

WATER MONITORING DATA

EXPLANATORY NOTES

V3.2

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1. Purpose

The purpose of this document is to provide important information relating to data downloaded using Department's Water Monitoring Data Portal

If you have queries regarding the information contained in this document please contact the Department at water.data@dse.vic.gov.au

2. Introduction

The Department's Water Monitoring Data Portal provides access to a subset of data collected through Victoria surface water and groundwater monitoring networks. The portal is accessible at the following URL

<http://data.water.vic.gov.au/monitoring.htm>

3. Disclaimer and Copyright

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4. Surface Water Data

4.1 Frequently Asked Questions

This section is currently under development.

If you do any questions relating monitoring data available through the Portal or information contained in this document please email the Department at water.data@dse.vic.gov.au

5. Groundwater Data

5.1 Frequently Asked Questions

Q: What is a site

A: A site is a location where one or more measurements may be taken. Sites are classified in the menus as Rivers & Streams and Ground water sites. Every site is identified by a unique site code and a site name. Site information is accessed in the Details tab.

Q: The site ID I entered from the GMS doesn't exist. Have the IDs changed?

A: The Groundwater Management System (GMS) contained a significant number of bores that over time had been assigned identifiers that incorporated a range of special characters including + (plus) . (dot) / (backslash) - (hyphen).

In consultation with major stakeholders bore ids containing these special characters have been converted to WRK numbers. WRK numbers generated by the Water Register and assigned to a bore when a person lodges an application for a new bore. Converting bore ids containing special characters to WRK numbers will allow more effective management of groundwater monitoring data. A Bore Finder app and/or “**Site ID reference table**” spreadsheet that cross references bores with special characters with WRK numbers is available from the Department via the groundwater data page on the data extract menu.

Department of Environment and Primary Industries

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accessibility

Rivers and Streams
favourites · download sites · find a site
⊕ Surface Water Sites

Groundwater
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Data Extracts

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Surface Water Data **Groundwater Data**

Groundwater - data extracts

For easier access to large datasets the following pages contain data extracts for groundwater sites, which are updated monthly.
Unless otherwise specified the files are .csv format.

Please [contact the Department](#) if you would like different datasets published through these pages.

Site table	[ZIP] 3.3MB
Water levels	[ZIP] 52.1MB
Field water quality	[ZIP] 382kB
Laboratory water quality	[ZIP] 5.1MB
Driller log	[ZIP] 4.4MB
Geology log	[ZIP] 667kB
Lithology log	[ZIP] 45kB
Site ID reference table	[ZIP] 5.7MB
Explanatory notes (data extracts)	[DOC] 300kB

Q: Why did I receive an empty spreadsheet with no data when I uploaded a list into the group selection and download “Upload site list” option?

A: The site IDs in your list might not exist in the system. You could check that the site exists in the home page by using the “find a site” function. If it doesn't exist under that ID it will notify you:

Groundwater

find a site

Enter the site ID

GW100

search hide

download sites **find a site** · data extracts

Groundwater

Search results

GW100 not found

hide

download sites · find a site ·

Also please refer to the previous question – some GMS site IDs have had to be altered.

Q: What are the use/purpose groups?

A: In the Water Measurement Information System a bore may have more than one use type (or purpose) recorded against it. These uses have been grouped together into six separate groups:

1. **Dewatering** includes any sites registered with these uses:
 - a. Dewatering (DW),
 - b. Dewatering to evaporative basins (DE), and
 - c. Public dewatering (PD).
2. **Domestic and Stock** includes any sites registered with these uses:
 - a. Communal domestic (CD),
 - b. Domestic (DM),
 - c. Domestic - billable (DM-B),
 - d. Domestic and stock (DS),
 - e. Stock (ST), and
 - f. Stock - billable (ST-B).
3. **Licensed** includes any sites registered with these uses:
 - a. Agro industries (AI),
 - b. Aquaculture (AQ),
 - c. Commercial (CO),
 - d. Commercial aquaculture (CA),
 - e. Commercial residential (CR),
 - f. Dairy (DY),
 - g. Intensive animal husbandry (IA),
 - h. Industrial (IN)
 - i. Irrigation (IR),
 - j. Mineral water (MW), and
 - k. Urban (UR).
4. **Monitoring and Observation** includes any sites registered with these uses:
 - a. Dryland salinity network (DPI),
 - b. Engineering geology (EG),
 - c. Gen. geological inv. (GI),
 - d. Geothermal (GE),
 - e. Groundwater (GW),
 - f. Groundwater investigation (IV),
 - g. Mineral investigation (ME),
 - h. Observation (OB),
 - i. Petroleum exploration (PE), and
 - j. Stratigraphic (SG).
5. **Other** includes any sites registered with these uses:
 - a. Culture (CU),
 - b. Disposal (DI),
 - c. Drought relief (DR),
 - d. Environment(EN),
 - e. Extractive/quarrying(EX),
 - f. Groundwater recharge(RE),
 - g. Interception(INT),
 - h. Miscellaneous (MI),
 - i. Non-groundwater(NG),
 - j. Not known(NKN),
 - k. Not used - capped (NU),

- l. Public pumps (PP),
 - m. Salinity irrigation(SI), and
 - n. SEC bores(use unidentified) (SEC).
6. **State observation bore network (SOBN)** includes any sites registered as "State Observation Network (SON)".
- a. **Inactive** – those registered as SOBN but not currently monitored
 - b. **Active** – those registered as SOBN and currently being monitored

Q: what do the arrows mean on the latest values tab for Groundwater sites?

A: The arrows indicate whether or not the latest value has increased, decreased or remained stable since the last record/reading.

↑ higher than the previous record

↓ lower than the previous record

↔ unchanged (stable) from the previous record

Q: Why do I keep seeing this, or a similar, error:

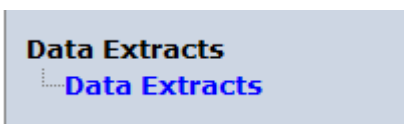
“http://203.12.195.133/wgen/cache/anon/gwlf_org58112.xml could not be found or is empty”

A: This could be a web browser issue. If you see this error please delete your cookies, clear your cache (Tools > Internet options > General > Browsing History > Delete) and shut down and restart your browser again. If you still receive this error please contact DSE. Else, you can try using a different type of browser like Google Chrome or Mozilla Firefox. These two generally work better than Internet Explorer for this application.

Q: Will quarterly extracts of the GMS still be emailed out?

A: WMIS provides the same functionality so these bulk extracts are no longer necessary. If you require a copy of the full database please contact DSE.

Otherwise, you can access monthly groundwater extracts through the option in the navigation bar (see question above about the sites ids and the data extracts menu).



6. Variables

The table below lists variables that may appear in downloaded monitoring data depending upon site selection.

No	Variable Name	No	Variable Name	No	Variable Name
10	Rainfall (mm)	450	Water Temperature (°C)	2118	Hydroxide Alkalinity as CaCO ₃ (mg/l)
100	Stream Water Level (m)	452	Water Temperature from DO sensor (°C)	2118	Hydroxide Alkalinity as CaCO ₃ (mg/l)
110	Bore Water Level from measurement point (m)	455	Air Temperature Degrees Celcius (°C)	2131	Hardness as CaCO ₃ (measured) (mg/l)
113	Bore WL Below Natural Surface	500	Wind Direction (°)	2131	Hardness as CaCO ₃ (measured) (mg/l)
115	Bore Water Level AHD (m)	503	Wind Direction/Current (°)	2132	Hardness as CaCO ₃ (calculated) (mg/l)
116	Height Above Mean Sea Level	504	Average Vector Wind Direction (°)	2132	Hardness as CaCO ₃ (calculated) (mg/l)
118	Depth Offset (m)	515	Wind Velocity (m/s)	2143	Sodium Adsorption Ratio (mg/l)
119	Bore Depth	550	Barometric Pressure (hPa)	2143	Sodium Adsorption Ratio (mg/l)
130	Reservoir Water Level (m)	810	Turbidity (NTU)	2169	Total Dissolved Solids (calc) (mg/l)
141	Stream Discharge (Ml/d)	820	Conductivity (µScm)	2169	Total Dissolved Solids (calc) (mg/l)
210	Acidity/Alkalinity (pH)	2012	Conductivity (µScm)	2172	Total Suspended Solids (mg/l)
215	Dissolved Oxygen (ppm)	2030	Turbidity (NTU)	2172	Total Suspended Solids (mg/l)
216	Dissolved Oxygen (%)	2054	Colour (True Filtered) (PCU)	2301	Calcium as Ca - total (mg/l)
225	Gauges levelled	2055	pH Colour	2311	Chloride as Cl (mg/l)
240	Flow Velocity (m/s)	2080	Water Temperature (°C)	2321	Magnesium as Mg - total (mg/l)
241	Flow Velocity (m/s)	2100	pH	2331	Nitrate Nitrogen (mg/l)
242	Flow Velocity (mm/s)	2100	pH	2332	Nitrite Nitrogen (mg/l)
245	Flow Velocity (km/d)	2113	Total Alkalinity as CaCO ₃ (mg/l)	2333	Nitrate + nitrite as N - total (mg/l)
250	X-Section Area (m ²)	2113	Total Alkalinity as CaCO ₃ (mg/l)	2335	Ammonia as N - total (mg/l)
400	Dry Bulb Temperature (°C)	2116	Bicarbonate Alkalinity as CaCO ₃ (mg/l)	2336	Kjeldahl Nitrogen (mg/l)
430	Humidity (%)	2116	Bicarbonate Alkalinity as CaCO ₃ (mg/l)	2337	Total Nitrogen (mg/l)
432	10 Minutes Average Humidity (%)	2117	Carbonate Alkalinity as CaCO ₃ (mg/l)		
		2117	Carbonate Alkalinity as CaCO ₃ (mg/l)		

No	Variable Name	No	Variable Name	No	Variable Name
2351	Dissolved Oxygen (mg/l)	2602	Chromium as Cr - soluble (mg/l)	2766	Silica as SiO ₂ - reactive EG052G (mg/l)
2361	Orthophosphate total (mg/l)	2605	Chromium as Cr - total (\181g/l)	2791	Tin as Sn - total (mg/l)
2363	Total Phosphorus as P (mg/l)	2611	Cobalt as Co - total (mg/l)	2804	Titanium as Ti - total (µg/l)
2364	Total Reactive Phosphorus (mg/l)	2621	Copper as Cu - total (mg/l)	2811	Vanadium as V - total (mg/l)
2373	Soluble Phosphorus as P (mg/l)	2622	Copper as Cu - soluble (mg/l)	2821	Zinc as Zn - total (mg/l)
2374	Filtered Reactive Phosphorus (mg/l)	2624	Copper as Cu - total (µg/l)	2822	Zinc as Zn - soluble (mg/l)
2381	Potassium as K (mg/l)	2641	Flouride as F (mg/l)	2824	Zinc as Zn - total (µg/l)
2391	Sodium as Na (mg/l)	2661	Iodine as I (mg/l)	2902	Ionic balance (%)
2401	Sulphate as SO ₄ (mg/l)	2681	Iron as Fe - total (mg/l)	2903	Total Anions (meq/l)
2408	Total Sulphur as S (mg/l)	2691	Lead as Pb - total (mg/l)	2904	Total Cations (meq/l)
2501	Aluminium as Al - total (mg/l)	2692	Lead as Pb - soluble (mg/l)	3021	Total Organic Carbon (TOC) (mg/l)
2511	Antimony as Sb - total (mg/l)	2694	Lead as Pb - total (µg/l)	3026	Dissolved Organic Carbon (mg/l)
2521	Arsenic as As - total (mg/l)	2701	Lithium as Li - total (mg/l)	7001	Chlorophyll-a (µg/l)
2531	Barium as Ba - total (mg/l)	2711	Manganese as Mn - total (mg/l)	7005	Phaeophytin (µg/l)
2551	Boron as B (mg/l)	2721	Mercury as Hg - total (mg/l)	7501	Beryllium (mg/l)
2561	Bromide as Br (mg/l)	2731	Molybdenum as Mo - total (mg/l)	7528	Thallium (µg/l)
2571	Cadmium as Cd - total (mg/l)	2741	Nickel as Ni - total (mg/l)	8000	Sample volume (l)
2572	Cadmium as Cd - soluble (mg/l)	2742	Nickel as Ni - soluble (mg/l)	8004	BGA AlgalScan (cells/ml)
2574	Cadmium as Cd - total (µg/l)	2744	Nickel as Ni - total (µg/l)		
2601	Chromium as Cr - total (mg/l)	2751	Selenium as Se - total (mg/l)		

Table 6.2 – WATER LEVEL Variable codes - GROUNDWATER

CODE	DESCRIPTION	UNIT OF MEASURE
110	Bore Water Level from MP	metres
113	Bore WL Below Natural Surface	metres
115	Bore Water Level mAHD	metres

Table 6.3 – FIELD CHEMISTRY Variable codes - GROUNDWATER

CODE	DESCRIPTION	UNIT OF MEASURE
210	Acidity/Alkalinity	pH
450	Water Temperature	°C
820	Conductivity	µScm
1220	Dissolved Oxygen	mg/l
2102	REDOX	mV

Table 6.4 – LAB CHEMISTRY Variable codes - GROUNDWATER

Parameter name	CODE	Parameter group	Unit of measure
Sample Temp. EC Measurement	451	MISC	degC
EC 25C	2012	MISC	uS/cm
pH	2100	MISC	pH units
Ammonia	9490	INORGANIC COMPOUNDS	ug/L
Chlorine	9491	INORGANIC COMPOUNDS	ug/L
Cyanide	9492	INORGANIC COMPOUNDS	ug/L
Nitrate	9493	INORGANIC COMPOUNDS	ug/L
Hydrogen sulphide	9494	INORGANIC COMPOUNDS	ug/L
Biochemical Oxygen Demand,5day	9500	BIOLOGICAL	mg/L
Biochemical Oxygen Demand,7day	9501	BIOLOGICAL	mg/L
Total Coliforms, Orgs/100mL	9504	BIOLOGICAL	Orgs/100mL
Dissolved Organic Carbon	9505	BIOLOGICAL	mg/L
Escherichia coli, Orgs./100mL	9506	BIOLOGICAL	Orgs/100mL
Faecal Coliform, Orgs/100mL	9508	BIOLOGICAL	Orgs/100mL
Total Alkalinity, as CaCO ₃	9520	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Bicarbonate Alkalinity, CaCO ₃	9521	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Bromide, as Br	9522	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Total Bromide + Iodide, as Br	9523	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Calcium, as Ca	9524	CATIONS, ANIONS, NITRATES, NITRITE	mg/L

Carbonate Alkalinity, as CaCO ₃	9525	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Chloride, as Cl	9527	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Cyanide, as CN	9531	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Carbonate, as CO ₃	9532	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Fluoride, as F	9533	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Hydroxide Alkalinity, as CaCO ₃	9534	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Hardness, as CaCO ₃ (calc.)	9535	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Hardness, as CaCO ₃	9536	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Bicarbonate, as HCO ₃	9537	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Iodide, as I	9538	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Potassium, as K	9539	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Sodium, as Na	9540	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Ammonia, as N	9541	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Nitrite, as N	9542	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Nitrate, as N	9543	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Nitrate + Nitrite, as N(0.003d)	9544	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Nitrate & Nitrite, as N(0.15de)	9545	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Hydroxide, as OH	9546	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Sulphide as S (spot test).	9548	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Sodium Adsorption Ratio	9549	CATIONS, ANIONS, NITRATES, NITRITE	SAR
Sulphide, dissolved as S	9552	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Silica, reactive as SiO ₂	9553	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Silica, total as SiO ₂	9554	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Sulphate, as SO ₄	9557	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Sulphide, total as S(titrated)	9560	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Total Kjeldahl Nitrogen, as N	9563	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Total Nitrogen, as N	9564	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
DME Bromide	9565	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
SULPHUR	9566	CATIONS, ANIONS, NITRATES,	mg/L

		NITRITE	
DME Silicate, as SiO ₃	9568	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
DME Iodide	9569	CATIONS, ANIONS, NITRATES, NITRITE	mg/L
Deuterium	9620	ISOTOPES	mg/L
Oxygen 18	9621	ISOTOPES	mg/L
Carbon 13	9622	ISOTOPES	mg/L
Carbon 14	9623	ISOTOPES	mg/L
Chlorine 36	9624	ISOTOPES	mg/L
Silver, as Ag	9640	METALS	mg/L
Aluminium, as Al (direct)	9641	METALS	mg/L
Aluminium, as Al (graphite AA)	9644	METALS	mg/L
Arsenic, as As	9647	METALS	mg/L
Boron, as B	9648	METALS	mg/L
Barium, as Ba (direct)	9649	METALS	mg/L
Cadmium, as Cd (direct)	9652	METALS	mg/L
Cadmium, as Cd (solvent)	9654	METALS	mg/L
Cobalt, as Co (direct)	9655	METALS	mg/L
Chromium, as Cr (direct)	9656	METALS	mg/L
Chromium, as Cr (solvent)	9659	METALS	mg/L
Copper, as Copper (direct)	9660	METALS	mg/L
Copper, as Cu (solvent)	9663	METALS	mg/L
Iron, total as Fe	9664	METALS	mg/L
Iron, dissolved as Fe	9665	METALS	mg/L
Iron, as Fe (USN)	9666	METALS	mg/L
Iron (Undigested), as Fe	9667	METALS	mg/L
Mercury, as Hg	9668	METALS	mg/L
Lithium, as Li	9669	METALS	mg/L
Magnesium, as Mg	9670	METALS	mg/L
Manganese, dissolved as Mn	9672	METALS	mg/L
Manganese (Undigested), as Mn	9674	METALS	mg/L
Molybdenum, as Mo	9675	METALS	mg/L
Nickel, as Ni (direct)	9676	METALS	mg/L
Nickel, as Ni (solvent)	9679	METALS	mg/L
Lead, as Pb (direct)	9680	METALS	mg/L
Lead, as Pb (solvent)	9684	METALS	mg/L
Antimony, as Sb	9687	METALS	mg/L
Selenium, as Se	9693	METALS	mg/L
Tin, as Sn	9700	METALS	mg/L
Strontium, as Sr	9703	METALS	mg/L
Cr (xtrd) sed. (mg/kg dry wt)	9710	METALS	mg/kg
Zinc, as Zn (direct)	9722	METALS	mg/L
Azure-A Active Substances	9750	MISC	mg/L

Chemical Oxygen Demand	9754	MISC	mg/L
Colour, Pt/Co units	9756	MISC	Pt-Co
Carbon Dioxide (titr.) as CO ₂	9758	MISC	mg/L
Dissolved Salts (EC*0.6)	9759	MISC	mg/L
Dissolved oxygen as DO(lab)	9760	MISC	mg/L
Settleable Matter (vol),ml/l/h	9764	MISC	ml/L/h
Suspended Solids	9765	MISC	mg/L
Total Dissolved Solids, 105C	9768	MISC	mg/L
Total Dissolved Solids, 180C	9769	MISC	mg/L
Total Organic Carbon	9770	MISC	mg/L
Total Solids, 105C.	9771	MISC	mg/L
Turbidity, NTU	9772	MISC	NTU
Total Soluble Salts (Conductivity)	9775	MISC	mg/L
Total Soluble Salts (Summation)	9776	MISC	mg/L
Hexavalent chromium (CrVI)	9777	METALS	mg/L
Manganese, total as Mn	9778	METALS	mg/L
Phenolic Compounds, as Phenol	9779	METALS	mg/L
Trivalent Chromium (CrIII)	9780	METALS	mg/L
Zinc, as Zn (solvent)	9781	METALS	mg/L
Aldrin	9800	PESTICIDES	ug/L
DDD	9801	PESTICIDES	ug/L
DDE	9802	PESTICIDES	ug/L
DDT	9803	PESTICIDES	ug/L
Dieldrin	9804	PESTICIDES	ug/L
Hexachlorobenzene	9805	PESTICIDES	ug/L
Heptachlor Epoxide	9806	PESTICIDES	ug/L
Lindane	9807	PESTICIDES	ug/L
Phosphorus, reactive as P	9809	PESTICIDES	mg/L
Phosphorus, total as P	9811	PESTICIDES	mg/L
Phosphorus, total filt as P	9812	PESTICIDES	mg/L
Total BHC	9813	PESTICIDES	ug/L
Heptachlor	9814	PESTICIDES	ug/L
Chlorpyrifos (OP)	9815	PESTICIDES	ug/L
Total Chlordane	9816	PESTICIDES	ug/L
Endosulfan	9817	PESTICIDES	ug/L
Endrin	9818	PESTICIDES	ug/L
Methoxychlor	9819	PESTICIDES	ug/L
Atrazine	9820	PESTICIDES	ug/L
Simazine	9821	PESTICIDES	ug/L
Prometryn	9822	PESTICIDES	ug/L
Metribuzin	9823	PESTICIDES	ug/L
Desthylatrazine	9824	PESTICIDES	ug/L
Phosphate-Ortho	9825	PESTICIDES	ug/L

Azinphos methyl	9826	PESTICIDES	ug/L
Chlorodane	9827	PESTICIDES	ug/L
Demeton	9828	PESTICIDES	ug/L
Demeton-S-methyl	9829	PESTICIDES	ug/L
Diazinon	9830	PESTICIDES	ug/L
Dicofol	9831	PESTICIDES	ug/L
Dimethoate	9832	PESTICIDES	ug/L
Endosulfan alpha	9833	PESTICIDES	ug/L
Endosulfan beta	9834	PESTICIDES	ug/L
Fenitrothion	9835	PESTICIDES	ug/L
Malathion	9836	PESTICIDES	ug/L
Mirex	9837	PESTICIDES	ug/L
Parathion	9838	PESTICIDES	ug/L
Profenofos	9839	PESTICIDES	ug/L
Temephos	9840	PESTICIDES	ug/L
Toxaphene	9841	PESTICIDES	ug/L
Chloroform	9851	ORGANIC COMPOUNDS	ug/L
chloromethane	9858	ORGANIC COMPOUNDS	ug/L
chloroethene	9859	ORGANIC COMPOUNDS	ug/L
chloroethane	9861	ORGANIC COMPOUNDS	ug/L
trichloroflouromethane	9862	ORGANIC COMPOUNDS	ug/L
1,1-dichloroethene	9863	ORGANIC COMPOUNDS	ug/L
trans-1,2-dichloroetene	9865	ORGANIC COMPOUNDS	ug/L
1,1-dichloroethane	9866	ORGANIC COMPOUNDS	ug/L
2,2-dichloropropane	9867	ORGANIC COMPOUNDS	ug/L
cis-1,2-dichloroethene	9868	ORGANIC COMPOUNDS	ug/L
1,1,1-trichloroethane	9870	ORGANIC COMPOUNDS	ug/L
carbon tetrachloride	9871	ORGANIC COMPOUNDS	ug/L
benzene	9873	ORGANIC COMPOUNDS	ug/L
1,2-dichloroethane	9874	ORGANIC COMPOUNDS	ug/L
trichloroethene	9875	ORGANIC COMPOUNDS	ug/L
cis-1,3-dichloropropene	9879	ORGANIC COMPOUNDS	ug/L
toluene	9880	ORGANIC COMPOUNDS	ug/L
1,1,2-trichloroethane	9881	ORGANIC COMPOUNDS	ug/L
tetrachloroethene	9882	ORGANIC COMPOUNDS	ug/L
chlorobenzene	9885	ORGANIC COMPOUNDS	ug/L
ethylbenzene	9887	ORGANIC COMPOUNDS	ug/L
m,p-xylenes	9888	ORGANIC COMPOUNDS	ug/L
o-xylene	9889	ORGANIC COMPOUNDS	ug/L
styrene	9890	ORGANIC COMPOUNDS	ug/L
isopropylbenzene(cumene)	9891	ORGANIC COMPOUNDS	ug/L
bromobenzene	9892	ORGANIC COMPOUNDS	ug/L
1,2,3-trichloropropane	9894	ORGANIC COMPOUNDS	ug/L

n-propylbenzene	9895	ORGANIC COMPOUNDS	ug/L
4-chlorotoluene	9897	ORGANIC COMPOUNDS	ug/L
1,3,5-trimethylbenzene	9898	ORGANIC COMPOUNDS	ug/L
1,2,4-trimethylbenzene	9900	ORGANIC COMPOUNDS	ug/L
1,3-dichlorobenzene	9902	ORGANIC COMPOUNDS	ug/L
4-isopropyltoluene	9903	ORGANIC COMPOUNDS	ug/L
1,4-dichlorobenzene	9904	ORGANIC COMPOUNDS	ug/L
1,2-dichlorobenzene	9905	ORGANIC COMPOUNDS	ug/L
1,2,4-trichlorobenzene	9908	ORGANIC COMPOUNDS	ug/L
naphthalene	9909	ORGANIC COMPOUNDS	ug/L
1,2,3-trichlorobenzene	9910	ORGANIC COMPOUNDS	ug/L
toluene-d8	9911	ORGANIC COMPOUNDS	ug/L
4-bromoflourobenzene	9912	ORGANIC COMPOUNDS	ug/L
total organic carbon (TOC)	9913	ORGANIC COMPOUNDS	mg/L
total petroleum hydrocarbon (TPH) C6-C9	9914	ORGANIC COMPOUNDS	mg/L
total petroleum hydrocarbon (TPH) C10-C14	9915	ORGANIC COMPOUNDS	mg/L
total petroleum hydrocarbon (TPH) C15-C28	9916	ORGANIC COMPOUNDS	mg/L
total petroleum hydrocarbon (TPH) C29-40	9917	ORGANIC COMPOUNDS	mg/L

7. Quality Codes

The table below lists quality codes that may appear in downloaded monitoring data depending upon site selection.

Quality Code	Description	Quality Code	Description
1	Unedited data	26	Daily read records (see additional quality info) ?
2	Good quality data - minimal editing required. Drift correction	27	MW - Good periodic data (Other Authority)
3	Linear infill to first value in block (no data lost).	30	Good measurement. Multiple point verticals 40 sec timing.
5	Drawdown - chart rating applies.	32	Fair measurement. WMGH, Turbulent flow, Flow angle extreme.
6	Level recorded during phased rating application - gradual change in control & channel	34	Bucket measurement applicable to weirs, pipe outflow etc.
8	Pool reading only - no flow condition.	35	Composite measurement. Segments taken from several gaugings.
9	Pool dry ? no data collected	41	Good data not validated by other means\044 no editing req. (MWC only)
10	Data transposed from recorder chart.	42	Low velocity acoustic record affected by wind or gate opening
11	Raw data used for operational purposes. (Not validated)	43	DSE GW - SOBN verified data
12	Routine data for calibration purposes	44	DSE GW - data from Water Corporations, other government agencies or consultants via upload xls
13	Accurate derived data from multiple sources (level & flow)	45	DSE GW - data from Universities or CMAs via upload xls
14	Telemetry data not stored in archive	46	DSE GW - data from landholders via upload xls
15	Minor editing. >+/-10mm drift correction	47	DSE GW - historic data from the GMS
20	Edited to measurements.	50	Medium editing >+/-30mm drift correction\044 significant single spike removal etc.

Quality Code	Description	Quality Code	Description
21	Low velocity acoustic record affected by wind or gate	51	Single Point High Velocity Meas. M9 use only. Water Vel > 3m/s
60	Latrobe Valley Water Authority supplied data.	104	Records manually estimated.
65	Other Authorities supplied data. Validation not supplied.	120	Estimated data not using any correlation (MW)
75	Height correction applied.	140	MWC quality code for specific request.
76	Latrobe Valley Water Authority supplied data.	146	Drawdown - no rating applies
77	Correlation with other station, same variable only.	148	Theoretical rating table applied (not to be applied to level data)
78	Reliable daily read data (see additional quality info) ?	149	Rating extrapolated within 1.5x Max Qm
80	Accumulated (Rainfall or Flow totals only).	150	Rating extrapolated due to insufficient gaugings (see additional quality info)
81	Wet day within accumulated rainfall period. (Sewer studies only)	151	Data lost due to natural causes / vandalism (see additional quality info) ?
82	Linear interpolation across gap in records. (<0.5 day)	152	Refer station file. Contractual issues affecting data collection
90	Salinity interpolation (Data Management section use only).	153	Data not recorded. Probe out of water/below instrument threshold.
92	Project site U/S data used.	154	Data unreliable. Acoustic sensor affected by wind.
95	Irregular time rate data - weekly/monthly read.	155	Data unreliable. Recording above instrument range.
96	Daily read records substituted for continuous record lost due to natural cause/vandalism.	156	Drawdown - normal rating does not apply
100	Irregular data, Use with caution. Beyond QC=50 or unexplained	160	Stage backed-up by downstream influence (see additional quality info) ?
101	Drawdown - normal rating does not apply.	161	Poor quality data from debris affecting Sensor.

Quality Code	Description
165	Suspect or bad data supplied by other authority
170	Raw unedited data stored in archive, secondary/backup sensor (see additional quality info) ?
180	Data not recorded, equipment malfunction.
190	Data unavailable station discontinued.
200	Data available but not digitised.
201	Data not recorded - no correlation available (see additional quality info) ?
237	Surface velocity measurement only.
250	Rating table suspended
254	Rating table exceeded
255	No Data Exists

8. Other codes

These codes may be found in the outputs generated via the groundwater group selection and download.

Construction type

CODE	DESCRIPTION
NOT	NOT KNOWN
BOR	DRILLED BORE
SPR	SPEAR POINT
W/S	WELL/SHAFT
ADI	ADIT, DRIVE
ISP	IMPROVED SPRING
DRG	DRAGLINE
JET	JETTED
SPN	SPRING - UNIMPROVED

Site Status

CODE	DESCRIPTION
C	Capped
D	Decommissioned
N	Not used
U	Used

Water level, field and lab chem source

CODE	DESCRIPTION
AFT	ANN MAINT AFTER TEST
AIR	AIR LIFTED
BAL	BAILED
BEF	ANN MAINT WL BEFORE TEST
CHE	FIELD CHEM ANALYSES
CHK	ANN MAINT WL CHECK
CON	ANNUAL MAINT BORE CONDITIONS
FLO	FLOWING
HYD	HYDRASLEEVE
LAB	LAB CHEM ANALYSES
LOG	DATALOGGER
MNT	BORE MAINTENANCE
MON	ROUTINE MONITORING
NKN	NOT KNOWN
NOT	NOT TESTED
POR	PORE WATER
PUM	PUMPED
ROU	ROUTINE
WLA	WATER LEVEL AFTER MAINTENANCE
WLB	WATER LEVEL BEFORE MAINTENANCE

Water level, field and lab chem collection method

CODE	DESCRIPTION
3VOL	3 VOLUME
AIR	AIRLIFTED
BAL	BAILED
EXP	EXPLOSIVE
FLO	FLOWING
GRAB	GRAB SAMPLE
HERONEC	HERON EC DIPPER
HYDRASLV	HYDRASLEEVE AT MID SCR N DEPTH
JET	JETTED
LWFLW	LOW FLOW
NKN	NOT KNOWN
NOT	NOT TESTED
OTH	OTHER
PDSMPLR	PASSIVE DIFFUSION SAMPLER
POR	PORE WATER
PUM	PUMPED
SEN	IN-BORE SENSOR AT MID SCR DPTH
SKSOCK	SKIMMING SOCK
SNA	SNAP SAMPLER AT MID SCR N DEPTH
SUR	SURGED
WAD	WATER ADDED

Location method/Survey Description

CODE	DESCRIPTION	CODE	DESCRIPTION
0-3	Not Known	GMW2012C	G-MW <100M VALIDATION
9	GPS/GIS	GMW2012D	G-MW DESKTOP SPI VALIDATION
CAD	SCALED-1:63360 CADAST.PLAN	GPS	GLOBAL POSITIONING SYSTEM
CAM	CALCULATED MANUALLY	LIDAR	LIDAR 10CM ACCURACY
CES	CONTOUR ESTIMATE	NGIS	NGIS DATA CHECKED
DEM10	DIGITAL ELEVATION MODEL 10M	NOT	NOT KNOWN
DEM20	DIGITAL ELEVATION MODEL 20M	SC1	SCALED-1:25\044000 MAP
DIG	DIGITIZED-1:100\044000 MAP	SC2	SCALED-1:100\044000 MAP
DSELI	DSE LIDAR 10CM ACCURACY	SGI	SURVEYED-GROUND INSTRUMENT
GDA	TRANSLATION TO GDA94	SKM	GPS - SKM VALIDATED DATA 2008
GM	ESTIMATED FROM GOOGLE MAPS	SSA	SURVEYED-SATELITE
GMW2012A	G-MW FIELD VALIDATED	VRSGNSS	VIRTUAL REFERENCE STATION
GMW2012B	G-MW <30M VALIDATION		

Drilling construction method

CODE	DESCRIPTION	CODE	DESCRIPTION
AGH	HAND AUGER	HD	HAND DUG
AGM	MECHANICAL AUGER	JET	JET
CBT	CABLE TOOL	NKN	NOT KNOWN
DDH	DIAMOND CORE	ROA	ROTARY AIR
DHH	DOWN HOLE HAMMER	ROM	ROTARY MUD
DRL	DRAG-LINE	ROT	ROTARY
DRV	DRIVEN	SON	SONIC

Outer lining material

CODE	DESCRIPTION
BEN	BENTONITE
CEM	CEMENT
DRI	DRY LINING
GRA	GRAVEL
NOT	NOT KNOWN
PAC	PACKER
SEA	SEAL

Casing/Screen material

CODE	DESCRIPTION
BEN	BENTONITE
CLA	CLAY
LEA	LEAD
NOS	NO SEAL
NOT	NOT KNOWN
RUB	RUBBER
SST	STAINLESS STEEL

Rock Type

CODE	DESCRIPTION	CODE	DESCRIPTION
AGGL	AGGLOMERATE	IGNE	IGNEOUS
ARKO	ARKOSE	LATE	LATERITE
BASA	BASALT	LIGN	LIGNITE
BREC	BRECCIA	LMST	LIMESTONE
CAAR	CALCARENITE	LOST	LOST SAMPLES
CACR	CALCRETE	MARL	MARL
CALU	CALCILUTITE	META	METAMORPHIC
CARU	CALCIRUDITE	MUST	MUDSTONE
CHER	CHERT	NOT	NOT KNOWN

CODE	DESCRIPTION	CODE	DESCRIPTION
CLAY	CLAY	OOLI	OOLITE
CLST	CLAYSTONE	PHYL	PHYLLITE
COAL	COAL	QTZT	QUARTZITE
CONG	CONGLOMERATE	RHYD	RHYODACITE
COSH	COAL SHALE	RHYL	RHYOLITE
DACI	DACITE	SAND	SAND
DIOR	DIORITE	SAST	SANDSTONE
DOLE	DOLERITE	SCHI	SCHIST
FAUL	FAULT	SCOR	SCORIA
FAZN	FAULT ZONE	SEDI	SEDIMENTARY
FECR	FERRICRETE	SHAL	SHALE
FEST	IRONSTONE	SILC	SILCRETE
FILL	FILL	SILT	SILT
GNEI	GNEISS	SIST	SILTSTONE
GRAN	GRANITE	SLAT	SLATE
GRAV	GRAVEL	SOIL	SOIL
GRAW	GREYWACKE	TALC	TALC/SOAPSTONE
GRDT	GRANODIORITE	TILL	TILLITE
GREE	GREENSTONE	TRCH	TRACHYTE
GYPS	GYPSUM	TUFF	TUFF
HORN	HORNFELS		

HGU's

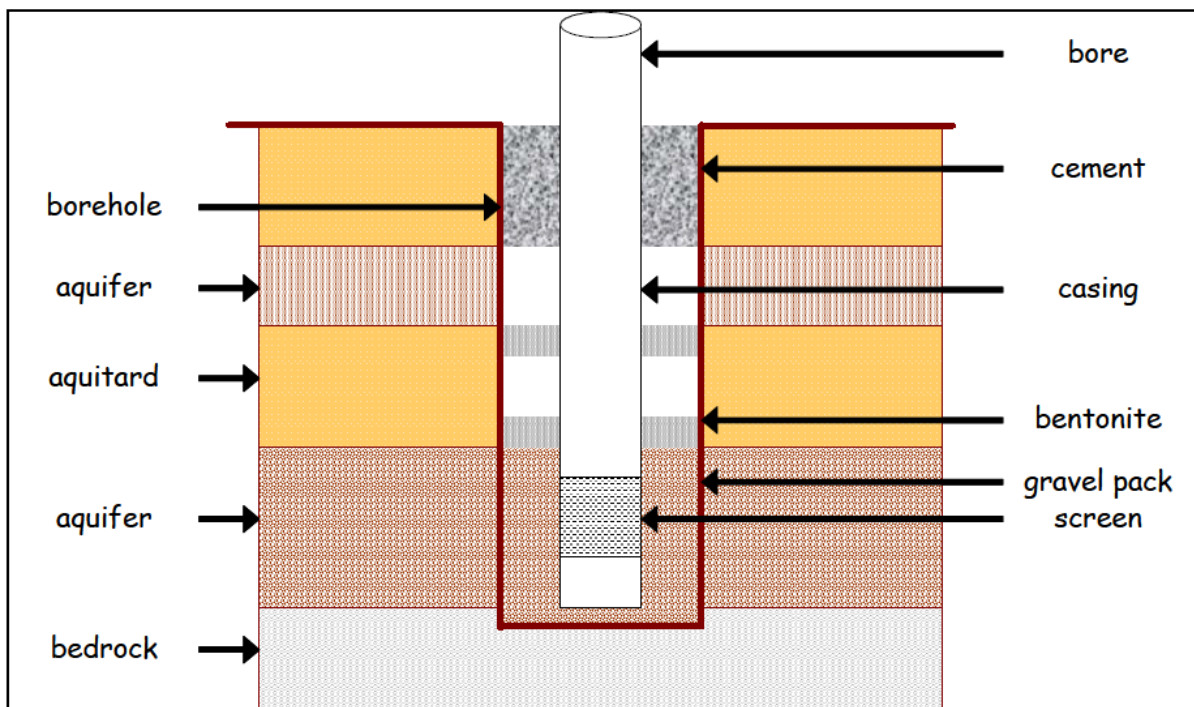
HGU_ID	HGU_CODE	HGU_NAME
241	1124	Undifferentiated Mesozoic and Palaeozoic Bedrock
158	1040	Undifferentiated Upper Mid Tertiary Aquifer
118	1000	Undifferentiated Quaternary Aquifer
193	1075	Undifferentiated Lower Mid Tertiary Aquitard
141	1023	Undifferentiated Upper Tertiary Aquifer (fluvial)
183	1065	Undifferentiated Upper Mid Tertiary Aquitard
226	1109	Undifferentiated Lower Tertiary Basalts
126	1008	Undifferentiated Upper Tertiary/ Quaternary Aquifer
205	1087	Undifferentiated Lower Tertiary Aquifer
231	1114	Undifferentiated Cretaceous and Permian Sediments
136	1018	Undifferentiated Upper Tertiary Aquifer (marine)
123	1005	Undifferentiated Quaternary Basalt
155	1037	Undifferentiated Upper Tertiary Aquitard
191	1073	Undifferentiated Lower Mid Tertiary Aquifer
131	1013	Undifferentiated Upper Tertiary/Quaternary Aquitard

9. Bore Construction

The following provides a brief description of the components that comprise a groundwater bore.

1. A borehole is drilled that may intersect multiple aquifers.
2. A bore casing and screen (slotted casing) are placed into the borehole.
3. Gravel pack may be placed in the annulus (space between the drilled bore hole and the bore casing eg. PVC) around the screen, or the natural formation may be used.
4. Bentonite is a type of clay used to seal aquifers and avoid cross contamination.
5. Borehole is cemented at the surface to avoid contaminants entering groundwater on the way ups.
6. Borehole is cemented at the surface to avoid contaminants entering groundwater on the way ups.

An example bore construction is shown below.



Borehole - Void where the cylindrical hole has been drilled into and through earthen formations by a drilling rig.

Casing - black steel, galvanized steel, PVC pipe and concrete pipe pipe that is installed in the borehole to keep the borehole from collapsing and to protect drilled aquifers from contamination.

Gravel pack - placed around the outside of the screen to prevent sand from entering the well or clogging the screen and to stabilize the well assembly.

Grout - a sealant that is used to fill in the spaces around the outside of the well. It protects the well against the intrusion of contaminants. A grout mixture can be made of **cement**, **bentonite**, or **concrete** (each used separately).

Screen - keeps sand and gravel out of the well while allowing groundwater and water from formations to enter into the well. Screen is available in many materials, the most popular being stainless steel and slotted PVC pipe.

10. Glossary

AHD The Australian Height Datum (AHD) is a geodetic datum for altitude measurement in Australia. The datum that sets mean sea level as zero elevation.

Allocation a percentage of licence entitlement that is permitted to be pumped in a water year. For example, a groundwater licence with 100 ML/year entitlement where a 70% allocation has been announced may only extract up to 70 ML that water year.

Artesian Well a vertical bore hole in which a pipe-like structure is inserted into the ground so that it withdraws water from a confined aquifer (artesian aquifer)

Aquifer A layer of underground sediment that holds groundwater and allows water to flow through it.

Aquitard A layer of rock or soil that does not allow water to move through it easily. **Gigalitre (GL)** One billion (1,000,000,000) litres.

Catchment management authorities (CMAs) Government authorities established under the Catchment and Land Protection Act 1994 to manage river health, regional and catchment planning, and waterway, floodplain, salinity and water quality management.

Confined Aquifer (artesian aquifer) an aquifer holding water under pressure by a layer above it that does not allow water to pass through. Due to pressure, the water level of a well in a confined aquifer will rise above the top of the aquifer.

Confining Layer (aquitard or aquifuge) geologic material with little or no permeability or hydraulic conductivity. Water does not pass through this layer or the rate of movement is extremely slow.

Control a natural structure or an artificial structure built on a river to allow a controlled and measurable amount of water to flow during a given period. Every surface water site has

Dairy wash Water used to wash down farm dairies.

Discharge the process whereby groundwater leaves the aquifer.

Domestic and stock Water use for household purposes, watering pets, cattle and other stock, fire prevention and irrigating a kitchen garden.

DT7 Data Trans7 (DT7) is used to identify data in Hydstra as spot data, not time series.

EC units/level Electrical Conductivity is a measure used to indicate salinity levels in water.

Entitlement the volume of groundwater licence that may be extracted in a year subject to licence conditions. The Victorian Water Act 1989 governs groundwater licensing in Victoria. A licence to take and use groundwater under section 51 of the Victorian Water Act 1989 is required for any purpose other than domestic and stock use.

Field time series This data is collected continuously, but an instrument installed at the site. The site is visited on a regular schedule and the data is collected from the instrument, checked for quality and transferred to the central database.

Geology the study of science dealing with the origin, history, materials and structure of the earth, together with the forces and process operating to produce change within and on the earth

Groundwater All subsurface water, generally occupying the pores and crevices of rock and soil.

Groundwater dependent ecosystem (GDE) Ecosystems, such as wetlands, streams, estuaries and some terrestrial vegetation, that rely totally or in part on groundwater to provide water.

Groundwater Basin the underground area from which groundwater drains. The basins could be separated by geologic or hydrologic boundaries.

Groundwater management area (GMA) Groundwater management unit where groundwater resources of a suitable quality for irrigation, commercial or domestic and stock use are available or are expected to be available.

Groundwater management unit (GMU) Groundwater consumption is managed geographically via management units, which can be groundwater management areas (GMA), water supply protection areas (WSPA) or unincorporated areas (UA).

Groundwater management plans Created for water supply protection areas that have been or are proposed to be proclaimed under the Water Act 1989 to ensure equitable and sustainable use of groundwater

Hydraulic Conductivity the ease with which water can move through an aquifer. It can be determined by dividing the transmissivity of the aquifer by the aquifer thickness

Hydrogeology the study of the interrelationships of geologic materials and processes with water, especially groundwater

Hydrology the study of the occurrence, distribution, and chemistry of all waters of the earth

Laboratory and spot data → from tab

Licensing authority Administers the diversion of water from waterways and the extraction of groundwater on behalf of the Minister for Water.

Local management plans/rules Operating plans that include rules for managing surface water or groundwater accessed under section 51 take and use licences.

Megalitre (ML) One million (1,000,000) litres.

Micrograms per Liter (ug/l) a measure of the amount of dissolved solids in a solution in terms of micrograms of solid per liter of solution; Equivalent to part per billion in water or 1ug/l=1ppb

Milligrams per Liter (mg/l) a measure of the amount of dissolved solids in a solution in terms of milligrams of solid per liter of solution; Equivalent to part per million in water or 1mg/l=1ppm

MPWL Monitoring Point Water Level

Nitrate (NO³) a chemical formed when nitrogen from ammonia (NH₃), ammonium (NH₄) and other nitrogen sources combines with oxygenated water

Part per Billion (ppb) a measure of the amount of dissolved solids in a solution in terms of a ratio between the number of parts of solids to a billion parts of total volume; Equivalent to microgram per liter in water or 1ppb=1 ug/l

Part per Million (ppm) a measure of the amount of dissolved solids in a solution in terms of a ratio between the number of parts of solids to a million parts of total volume; Equivalent to milligram per liter in water or 1ppm=1 mg/l

Permissible consumptive volume (PCV) The volume of water permitted to be allocated in discrete groundwater management units. Previously called permissible annual volumes (PAVs).

Pesticides chemicals including insecticides, fungicides, and herbicides that are used to kill living organisms

Rating Curves Rating curves are used to compute the flow at a stream flow site from water level measurements. Rating tables are established by Hydrographers on the basis of number gauging measurements taken at different flow rates. The current rating table is accessible on this website. Historic Rating Tables for any site can be obtained by submitting a request to water.data@dse.vic.gov.au.

Recharge (to groundwater) The processes, such as infiltration and seepage, by which water enters aquifers and becomes groundwater.

River basin The land drained by a river and its tributaries. The river basins used in this Strategy are consistent with those defined by the Australian Water Resource Council (AWRC).

RLNS Relative Level Natural Surface

Salinity The total amount of water-soluble salts present in the soil or in a stream.

Site A site is a location where one or more measurements may be taken. Sites are classified in the menus as Rivers & Streams and Ground water sites. Every site is identified by a unique site code and a site name. Site information is accessed in the Details tab.

State Observation Bore Network (SOBN) A network of about 2,500 bores managed by the Department of Environment and Primary Industries to monitor Victoria's groundwater resources.

Statutory management plan Prepared under the provisions of the Water Act 1989 for a water supply protection area or a waterway to manage the water resources of the area.

Take and use licence A fixed term entitlement issued under section 51 of the Water Act 1989 to take and use water from a waterway, catchment dam, spring, soak or aquifer, usually for commercial or irrigation purposes.

Transmissivity the ability of the aquifer to transmit groundwater throughout its entire saturated thickness

Unincorporated areas (UA) Areas with limited groundwater resources which are not defined as groundwater management areas or water supply protection areas and do not have a defined permissible consumptive volume.

Water corporations Government owned corporations charged with supplying water to urban and rural water users. These corporations, formerly known as water authorities, administer the diversion of water from waterways and the extraction of groundwater

Water supply protection area (WSPA) An area declared under the Water Act 1989 to protect groundwater and/or surface water resources in the area. Once an area has been declared, a statutory water management plan is prepared.

Water table Surface of groundwater below which the soil or rocks are permanently saturated with water.

Water year is a period of 12 months commencing 1 July (sometimes referred to as a season).