

Summary

Denina Bernard - Borehole DBH1

Applicable	Method	Sustainable yield (l/s)	Std. Dev	Early T (m ² /d)		Late T (m ² /d)		S	AD used
<input checked="" type="checkbox"/>	Basic FC	2.05	1.04	5		4.2		2.20E-03	70.0
<input type="checkbox"/>	Advanced FC								
<input type="checkbox"/>	FC inflection point								
<input checked="" type="checkbox"/>	Cooper-Jacob	2.20	1.42			7.8		8.57E-05	70.0
<input type="checkbox"/>	FC Non-Linear								
<input checked="" type="checkbox"/>	Barker	2.23	1.32	K _f =	3		S _s =	1.00E-07	70.0
	Average Q _{sust} (l/s)	2.16	0.09	b =	0.68	Fractal dimension n =		2.14	

Recommended abstraction rate (L/s)	2.16	7776	l/hr	For 24 hrs per day
Hours per day of pumping (L/s)	12	3.06	11016	l/hr
Hours per day of pumping (L/s)	10	3.35	12060	l/hr
Hours per day of pumping (L/s)	8	3.74	13464	l/hr

Amount of water allowed to be abstracted per month	5598.72	m ³
Borehole could satisfy the basic human need of	7465	persons
Is the water suitable for domestic use (Yes/No)	-	

Recommended pump depth below surface (m)	180	
Total Casing length	250	
Blow yield (l/s)	-	
Expected dynamic water level over 24hr pump	125	mbcl metres below casing level
Critical depth that water level must not exceeded	160	mbcl
Depth of BH	250	mbcl
Static Water Level	87.03	mbcl

Management recommendations

The aquifer consists of a good fracture network with radial flow present. Transmissivity is in the order of 4.2 to 7.8 m²/day.

An available drawdown of 160 mbcl is recommended.

As a rule of thumb, 60% of the total available drawdown (depth between main water strike and static water level) can be utilised without jeopardizing aquifer sustainability.

A dynamic water level of 125 mbcl is anticipated over a 24hr pump schedule at a volume of 2.16 l/s.

The water level should not exceed 160 mbcl, which is referred to as the critical water level.

Consistent drawdown below the critical water level will have a negative impact on the aquifer sustainability and yield.

It is therefore HIGHLY recommended to monitor the water level closely during pumping, to prevent drawdown in excess of 160 mbcl.

A conduit should be installed alongside the pump to allow for the measurement of the water level.

A CALIBRATED FLOW METER MUST BE INSTALLED AT THE IMMEDIATE PUMP OUTLET AT THE BOREHOLE TO ENSURE THE RECOMMENDED PUMP VOLUMES ARE NOT EXCEEDED.



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Recommended Pump Volumes		
Hours per day pumping	l/s	l/hr
24	2.16	7 776
22	2.26	8 136
20	2.37	8 532
18	2.49	8 964
16	2.65	9 540
14	2.83	10 183
12	3.06	11 016
10	3.35	12 060
8	3.74	13 464
Pump depth		180 mbcl
Dynamic Water Level (24hr)		125 mbcl
Critical Water Level		160 mbcl



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