

AGENT:	APAL	ANALYTICAL No:	W5
CLIENT :	Tim Walker	DATE RECEIVED:	17-Jun-14
SAMPLE :	WATER SAMPLE	DATE REPORTED:	18-Jul-14
BATCH No:	2014-57		

RESULTS:	DESIRED	LEVEL		kg/ha applied	
PARAMETER	LEVEL	FOUND	INTERPRETATION	in 25mm water	COMMENTS (relative to impact on soil/plant)
Water Characteristics:					
pH(water)^	6.5 - 8.5	7.9	High		* pH is only reliable within 15 minutes of sampling.
Total Alkalinity	CaCO ₃ m	<150	Moderate		* Moderately alkaline
Bicarbonate"	CO ₃ mg/L	< 400	Very Low	34	* Unsuitable for some plants
Carbonate"	CO ₃ mg	-	Below LOD		* kg lime equivalent applied/Ha/25mm water
Calcium"	mg/L	< 500	Very Low	3	* Carbonates are not present if pH <8.3
Magnesium"	mg/L	< 125	Very Low	2	* Allowable level for irrigation
Hardness	mg/L	< 150	Low		* Suitable level for irrigation
Saturation Index	LSI	-0.5_+0.5	-1.0		* OK for domestic use
Sodium^	mg/L	< 180	Low	14	* Likely corrosive
Chloride*	mg/L	< 350	Low	16	* Suitable level for irrigation
EC∞@	µS/cm	< 280	Moderate		* OK for overhead sprinklers in sensitive crops .
SAR~		< 5.5	3.0		* Require medium salt tolerant plants
Impact on Livestock:					
TDS or 'Salts" ^	mg/L	< 175	227		* SAR will not affect soil permeability at this low level.
Macro Elements:					
Nitrate^	mg NO ₃ /L	< 50	<5		* Suitable for humans & livestock of all ages
Phosphorus	mg/L	< 1	<0.05		
Sulphate^	mg SO ₄ /L	< 250	30.4	8	* Suitable level for irrigation
Potassium"	mg/L	< 20	3.1		
Trace Elements:					
Aluminium*	mg/L	< 5	<0.05		References:
Iron^	mg/L	< 0.3	<0.05		* Australian Water Quality Guidelines, ANZECC, 1992.
Cobalt*	mg/L	< 0.01	<0.005		^ Australian Drinking Water Guidelines, 1994
Copper*	mg/L	< 0.1	0.011		" Brookside Laboratories Drinking Water for Livestock Guidelines 1972
Manganese^	mg/L	< 0.1	<0.005		` WHO 2009 Heavy Metals in drinking water
Zinc*	mg/L	2	<0.01		* & EPA USA 1994
Boron*	mg/L	0.5	<0.05		
Molybdenum*	mg/L	0.01	<0.005		Legend:
Heavy Metals:					
Antimony `	mg/L	20			∞ Electrical Conductivity in µS/cm = dS/m x1000 = mS/mx10
Arsenic `	mg/L	< 10			LOD = Level of Detection
Barium `	mg/L	700			~ Sodium Absorption Ratio = Na/(Ca+Mg)*0.5 in m.e./L
Beryllium*	mg/L	< 100			TDS = Total Dissolved Salts
Boron*	mg/L	< 500			NA = Not Applicable or Not Tested
Cadmium*	mg/L	<10			@ EC: 1000 µS/cm = 1mS/cm = 1 dS/m
Chromium*	mg/L	1000			Methods of Analysis used by APAL:
Cobalt*	mg/L	10			pH: smartSCAN pH meter
Copper*	mg/L	<100			Total Alkalinity & CO ₃ : calculation from pH & HCO ₃
Lead*	mg/L	200			Saturation Index: calculation from pH, CO ₃ , HCO ₃
Manganese*	mg/L	<100			EC & TDS: Cyberscan conductivity meter
Mercury*	mg/L	2			SAR & Hardness: calculation from ICP-OES analysis
Molybdenum*	mg/L	<10			HCO ₃ : H ₂ SO ₄ titration + Cyberscan conductivity meter
Nickel*	mg/L	200			Cl: AgNO ₃ & AgCl electrode
Selenium*	mg/L	20			NITRATE: reflectrometry (MerkRQ Flex10)
Tin `	mg/L	NA			MACRO & TRACE ELEMENTS: ICP-OES analysis
Vanadium*	mg/L	NA			Heavy Metal analysis performed by Eurofins mgt
Zinc*	mg/L	2000			
Cyanide	mg/L	NA			
Fluoride	mg/L	NA			