

Drinking Water Monitoring Report Hay 2024

Executive Summary

In 2024, Hay Shire Council performed routine drinking water sampling and testing to monitor the quality of drinking water.

Compliance is determined against the Australian Drinking Water Guidelines (2011) guideline values for *E. coli*, physical and chemical characteristics of drinking water.

The Hay supply system achieved compliance of 100% for physical, 100% for chemical, and 100% for microbiological samples.

All results are detailed in the tables below.

Water Quality

Summary

Samples are taken 6 monthly for physical and chemical analysis. Microbiology samples are taken weekly in this supply.

96% of samples were taken for microbiology.

Table 1. Hay Water Quality Compliance

Sample Type	Sample Count	Number of Characteristics	Number of Noncompliant- Samples	Compliance (%)
Physical	1	5	0	100
Chemical	9	27	0	100
Microbiological	50		0	100

Routine Drinking Water Monitoring Characteristics

Chronic health-related chemical characteristics are inorganic chemicals that might be present in water and can pose a risk to health with prolonged exposure. The Guideline values for these materials are usually set to be protective over a lifetime of exposure. Single results above a Guideline value are unlikely to pose a risk to health; compliance is based on analysing long term trends.

The results for Chronic health-related characteristics for the Hay supply are listed in Table 2.

Table 2. Chronic health-related Chemical Water Quality Data for the Hay supply

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Antimony	0.0030mg/L	0.0001	0.00005	1	100
Arsenic	0.0100mg/L	0.0010	0.001	1	100
Barium	2.0000mg/L	0.0264	0.0264	1	100
Boron	4.0000mg/L	0.0063	0.0063	1	100
Cadmium	0.0020mg/L	0.0001	0.00005	1	100
Chromium	0.0500mg/L	0.0005	0.0005	1	100

Fluoride	1.5000mg/L	0.9400	0.94	1	100
Iodine	0.5000mg/L	0.0100	0.01	1	100
Lead	0.0100mg/L	0.0001	0.0001	1	100
Manganese	0.5000mg/L	0.0024	0.0024	1	100
Mercury	0.0010mg/L	0.0004	0.0004	1	100
Molybdenum	0.0500mg/L	0.0002	0.0002	1	100
Nickel	0.0200mg/L	0.0005	0.0005	1	100
pH	6.5-8.5	7.8	7.8	1	100
Selenium	0.0100mg/L	0.0035	0.0035	1	100
Silver	0.1000mg/L	0.0001	0.0001	1	100
Uranium	0.0200mg/L	0.0001	0.0001	1	100

Acute health-related chemical characteristics are inorganic chemicals that can pose a health risk based on a small number of exposures. High concentrations of copper can cause vomiting. High concentrations of nitrite or nitrate can be risky for bottle-fed babies. The Guideline values for these characteristics have been set to protect people from short-term exposure.

Table 2a. Acute health-related Chemical Water Quality Data for the Hay supply

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Copper	2.0000mg/L	0.0010	0.001	1	100
Nitrate	50.0000mg/L	0.5000	0.5	1	100
Nitrite	3.0000mg/L	0.0500	0.05	1	100

Physical and aesthetic chemical characteristics change the way that water appears; its taste, smell, look and feel. These characteristics do not have health guideline values but do affect how people feel about their drinking water.

Table 2b. Physical and Selected Aesthetic Chemical Water Quality Data for the Hay supply

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Iron	0.3000mg/L	0.0050	0.005	1	100
Sodium	180.0000mg/L	38.0000	38	1	100
Total dissolved solids	10000.0000mg/L	161.0000	161	1	100
Total hardness	200.0000mg/L	96.4000	96.4	1	100
True Colour	15.0000 HU	1.0000	1	1	100
Turbidity	5.0000 NTU	0.1000	0.1	1	100

Escherichia coli, a bacteria found in the gut of many backboned animals, is an indicator that there has been recent contamination with faeces in a drinking water supply. Chlorine is used widely to kill disease-causing organisms in drinking water. A reasonable residual concentration in the supply provides ongoing protection all the way to customer taps, and gives some indication that filtration is working well, and the distribution system has not been compromised.

Table 3. Microbiological Water Quality Data for the Hay supply

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
E. coli	0.0000mpn /100ml	0.0000	0.0000	50	100
Free Chlorine	0.2-5mg/L	1.3372	2.26	50	100
Total Chlorine	5.0000	1.6744	3.26	50	100

Other Monitoring

Per- and Poly-fluorinated alkyl substances (PFAS) testing

PFAS are a class of chemicals that have been developed for fire-fighting, stain and water resistance and other uses. They can pose a risk to health with prolonged exposure. The Guideline values for these materials are set to be protective over a lifetime of exposure.

Table 4. Results for PFAS monitoring for the Hay supply

Characteristic	Guideline Value	Mean	Maximum	Meeting Guideline Value (%)
Sum of perfluorooctane sulfonate (PFOS) and perfluorohexane sulfonate (PFHxS)	0.0700µg/L	0.006	0.006	100
Perfluorooctanoic acid (PFOA)	0.5600µg/L	0.0001	0.0001	100

Samples taken for PFAS were below the Guideline values

Pesticide testing: Results for pesticides analysis

Pesticides are a broad group of chemicals that have been developed to kill plants, insects and other invertebrates, and fungi. At low concentrations they can pose a risk to health with prolonged exposure. The Guideline values for these materials are usually set to be protective over a lifetime of exposure. Table 5 below shows the results for pesticides that have been tested. All results were below the Guideline values.

Table 5. Pesticide Water Quality Data for the Hay supply

Characteristic	Guideline Value mg/L	Mean	Maximum	Meeting Guideline Value (%)
2,4,5-T	0.1000	0.0003	0.00025	100.00
2,4-D	0.0300	0.0003	0.00025	100.00
Aldicarb	0.0040	0.0001	0.00005	100.00
Aldrin	0.0003	0.0001	0.00005	100.00
Atrazine	0.0200	0.0001	0.00005	100.00
Azinphos-methyl	0.0300	0.0005	0.0005	100.00
Beta-cyfluthrin	0.0500	0.0005	0.0005	100.00
Bioresmethrin	0.1000	0.0003	0.00025	100.00
Bromacil	0.4000	0.0003	0.00025	100.00
Bromoxynil	0.0100	0.0003	0.00025	100.00
Captan	0.4000	0.0003	0.00025	100.00
Carbaryl	0.0300	0.0001	0.00005	100.00
Carbendazim	0.0900	0.0001	0.00005	100.00
Carbofuran	0.0100	0.0001	0.00005	100.00
Carbophenothion	0.0005	0.0002	0.0002	100.00
Chlordane	0.0020	0.0003	0.00025	100.00
Chlorfenvinphos	0.0020	0.0001	0.000065	100.00
Chlorothalonil	0.0500	0.0025	0.0025	100.00
Chloroxuron	0.0100	0.0001	0.00005	100.00
Chlorpyrifos	0.0100	0.0001	0.000125	100.00
Clopyralid	2.0000	0.0003	0.00025	100.00
Cypermethrin	0.2000	0.0005	0.0005	100.00
DDT	0.0090	0.0003	0.00025	100.00
Deltamethrin	0.0400	0.0005	0.0005	100.00
Diazinon	0.0040	0.0000	0.000015	100.00
Dicamba	0.1000	0.0003	0.00025	100.00
Dichlobenil	0.0100	0.0001	0.000125	100.00
Dichlorprop	0.1000	0.0003	0.00025	100.00
Dichlorvos	0.0050	0.0001	0.000065	100.00
Dicofol	0.0040	0.0005	0.0005	100.00
Dieldrin	0.0003	0.0001	0.00005	100.00
Dimethoate	0.0070	0.0003	0.00025	100.00
Disulfoton	0.0040	0.0005	0.0005	100.00
Diuron	0.0200	0.0001	0.00005	100.00
Endosulfan	0.0200	0.0025	0.0025	100.00
Ethion	0.0040	0.0001	0.000125	100.00
Ethoprophos	0.0010	0.0001	0.000065	100.00
Fenamiphos	0.0005	0.0000	0.000015	100.00
Fenitrothion	0.0070	0.0013	0.00125	100.00
Fenoprop	0.0100	0.0003	0.00025	100.00
Fensulfathion	0.0100	0.0000	0.000015	100.00
Fenthion	0.0070	0.0005	0.0005	100.00

Fenvalerate	0.0600	0.0005	0.0005	100.00
Fluometuron	0.0700	0.0001	0.00005	100.00
Glyphosate	1.0000	0.0005	0.0005	100.00
Haloxypop	0.0010	0.0003	0.00025	100.00
Heptachlor	0.0003	0.0001	0.000125	100.00
Heptachlor &Heptachlor epoxide	0.0003	0.0005	0.0005	0.00
Heptachlor epoxide	0.0003	0.0005	0.0005	0.00
Hexazinone	0.4000	0.0001	0.00005	100.00
Lindane	0.0100	0.0001	0.00005	100.00
Maldison (Malathion)	0.0700	0.0000	0.000015	100.00
MCPA	0.0400	0.0003	0.00025	100.00
Methidathion	0.0060	0.0003	0.00025	100.00
Methiocarb	0.0070	0.0001	0.00005	100.00
Methomyl	0.0200	0.0001	0.00005	100.00
Methoxychlor	0.3000	0.0003	0.00025	100.00
Metolachlor	0.3000	0.0000	0.000015	100.00
Metribuzin	0.0700	0.0001	0.00005	100.00
Mevinphos	0.0050	0.0001	0.000125	100.00
Molinate	0.0040	0.0001	0.000125	100.00
Oxamyl	0.0070	0.0001	0.00005	100.00
Parathion	0.0200	0.0003	0.00025	100.00
Parathion-methyl	0.0007	0.0003	0.00025	100.00
Pendimethalin	0.4000	0.0003	0.00025	100.00
Pentachlorophen ol	0.0100	0.0003	0.00025	100.00
Permethrin	0.2000	0.0003	0.00025	100.00
Picloram	0.3000	0.0003	0.00025	100.00
Pirimicarb	0.0070	0.0001	0.00005	100.00
Pirimiphos-ethyl	0.0005	0.0000	0.000015	100.00
Pirimiphos- methyl	0.0900	0.0000	0.000015	100.00
Profenofos	0.0003	0.0001	0.000065	100.00
Propachlor	0.0700	0.0000	0.000015	100.00
Propanil	0.7000	0.0003	0.00025	100.00
Propazine	0.0500	0.0001	0.00005	100.00
Propiconazole	0.1000	0.0000	0.000015	100.00
Quintozone	0.0300	0.0003	0.00025	100.00
Simazine	0.0200	0.0001	0.00005	100.00
Sulprofos	0.0100	0.0003	0.00025	100.00
Terbufos	0.0009	0.0003	0.00025	100.00
Terbutylazine	0.0100	0.0001	0.00005	100.00
Terbutryn	0.4000	0.0001	0.00005	100.00

Thiobencarb	0.0400	0.0001	0.00005	100.00
Total of Aldrin and Dieldrin	0.0003	0.0001	0.00005	100.00
Triclopyr	0.0200	0.0003	0.00025	100.00
Trifluralin	0.0900	0.0003	0.00025	100.00