



Certificate Of Analysis

Registration No. : L-KL-BQ2102NGE-0398 Page: 21 of 34
Customer : Golden Ecosystem Sdn. Bhd.
Project : The Proposed Oil Palm and Coconut Palm Plantation at Lots PTD 4882, PTD 4085, PTD 4963, PTD 4118, PTD 4177 and PTD 4121 (3775.34 ha) Mukim Padang Endau, Daerah Mersing, Johor Darul Takzim.
Receiving Date : 26th February 2021
Reporting Date : 25th March 2021
Sample Description : Ground water
Sample Marking : 10. GW1: PTD 4882[N 02°34'13.86" E103°37'36.73"]
 11. GW3: PTD 4963[N 02°32'10.23" E103°38'35.49"]
 12. GW4: PTD 4118 [N 02°33'13.94" E103°36'0.85"]

Results of analysis:-

Testing Period: 26-February-2021 to 24-March-2021

Parameters	Units	Results			Recommended Raw Water Quality	Methods
		GW1	GW3	GW4		
pH value (tested on 26/02/2021)	-	6.2 (25.6°C)	6.7 (25.8°C)	3.3 (25.7)	5.5-9.0	APHA 4500-H ⁺ B, 2005
Conductivity	Us/cm	543	186	1205	-	APHA 2510 B, 2005
Total Dissolved Solids	mg/l	396	121	923	1500	APHA 2540 C, 2005
*Chloride as Cl	mg/l	45.0	6.5	2.7	250	ASTM D512, 1981
Ammonia as N	mg/l	7.2	2.6	4.2	1.5	APHA 4500-NH ₃ B&C, 1992
Nitrate as NO ₃	mg/l	0.8	<0.1	4.7	10	APHA 4500-NO ₃ ⁻ B, 2005
Iron as Fe	mg/l	1.55	0.422	69.7	1.0	APHA 3120 B, 2005
Fluoride	mg/l	0.2	0.1	0.3	1.5	APHA 4500-F ⁻ D, 2005
Hardness as CaCO ₃	mg/l	70	49	151	500	APHA 2340 B, 2005
Manganese as Mn	mg/l	0.264	0.010	0.473	0.2	APHA 3120 B, 2005
Chemical Oxygen Demand (tested on 26/02/2021)	mg/l	69	52	24	10	APHA 5220 B, 2005
Surfactants as MBAS	mg/l	<0.01	<0.01	<0.01	1.0	APHA 5540 C, 2005
Biochemical Oxygen Demand @ 5 days at 20°C (tested on 26/02/2021)	mg/l	3	2	4	6	} APHA 5210 B, 2005 & } APHA 4500 O G, 2005
Nitrite as NO ₂	mg/l	<0.1	<0.1	<0.1	-	APHA 4500-NO ₂ ⁻ B, 2005
Mercury as Hg	mg/l	<0.001	<0.001	<0.001	0.001	APHA 3112 B, 2005
Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	0.003	APHA 3120 B, 2005
Arsenic as As	mg/l	<0.005	0.009	<0.005	0.01	APHA 3114 C, 2005
Cyanide as CN	mg/l	<0.02	<0.02	<0.02	0.07	APHA 4500-CN ⁻ F, 2005
Lead as Pb	mg/l	0.001	0.001	0.025	0.05	APHA 3120 B, 2005
Chromium as Cr	mg/l	<0.001	<0.001	0.004	0.05	APHA 3120 B, 2005
Copper as Cu	mg/l	0.003	0.004	0.020	1.0	APHA 3120 B, 2005
Zinc as Zn	mg/l	0.038	0.003	0.112	3.0	APHA 3120 B, 2005
Sodium as Na	mg/l	31.2	2.50	15.0	200	APHA 3120 B, 2005
Sulphate as SO ₄	mg/l	115	56	524	250	APHA 4500-SO ₄ ²⁻ E, 2005
Selenium as Se	mg/l	<0.001	<0.001	<0.001	0.01	APHA 3120 B, 2005
Silver as Ag	mg/l	0.004	0.004	<0.001	0.05	APHA 3120 B, 2005
Magnesium as Mg	mg/l	12.4	1.06	25.8	150	APHA 3120 B, 2005
*Mineral Oil (tested on 26/02/2021)	mg/l	<0.04	<0.04	<0.04	0.3	APHA 5520 C, 2005
Phenol	mg/l	<0.001	<0.001	<0.001	0.002	APHA 5530 B&C, 2005
Nickel as Ni	mg/l	0.002	<0.001	0.007	-	APHA 3120 B, 2005

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Parameters	Units	Results			Recommended Raw Water Quality	Methods
		GW1	GW3	GW4		
Organochlorine Pesticides(OCP):-						
alpha-BHC	µg/l	<0.01	<0.01	<0.01	-	} APHA 6630 C, 2005
Gamma-BHC (Lindane)	µg/l	<0.01	<0.01	<0.01	2.0	
Heptachlor	µg/l	<0.01	<0.01	<0.01	-	
Aldrin	µg/l	<0.01	<0.01	<0.01	0.03	
Heptachlor Epoxide (isomer B)	µg/l	<0.01	<0.01	<0.01	-	
Endosulfan I (alpha)	µg/l	<0.01	<0.01	<0.01	0.03	
Dieldrin	µg/l	<0.01	<0.01	<0.01	0.03	
4,4'-DDT	ug/l	<0.01	<0.01	<0.01	-	
*Chlordane	µg/l	<1	<1	<1	-	

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Kok Yin Yean
MMIC M/3299/6133/2011
(Chemist)

Notes:

- The results relate only to the items tested submitted by the customer.
- APHA means Standard Methods for Examination of Water and Wastewater by APHA, AWWA and WEF.
- Recommended Raw Water Quality means parameter limits stipulated under Drinking Water Quality Standard by Ministry of Health Malaysia.
- ASTM means Annual Book of ASTM Standards by American Society for Testing and Materials.
- (*) means Not SMMM accredited.
- "<" means 'less than the minimum detectable limit' or 'not detected'.

Attention : **Wazfarina Abdul Wahid**
Address : **Golden Ecosystem Sdn. Bhd.**
D-06-01, D-06-08, Menara Mitraland,
No 13A, Jalan PJU 5/1,
PJU 5, Kota Damansara,
47810 Petaling Jaya, Selangor.



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Receiving Date : 26th February 2021
Reporting Date : 25th March 2021
Sample Description : Ground water
Sample Marking : 13. GW5: PTD 4177[N 02°32'0.20" E103°39'31.02"]
 14. GW6: PTD 4121[N 02°32'0.13" E103°40'56.02"]

Results of analysis:-

Testing Period: 26-February-2021 to 24-March-2021

Parameters	Units	Results		Recommended Raw Water Quality	Methods
		GW5	GW6		
pH value (tested on 26/02/2021)	-	6.0 (25.7°C)	5.9 (25.8)	5.5-9.0	APHA 4500-H ⁺ B , 2005
Conductivity	Us/cm	446	146	-	APHA 2510 B, 2005
Total Dissolved Solids	mg/l	289	104	1500	APHA 2540 C, 2005
*Chloride as Cl	mg/l	12.4	11.9	250	ASTM D512, 1981
Ammonia as N	mg/l	2.9	2.2	1.5	APHA 4500-NH ₃ B&C, 1992
Nitrate as NO ₃	mg/l	1.0	0.3	10	APHA 4500-NO ₃ ⁻ B, 2005
Iron as Fe	mg/l	0.004	1.71	1.0	APHA 3120 B, 2005
Fluoride	mg/l	0.3	<0.1	1.5	APHA 4500-F ⁻ D, 2005
Hardness as CaCO ₃	mg/l	111	29	500	APHA 2340 B, 2005
Manganese as Mn	mg/l	0.293	0.300	0.2	APHA 3120 B, 2005
Chemical Oxygen Demand (tested on 26/02/2021)	mg/l	17	17	10	APHA 5220 B, 2005
Surfactants as MBAS	mg/l	<0.01	<0.01	1.0	APHA 5540 C, 2005
Biochemical Oxygen Demand @ 5 days at 20°C (tested on 26/02/2021)	mg/l	<2	<2	6	} APHA 5210 B, 2005 & } APHA 4500 O G, 2005
Nitrite as NO ₂	mg/l	<0.1	<0.1	-	
Mercury as Hg	mg/l	<0.001	<0.001	0.001	APHA 3112 B, 2005
Cadmium as Cd	mg/l	<0.001	<0.001	0.003	APHA 3120 B, 2005
Arsenic as As	mg/l	<0.005	<0.005	0.01	APHA 3114 C, 2005
Cyanide as CN	mg/l	<0.02	<0.02	0.07	APHA 4500-CN ⁻ F, 2005
Lead as Pb	mg/l	0.002	<0.001	0.05	APHA 3120 B, 2005
Chromium as Cr	mg/l	<0.001	<0.001	0.05	APHA 3120 B, 2005
Copper as Cu	mg/l	0.002	0.002	1.0	APHA 3120 B, 2005
Zinc as Zn	mg/l	0.007	0.021	3.0	APHA 3120 B, 2005
Sodium as Na	mg/l	7.26	2.76	200	APHA 3120 B, 2005
Sulphate as SO ₄	mg/l	153	37	250	APHA 4500-SO ₄ ²⁻ E, 2005
Selenium as Se	mg/l	<0.001	<0.001	0.01	APHA 3120 B, 2005
Silver as Ag	mg/l	0.005	0.004	0.05	APHA 3120 B, 2005
Magnesium as Mg	mg/l	3.30	1.79	150	APHA 3120 B, 2005
*Mineral Oil (tested on 26/02/2021)	mg/l	<0.04	<0.04	0.3	APHA 5520 C, 2005
Phenol	mg/l	<0.001	<0.001	0.002	APHA 5530 B&C, 2005
Nickel as Ni	mg/l	0.006	0.009	-	APHA 3120 B, 2005

Continue...



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Parameters	Units	Results		Recommended Raw Water Quality	Methods
		GW5	GW6		
Organochlorine Pesticides(OCP):-					
alpha-BHC	µg/l	<0.01	<0.01	-	} APHA 6630 C, 2005
Gamma-BHC (Lindane)	µg/l	<0.01	<0.01	2.0	
Heptachlor	µg/l	<0.01	<0.01	-	
Aldrin	µg/l	<0.01	<0.01	0.03	
Heptachlor Epoxide (isomer B)	µg/l	<0.01	<0.01	-	
Endosulfan I (alpha)	µg/l	<0.01	<0.01	0.03	
Dieldrin	µg/l	<0.01	<0.01	0.03	
4,4'-DDT	ug/l	<0.01	<0.01	-	
*Chlordane	µg/l	<1	<1	-	

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 Kok Yin Yean
 MMIC M/3299/6133/2011
 (Chemist)

Notes:

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Receiving Date : 26th February 2021
Reporting Date : 25th March 2021
Sample Description : Ground water
Sample Marking : 15. GW2: PTD 4085[N 02°33'48.73" E103°38'23.50"]
 16. GW7: Empangan Labong [N 02°35'13.85" E103°39'59.57"]

Results of analysis:-
 Testing Period: 26-February-2021 to 24-March-2021

Parameters	Units	Results		Recommended Raw Water Quality	Methods
		GW2	GW7		
pH value (tested on 26/02/2021)	-	3.0 (26.1°C)	4.7 (26.2)	5.5-9.0	APHA 4500-H ⁺ B , 2005
Color	TCU	40	10	300	APHA 2120 B, 2006
Turbidity	NTU	33	68	1000	APHA 2130 B, 2005
Conductivity	Us/cm	20	87	-	APHA 2510 B, 2005
Total Dissolved Solids	mg/l	25	31	1500	APHA 2540 C, 2005
*Chloride as Cl	mg/l	10.9	2.8	250	ASTM D512, 1981
Ammonia as N	mg/l	0.8	0.6	1.5	APHA 4500-NH ₃ B&C, 1992
Nitrate as NO ₃	mg/l	1.7	0.1	10	APHA 4500-NO ₃ ⁻ B, 2005
Iron as Fe	mg/l	2.58	0.254	1.0	APHA 3120 B, 2005
Fluoride	mg/l	0.3	<0.1	1.5	APHA 4500-F ⁻ D, 2005
Hardness as CaCO ₃	mg/l	38	3.7	500	APHA 2340 B, 2005
Manganese as Mn	mg/l	0.209	0.027	0.2	APHA 3120 B, 2005
Chemical Oxygen Demand (tested on 26/02/2021)	mg/l	33	10	10	APHA 5220 B, 2005
Surfactants as MBAS	mg/l	<0.01	<0.01	1.0	APHA 5540 C, 2005
Biochemical Oxygen Demand @ 5 days at 20°C (tested on 26/02/2021)	mg/l	<2	<2	6	} APHA 5210 B, 2005 & APHA 4500 O G, 2005
Nitrite as NO ₂	mg/l	<0.1	<0.1	-	
Mercury as Hg	mg/l	<0.001	<0.001	0.001	APHA 3112 B, 2005
Cadmium as Cd	mg/l	<0.001	<0.001	0.003	APHA 3120 B, 2005
Arsenic as As	mg/l	<0.005	<0.005	0.01	APHA 3114 C, 2005
Cyanide as CN	mg/l	<0.02	<0.02	0.07	APHA 4500-CN ⁻ F, 2005
Lead as Pb	mg/l	0.002	<0.001	0.05	APHA 3120 B, 2005
Chromium as Cr	mg/l	0.002	<0.001	0.05	APHA 3120 B, 2005
Copper as Cu	mg/l	0.007	0.001	1.0	APHA 3120 B, 2005
Zinc as Zn	mg/l	0.262	0.008	3.0	APHA 3120 B, 2005
Sodium as Na	mg/l	8.55	3.02	200	APHA 3120 B, 2005
Sulphate as SO ₄	mg/l	230	19	250	APHA 4500-SO ₄ ²⁻ E, 2005
Selenium as Se	mg/l	<0.001	<0.001	0.01	APHA 3120 B, 2005
Silver as Ag	mg/l	<0.001	<0.001	0.05	APHA 3120 B, 2005
Magnesium as Mg	mg/l	6.75	0.16	150	APHA 3120 B, 2005
*Mineral Oil (tested on 26/02/2021)	mg/l	<0.04	<0.04	0.3	APHA 5520 C, 2005
Phenol	mg/l	<0.001	<0.001	0.002	APHA 5530 B&C, 2005
Nickel as Ni	mg/l	0.014	0.002	-	APHA 3120 B, 2005
Total Coliform	MPN/ 100ml	<2	5	5000	APHA 9221 B, 2005
<i>E.Coli</i>	MPN/ 100ml	<2	2	5000	APHA 9221 F, 2005

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Parameters	Units	Results		Recommended Raw Water Quality	Methods
		GW2	GW7		
Organochlorine Pesticides(OCP):-					
alpha-BHC	µg/l	<0.01	<0.01	-	} APHA 6630 C, 2005
Gamma-BHC (Lindane)	µg/l	<0.01	<0.01	2.0	
Heptachlor	µg/l	<0.01	<0.01	-	
Aldrin	µg/l	<0.01	<0.01	0.03	
Heptachlor Epoxide (isomer B)	µg/l	<0.01	<0.01	-	
Endosulfan I (alpha)	µg/l	<0.01	<0.01	0.03	
Dieldrin	µg/l	<0.01	<0.01	0.03	
4,4'-DDT	ug/l	<0.01	<0.01	-	
*Chlordane	µg/l	<1	<1	-	

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 Kok Yin Yean
 MMIC M/3299/6133/2011
 (Chemist)

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 Ummu Sa'odah Binti Md. Shah
 MJMM 0806
 (Microbiologist)

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