contain data from the same RN/Pipe and/or the same date. For example, the data in Example Row 1 is different data to that in Example Row 2, even though the record numbers are the same, because the dates are different. The data in Example Row 2 is different to that in Example Row 3, even though the dates are the same, because the record numbers are different.

	<u>RN</u>	<u>Date</u>	<u>Record No. (Rec)</u>
Example 1	100	01/01/1980	1
Example 2	100	02/01/1980	1
Example 3	100	02/01/1980	2

Bore report label: RECORD NUMBER or REC

File column name: REC

Description of Data Tables

General Information

Groundwater Database Tables hold data that relate to Queensland groundwater resources and its management. The main data tables are:

- Registration Table**
- Casing Table**
- Strata Log Table**
- Aquifer Table**
- Wireline Log Table**
- Pumping Test and Design Table**
- Flow and Pump Test Readings**
- Bore Condition Table**
- Elevation Table**
- Water Level Table**
- Water Quality Field Measurement Table**
- Water Analysis Table**
- Special Water Analysis Table**
- Multiple Conductivity Table**
- Stratigraphy Table**

If data is to be stored in other tables within the database then the facility must have an entry in the **Registration Table**.

As identification data occur in all tables, they are described and explained only once in the preceding section **GWDB Structure and Concepts**.

Note that in this document under each column name, the 'Bore Report Label' that shows what the column is called on the Bore Report and the 'File Column Name' that shows what the column is called in extracted data files, is also provided.

The data in the Groundwater Database has been collected over many years from many different sources. The quality of bore locations and other data are variable and the bores construction and other bore properties may have changed over time from that recorded. The information should only be used by suitably qualified people.

REGISTRATION TABLE

INTRODUCTION

A record must be made in the **Registration Table** if information is to be stored in any other table. The information recorded in this table is vital for locating the facility geographically, and recording its type and status.

Attribute Names

Registered Number	Office
Log received date	District Office File Number
Regional Office File Number	Head Office File Number
Facility Type	Facility Status
Facility Role	Basin
Sub Area	Shire
Lot	Registered Plan (RP)
Original Description	Parish
County	Latitude
Longitude	Easting
Northing	Zone
Accuracy	GPS Accuracy
GIS Latitude	GIS Longitude
Checked	Drilled Date
Driller Name	Driller Licence Number
Drilling Company	Method of Construction
Map Scale	Map Series
Map Number	Progress Section
Present Equipment	Original Facility Number or Name
Bore Line	Polygon
RN of Bore Replaced	Data Owner

Office

The state of Queensland has been divided into 17 areas for the management of the Groundwater Database. This field is a compulsory field in the database.

Office codes

CODE	OFFICE
AYR	Ayr
BIL	Biloela
BNE	Brisbane
BBG	Bundaberg
CHV	Charleville
EMD	Emerald
GTN	Gatton
GDI	Goondiwindi
LGH	Longreach
MKY	Mackay
MBA	Mareeba
MDB	Mundubbera
RCK	Rockhampton

RMA	Roma
STG	St. George
TBA	Toowoomba
WCK	Warwick

Bore report label: OFFICE

File column name: OFFICE

Log Received Date

The date the drillers log has been received by a Department office. The format for the date must be DD/MM/YYYY (e.g. 04/03/2005). The Log Received Date cannot be before the Drilled Date.

Bore report label: DATE LOG RECD

File column name: LOG_RECEIVED_DATE

District Office File Number

The identification of the district office paper file, containing details about the bore, is entered here. If this field is to be used to identify all the facilities on the one file, the file number must be written the same way each time it is entered in the field. For example the following file numbers would not be grouped together if a search were made for all the facilities on the file. The space between the "W" and the "2" in the second example would make it a different file number from the first.

Example 1	W231/2
Example 2	W 231/2

Bore report label: D/O FILE NO

File column name: DO_FILE

Regional Office File Number

The identification of the regional office paper file, containing details about the bore, is entered here. If this field is to be used to identify all the facilities on the one file, the file number must be written the same way each time it is entered in the field. For example the following file numbers would not be grouped together if a search were made for all the facilities on the file. The blank between the "W" and the "2" in the second example would make it a different file number from the first.

Example 1	W231/2
Example 2	W 231/2

Bore report label: R/O FILE NO

File column name: RO_FILE

Head Office File Number

The head office file number referring to the bore should be stored here. If this field is to be used to find all the bores on the same file the file number must be written the same way each time it is entered. For example the following file numbers would not be grouped together if a search were made for all the facilities on the file. The blank between the "W" and the "2" in the second example would make it a different file number from the first.

Example 1	W231/2
Example 2	W 231/2

Bore report label: H/O FILE NO

File column name: HO_FILE

Facility Type

The type of facility. There are three distinct types of facility, Artesian (flowing), sub-artesian (non-flowing) and surface water facilities. Artesian bores are divided into several sub sections based on their conditions. This field is a compulsory field in the database.

Facility Type

CODE	DESCRIPTION
AB	Artesian Bore, Condition Unknown
AC	Artesian Bore, Ceased to Flow
AF	Artesian Bore, Controlled Flow
AS	Artesian Bore, Seasonal Flow
AU	Artesian Bore, Uncontrolled Flow
SF	Sub-artesian Facility
SW	Surface Water Facility

Bore report label: FACILITY TYPE

File column name: FACILITY_TYPE

Facility Status

The Facility Status defines whether the facility is proposed, existing, abandoned and destroyed or abandoned but still useable. This field is a compulsory field in the database.

Facility Status

CODE	DESCRIPTION
AD	Abandoned and Destroyed
AU	Abandoned but still useable
EX	Existing
PR	Proposed

Abandoned and Destroyed

The bore has had its casing removed and/or been plugged and is therefore no longer useable.

Abandoned but still Useable

The bore is in a useable condition but is not currently utilised.

Existing

The bore is currently in use.

Proposed

The proposed status is often used to reserve an RN for licence purposes. It is used for private bores that have not been constructed at the time of entry.

Bore report label: STATUS

File column name: FACILITY_STATUS

Facility Role

A bore can have one or more facility roles. These facility roles are stored in a separate table to the **Registration table**. The available codes and their meaning can be found in the

Facility Role table definition under the **Support Tables** section of this data dictionary. Note that this field represents the broad roles of the facility rather than the purpose for which the water from the bore is used, which may be available in the Departments Water Management System.

Bore report label: ROLES

File column name: -

Basin

The Basin is a four-digit number that is consistent with those numbers used by the Department to define the surface water drainage sub-basins in Queensland.

Bore report label: BASIN

File column name: BASIN

Sub-Area

The Sub-Area is a three-digit number that allows each district to sub-divide its area into a maximum of 999 areas. These additional 999 areas need not correspond to surface water drainage or any other geographical feature and can be used to define irrigation areas, licensing areas, bores accessing a particular aquifer, etc.

Bore report label: SUB-AREA

File column name: SUB_AREA

Shire

A Shire represents an area of Local Government in Queensland. This field is a compulsory field in the database.

Bore report label: SHIRE

File column name: SHIRE_CODE

Lot

The Lot is the number of the lot on a Registered Plan on which the facility is located.

Bore report label: LOT

File column name: LOT

Registered Plan

The Registered Plan is the number of the plan that contains the lot on which the bore is located.

Bore report label: PLAN

File column name: PLAN

Original Description

The real property description of the land on which the bore is located, other than a lot and plan which is provided for separately. If a Lot and Registered Plan have been entered in their designated fields, this field may be used to record the original portion number.

The Parish and County are allowed for in the following two fields. It should be noted that it is not a property description of all the land owned, it simply describes the land on which the facility is located.

The abbreviations follow the standard set used by the **Division of Valuation of the Lands Department**, as at December 1990.

Examples

S1 2 A20 -SSEC45	SL 43/7634
A18 19	L1 2 ME14589 SL 43/7629
R24 33 S3 P139	RESERVE 123
L1 2 WD14547	STRATA
L1 3,6 RP12345	

Bore report label: ORIGINAL DESCRIPTION File column name: DESCRIPTION

Parish

The Parish is required in conjunction with the Description and County fields to define the location of a facility. It is necessary to code Parish because there are several parishes in Queensland with the same name. Use the publication listed below to find the correct parish number. This field is a compulsory field in the database.

Edition Three
"Queensland Parish Directory"
Authorised by K J DAVIES
Surveyor General
Queensland July, 1986

Bore report label: PARISH NAME

File column name: PARISH

County

The County is required in conjunction with the Original Description and Parish to define the location of a bore. The County will be recorded by name and not coded because County names are unique.

Bore report label: COUNTY

File column name: COUNTY

Latitude

Latitude and Longitude are used to describe the position of the bore on the earth's surface. Entered as degrees, minutes and seconds e.g.24-30-24. Fractions of a second are not allowed. All latitudes are stored as positive South by default. All Latitudes are in GDA94.

Bore report label: LATITUDE

File column name: LAT

Longitude

Latitude and Longitude are used to describe the position of the bore on the earth's surface. Entered as degrees, minutes and seconds e.g.152-30-23. Fractions of a second are not allowed. All longitudes are stored as East by default. All Longitudes in the GDWB are in GDA94.

Bore report label: LONGITUDE

File column name: LNG

Easting

The Easting is required to define the Map Grid of Australia (MGA) co-ordinates. The easting must be a 6-digit number.

Bore report label: EASTING

File column name: EASTING

Northing

The Northing is required to define the Map Grid of Australia (MGA) co-ordinates. The northing must be a 7-digit number.

Bore report label: NORTHING

File column name: NORTHING

Zone

The Zone is required to define the Map Grid of Australia (MGA) co-ordinates. The zone must be either 54, 55 or 56.

Bore report label: ZONE

File column name: ZONE

Accuracy

The Accuracy to which the facility has been located.

Accuracy

CODE	ACCURACY
GPS	Global Positioning System
INSP	Government Inspection
PHOT	Aerial Photo
SKET	Sketch
SURV	Survey
UNKN	Unknown

Global Positioning System

The bores location has been determined by a Global Positioning System (GPS).

Inspection

The bore has been inspected by a Government Officer, and approximately located using methods such as car mileage etc.

Photo

The bore has been located by using aerial photographs.

Sketch

The property owner or driller or other person has provided a sketch or plan of the property with the bore location indicated on it.

Survey

The location of the bore has been determined by a proper survey.

Unknown

It is unknown how the bore's position has been determined.

Bore report label: ACCURACY

File column name: ACCURACY

GPS Accuracy

The accuracy of the GPS unit used. This field is only used if the Accuracy is set to GPS. e.g. 100 means a GPS with an accuracy of ± 100 metres has been used.

Bore report label: GPS ACC

File column name: GPS_ACCURACY

GIS Latitude

GIS Latitude and GIS Longitude are used to describe the position of the bore on the earth's surface and are used for mapping purposes. On occasion the location stored in these fields can vary from a location taken by a GPS. This is to allow the bore to fall in a better position with relation to property boundaries in the Digital Cadastral Database (DCDB) that vary in accuracy.

GIS Latitude is entered as decimal degrees. Latitudes south of the equator are commonly reported as negative and this is enforced here. All latitudes in the GWDB are in GDA94.

Bore report label: GIS LAT

File column name: GIS_LAT

GIS Longitude

GIS Latitude and GIS Longitude are used to describe the position of the bore on the earth's surface and are used for mapping purposes. On occasion the location stored in these fields can vary from a location taken by a GPS. This is to allow the bore to fall in a better position with relation to property boundaries in the Digital Cadastral Database (DCDB) that vary in accuracy.

GIS Longitude is entered as decimal degrees. All longitudes in the GWDB are in GDA94.

Bore report label: GIS LNG

File column name: GIS_LNG

Checked

Indicates whether or not the location of the bore has been validated using a mapping program.

Bore report label: CHECKED

File column name: CHECKED

Drilled Date

The Drilled Date is the date on which the drilling of the bore was completed. It stores the initial completion date and not the date of subsequent deepening's. The Drilled Date must not be later than the Log Received Date.

Bore report label: DATE DRILLED

File column name: DRILLED_DATE

Driller Name

The name of the driller who drilled the initial bore at the site. The standard format for entering a drillers name is Last-name, First-name Second-name e.g. Blogs, Jo Peter.

Bore report label: DRILLERS NAME

File column name: DRILLER_NAME

Driller Licence Number

The licence number of the driller who drilled the initial bore at the site.

Bore report label: -

File column name: DRILLER_LICENCE_NUMBER

Drilling Company

The Drilling Company is the name of the company who drilled the initial bore at the site.

Bore report label: DRILL COMPANY

File column name: DRILLING_COMP

Method of Construction

The method used to construct the bore. e.g. CABLE TOOL, ROTARY, PICK AND SHOVEL.

Bore report label: METHOD OF CONST.

File column name: METHOD_CONST

Map Scale

A map or plan on which the facility is plotted for location purposes will be identified using the three fields Map Scale, Map Series and Map Number. Each field is treated separately.

The Map Scale code is a three digit number defined in such a way that it will tell you what the actual scale is.

Consider the following examples:

1. 1:2 500 Scale

The first two digits of the 2 500 are recorded as the first and second digit of the 3 digit number. The number of trailing zeros after the first two digits is then recorded i.e. 2 in the above example. Thus the code for 1:2 500 is 252.

2. 1:100 000 Scale

The first two digits are 10 and there are four trailing zeros therefore the code will be 104.

For the old Imperial type maps that were used to record groundwater details the approach is simply to use 4ML for four mile, 20C for twenty chain etc. Refer to the map scales and codes.

Map Scale Codes

CODE	DESCRIPTION
252	1:2 500
502	1:5 000
103	1:10 000
253	1:25 000
503	1:50 000
104	1:100 000
254	1:250 000
4ML	4 Mile Series
2ML	2 Mile Series
40C	40 Chain
20C	20 Chain

Bore report label: MAP-SCALE

File column name: MAP_SCALE

Map Series

The Map Series used to locate the bore.

Map Series

CODE	MAP SERIES
C	Department Plans
M	Metric Series
N	New Series

Department Plans

These are special maps produced by the Department where existing mapping is not satisfactory for our purposes.

As they do not conform to the National Mapping System they carry Department plan numbers.

Metric Series

These are all metric scale maps produced on the National Mapping System.

New Series

These are all the Imperial bore location maps still in use i.e. 4 mile, 2 mile, 40 chain and 20 chain with the exception of Department plans. The words "NEW SERIES" may or may not appear on the map.

In time these maps will be phased out as metric maps become available.

Bore report label: MAP-SERIES

File column name: MAP_SERIES

Map Number

All maps have or should have a unique identifying formatting of the numbers in this field as required for subsequent retrieval and grouping of all the bores on a map or plan.

New Series Numbers

For 4 mile maps these will be 2 digits only.

For 2 mile maps these will be 3 digits only.

For 40 chain maps these will be 4 digits only.

For 20 chain maps these will be 4 digits followed by the letter A, B, C or D (no spaces, no dashes).

The number may or may not be repeated in the title block in the format e.g. 20-4296A. In this case the number required is 4296A.

Metric Series Numbers

The smallest scale maps are 1:250 000 and these numbers are 2 letters, 2 digits, a dash and digits 1 to 16 e.g. SP54-8 or SP54-12.

All other maps are divisions of the 1:100 000 maps, which are 4 digits only.

The 1:50 000 maps are 4 digits, a dash and a number 1, 2, 3 or 4 where the 4 digit number is the 1:100 000 sheet and the numbers 1 to 4 are NE, SE, SW and NW quarters respectively. Thus a 1:50 000 number looks like 5286-2.

1:25 000 maps are an extension of the same quartering system. Thus a 1:25 000 number looks like 5286-23.

1:10 000 maps are the next breakdown and would look like 5286-231 and so forth down to the largest scale produced.

Bore report label: MAP-NO

File column name: MAP_NO

Progress Section

The plan number of the Progress Section on which DNRM Investigation bores have been located.

Bore report label: PROG SECTION

File column name: PROG_SECT

Present Equipment

The equipment on a bore. Generally it applies to the type of pump.

Present Equipment

CODE	DESCRIPTION
AR	Automatic Recorder
CA	Cylinder Pump, additional power
CL	Centrifugal Pump
HS	Helical Screw
HW	Headworks (Artesian Bores)
JP	Jet or Pressure Pump
NE	No equipment/headworks
OP	Orifice Plate
OR	Other Pump
SG	Staff Gauge or bridge, culvert, ford, etc.
SP	Submersible
TE	Turbine
WA	Windmill and Cylinder Pump, additional power
WL	Windmill and Cylinder Pump

Bore report label: PRES EQUIPMENT

File column name: EQUIPMENT

Original Facility Number or Name

The local name of the bore.

Bore report label: ORIGINAL BORE NO

File column name: ORIG_NAME_NO

Bore Line

In many investigation areas, bores were drilled in lines and identified with local names. Occasionally private bores were included in the lines. Each Bore Line was given a name which was not necessarily unique and consequently each Bore Line has been given a unique three-letter code.

Bore report label: BORE LINE

File column name: BORE_LINE_CODE

Polygon

The Polygon number or code in which the bore is located for the purpose of groundwater modelling.

Bore report label: POLYGON

File column name: POLYGON

RN of Bore Replaced

The RN of Bore Replaced records the RN of the bore that this new bore has replaced.

Bore report label: RN OF BORE REPLACED File column name: RN_REPLACES

Data Owner

The Data Owner is the organisation that owns all of the data that relates to the bore and is usually responsible for the collection of that data.

Data Owners

CODE	ORGANISATION
AGS	Australian Geological Survey Organisation
BHP	BHP Pty Ltd
DME	Department of Minerals and Energy
DNR	Department of Natural Resources and Mines
LCC	Lockyer Catchment Centre
MDS	Qld Murray Darling Dryland Salinity
NAP	National Action Plan
PFI	Prawn Farm Investments
SUN	Sunwater

Bore report label: DATA OWNER

File column name: DATA_OWNER

CASING TABLE

INTRODUCTION

The **Casing table** records the facility's casing details. A number of records can be entered to describe the history of the facility's casing.

Attribute Names

Registered Number
Pipe
Date
Record
Material Description
Material Size
Material Size Description
Outside Diameter
Top of Material
Bottom of Material

Material Description

Material Description defines the type of material used in the construction of the bore.

Material Description

CODE	DESCRIPTION
ABS	Acrylonite Butadiene Styrene
BNSL	Bentonite Seal
CENT	Centraliser
CONC	Concrete Liner for Wells
ENDD	* Open End Pipe Considered as an Entry Point
FILL	Cuttings or other fill between casing
FRP	Fibreglass Reinforced Plastic
GRAV	Gravel Pack
GRE	Glass Reinforced Epoxy Resin
GROU	Cement Grout
MASO	Masonry
MDPP	Medium Density Polythene Pipe
OIL	Oil Well Screwed Steel
OPEN	Open Hole (Section of bore uncased)
PERF	Perforated or Slotted Casing Section
PLAS	Plastic Casing (unspecified)
PLUG	Concrete Plug
PVC	Polyvinyl Chloride
SBS	Slimline Black Steel
SCRN	Screen
SGS	Slimline Galvanised Steel
SSL	Stainless Steel
SSSB	Standard Screwed Swelled Black
SSSG	Standard Screwed Swelled Galvanised
STEL	Steel Casing (unspecified)
TIMB	Timber Lining for Wells
WES	Welded Steel Casing or Tubing

* If the open end of the pipe terminates in a waterbed it is considered as a water entry point. If the casing terminates anywhere other than in the waterbed it is not considered as a water entry point, irrespective of whether the bore continues as an open hole.

Bore report label: MATERIAL DESCRIPTION File column name: MATERIAL_DESC

Material Size

The Material Size describes the average size of the Material Size Description field (see below). For wall thickness the mean wall thickness of the length of casing is entered. For a gravel pack, the nominal gravel size (i.e. sieve size that all gravel passes) is entered. For aperture size, the width of the aperture is entered. Values are stored in millimetres (mm).

Bore report label: MAT SIZE File column name: MATERIAL_SIZE

Material Size Description

The Material Size Description identifies what attribute the Material Size field is measuring.

Material Size Description

CODE	DESCRIPTION
AP	Aperture Size for Screens, Slots, Perforations
GR	Gravel Pack; Nominal gravel size
WT	Wall Thickness of casing

Bore report label: SIZE DESC File column name: SIZE_DESC

Outside Diameter

The Outside Diameter of the material. Values are stored in millimetres (mm).

Bore report label: OUTSIDE DIAM File column name: OUT_DIAMETER

Top of Material

The depth from the natural surface to the top of the material in the Material Description field. Values are stored in metres (m).

Bore report label: TOP File column name: TOP

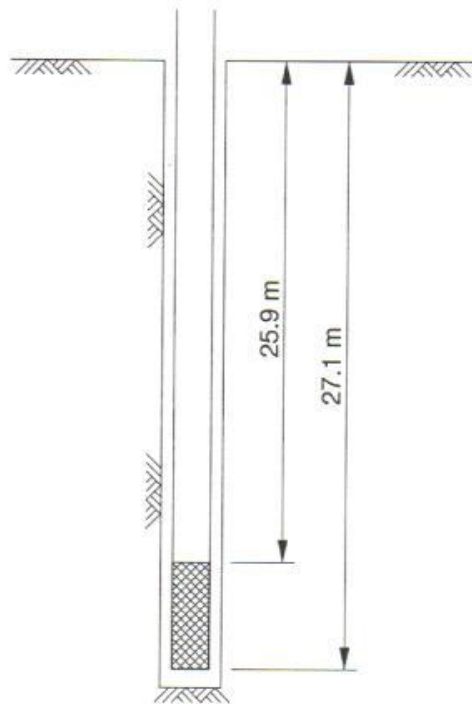
Bottom of Material

The depth from the natural surface to the bottom of the material in the Material Description field. Values are stored in metres (m).

Bore report label: BOTTOM File column name: BOTTOM

EXAMPLE 1

RN 90001

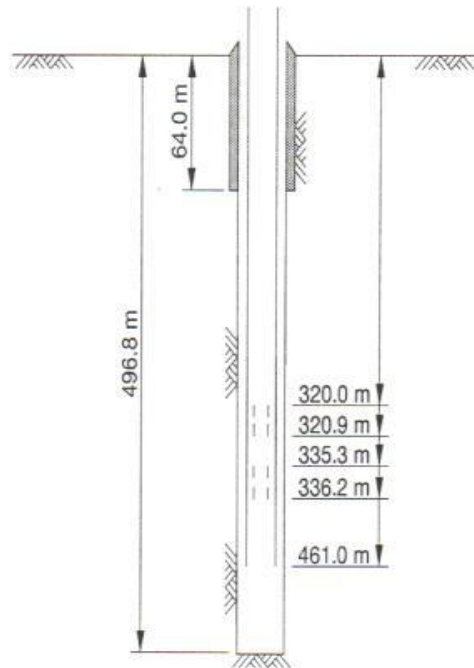


CASING DETAILS							DATA ENTRY UNITS	
Reg Number: 90001							M/Size : MMS	
Pipe :							Diam : MMS	
Count:2							Top/Bot: MET	
							Val:	
Pipe	Date	Rcd	Mat Desc	Mat Size	Size Desc	Outside Diameter	Top	Bottom
A	2-1-1991	1	STEL	10.000	WT	150	0.00	25.90
A	2-1-1991	2	SCRN	1.000	AP	125	25.90	27.10

A4-108895

EXAMPLE 2

RN 90002



Reg Number: 90002
Pipe :
Count:7

CASING DETAILS

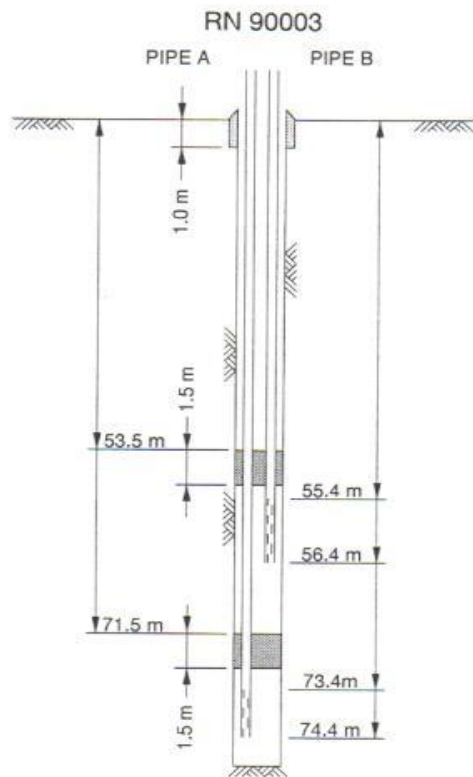
DATA ENTRY UNITS

M/Size : MMS
Diam : MMS
Top/Bot: MET
Val:

Pipe	Date	Rcd	Mat Desc	Mat Size	Size Desc	Outside Diameter	Top	Bottom
A	3-1-1981	1	STEL	10.000	WT	203	0.00	64.00
A	3-1-1981	2	STEL	8.000	WT	150	0.00	461.00
A	3-1-1981	3	PERF	15.000	AP	150	320.00	320.90
A	3-1-1981	4	PERF	15.000	AP	150	335.30	336.20
A	3-1-1981	5	ENDD			203	461.00	461.00
A	3-1-1981	6	OPEN				461.00	496.80
X	3-1-1981	1	GROU			250	0.00	64.00

A4-108896

EXAMPLE 3



Reg Number: 90003

Pipe :

Count:7

CASING DETAILS

DATA ENTRY UNITS

M/Size : MMS

Diam : MMS

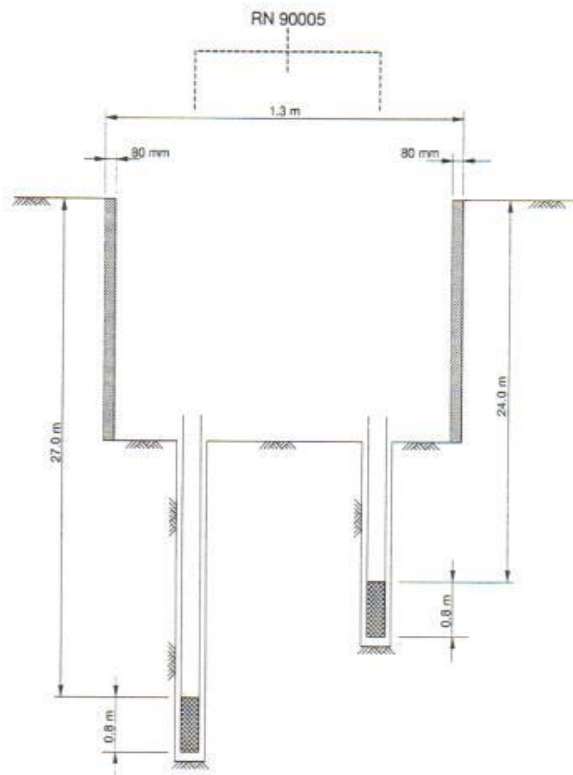
Top/Bot: MET

Val:

Pipe	Date	Rcd	Mat Desc	Mat Size	Size Desc	Outside Diameter	Top	Bottom
A	2-2-1982	1	PLAS	1.800	WT	50	0.00	74.40
A	2-2-1982	2	PERF	1.000	AP	50	73.40	74.40
B	2-2-1982	1	PLAS	1.800	WT	50	0.00	56.40
B	2-2-1982	2	PERF	1.000	AP	50	55.40	56.40
X	2-2-1982	1	GROU			250	0.00	1.00
X	2-2-1982	2	GROU			203	53.50	55.00
X	2-2-1982	3	GROU			203	71.50	73.00

A4-108897

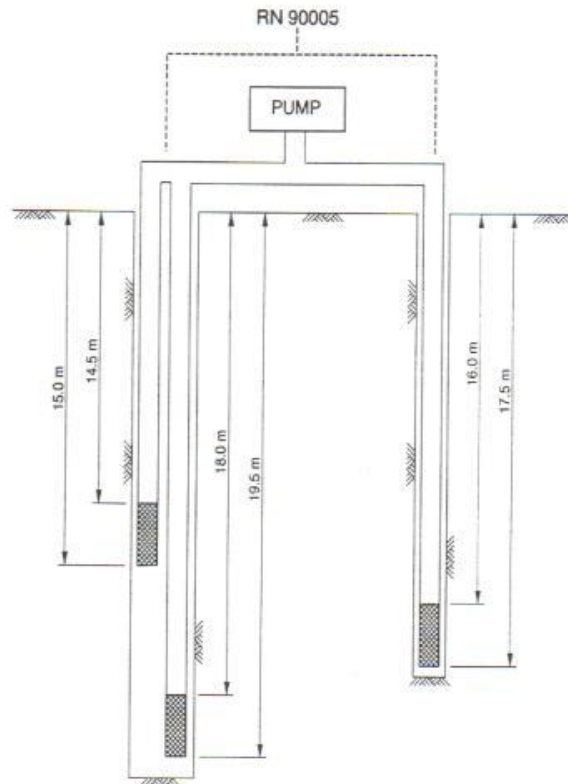
EXAMPLE 4



CASING DETAILS							DATA ENTRY UNITS	
Reg Number: 90005							M/Size : MMS	
Pipe :							Diam : MMS	
Count:5							Top/Bot: MET	
							Val:	
Pipe	Date	Rcd	Mat Desc	Mat Size	Size Desc	Outside Diameter	Top	Bottom
A	6-9-1982	1	STEL	6.000	WT	100	10.00	27.00
A	6-9-1982	2	SCRN	0.100	AP	80	27.00	27.80
B	6-9-1982	1	STEL	9.000	WT	175	10.00	24.00
B	6-9-1982	2	SCRN	0.100	AP	150	24.00	24.80
C	1-6-1981	1	CONC	80.000	WT	1300	0.00	10.00

A4-108898

EXAMPLE 5



CASING DETAILS							DATA ENTRY UNITS	
Reg Number: 90007							M/Size : MMS	
Pipe :							Diam : MMS	
Count:6							Top/Bot: MET	
							Val:	
Pipe	Date	Rcd	Mat Desc	Mat Size	Size Desc	Outside Diameter	Top	Bottom
A	1-4-1983	1	STEL	3.175	WT	101	0.00	18.00
A	1-4-1983	2	SCRN	0.229	AP	76	18.00	19.50
B	1-4-1983	1	STEL	3.175	WT	101	0.00	16.00
B	1-4-1983	2	SCRN	0.178	AP	101	16.00	17.50
C	1-4-1983	1	STEL	3.175	WT	101	0.00	14.50
C	1-4-1983	2	SCRN	0.254	AP	76	14.50	15.00

A4-108899

STRATA LOG TABLE

INTRODUCTION

The records in the **Strata Log table** are a transcription of the strata encountered in a bore as described on the strata log section of a completed drill log.

Attribute Names

Registered Number
Record
Top of Strata
Bottom of Strata
Strata Description

Top of Strata

The depth from the natural surface to the top of the strata described in the Strata Description field. Values are stored in metres (m).

Bore report label: STRATA TOP

File column name: TOP

Bottom of Strata

The depth from the natural surface to the bottom of the strata described in the Strata Description field. Values are stored in metres (m).

Bore report label: STRATA BOT

File column name: BOTTOM

Strata Description

The description of strata in the interval defined by Top of Strata and Bottom of Strata fields is entered here.

Bore report label: STRATA DESCRIPTION

File column name: DESCR

AQUIFER TABLE

INTRODUCTION

The purpose of the **Aquifer table** is to record information about the permeable water bearing beds encountered by a bore penetrating a single geological unit or a number of geological units.

Attribute Names

Registered Number
Record
Top of Aquifer
Bottom of Aquifer
Lithology
Date of Standing Water Level
Standing Water Level of Aquifer when drilled
Flow Indicator
Quality of water in Aquifer
Yield from Aquifer
Contributing Aquifer
Condition
Formation Name

Top of Aquifer

The depth from natural surface to the top of the formation described in the Formation Name field. Values are stored in metres (m).

Bore report label: TOP BED

File column name: TOP

Bottom of Aquifer

The depth from natural surface to the bottom of the formation described in the Formation Name field. Values are stored in metres (m).

Bore report label: BOTTOM BED

File column name: BOTTOM

Lithology

A bore can have one or more Lithology entries. These lithologies are stored in a separate table to the **Aquifer table**. The available codes and their meaning can be found in the **Lithologies table** definition under the [Support Tables](#) section of this data dictionary.

Bore report label: BED LITHOLOGY

File column name: -

Date of Standing Water Level

If a water level measurement when drilled is recorded in this table, a date must be stored with it.

Bore report label: DATE

File column name: RDATE

Standing Water Level of Aquifer When Drilled

The water level measurement from natural surface taken before the bore construction is completed. This measurement must be for the aquifer described in the Formation Name

field. Values are stored in metres (m). Negative measurements indicate the water level is below the natural surface.

Bore report label: SWL

File column name: SWL

Flow Indicator

The Flow Indicator specifies whether or not the water level of the aquifer rose above ground level.

Flow Indicator

CODE	DESCRIPTION
Y	Formation is flowing
N	Formation does not flow

Bore report label: FLOW

File column name: FLOW

Quality of Water in Aquifer

The quality of water found in the formation. In many cases, only a comment regarding the quality of the water is made e.g. BRACKISH.

Bore report label: QUALITY

File column name: QUALITY

Yield From Aquifer

An estimate of the yield from the formation. Values are stored in litres/second (L/s).

Bore report label: YIELD

File column name: YIELD

Contributing Aquifer

A bore can pass through several formations. The Contributing Aquifer field indicates whether the formation from the Formation Name field is supplying water to the completed bore.

Contributing

CODE	DESCRIPTION
Y	Formation is contributing water to the bore
N	Formation does not contribute water to the bore

Bore report label: CTR

File column name: CONTR

Condition

The mechanism by which water is transmitted in the rock mass i.e. is the water transmitted via pores, between grains or via fractures.

Condition codes

CODE	DESCRIPTION	ROCK TYPE
CV	Cavernous	Fractured Rocks
FR	Fractured	Fractured Rocks
VS	Vesicular	Fractured Rocks
WZ	Weathered Zone	Fractured Rocks

PS	Consolidated	Porous Rocks
SC	Semi Consolidated	Porous Rocks
UC	Unconsolidated	Porous Rocks

Bore report label: CONDIT

File column name: CONDITION

Formation Name

The name of the geological unit containing the aquifer being recorded.

Bore report label: FORMATION NAME

File column name: FORM_DESC

WIRELINE LOG TABLE

INTRODUCTION

The **Wireline Log table** holds general information regarding a down hole wire line log such as the type of log, date and the operator.

Attribute Names

Registered Number
Date
Run number
Operator
Log Type
Source
Top of Interval
Bottom of Interval
Comments
Length between readings (Step)
DVD no.
Area

Date

The date on which the wire line log was run.

Bore report label: DATE

File column name: RDATE

Run Number

An operator can do several runs of the same log type on the same day. The Run Number field is used to distinguish between these different runs.

Bore report label: RUN

File column name: RUN_NUM

Operator

The Operator of the logging device at the time the log was run.

Bore report label: OPERATOR

File column name: OPERATOR

Log Type

The type of logs that have been run on the bore. There are a number of different log types, a select few are listed below. A complete list of codes is available from the Department of Natural Resources and Mines.

Log Type

CODE	TYPE
BHC	Borehole Compensated Sonic
CAL	Caliper
CAL3	Caliper 3 arm
CALU	Caliper Unspecified
CCL	Casing Collar Locator
CDL	Compensated Density
CIEL	Conductivity Induction Electricity

CNL	Compensated Neutron
DLL	Dual Laterolog
DT	Sonic
FLOW	Flow Meter
GR	Gamma Ray
IEL	Induction Electric
MLL	Microlaterlog
MSFL	Micro Spherically Focused
SP	Spontaneous Potential

Bore report label: TYPE

File column name: LOG_TYPE

Source

The Government Agency or Company that commissioned the log.

Bore report label: SOURCE

File column name: SOURCE

Top of Interval

The top of the logged interval, measured from natural surface. Values are stored in metres (m).

Bore report label: TOP

File column name: START_DEPTH

Bottom of Interval

The bottom of the logged interval, measured from natural surface. Values are stored in metres (m).

Bore report label: BOTTOM

File column name: STOP_DEPTH

Comment

Any relevant Comments about the log e.g. any holes found in the casing, or where the original digitised data is kept.

Bore report label: COMMENTS

File column name: COMMENTS

Length between Readings (Step)

The distance between readings of the log, in metres (m).

Bore report label: -

File column name: STEP

DVD no.

The identifying number of the Department's DVD that holds the recording of the down hole camera.

Bore report label: -

File column name: DVD

Area

Identifies the local area of the bore.

Bore report label: -

File column name: AREA

PUMPING TEST AND DESIGN TABLE

INTRODUCTION

The **Pump Test and Design table** holds summary information of pumping and flow tests in addition to information derived from these tests. For the readings gathered from a pump or flow test see the **Flow and Pump Test Readings table**.

Attribute Names

Registered Number
Pipe
Date
Record
Registered Number of Pumped Bore
Top of Tested Zone
Bottom of Tested Zone
Distance from Reference Point to Natural Surface
Method of Testing
Test Types
Pump Type
Suction Setting
Discharge prior to Test
Duration of Discharge prior to Test
Pressure on Arrival
Discharge on Arrival
Test Duration
SWL or Static Head
Recovery Time
Residual Drawdown
Maximum Drawdown or Pressure Reduction
Discharge at Maximum Drawdown or Pressure Reduction
Elapsed Time to Maximum Drawdown or Pressure Reduction
Maximum Discharge
Calculated S.W.L or Static Head
Design Yield
Design Pump Inlet Depth or Design Back Pressure
Transmissivity
Storativity

Registered Number of Pumped Bore

It is not always possible to be able to measure the water level (drawdown) from the bore that is being pumped. The Registered Number identifies the bore in which drawdown measurements are made. The Registered Number of Pumped Bore identifies the bore from which water is extracted.

When the pumped bore and the measured bore are the same the two numbers will be identical.

Registered Number	40563
Registered Number of Pumped Bore	40563

Now consider bore 40563 as a sealed off irrigation bore and drawdown in the bore cannot be measured. However drawdown can be measured in the nearby bore 35203. In this case the fields would be as follows:

Registered Number 35203
Registered Number of Pumped Bore 40563

Bore report label: RN OF PUMP-BORE File column name: RN_PUMPED_BORE

Top of Tested Zone

The top limit of the formation contributing water to the discharge volume. It is taken as a measurement from natural surface. The values entered should always refer to the bore defined by Registered Number, not the pumped bore. Values are stored in metres (m).

Bore report label: TOP File column name: ZONE_TOP

Bottom of Tested Zone

The bottom limit of the formation contributing water to the discharge volume. It is taken as a measurement from natural surface. The values entered should always refer to the bore defined by Registered Number, not the pumped bore. Values are stored in metres (m).

Bore report label: BOTTOM File column name: ZONE_BOTTOM

Distance from Reference Point to Natural Surface

The reference point is considered to be the top of the casing or casing protector, pressure tapping point or measurement point. The Distance from Reference Point to Natural Surface denotes how far the reference point is from the natural surface. Values are stored in metres (m).

Bore report label: DIST File column name: DIST_NS

Method of Testing

The method used to gather the information.

Method of Testing

CODE	DESCRIPTION
ART	Any flow or pressure test on a controlled artesian bore
F/F	Free flow measurements taken from an Artesian Bore
PUM	Pump Test

Bore report label: METH File column name: METHOD

Test Types

A bore can have one or more tests performed during a pump or flow test. These Test Types are stored in a separate table to the **Pumping Test and Design table**. The available codes and their meaning can be found in the **Flow and Pump Test Readings table** definition.

Bore report label: TEST TYPES File column name: -

Pump Type

The type of pump that was used during testing. e.g. Turbine, helical rotor.

Bore report label: PUMP TYPE

File column name: PUMP_TYPE

Suction Setting

The distance from the reference point to the pump suction. Values are stored in metres (m).

Bore report label: SUCTION SET

File column name: SUCTION_SET

Discharge prior to Test

The discharge from the bore immediately prior to the test beginning. Values are stored in litres/second (L/s).

Bore report label: Q PRIOR TO TEST

File column name: PRIOR_Q

Duration of Discharge prior to Test

The duration of discharge immediately prior to the start of the test. Values are stored in minutes (min).

Bore report label: DUR OF Q PR

File column name: DUR_PRIOR_Q

Pressure on Arrival

The pressure of the artesian bore on arrival at the site. Values are stored in metres (m).

Bore report label: PRES ON ARRIV

File column name: ARRIVAL_PRES

Discharge on Arrival

The discharge, if any, from the bore on arrival at the site. Values are stored in litres/second (L/s).

Bore report label: Q ON ARRIV

File column name: ARRIVAL_Q

Test Duration

The length of time that all tests were conducted. Values stored in minutes (min).

Bore report label: TEST DUR

File column name: TEST_DURATION

SWL or Static Head

The distance from the reference point to the water surface prior to the test. For an artesian bore this value is the maximum pressure recorded during or immediately prior to testing. Values are stored in metres (m).

Bore report label: SWL

File column name: SWL

Recovery Time

The time in minutes that recovery measurements were taken. Values are stored in minutes (min).

Bore report label: RECOV. TIME

File column name: RECOVERY_TIME

Residual Drawdown

The distance that the water level remains below the SWL, at the time recorded in the Recovery Time field. Values are stored in metres (m).

Bore report label: RESID. DD

File column name: RESIDUAL_DD

Maximum Drawdown or Pressure Reduction

The distance between the SWL and the lowest recorded water level during the test. Values are stored in metres (m). For an artesian bore the maximum reduction in pressure will be the difference between the pressure at the start of the flow recession test and the lowest pressure recorded during this test.

Bore report label: MAX D or P RED

File column name: MAX_DRAWDOWN

Discharge at Maximum Drawdown or Pressure Reduction

The discharge measured at the time the Maximum Drawdown occurs. For an artesian bore this value will usually correspond to the free flow at the end of the flow recession test. If the bore is unable to be tested, but a free flow measurement is taken, then this discharge is entered into this field. Values are stored in litres/second (L/s)

Bore report label: Q at MAX DD

File column name: DISCH_MD

Elapsed Time to Maximum Drawdown or Pressure Reduction

The time elapsed from the start of any pump test to the time when the maximum drawdown occurs. For an artesian bore it is the elapsed time for the flow to reach the discharged entered into the Discharge at Maximum Drawdown or Pressure Reduction field. It will usually correspond to the duration of the flow recession test. Values are stored in minutes (min).

Bore report label: TIME TO MAX DD

File column name: TIME_TO_MD

Maximum Discharge

The Maximum Discharge recorded during the test. Values are stored in litres/second (L/s).

Bore report label: MAX Q

File column name: MAX_DISCHARGE

Calculated SWL or Static Head

The standing water level (SWL) or static head derived using a modified Sternberg analysis. Values are stored in metres (m).

Bore report label: CALC STAT HD

File column name: CAL_STAT_HD

Design Yield

The Design Yield is a derived value from the test analysis. Values are stored in litres/second (L/s).

Bore report label: DESIGN YIELD

File column name: DESIGN_YIELD

Design Pump Inlet Depth or Design Back Pressure

The Design Pump Inlet Depth is the minimum distance the pump inlet would have to be set below natural surface to obtain the chosen Design Yield without the pump breaking suction. For an artesian bore if the design yield of the bore is taken to be that at zero back pressure, the value zero is recorded. Otherwise the back pressure corresponding to the chosen Design Yield is entered. Values are stored in metres (m).

Bore report label: DESIGN BP

File column name: DESIGN_BACK_PRES

Transmissivity

The Transmissivity is a measure of the ability of the aquifer to transmit water. Values are stored in square metres/day (m^2/day)

Bore report label: TMSY

File column name: TRANSMISSIVITY

Storativity

The ability of the aquifer to absorb and release water. Storativity is dimensionless.

Bore report label: STOR

File column name: STORATIVITY

FLOW AND PUMP TEST READINGS TABLE

INTRODUCTION

The **Flow and Pump Test Readings table** stores the actual measurements taken during a flow or pump test. This information does not appear on a bore report.

Attribute Names

Registered Number
Pipe
Date
Record
Test Type
Time
Discharge
Back Pressure or Drawdown
Plot Symbol
Temperature
Comments

Date

The date on which the pump or flow test commenced.

Test Type

The type of test being conducted at the Time specified. Valid Test Types are listed below.

Test Types

CODE	DESCRIPTION	BORE TYPE
AC	Antecedent Conditions	Artesian Bores
DT	Dynamic Test	Artesian Bores
FR	Flow Recession	Artesian Bores
ST	Static Test	Artesian Bores
CD	Constant Drawdown	Sub-Artesian Bores
CQ	Constant Discharge	Sub-Artesian Bores
RT	Recovery Test	Sub-Artesian Bores
SD	Step Drawdown/Step Recovery	Sub-Artesian Bores

Bore report label: -

File column name: TEST_TYPE

Time

The time since the start of the test in minutes (min).

Bore report label: -

File column name: TIME

Discharge

The discharge from the bore at the Time specified. Values are stored in litres/second (L/s).

Bore report label: -

File column name: DISCH

Back Pressure or Drawdown

The back pressure or drawdown in the bore at the Time specified. Values are stored in metres (m).

Bore report label: -

File column name: BP_DD

Plot Symbol

The Plot Symbol field is used for an internal graphing tool that is not available to the public.

Bore report label: -

File column name: PS

Temperature

The temperature at the bore head at the Time specified. Values are stored in degrees Celsius (°C).

Bore report label: -

File column name: TEMP

Comments

Any information relating to the pump test that may be relevant in the analysis of the test. e.g. pump stoppages, increase in gas, change in water colour, solids in flow.

Bore report label: -

File column name: COMMENTS

BORE CONDITION TABLE

INTRODUCTION

The **Bore Condition table** stores information gathered during an inspection of an artesian bore. It stores information on both the bores condition and its associated bore drain and reticulation system.

Attribute Names

Registered Number
Date
Total Bore Drain Length
Maximum Run of Bore Drains
Condition of Drains
Reticulated Pipe Length
Condition of Headworks
Capability of Control
Leakage
Flow Irregularities
Precipitates
Estimated Use
Number of Cattle
Number of Sheep
Comments

Total Bore Drain Length

The Total Bore Drain Length is the total cumulative length of bore drain serviced by the bore in the summer season. Values are stored in kilometres (Km).

Bore report label: DRAIN DETAILS TOT LEN File column name: BORE_DRAIN_LEN

Maximum Run of Bore Drains

The Maximum Run of Bore Drains is the longest single length of bore drain serviced by the bore in the summer season. Values are stored in kilometres (Km).

Bore report label: DRAIN DETAILS MAX RUN File column name: MAX_RUN

Condition of Drains

The Condition of Drains describes in qualitative terms the condition that the inspecting officer considers the bore drains to be in using the following codes.

Condition of Drains

CODE	CONDITION
F	Fair
G	Good
P	Poor

Bore report label: DRAIN DETAILS CDN File column name: COND_DRAIN

Reticulated Pipe Length

The Reticulated Pipe Length is the total length of pipe serviced by the bore. Values are stored in kilometres (Km).

Bore report label: HEADWORKS RET LEN File column name: RETIC_PIPE_LEN

Condition of Headworks

The Condition of Headworks describes in qualitative terms the condition that the inspecting officer considers the head works to be in.

Condition of Headworks

CODE	CONDITION
F	Fair
G	Good
N	No Headworks
P	Poor

Bore report label: HEADWORKS CDN File column name: COND_HEAD

Capability of Control

The Capability of Control indicates whether or not the bore is capable of having its rate of flow varied and shut down using the following codes.

Capability of Control

CODE	DESCRIPTION
F	Fully Controlled – Flow rate can be varied and bore can be safely shut down.
N	Not Controlled – Flow rate cannot be varied and bore cannot be shut down.
P	Partially Controlled – Flow rate can be varied but bore cannot be shut down.

Bore report label: HEADWORKS CTL File column name: CONTROL

Leakage

The Leakage indicates whether the bore has any leakage from either the headwork's or from the outside of the casing using the following codes.

Leakage

CODE	LEAKAGE
B	Both from Headworks and Outside of Casing
C	From Outside of Casing
H	From Headworks

Bore report label: HEADWORKS LEAK File column name: LEAKAGE

Flow Irregularities

A bore can have one or more Flow Irregularity entries. These irregularities are stored in a separate table to the **Bore Condition table**. The available codes and their meaning can be found in the **Flow Irregularities table** definition under the **Support Tables** section of this data dictionary.

Bore report label: FLOW IRREGULARITY File column name: -

Precipitates

A bore can have one or more Precipitates entries. These are stored in a separate table to the **Bore Condition table**. The available codes and their meaning can be found in the **Precipitates table** definition under the **Support Tables** section of this data dictionary.

Bore report label: PRECIPITATE File column name: -

Estimated Use

The estimate of the volume of water used (extracted). Values are stored in megalitres per annum (ML/yr).

Bore report label: EST USE File column name: EST_USE

Number of Cattle

The number of cattle supplied water from the bore.

Bore report label: STOCK CATTLE File column name: NO_CATTLE

Number of Sheep

The number of sheep supplied water from the bore.

Bore report label: STOCK SHEEP File column name: NO_SHEEP

Comments

Any relevant information regarding the bore inspection, particularly in relation to flow irregularities and precipitates.

Bore report label: COMMENT File column name: COMMENTS

ELEVATION TABLE

INTRODUCTION

The **Elevation table** records the elevation of the ground immediately surrounding the bore (natural surface) and the elevation of the reference points used for regular water level measurements. For a bore, the reference point is the top of the casing or casing protector and is where all measurements (such as water levels) are taken.

Attribute Names

Registered Number
Pipe
Date
Elevation
Precision
Datum
Measurement Point
Source of Detailed Survey

Date

The Date in the **Elevation table** is different to other dates in the GWDB because it is not the date that the bore was surveyed but the date that the reference point was established and used for measurement.

When a subsequent reference point is established at a different elevation from the original (e.g. when repaired after damage) a new record will be seen. The Date again, will be the date the point was established and not the date it was surveyed.

This history of reference points enables the use of the appropriate elevation by Date to calculate the correct elevations of the measurements in the **Water Level table**.

Bore report label: DATE

File column name: RDATE

Elevation

The elevation of natural surface or reference point, in relation to a Datum. Values are stored in metres (m).

Bore report label: ELEVATION

File column name: ELEVATION

Precision

The accuracy of the Elevation data recorded using the following codes.

Precision

CODE	DESCRIPTION
BAR	Aneroid Barometer
EST	An Estimate using Contours
GPS	Global Positioning System
SVY	Surveyed

Bore report label: PRECISION

File column name: PRECISION

Datum

The Datum the Elevation is related.

Datum

CODE	DESCRIPTION
AHD	Australian Height Datum
ASS	Assumed Datum
STD	State Datum

Bore report label: DATUM

File column name: DATUM

Measurement Point

Denotes whether the Elevation is for the natural surface or the reference point.

Measurement Point

CODE	DESCRIPTION
N	Natural Surface
R	Reference Point

Bore report label: MEASUREMENT POINT

File column name: MEAS_POINT

Source of Survey Details

The Source of Survey Details only provides further information on instrument surveys where the Precision is SVY.

Survey Source

CODE	DESCRIPTION
12345	If a survey was recorded in a field book e.g 12345 and registered in Head Office the field book registered number should be entered.
CARDS	The survey details exist on the "WaterCARDS Level Observation Point Survey Data Sheet", WRC 973.
NOREC	No record can be found of the elevation calculations.

Bore report label: SURVEY SOURCE

File column name: SURVEY_SOURCE

WATER LEVEL TABLE

INTRODUCTION

The **Water Level table** stores all the water level measurements taken from a recorded Measuring Point.

Attribute Names

Registered Number
Pipe
Date
Time
Measurement
Measurement Point
Remark
Measurement Type
Quality
Collection Authority
Private Collector
Collection Method
Project
Input From

Time

The time at which the measurement was recorded. The time is stored as four digits in 24hr format e.g. 1723.

Bore report label: -

File column name: Time

Measurement

The distance from the Measurement Point to the water surface. Measurements upwards from the Measurement Point are positive while Measurements below the Measurement Point are negative. Values are stored in metres (m).

Bore report label: MEASURE

File column name: MEASUREMENT

Measurement Point

Water level Measurements can be taken from natural surface or a reference point. For a bore the reference point is the top of the casing or casing protector, for a stream gauge board it is the gauge zero.

Measurement Point

CODE	DESCRIPTION
N	Natural Surface
R	Reference Point

Bore report label: N/R

File column name: MEAS_POINT

Remark

The Remark is used to qualify the water level Measurement. It is used to show the following events.

Remark

CODE	DESCRIPTION
B	Bore Purged
D	Dry
P	Pumping Nearby

Bore report label: RMK

File column name: REMARK

Measurement Type

This field indicates the type of measurement stored. If the measurement has been derived from calculating the daily mean from the values of an automatic bore logger device this field is populated with 'DM' which stands for Daily Mean. The reason for identifying the measurements which have been taken from an automatic bore logger device is that the water level measurement has been calculated from multiple readings over the day and converted to an average daily mean value. If the measurement type is unknown for a measurement the field is populated with NR – Not Recorded. Any new measurement entered is populated with ACT – Actual.

Measurement Type

CODE	DESCRIPTION
ACT	Actual
DM	Daily Mean
NR	Not Recorded

Bore report label: MEAS TYPE

File column name: MEAS_TYPE

Quality

This field displays the quality code assigned to the measurement. The quality codes are based on the Departmental Water Monitoring Quality Code standards. The valid codes are:

Quality

CODE	DESCRIPTION
1	Good (Actual Manual Measured Data)
9	CITEC - Normal Reading
10	Good (Time Series Data)
15	Water Level Below Threshold
20	Data is of Fair Quality
26	BOM data - Good Daily Read Records
30	Data is of Poor Quality
33	Gauging Temp – Poor
59	CITEC – Derived Height

60	Data is estimated
69	CITEC – Derived Discharge
130	Data is of unknown quality and includes data provided by external parties that may not be collected to departmental standards
150	Unknown
151	Data not yet available
160	Data is of suspect quality
170	Water level above threshold
200	Water level below threshold
255	A system auto-entry where missing data / a gap in a data record is detected

Bore report label: -

File column name: QUALITY

Collection Authority

This field is used to record which authority collected the measurement. The Queensland Department of Natural Resources has a number of subgroups, to further identify the collection authority. The valid codes are:

Collection Authority

CODE	DESCRIPTION
AG	Aust. Geol. Survey Organisation
DA	DNRM – Agricultural
DC	DNRM - Community Landcare Group
DE	DNRM – Experimental
DG	DNRM – Groundwater
DH	DNRM – Hydrographic
DI	DNRM - Int. Catch. Mgt
DL	DNRM – LAS
DM	DNRM - Abandoned Mines Unit
DO	DNRM – Operations
DS	DNRM – Scientist
DU	DNRM - CSG Compliance Unit
DW	DNRM - Water Watch
NR	Not Recorded
PR	Private
QE	Dept. of Environment & Heritage
QH	Health Department
QM	Department of Mines & Energy
UT	Qld University of Technology (QUT)
XX	Unknown

Bore report label: -

File column name: COLLSAMP

Private Collector

This field is used to record any Non Departmental or external authorities that have collected the water level measurement record. The valid codes are:

Private Collector

CODE	DESCRIPTION
ARROW	Arrow Energy
DRILLER	Bore Driller
ORIGIN	Origin Energy
OWNER	Bore Owner/Manager
QGC	Qld Gas Company
SANTOS	Santos

Bore report label: -

File column name: PRIVATE_COLLECTOR

Collection Method

This field is used to record the method used when collecting the measurement. The valid codes are:

Collection Method

CODE	DESCRIPTION
AL	Air Line
DL	Data Logger
MA	Manual/Hand
NR	Not Recorded
PG	Pressure Gauge on Artesian Bore
XX	Unknown

Bore report label: -

File column name: COLLMETH

Project

This field describes the code for the Departmental project that collected the measurement. The valid codes are:

Project

CODE	DESCRIPTION
ABP	Atherton Basalt Project
ABRP	Artesian Bore Remeasurement Program
BGAR	Blue Green Algae Research
BRSI	Burdekin River Special Investigations
BVSI	Burdekin Seawater Intrusion Model
CCLBA	Central Condamine & Lower Balonne Alluvium
CGMARI	Condamine Groundwater Management Area Recharge Investigations

CSGBMP	CSG Bore Monitoring Program
CSGNET	CSG Net Program
CSGONLINE	CSG Online Program
CSGVER	CSG Verification
CYPLUS	CYPLUS
FWMI	Feedlot Waste Management Investigation
GABSPR	GAB Springs
GBRGM	Great Barrier Reef Groundwater Monitoring
GBRI5	GBRI5
GDEWQ	Groundwater Dependent Ecosystems Water Quality
GOONBA	Goondoola Basin investigations
GWAN	Groundwater Ambient Network
GWQABR	Groundwater quality assessment of the alluvial aquifers in the Border Rivers catchment
HODCR	Hodgson Creek catchment investigations
KHWP	Kingston Hazardous Waste Project
LBAGP	Lower Balonne airborne geophysics investigations
MDCM	Murray River Community Monitoring
NAP	National Action Plan
PGBS	Pilot Groundwater Biota Study
PIOWRP	Pioneer Water Resource Plan
PR	Private
PVSI	Pioneer Valley Seawater Intrusion Model
RSS	Rapid Stream Survey
STIAS	St George Irrigation Survey
SWGWRB	Surface water/Groundwater interactions in the Border Rivers Catchment
XX	Project Unknown

Bore report label: -

File column name: PROJECT1

Input From

This field describes how the system the data was imported from or the place from which the data was input into the Groundwater Database. The valid codes are:

Input From

CODE	DESCRIPTION
GWOL	GW Online External Website Lodgement
NR	Not Recorded
OGIA	Office of Groundwater Impact Assessment System
REGION	Regional Office
WAS	Water Accounting System

Bore report label: -

File column name: INPUT_FROM

WATER QUALITY FIELD MEASUREMENT TABLE

INTRODUCTION

The **Water Quality Field Measurement table** records the results of any water quality measurements taken in the field/on site.

Attribute Names

Registered Number
Pipe
Date
Depth
Conductivity
pH
Temperature
Nitrate
Dissolved Oxygen
Redox Potential
Alkalinity
Sample Method
Source

Depth

The Depth for a completed bore is generally the depth from the natural surface to the bottom of the deepest water entry point. It is positive downwards from the natural surface.

Bore report label: DEPTH

File column name: DEPTH

Conductivity

A measure of how electrically conductive the water is. Values are stored in microSiemens per centimetre at 25 degrees Celsius ($\mu\text{S}/\text{cm}$ @ 25°C).

Bore report label: COND

File column name: CONDUCT

pH

The pH of the water.

Bore report label: pH

File column name: PH

Temperature

The maximum Temperature measured of the water. Values are stored in degrees Celsius (°C).

Bore report label: TEMP

File column name: TEMP

Nitrate

The amount of Nitrate found in the water. Values are stored in milligrams/litre (mg/L).

Bore report label: NO3

File column name: NO3

Dissolved Oxygen

The amount of Dissolved Oxygen present in the water. Values are stored in milligrams/litre (mg/L).

Bore report label: DO

File column name: DO2

Redox Potential

The Eh or Redox Potential of the water. Values are stored in millivolts (mV).

Bore report label: Eh

File column name: EH

Alkalinity

The Alkalinity of the water. Values are stored in milli-equivalent per litre (meq/L).

Bore report label: ALK

File column name: ALKALINITY

Sample Method

The method used to collect the water sample used to measure the water quality. Described using the following codes.

Sample Method

CODE	DESCRIPTION
AI	Air Lifting
AS	Sigma Sampler (Auto)
BA	Bailer – Other
BT	Bailer – Teflon
DH	Downhole Probe
MA	Manual e.g. from stream, trough
MX	Composite
NR	Not Recorded
PA	Pump - Amazons
PB	Pump - Bladder
PF	Pump – Air Forced
PG	Pump - Grundfos MP1
PP	Pump – Peristaltic
PU	Pump - Other or Flowing Bore
PW	Pump - WaTerra
SD	Van Dorn Bottle
SH	Helley Smith Bed Loader Sampler
SI	D49 Intergrated Sediment Sampler
SM	DH48 Intergrated Sediment Sampler
SS	P61 Intergrated Sediment Sampler
ST	P61 Suspended Sediment Sampler
SV	Van Veen Sampler
XX	Unknown

Bore report label: METH

File column name: SAMP_METHOD

Source

The source of the water sample used.

Source

CODE	SOURCE
GB	Groundwater - Sample from Bore
GR	Groundwater - Sample from remote source e.g. tank, bore drain
GS	Groundwater - Sample from Stream or spring

Bore report label: SOURCE

File column name: SOURCE

WATER ANALYSIS TABLE

INTRODUCTION

The **Water Analysis table** stores results of major ion analysis performed on a sample, in a laboratory. Results are obtained on a clear, settled, unfiltered sample.

Attribute Names

Registered Number
Pipe
Date
Record
Analyst
Analysis Number
Depth
Remark
Source
Preservation Method
Collection Authority
Project
Conductivity
pH
*Silica
#Total Dissolved Ions
#Total Dissolved Solids
*Hardness
*Alkalinity (as CaCO_3)
#Figure of Merit
#Sodium Adsorption Ratio
#Residual Alkalinity Hazard
*Sodium
*Potassium
*Calcium
*Magnesium
*Manganese
*Bicarbonate
*Iron
*Carbonate
*Chloride
*Fluoride
*Nitrate
*Sulphate
*Zinc
*Aluminium
*Boron
*Copper
*Colour
*Turbidity
*Phosphate

Notes:

* Indicates that the values also have a results flag field stored in the database.

These values are calculated

Analyst

The organisation that performed the analysis. The valid codes are given below.

Analyst

CODE	ANALYST
ACI	Aust. Coal Industry Research Laboratories
AEL	Australian Environmental Laboratories
AIS	AIS McCracken P/L
ALS	Australian Laboratory Services
AMD	AMDEL Townsville
ANU	Australian National University
BAS	Bundaberg Analytical Services
BCC	Brisbane City Council
BSA	BSES – Burdekin
BSI	BSES – Indooroopilly
BSM	BSES – Mackay
CAS	Cargo Superintendent Company
CCC	Cairns City Council
CSA	CSIRO Land & Water Adelaide
CSL	Cambooya Shire Council
CTL	Crop Tech Laboratories
DME	Department of Mines & Energy
DNR	Department of Natural Resources
DPI	Qld Department of Primary Industries
EGX	Energex
GCL	Government Chemical Laboratory
S&B	Simmonds and Bristow
SGS	Societe Generale de Surveillance
TCC	Toowoomba City Council
UCQ	University of Central Queensland
UNS	University of New South Wales
UOQ	University of Queensland
XXX	Unknown

Bore report label: ANALYST

File column name: ANALYST

Analysis Number

The Analysis Number is used within the Department.

Bore report label: QAN

File column name: ANALYSIS_NO

Depth

The depth for a completed bore is generally the depth from the natural surface to the bottom of the deepest water entry point. It is positive downwards from the natural surface. Values are stored in metres (m).

Bore report label: DEPTH

File column name: DEPTH

Remark

The method used to collect the water sample. Described using the following codes.

Sample Method

CODE	DESCRIPTION
AI	Air Lifting
AS	Sigma Sampler (Auto)
BA	Bailer – Other
BT	Bailer – Teflon
DH	Downhole Probe
MA	Manual e.g. from stream, trough
MX	Composite
NR	Not Recorded
PA	Pump - Amazons
PB	Pump - Bladder
PF	Pump – Air Forced
PG	Pump - Grundfos MP1
PP	Pump – Peristaltic
PU	Pump - Other or Flowing Bore
PW	Pump - WaTerra
SD	Van Dorn Bottle
SH	Helley Smith Bed Loader Sampler
SI	D49 Intergrated Sediment Sampler
SM	DH48 Intergrated Sediment Sampler
SS	P61 Intergrated Sediment Sampler
ST	P61 Suspended Sediment Sampler
SV	Van Veen Sampler
XX	Unknown

Bore report label: RMK

File column name: SAMP_METHOD

Source

The source of the water sample.

Source

CODE	SOURCE
GB	Groundwater - Sample from Bore
GR	Groundwater - Sample from remote source e.g. tank, bore drain
GS	Groundwater - Sample from Stream or spring

Bore report label: SRC

File column name: SOURCE

Preservation Methods

The methods used to preservative the sample. The valid Preservation Method codes are:

Preservation Method

CODE	PRESERVATION METHOD
AA	Acid - Ascorbic
AH	Acid – Hydrochloric
AN	Acid – Nitric

AO	Acid – Orthophosphoric
AS	Acid – Sulphuric
CH	Chilled - 4 degrees C
CN	Cadmium Nitrate
DA	Kept in Darkness
EA	Exclude Air
FR	Frozen
LU	Lugol
MC	Magnesium Carbonate
ME	Methanol
MI	Mercuric Iodide
NH	Sodium Hydroxide
NL	None Required
NR	Not Recorded
NU	None Used, but required
PD	Potassium Dichromate
XX	Unknown
ZA	Zinc Acetate

Bore report label: -

File column name: PRES METH1

Collection Authority

The authority that collected the sample. The Queensland Department of Natural Resources and Mines has a number of subgroups, to further identify the collection authority.

Collection Authority

CODE	AUTHORITY
AG	Australian Geological Survey Organisation
DA	DNR – Agricultural
DC	DNR – Community Landcare Group
DG	DNR – Groundwater
DH	DNR – Hydrographic
DI	DNR – Integrated Catchment Management
DL	DNR – LAS
DO	DNR – Operations
DS	DNR – Scientist
DW	DNR – Water Watch Group
NR	Not Recorded
PR	Private
QE	Qld Department of Environment and Heritage
QH	Qld Health Department
QM	Qld Department of Minerals and Energy
XX	Unknown
UT	Qld University of Technology

Bore report label: -

File column name: COLLSAMP

Project

The project responsible for collection of the sample.

Project

CODE	PROJECT
ABP	Atherton Basalt Project
ABRP	Artesian Bore Replacement Program
BGAR	Blue Green Algae Research
BRSI	Burdekin River Special Investigation
CSGVER	Coal Seam Gas Verification
CYPLUS	Cape York Peninsula Land Use Study
FWMI	Feedlot Waste Management Invest.
GWAN	Groundwater Ambient Network
KHWP	Kingston Hazardous Waste Project
NAP	National Action Plan
PGBS	Pilot Groundwater Biota Study
PR	Private
STIAS	St George Irrigation Survey
XX	Project Unknown

Bore report label: -

File column name: PROJECT1

Conductivity

A measure of how electrically conductive the water is. Values are stored in microSiemens per centimetre at 25 degrees Celsius ($\mu\text{S}/\text{cm}$ @ 25°C).

Bore report label: COND

File column name: CONDUCT

pH

The pH of the water.

Bore report label: pH

File column name: PH

Calculated Values

The Calculated Values are derived using the following formula.

Total Dissolved Ions

Total Cations + Total Anions

Bore report label: TOTAL IONS

File column name: TOTAL_IONS

Total Dissolved Solids

Silica + Total Cations + Total Anions - ($\text{HCO}_3 \times 0.583$); i.e. Bicarbonate is expressed as Carbonate.

Bore report label: TOTAL SOLIDS

File column name: TOTAL_SOLIDS

Hardness

($\text{Ca}^{++} + \text{Mg}^{++}$) as CaCO_3

Bore report label: HARD

File column name: HARD

Figure of Merit

$$\text{meq (Ca}^{++} + \text{Mg}^{++})/\text{meqNa}^{+}$$

Bore report label: FIG. OF MERIT

File column name: FIG_MERIT

Sodium Adsorption Ratio

$$\text{meqNa}^{+}/\sqrt{\text{meq(Ca}^{++} + \text{Mg}^{++})/2}$$

Bore report label: SAR

File column name: NA_ADS_RATIO

Residual Alkalinity Hazard

$$\text{meq (HCO}_3^{-} + \text{CO}_3^{--}) - \text{meq (Ca}^{++} + \text{Mg}^{++})$$

Bore report label: RAH

File column name: RES_ALK

Chemical Data and Results Flag

For the Chemical Data the chemical symbol is used in both the bore report and the file (e.g. Na is the symbol for Sodium). The Results Flag is shown automatically in the bore report however in the file it uses the chemical symbol followed by _IND e.g. NA and NA_IND are for Sodium.

The Results Flag can have the following values:

Results Flag

CODE	FLAG
<	Less Than
>	Greater Than
ND	Not Detected
TN	Too Numerous
TR	Trace

All values are stored as milligrams per litre (mg/L) with the following exceptions:

Conductivity is stored as micro-Siemens per centimetre at 25 degrees Celsius ($\mu\text{S/cm}$ @ 25°C).

pH stored as a number.

Figure of Merit stored as a number.

Sodium Adsorption Ratio stored as a number.

Residual Alkalinity Hazard stored as milli-equivalents per litre (meq/L).

Colour is stored in Hazen.

Turbidity is stored in NTU.

SPECIAL WATER ANALYSIS TABLES

INTRODUCTION

The **Special Water Analysis** table is designed to cater for any water quality data that is not catered for in the standard **Water Analysis table**. It is made up of 3 tables, **Special Water Analysis – Samples table**, **Special Water Analysis – Results table** and the **Water Quality Variables table**.

The **Water Quality Variables table** is a support table, the definition can be found under the [Support Tables](#) section of this data dictionary.

Attribute Names

Special Water Analysis – Samples	Special Water Analysis – Results
Registered Number	Registered Number
Pipe	Pipe
Date	Analysis Number
Record	Bottle
Depth	Variable Identifier
Analysis Number	Results Flag
Bottle	Result
Analyst	Comments
Project	
Sample Source	
Collection Authority	
Sample Method	
Preservation Method	
Laboratory Sample Reference	
Laboratory Received Date	
Comments	

SPECIAL WATER ANALYSIS – SAMPLES

Depth

The depth for a completed bore is generally the depth from the natural surface to the bottom of the deepest water entry point. It is positive downwards from the natural surface. Values are stored in metres (m).

Bore report label: DEPTH

File column name: DEPTH

Analysis Number

The Analysis Number is a unique identifying number for a water sample used within the Department. It is used to identify and group results for a sample.

Bore report label: WR ANAL NO

File column name: SAMPNUM

Bottle

The Bottle is an alphabetic bottle identifier, used in addition to the Analysis Number, to further identify the sample, and the analysis that is to be performed on it.

Bore report label: BOTTLE

File column name: BOTTLE

Analyst

The organisation that performed the analysis. The valid codes are given below.

Analyst

CODE	ANALYST
ACI	Aust. Coal Industry Research Laboratories
AEL	Australian Environmental Laboratories
AIS	AIS McCracken P/L
ALS	Australian Laboratory Services
AMD	AMDEL Townsville
ANU	Australian National University
BAS	Bundaberg Analytical Services
BCC	Brisbane City Council
BSA	BSES – Burdekin
BSI	BSES – Indooroopilly
BSM	BSES – Mackay
CAS	Cargo Superintendent Company
CCC	Cairns City Council
CSA	CSIRO Land & Water Adelaide
CSL	Cambooya Shire Council
CTL	Crop Tech Laboratories
DME	Department of Mines & Energy
DNR	Department of Natural Resources
DPI	Qld Department of Primary Industries
EGX	Energex
GCL	Government Chemical Laboratory
S&B	Simmonds and Bristow
SGS	Societe Generale de Surveillance
TCC	Toowoomba City Council
UCQ	University of Central Queensland
UNS	University of New South Wales
UOQ	University of Queensland
XXX	Unknown

Bore report label: ANALYST

File column name: LABREF

Project

The projects responsible for collection of the sample.

Project

CODE	PROJECT
ABP	Atherton Basalt Project
ABRP	Artesian Bore Replacement Program
BGAR	Blue Green Algae Research
BRSI	Burdekin River Special Investigation
CSGVER	Coal Seam Gas Verification
CYPLUS	Cape York Peninsula Land Use Study
FWMI	Feedlot Waste Management Invest.
GWAN	Groundwater Ambient Network
KHWP	Kingston Hazardous Waste Project

NAP	National Action Plan
PGBS	Pilot Groundwater Biota Study
PR	Private
STIAS	St George Irrigation Survey
XX	Project Unknown

Bore report label: PROJECTS

File column name: PROJECT1,2,3,4

Sample Source

The source of the water sample.

Source

CODE	SOURCE
GB	Groundwater - Sample from Bore
GR	Groundwater - Sample from remote source e.g. tank, bore drain
GS	Groundwater - Sample from Stream or spring

Bore report label: SOURCE

File column name: SRCSAMP

Collection Authority

The authority that collected the sample. The Queensland Department of Natural Resources and Mines has a number of subgroups, to further identify the collection authority.

Collection Authority

CODE	AUTHORITY
AG	Australian Geological Survey Organisation
DA	DNR – Agricultural
DC	DNR – Community Landcare Group
DG	DNR – Groundwater
DH	DNR – Hydrographic
DI	DNR – Integrated Catchment Management
DL	DNR – LAS
DO	DNR – Operations
DS	DNR – Scientist
DW	DNR – Water Watch Group
NR	Not Recorded
PR	Private
QE	Qld Department of Environment and Heritage
QH	Qld Health Department
QM	Qld Department of Minerals and Energy
XX	Unknown
UT	Qld University of Technology

Bore report label: COL AUTH

File column name: COLLSAMP

Sample Method

The method used to collect the water sample. Described using the following codes.

Sample Method

CODE	DESCRIPTION
AI	Air Lifting
AS	Sigma Sampler (Auto)
BA	Bailer – Other
BT	Bailer – Teflon
DH	Downhole Probe
MA	Manual e.g. from stream, trough
MX	Composite
NR	Not Recorded
PA	Pump – Amazons
PB	Pump – Bladder
PF	Pump – Air Forced
PG	Pump – Grundfos MP1
PP	Pump – Peristaltic
PU	Pump – Other or Flowing Bore
PW	Pump – WaTerra
SD	Van Dorn Bottle
SH	Helley Smith Bed Loader Sampler
SI	D49 Intergrated Sediment Sampler
SM	DH48 Intergrated Sediment Sampler
SS	P61 Intergrated Sediment Sampler
ST	P61 Suspended Sediment Sampler
SV	Van Veen Sampler
XX	Unknown

Bore report label: METHOD

File column name: COLL METH

Preservation Method

The methods used to preservative the sample. The valid Preservation Method codes are:

Preservation Method

CODE	PRESERVATION METHOD
AA	Acid - Ascorbic
AH	Acid – Hydrochloric
AN	Acid – Nitric
AO	Acid – Orthophosphoric
AS	Acid – Sulphuric
CH	Chilled - 4 degrees C
CN	Cadmium Nitrate
DA	Kept in Darkness
EA	Exclude Air
FR	Frozen
LU	Lugol
MC	Magnesium Carbonate
ME	Methanol
MI	Mercuric Iodide
NH	Sodium Hydroxide
NL	None Required

NR	Not Recorded
NU	None Used, but required
PD	Potassium Dichromate
XX	Unknown
ZA	Zinc Acetate

Bore report label: PRESERVATIVES

File column name: PRESMETH1,2,3,4

Laboratory Sample Reference

The sample reference number used by the laboratory that analysed the sample.

Bore report label: -

File column name: LABSAMPREF

Laboratory Received Date

The date at which the sample was received at the laboratory.

Bore report label: RECD AT LAB

File column name: RECDATE

Comment

A Comment of any significant information regarding the sample that is not provided for elsewhere in the table.

Bore report label: COMMENT

File column name: COMMNT

SPECIAL WATER ANALYSIS – RESULTS

Analysis Number

The Analysis Number is a unique identifying number for a water sample used within the Department. It is used to identify and group results of a sample.

Bore report label: WR ANAL NO

File column name: SAMPNUM

Bottle

The Bottle is an alphabetic bottle identifier, used in addition to the Analysis Number, to further identify the sample, and the analysis that is to be performed on it.

Bore report label: BOTTLE

File column name: BOTTLE

Variable Identifier

The Variable Identifier is a unique number to distinguish between different analyses and different methods for these analyses. Further details on the Variable Identifier can be found in the **Water Quality Variables table** definition under the **Support Tables** section of this data dictionary.

Bore report label: VARIABLE

File column name: VARIABLE_NO

Result Flag

The Results Flag is shown as part of the Result and can have the following values:

Results Flag

CODE	FLAG
<	Less Than
>	Greater Than
ND	Not Detected
TN	Too Numerous
TR	Trace

Bore report label: MEASUREMENT

File column name: FLAG

Result

The Result recorded by the laboratory for the Variable Identifier indicated.

Bore report label: MEASUREMENT

File column name: VALUE

Comment

Any significant information regarding the Result of analysis of the variable that is not provided for elsewhere.

Bore report label: -

File column name: COMMNT

MULTIPLE CONDUCTIVITY TABLE

INTRODUCTION

The **Multiple Conductivity table** records conductivity measurements taken at various depths down the bore. This information does not appear on a bore report.

Attribute Names

Registered Number
Pipe
Date
Depth
Measurement
Temperature

Depth

The Depth from reference point to where the conductivity Measurement was taken. Values are stored in metres (m), negative numbers indicate depth below reference point.

Bore report label: -

File column name: DEPTH

Measurement

The conductivity of the water at a specific Depth. Values are stored in micro-Siemens per centimetre at 25 degrees Celsius ($\mu\text{S}/\text{cm}$ @ 25°C).

Bore report label: -

File column name: MEASUREMENT

Temperature

The Temperature of the water at a specific Depth. Values are stored in degrees Celsius (°C).

Bore report label: -

File column name: TEMP

STRATIGRAPHY TABLE

INTRODUCTION

The **Stratigraphy table** stores the interpreted stratigraphy of the bore.

Attribute Names

Registered Number
Source
Record
Top of Stratigraphy
Bottom of Stratigraphy
Stratigraphy Description

Source

The organisation that analysed and interpreted the available data and made the stratigraphic interpretation.

Organisation

CODE	ORGANISATION
AGS	Australian Geological Survey Organisation
BHP	BHP Pty Ltd
DME	Department of Minerals and Energy
DNR	Department of Natural Resources and Mines
LCC	Lockyer Catchment Centre
MDS	Qld Murray Darling Dryland Salinity
NAP	National Action Plan
PFI	Prawn Farm Investments
SUN	Sunwater

Bore report label: SOURCE

File column name: DATA_OWNER

Top of Stratigraphy

The depth from the natural surface to the top of the unit described in the Stratigraphy Description field. Values are stored in metres (m).

Bore report label: STRATA TOP

File column name: TOP

Bottom of Stratigraphy

The depth from the natural surface to the bottom of the unit described in the Stratigraphy Description field. Values are stored in metres (m).

Bore report label: STRATA BOT

File column name: BOTTOM

Stratigraphy Description

The name of the stratigraphic unit occupying the zone specified.

Bore report label: STRATA DESCRIPTION

File column name: FORM_DESC

Support Tables

General Information

The tables in this section are used to facilitate selection of data or provide further information. The support tables are:

Facility Roles Table
Lithologies Table
Flow Irregularities Table
Precipitates Table
Water Quality Variables Table

The tables and their specific purposes are described in the following section.

FACILITY ROLES TABLE

INTRODUCTION

The **Facility Roles table** stores the role of the facility over time. A facility may have more than one role assigned to it. Note that this table stores the broad roles of the facility rather than the purpose for which the water from the bore is used, which may be available in the Departments Water Management System.

Attribute Names

Registered Number
Facility Role
Comments

Facility Role

The Facility Role is stored and displayed as the following codes

Facility Role

CODE	ROLE
CJ	Coal Seam Gas Water Injection
CM	Coal Seam Gas Monitoring
GM	Great Artesian Basin Monitoring
IN	Water Resources Investigation
MB	Metered Bore
ME	Mineral or Coal Exploration
MM	Mine Monitoring
NP	Nodal Point for Model
OE	Other Exploration/Investigation
PE	Petroleum or Gas Exploration
SI	Stratigraphic Investigation
SM	Sub-Artesian Monitoring
UM	Underground Coal Gasification Monitoring
WS	Water Supply

Bore report label: ROLES

File column name: FACILITY_ROLE

Comments

A comment regarding the Facility Role assigned to the bore.

Bore report label: -

File column name: COMMENTS

LITHOLOGIES TABLE

INTRODUCTION

The **Lithologies table** describes the type of material encountered in the aquifer described in the Formation Name field in the **Aquifer table**.

Attribute Names

Registered Number
Record
Sequence Number
Lithology

Sequence Number

The order of dominance within the formation. This is not shown on a bore report, the Lithology is displayed in order.

Bore report label: -

File column name: SEQ

Lithology

The Lithology of the formation stored using the following codes.

Lithology Code

CODE	DESCRIPTION
AGGL	Agglomerate
BLDR	Boulder/s
BSLT	Basic Volcanic e.g. Basalt
CGRY	Clayey Gravel
CHER	Chert, Jasper
CLAY	Clay
COAL	Coal
CONG	Conglomerate
CSAN	Clayey Sand
CSIL	Clayey Silt
DLMT	Dolomite
DOLE	Dolerite
GBRO	Basic Intrusive e.g. Gabbro
GNSS	Gneiss
GNTG	Acid Intrusive, Granite
GRAV	Gravel
INTR	Intrusive (Undifferentiated)
LMST	Limestone
LOAM	Loam
MDST	Mudstone
META	Metamorphics
MUDD	Mud
RHYO	Rhyolite, Acid Volcanic e.g. Rhyolite Dacite
SANC	Sandy Clay
SAND	Sand
SCHT	Schist
SDST	Sandstone
SEDI	Sedimentary (unidentified)

SHLE	Shale
SILT	Silt, Silty
SLAT	Slate
SSTO	Siltstone
SYNE	Intermediate Intrusive e.g. Syenite Diorite
TCHY	Intermediate Volcanic e.g. Trachyte Andesite
TUFF	Tuff
VASH	Volcanic Ash
VOLC	Volcanic (Undifferentiated)
XXXX	Unknown

Bore report label: BED LITHOLOGY

File column name: LITHOLOGY_CODE

FLOW IRREGULARITIES TABLE

INTRODUCTION

The **Flow Irregularities table** is used in conjunction with the **Bore Condition table** to record any irregularities in the flow of the bore.

Attribute Names

Registered Number
Date
Irregularity
Comments

Irregularity

The Irregularity in flow can be caused by one or more of the following.

Irregularity

CODE	IRREGULARITY
BAC	Bacterial Sludge
CO2	Carbon Dioxide Gas
CUT	Cuttings
FLG	Flammable Gas
FLU	Drilling Fluids
GAS	Gas (Type Unknown)
H2S	Hydrogen Sulphide
HCB	Hydrocarbons (oil, wax)
OTH	Other (Make note in comments field)
RUS	Rust and Scale
SAN	Sand
TUR	Turbid Water

Comments

Any relevant comment regarding the Irregularity and how it affects the bore.

PRECIPITATES TABLE

INTRODUCTION

The **Precipitates table** is used in conjunction with the **Bore Condition table** to record any precipitates that are derived from the water from the bore.

Attribute Names

Registered Number
Date
Precipitates
Comments

Precipitates

The Precipitates that are derived from the water from the bore.

Precipitates

CODE	PRECIPITATE
C	Carbon
I	Iron
O	Other (Make note in the comments field)
S	Sulphate

Comments

Any relevant comment regarding the Precipitate and how it affects the bore.

WATER QUALITY VARIABLES TABLE

INTRODUCTION

The **Water Quality Variables table** contains information relating to variables that are used to describe analyses performed on water samples. This table is used to decode the Variable Identifier in the **Special Water Analysis – Results table**.

Attribute Names

Variable Identifier
Name
Unit Code
Units
Short Name
Comment
Minimum
Maximum
Accuracy
Precision

Variable Identifier

The Variable Identifier is a unique number to distinguish between different analyses and different methods for these analyses. The two decimal places are used to distinguish between different analyses methods for the same variable.

Bore report label: VARIABLE

File column name: VARIABLE_NO

Name

The Name of the analysis corresponding to the Variable Identifier

Bore report label: VARIABLE

File column name: NAME

Unit Code

The code corresponding to the Units for this Variable Identifier.

Bore report label: -

File column name: UNIT_CODE

Units

This is a full description of the units. All Results for this Variable Identifier must be stored in the Units specified here. e.g. metres, litres.

Bore report label: UNITS

File column name: UNITS

Short Name

The combination of Name and Units.

Bore report label: -

File column name: SHORTNAME

Comment

Any relevant Comment regarding the Variable Identifier.

Bore report label: -

File column name: COMMNT

Minimum

The Minimum possible value for the Variable Identifier.

Bore report label: -

File column name: MINIMUM

Maximum

The Maximum possible value for the Variable Identifier.

Bore report label: -

File column name: MAXIMUM

Accuracy

The Accuracy of the Variable Identifier governs the mathematical rounding of the Result.

Accuracy Result

ACCURACY	DESCRIPTION	EXAMPLE
1 – 5	Round to this number of decimals	145.048 with an Accuracy of 2 = 145.05
0	No decimals only whole numbers	145.048 = 145
-1 – -5	Round to this number of whole numbers	145.048 with an Accuracy of -1 = 150
99	No rounding	145.048 = 145.048

Bore report label: -

File column name: ACCURACY

Precision

The maximum number of decimal places the Result can have for the Variable Identifier.

Bore report label: -

File column name: PRECISION

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