



E CERTIFICATE
OF ANALYSIS

ALS TECHNICHEM (M) SDN BHD

(117964-P)

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CERTIFICATE OF ANALYSIS



ALS Technichem



MS ISO/IEC 17025
TESTING
SAMM No. 147



DATE : 29 January 2016

Page 1 of 7

ALS REF. : ALSM148160

ALS Sample ID : ALSM148160678285

COMPANY : Dr Nik & Associates Sdn Bhd
Wisma Dr Nik,
No 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre Section 5,
Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur.
Tel: 03 - 41458888 Fax: 03-41458877
(Attn.: Ms Norsyakirin M. Bakari)

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

DATE SAMPLE RECEIVED : 9 January 2016

SAMPLE DESCRIPTION : Twenty four samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ1 (S) E	Marine	8-Jan-16	-	-
WQ1 (M) E	Marine	8-Jan-16	-	-
WQ1 (B) E	Marine	8-Jan-16	-	-
WQ2 (S) E	Marine	8-Jan-16	-	-
WQ2 (M) E	Marine	8-Jan-16	-	-
WQ2 (B) E	Marine	8-Jan-16	-	-
WQ3 E	River	9-Jan-16	-	-
WQ5 E	Marine	8-Jan-16	-	-
WQ6 E	Marine	8-Jan-16	-	-
WQ7 E	River	9-Jan-16	-	-
WQ8 (S) E	Marine	8-Jan-16	-	-
WQ8 (M) E	Marine	8-Jan-16	-	-
WQ8 (B) E	Marine	8-Jan-16	-	-
WQ9 (S) E	Marine	8-Jan-16	-	-
WQ9 (M) E	Marine	8-Jan-16	-	-
WQ9 (B) E	Marine	8-Jan-16	-	-
WQ10 E	Marine	8-Jan-16	-	-
WQ11 (S) E	Marine	8-Jan-16	-	-
WQ11 (M) E	Marine	8-Jan-16	-	-
WQ11 (B) E	Marine	8-Jan-16	-	-

BRANCH & COLLECTION CENTRE:

(JB): No.19, Jalan Kencana Mas 1/1,
Tebrau Business Park, Taman Daya,
81100 Johor Bahru, Johor.
Tel: (607) - 354 9604
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(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
Off Jalan Kilang Kelombong, Jalan Ulam Raja, Kelombong
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Laboratory Testing & Industrial Consultancy

738846

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ALS Technichem

DATE : 29 January 2016

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ALS REF. : ALSM148160

ALS Sample ID : ALSM148160678285

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ12 (S) E	Marine	8-Jan-16	-	-
WQ12 (M) E	Marine	8-Jan-16	-	-
WQ12 (B) E	Marine	8-Jan-16	-	-
WQ13 E	Marine	8-Jan-16	-	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.

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IKM No.: A/3878/6603/13
Lab Supervisor - Environment

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Kota Kinabalu 88450 Sabah.
Tel: (6088) - 431 075

DATE : 29 January 2016

ALS Sample ID : ALSM148160678285

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water



ALS Technichem

Method Reference	Analysis Description	Lab I.D		678285	678286	678287	678288	678289
		Sample I.D		WQ1 (S) E	WQ1 (M) E	WQ1 (B) E	WQ2 (S) E	WQ2 (M) E
		Units	LOR	13/1/16				
APHA 4500-H+ B	pH Value	-	0.1	7.2	6.1	7.5	7.4	6.7
APHA 2550 B	Temperature	°C	0.1	21.3	22.1	22.1	21.8	21.7
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	8.06	7.76	7.84	7.63	6.71
APHA 2520 B	Salinity	ppt	0.1	32.3	32.9	33.1	32.3	32.0
APHA 2510 B	Conductivity	uS/cm	1	50500	51400	51600	50400	50100
APHA 2130 B	Turbidity	NTU	1	7	7	5	5	8
APHA 2540 D	Total Suspended Solid	mg/l	1	15	18	13	17	19
APHA 5220 D	COD	mg/l	2	16	18	20	19	19
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	6	7	8	9
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.5	0.4	0.5	0.8	0.4
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.34	0.04	0.01	0.03	0.01
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.96	1.35	1.14	1.03	1.40
APHA 4500 P- F	Phosphate	mg/l	0.01	0.23	0.35	0.37	0.26	0.32
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.003	0.028	0.026	0.003	0.016
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	0.003	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.002	0.006	0.008	0.002	0.003
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.05	0.14	0.16	0.04	0.06
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	680000	44000	<1	56000	5000

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148160678285
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

		Lab I.D		678290	678291	678292	678293	678294
		Sample I.D		WQ2 (B) E	WQ3 E	WQ5 E	WQ6 E	WQ7 E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		13/1/16				
APHA 4500-H+ B	pH Value	-	0.1	6.5	6.6	7.8	6.7	6.9
APHA 2550 B	Temperature	°C	0.1	21.7	21.8	21.9	22.4	22.5
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.39	6.76	7.51	7.47	6.89
APHA 2520 B	Salinity	ppt	0.1	32.7	2.5	31.6	5.1	31.7
APHA 2510 B	Conductivity	uS/cm	1	51100	4970	49300	9310	49600
APHA 2130 B	Turbidity	NTU	1	8	6	5	8	4
APHA 2540 D	Total Suspended Solid	mg/l	1	16	17	13	19	13
APHA 5220 D	COD	mg/l	2	15	20	16	18	18
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	7	5	7	7
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4	2.5	1.2	1.5	2.8
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.01	0.01	0.13	0.07	0.03
APHA 4500-NO3- H	Nitrate	mg/l	0.01	1.45	0.91	0.64	2.19	2.86
APHA 4500 P- F	Phosphate	mg/l	0.01	0.42	0.27	0.23	0.43	0.43
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.028	<0.001	<0.001	0.003	0.002
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	0.002	<0.001
APHA 3125	Manganese	mg/l	0.001	0.022	0.022	0.018	0.011	0.103
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.42	0.26	0.10	0.19	1.04
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Faecal Coliform	cfu/100ml	1	1000	1700	2500	6300	79000

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148160678285
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

		Lab I.D		678295	678296	678297	678298	678299
		Sample I.D		WQ8 (S) E	WQ8 (M) E	WQ8 (B) E	WQ9 (S) E	WQ9 (M) E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		13/1/16				
APHA 4500-H+ B	pH Value	-	0.1	7.8	7.8	7.9	7.9	7.7
APHA 2550 B	Temperature	°C	0.1	22.0	21.9	21.9	21.9	22.0
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.45	7.36	7.48	7.31	7.29
APHA 2520 B	Salinity	ppt	0.1	31.9	31.6	32.2	32.1	31.5
APHA 2510 B	Conductivity	uS/cm	1	49900	49500	50300	50200	49400
APHA 2130 B	Turbidity	NTU	1	6	8	7	7	7
APHA 2540 D	Total Suspended Solid	mg/l	1	12	16	14	14	14
APHA 5220 D	COD	mg/l	2	15	19	15	20	18
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	6	5	7	6
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.7	0.6	0.5	0.8	0.6
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.02	0.07	0.12	0.06	0.01
APHA 4500-NO3- H	Nitrate	mg/l	0.01	2.30	2.55	2.22	3.17	3.67
APHA 4500 P- F	Phosphate	mg/l	0.01	0.43	0.44	0.43	0.52	0.56
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.001	0.005	0.019	<0.001	0.023
APHA 3125	Copper	mg/l	0.001	0.001	0.002	0.002	0.002	<0.001
APHA 3125	Manganese	mg/l	0.001	0.012	0.004	0.013	0.010	0.010
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.11	0.06	0.16	0.08	0.12
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Faecal Coliform	cfu/100ml	1	100	2300	31000	40000	1700

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148160678285
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

		Lab I.D		678300	678301	678302	678303	678304
		Sample I.D		WQ9 (B) E	WQ10 E	WQ11 (S) E	WQ11 (M) E	WQ11 (B) E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		13/1/16				
APHA 4500-H+ B	pH Value	-	0.1	7.9	8.1	8.1	8.1	7.2
APHA 2550 B	Temperature	°C	0.1	22.2	22.3	22.1	21.9	21.9
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.57	7.72	7.94	7.88	7.23
APHA 2520 B	Salinity	ppt	0.1	31.7	31.5	31.8	31.8	31.9
APHA 2510 B	Conductivity	uS/cm	1	49700	49300	49700	49800	50000
APHA 2130 B	Turbidity	NTU	1	5	8	6	7	7
APHA 2540 D	Total Suspended Solid	mg/l	1	10	12	18	15	14
APHA 5220 D	COD	mg/l	2	18	16	16	15	16
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	6	5	5	5	5
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.6	0.6	2.6	2.6	2.8
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.14	0.03	0.01	0.01	0.13
APHA 4500-NO3- H	Nitrate	mg/l	0.01	1.94	3.17	1.12	4.49	4.76
APHA 4500 P- F	Phosphate	mg/l	0.01	0.43	0.16	0.35	0.12	0.44
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.007	0.001	0.002	<0.001	0.009
APHA 3125	Copper	mg/l	0.001	0.002	0.001	0.002	0.002	0.002
APHA 3125	Manganese	mg/l	0.001	0.012	0.005	0.002	0.002	0.004
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.19	0.09	0.04	0.06	0.06
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	4000	<1	<1	<1	65000

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148160678285
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

		Lab I.D		678305	678306	678307	678308	
		Sample I.D		WQ12 (S) E	WQ12 (M) E	WQ12 (B) E	WQ13 E	
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		13/1/16				
APHA 4500-H+ B	pH Value	-	0.1	7.9	6.9	7.4	6.8	
APHA 2550 B	Temperature	°C	0.1	21.9	22.0	22.3	22.4	
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.88	8.28	7.70	7.72	
APHA 2520 B	Salinity	ppt	0.1	32.2	32.9	32.5	2.5	
APHA 2510 B	Conductivity	uS/cm	1	50400	51300	50700	4910	
APHA 2130 B	Turbidity	NTU	1	7	7	6	5	
APHA 2540 D	Total Suspended Solid	mg/l	1	17	15	13	10	
APHA 5220 D	COD	mg/l	2	19	17	12	18	
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	6	5	4	6	
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	
APHA 5310 D	Total Organic Carbon	mg/l	0.1	4.3	3.4	1.7	0.7	
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.05	<0.01	0.13	0.05	
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.42	0.75	0.75	2.43	
APHA 4500 P- F	Phosphate	mg/l	0.01	0.15	0.39	0.18	0.48	
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	0.002	
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	
APHA 3125	Lead	mg/l	0.001	0.003	0.024	0.007	<0.001	
APHA 3125	Copper	mg/l	0.001	0.002	0.003	0.006	0.002	
APHA 3125	Manganese	mg/l	0.001	0.003	0.007	0.021	0.076	
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Iron	mg/l	0.01	0.06	0.16	0.22	0.58	
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	
APHA 9221D	Feecal Coliform	cfu/100ml	1	1500	<1	2300	69000	

LOR: Level of Reporting



CHAIN OF CUSTODY RECORD

ALS TECHNICHEM (M) SDN BHD
 Wisma ALS, 21, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor.
 Tel:603-78458257 Fax:603-78458258

COMPANY NAME: DR NIK & ASSOCIATES SDN BHD		PROJECT: TELUK KUMBAR WATER QUALITY & SEDIMENT SAMPLING		PURCHASE ORDER NO.:	
POSTAL ADDRESS: No. 22& 24, Jalan Wangsa Delima 6		Kuala Lumpur Satellite Centre (KLSC), Seksyen 5, Pusat Bandar Wangsa Maju		FOR LAB USE ONLY	
53300, Kuala Lumpur.		PHONE: 03-4145-8888 FAX: Fax: 03-4145-8921		LAB BATCH NO.:	
SEND REPORT TO: arrabe@drnik.com.my; faiz@drnik.com.my; syakirin@drnik.com.my		SEND INVOICE TO:		NO OF SAMPLES:	
				ANALYSIS REQUIRED	
				pH, Temperature, DO, Salinity, Conductivity, Turbidity, TSS, COD, BOD, Oil & Grease, TOC, Chlorophyll-a, Ammoniacal Nitrogen, Phosphate, Nitrate, Faecal Coliform (cfu), E.Coli (cfu), Cd, Cr, As, Pb, Cu, Mn, Ni, Fe	
				REMARKS	
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.
1 WQ1 (S) E	marine	8/1/16			
2 WQ1 (M) E					
3 WQ1 (B) E					
4 WQ2 (S) E					
5 WQ2 (M) E					
6 WQ2 (B) E					
7 WQ3 E	river	9/1/16			
8 WQ5 E	marine	8/1/16			
9 WQ6 E					
10 WQ7 E	river	9/1/16			
Sampled by: DNA		Shipped Via:		Consignment No.:	
Relinquished by: <i>[Signature]</i>		Date:	Received by: <i>[Signature]</i>	Date:	COMMENTS / SPECIAL HANDLING
Print Name: <i>[Signature]</i>		Time:	Print Name:	Time:	
Relinquished by:		Date:	Received by:	Date:	
Print Name:		Time:	Print Name:	Time:	
Received by Lab:		Date:	Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.		
Print Name:		Time:			

1
2
3
4
5
6
7
8
9
10

Note : S = surface
 M = middle
 B = bottom
 F = flooding
 E = ebbing



CHAIN OF CUSTODY RECORD

ALS TECHNICHEM (M) SDN BHD
 Wisma ALS, 21, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor.
 Tel:603-78458257 Fax:603-78458258

COMPANY NAME: DR NIK & ASSOCIATES SDN BHD		PROJECT: TELUK KUMBAR WATER QUALITY & SEDIMENT SAMPLING		PURCHASE ORDER NO.:	
POSTAL ADDRESS: <u>No. 22& 24, Jalan Wangsa Delima 6</u> Kuala Lumpur Satellite Centre (KLSC), Seksyen 5, Pusat Bandar Wangsa Maju 53300, Kuala Lumpur.		PHONE: 03-4145-8888 FAX: Fax: 03-4145-8921		FOR LAB USE ONLY	
SEND REPORT TO: arrabe@drnik.com.my; faiz@drnik.com.my; syakirin@drnik.com.my		SEND INVOICE TO:		LAB BATCH NO.:	
				NO OF SAMPLES:	
				ANALYSIS REQUIRED	
				pH, Temperature, DO, Salinity, Conductivity, Turbidity, TSS, COD, BOD, Oil & Grease, TOC, Chlorophyll-a, Ammoniacal Nitrogen, Phosphate, Nitrate, Faecal Coliform (cfu), E.Coli (cfu), Cd, Cr, As, Pb, Cu, Mn, Ni, Fe	
				REMARKS	
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.
11 WQ8(S)E	} Marine	} 8/1/16			
12 WQ8(M)E					
13 WQ8(B)E					
14 WQ9(S)E					
15 WQ9(M)E					
16 WQ9(B)E					
17 WQ10E					
18 WQ11(S)E					
19 WQ11(M)E					
20 WQ11(B)E					
Sampled by: DNA		Shipped Via:		Consignment No.:	
Relinquished by: <i>[Signature]</i> Print Name: POBE		Date:	Received by:	Date:	COMMENTS / SPECIAL HANDLING
		Time:	Print Name:	Time:	
Relinquished by:		Date:	Received by:	Date:	
Print Name:		Time:	Print Name:	Time:	
Received by Lab:		Date:	Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.		
Print Name:		Time:			



CHAIN OF CUSTODY RECORD

ALS TECHNICHEM (M) SDN BHD
 Wisma ALS, 21, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor.
 Tel:603-78458257 Fax:603-78458258

COMPANY NAME: DR NIK & ASSOCIATES SDN BHD		PROJECT: TELUK KUMBAR WATER QUALITY & SEDIMENT SAMPLING			PURCHASE ORDER NO.:			
POSTAL ADDRESS: No. 22& 24, Jalan Wangsa Delima 6					FOR LAB USE ONLY			
Kuala Lumpur Satellite Centre (KLSC), Seksyen 5, Pusat Bandar Wangsa Maju					LAB BATCH NO.:			
53300, Kuala Lumpur.					NO OF SAMPLES:			
PHONE: 03-4145-8888 FAX: Fax: 03-4145-8921					ANALYSIS REQUIRED			
SEND REPORT TO: arrabe@drnik.com.my; faiz@drnik.com.my; syakirin@drnik.com.my					pH, Temperature, DO, Salinity, Conductivity, Turbidity, TSS, COD, BOD, Oil & Grease, TOC, Chlorophyll-a, Ammoniacal Nitrogen, Phosphate, Nitrate, Faecal Coliform (cfu), E.Coli (cfu), Cd, Cr, As, Pb, Cu, Mn, Ni, Fe			
SEND INVOICE TO:								
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.			REMARKS
21	WQ12(B) E	9						
22	WQ12 (m) E	8/1/16		garine				
23	WQ12 (B) E	9						
24	WQ13 E	9/1/16		river				additional point
Sampled by: DNA		Shipped Via:			Consignment No.:			
Relinquished by:		Date:	Received by:		Date:	COMMENTS / SPECIAL HANDLING		
Print Name: ROBE		Time:	Print Name:		Time:			
Relinquished by:		Date:	Received by:		Date:			
Print Name:		Time:	Print Name:		Time:			
Received by Lab:		Date:	Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.					
Print Name:		Time:						

- | | |
|---|---|
| <input type="checkbox"/> 1L Amberglass | <input type="checkbox"/> 100ml Plastic |
| <input type="checkbox"/> 500ml Amberglass | <input type="checkbox"/> 100ml Plastic |
| <input type="checkbox"/> 100ml Plastic | <input type="checkbox"/> 100ml Plastic |
| <input type="checkbox"/> 100ml Amberglass | <input type="checkbox"/> 100ml Plastic |
| <input type="checkbox"/> 1000ml Amber glass | <input type="checkbox"/> 100ml Plastic |
| <input type="checkbox"/> 1L Plastic | <input type="checkbox"/> 500ml Amberglass |
| <input type="checkbox"/> 500ml Plastic | <input type="checkbox"/> 40ml Vial |
| <input type="checkbox"/> 250ml Plastic | <input type="checkbox"/> |
| <input type="checkbox"/> 500ml Amberglass | <input type="checkbox"/> |

ALSM148160678285
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678286
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678287
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678288
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678289
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678290
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678291
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678292
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678293
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678294
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678295
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678296
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678297
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678298
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678299
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678300
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678301
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678302
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678303
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678304
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678305
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678306
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678308
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALSM148160678307
DR NIK & ASSOCIATES SDN BHD

(0)	EV_MB
Recv: 2016-01-09	Due: 2016-01-18

ALS TECHNICHEM (M) SDN BHD

(117964-P)

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CERTIFICATE OF ANALYSIS



ALS Technichem

DATE : 29 January 2016

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ALS REF. : ALSM148159

ALS Sample ID : ALSM148159678244

COMPANY : Dr Nik & Associates Sdn Bhd

Wisma Dr Nik,
No 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre Section 5,
Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur.
Tel: 03 - 41458888 Fax: 03-41458877
(Attn.: Ms Norsyakirin M. Bakari)



MS ISO/IEC 17025
TESTING
SAMM No. 147

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

DATE SAMPLE RECEIVED : 9 January 2016

SAMPLE DESCRIPTION : Twenty six samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ1 (S) F	Marine	8-Jan-16	-	-
WQ1 (M) F	Marine	8-Jan-16	-	-
WQ1 (B) F	Marine	8-Jan-16	-	-
WQ2 (S) F	Marine	8-Jan-16	-	-
WQ2 (M) F	Marine	8-Jan-16	-	-
WQ2 (B) F	Marine	8-Jan-16	-	-
WQ3 F	River	9-Jan-16	-	-
WQ4	River	9-Jan-16	-	-
WQ5 F	Marine	8-Jan-16	-	-
WQ6 F	Marine	8-Jan-16	-	-
WQ7 F	River	9-Jan-16	-	-
WQ8 (S) F	Marine	8-Jan-16	-	-
WQ8 (M) F	Marine	8-Jan-16	-	-
WQ8 (B) F	Marine	8-Jan-16	-	-
WQ9 (S) F	Marine	8-Jan-16	-	-
WQ9 (M) F	Marine	8-Jan-16	-	-
WQ9 (B) F	Marine	8-Jan-16	-	-
WQ10 (S) F	Marine	8-Jan-16	-	-
WQ10 (B) F	Marine	8-Jan-16	-	-
WQ11 (S) F	Marine	8-Jan-16	-	-

BRANCH & COLLECTION CENTRE:

(JB): No.19, Jalan Kencana Mas 1/1,
Tebrau Business Park, Taman Daya,
81100 Johor Bahru, Johor.
Tel: (607) - 354 9604
Fax: (607) - 354 9554

(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
Off Jalan Kilang Kelombong, Jalan Ulu Raja, Kelombong
Kota Kinabalu 88450 Sabah.
Tel: (6088) - 431 075
Fax: (6088) - 439 517

Laboratory Testing & Industrial Consultancy

738837

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• This report shall not be reproduced except in full without the written approval of the laboratory •

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ALS Technichem

DATE : 29 January 2016

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ALS REF. : ALSM148159

ALS Sample ID : ALSM148159678244

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ11 (M) F	Marine	8-Jan-16	-	-
WQ11 (B) F	Marine	8-Jan-16	-	-
WQ12 (S) F	Marine	8-Jan-16	-	-
WQ12 (M) F	Marine	8-Jan-16	-	-
WQ12 (B) F	Marine	8-Jan-16	-	-
WQ13 F	River	9-Jan-16	-	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.

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IKM No.: A/3878/6603/13
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Chum Wei Lon
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Microbiologist

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ALS TechniChem

DATE : 29 January 2016

ALS Sample ID : ALSM148159678244

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PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

Method Reference	Analysis Description	Lab I.D		678244	678245	678246	678247	678248
		Sample I.D		WQ1 (S) F	WQ1 (M) F	WQ1 (B) F	WQ2 (S) F	WQ2 (M) F
		Units	LOR	12/1/16				
APHA 4500-H+ B	pH Value	-	0.1	7.4	7.0	7.7	7.7	6.1
APHA 2550 B	Temperature	°C	0.1	22.2	22.5	21.3	21.2	21.5
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.76	7.84	7.91	7.82	7.51
APHA 2520 B	Salinity	ppt	0.1	32.3	33.0	31.4	32.9	33.4
APHA 2510 B	Conductivity	uS/cm	1	50500	51500	49200	51300	52000
APHA 2130 B	Turbidity	NTU	1	7	5	6	8	5
APHA 2540 D	Total Suspended Solid	mg/l	1	15	10	14	17	12
APHA 5220 D	COD	mg/l	2	10	11	12	15	16
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	3	3	5	4	5
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.1	0.4	0.3	0.3	0.5
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.05	0.35	0.08	0.15	0.06
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.59	0.16	0.33	0.47	0.39
APHA 4500 P- F	Phosphate	mg/l	0.01	0.16	0.36	0.13	0.25	0.08
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.003	0.006	0.130	0.009	0.019
APHA 3125	Copper	mg/l	0.001	0.001	<0.001	0.001	0.001	0.002
APHA 3125	Manganese	mg/l	0.001	0.002	0.002	0.005	0.003	0.004
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.01	0.03	0.10	0.04	0.18
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	21100	71000	53000	103000	11400

LOR: Level of Reporting



ALS Technichem

DATE : 29 January 2016

ALS Sample ID : ALSM148159678244

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PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

Method Reference	Analysis Description	Lab I.D		678249	678250	678251	678252	678253
		Sample I.D		WQ2 (B) F	WQ3 F	WQ4	WQ5 F	WQ6 F
		Units	LOR	12/1/16				
APHA 4500-H+ B	pH Value	-	0.1	6.5	6.7	7.6	7.6	6.5
APHA 2550 B	Temperature	°C	0.1	21.6	21.9	21.6	20.9	20.6
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.67	7.08	7.74	7.42	7.78
APHA 2520 B	Salinity	ppt	0.1	33.1	19.0	0.2	32.4	32.3
APHA 2510 B	Conductivity	uS/cm	1	51600	31300	382	50600	50500
APHA 2130 B	Turbidity	NTU	1	6	6	4	9	7
APHA 2540 D	Total Suspended Solid	mg/l	1	19	19	6	18	16
APHA 5220 D	COD	mg/l	2	17	14	15	14	19
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	5	5	5	6
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4	0.7	0.8	0.6	0.7
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	0.7	<0.5	0.5	0.9
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.03	0.05	0.33	0.10	0.52
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.32	0.22	0.27	0.21	0.41
APHA 4500 P- F	Phosphate	mg/l	0.01	0.35	0.34	0.29	0.05	0.27
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.039	0.030	0.005	0.012	0.014
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.18	0.17	0.12	0.04	0.08
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feecal Coliform	cfu/100ml	1	13300	7200	6100	700	2300

LOR: Level of Reporting



DATE : 29 January 2016

ALS Sample ID : ALSM148159678244

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

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ALS Technichem

Method Reference	Analysis Description	Lab I.D		678254	678255	678256	678257	678258
		Sample I.D		WQ7 F	WQ8 (S) F	WQ8 (M) F	WQ8 (B) F	WQ9 (S) F
		Units	LOR	12/1/16				
APHA 4500-H+ B	pH Value	-	0.1	6.8	6.5	7.1	7.6	7.6
APHA 2550 B	Temperature	°C	0.1	21.5	20.3	20.5	20.8	20.9
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	6.93	7.02	7.98	7.43	7.70
APHA 2520 B	Salinity	ppt	0.1	4.9	32.3	32.5	32.2	32.2
APHA 2510 B	Conductivity	uS/cm	1	9070	50700	50300	50400	50300
APHA 2130 B	Turbidity	NTU	1	6	3	5	5	5
APHA 2540 D	Total Suspended Solid	mg/l	1	14	15	13	10	10
APHA 5220 D	COD	mg/l	2	19	18	16	9	12
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	7	7	5	6	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	2.7	1.0	0.2	0.3	0.3
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.23	0.42	0.04	0.08	0.04
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.17	0.08	0.06	0.07	0.02
APHA 4500 P- F	Phosphate	mg/l	0.01	0.04	0.07	0.15	0.37	0.16
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.001	0.001	0.064	0.024	0.002
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	0.004	0.004	<0.001
APHA 3125	Manganese	mg/l	0.001	0.138	0.009	0.014	0.015	0.001
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	0.001
APHA 3125	Iron	mg/l	0.01	0.66	0.06	0.06	0.03	0.11
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Faecal Coliform	cfu/100ml	1	900	<1	44000	<1	6000

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148159678244
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

Method Reference	Analysis Description	Lab I.D		678259	678260	678261	678262	678263
		Sample I.D		WQ9 (M) F	WQ9 (B) F	WQ10 (S) F	WQ10 (B) F	WQ11 (S) F
		Units	LOR	12/1/16				
APHA 4500-H+ B	pH Value	-	0.1	6.1	7.5	6.8	7.5	7.2
APHA 2550 B	Temperature	°C	0.1	20.6	20.5	20.7	20.7	20.6
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.92	7.54	7.43	7.89	7.30
APHA 2520 B	Salinity	ppt	0.1	32.0	32.6	32.0	32.2	30.7
APHA 2510 B	Conductivity	uS/cm	1	50100	50900	50100	50300	48200
APHA 2130 B	Turbidity	NTU	1	7	6	6	6	9
APHA 2540 D	Total Suspended Solid	mg/l	1	14	12	13	14	18
APHA 5220 D	COD	mg/l	2	13	14	17	16	15
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	6	5	6	6	5
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4	0.5	0.2	0.8	0.8
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.20	0.04	0.36	0.08	0.05
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.07	0.49	0.04	0.05	0.43
APHA 4500 P- F	Phosphate	mg/l	0.01	0.35	0.12	0.44	0.15	0.39
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 3125	Lead	mg/l	0.001	0.022	0.020	0.002	0.020	0.004
APHA 3125	Copper	mg/l	0.001	0.009	0.004	0.001	0.002	0.001
APHA 3125	Manganese	mg/l	0.001	0.009	0.011	0.016	0.025	0.004
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.19	0.20	0.30	0.49	0.08
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	<1	900	2700	1000	1400

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148159678244
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

Method Reference	Analysis Description	Lab I.D		678264	678265	678266	678267	678268	
		Sample I.D		WQ11 (M) F	WQ11 (B) F	WQ12 (S) F	WQ12 (M) F	WQ12 (B) F	
		Units	LOR	Date of Analysis					
				12/1/16					
APHA 4500-H+ B	pH Value	-	0.1	7.2	7.8	7.0	7.9	7.2	
APHA 2550 B	Temperature	°C	0.1	21.2	21.2	20.8	20.7	20.8	
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.92	7.59	8.00	7.56	7.84	
APHA 2520 B	Salinity	ppt	0.1	31.4	32.3	32.3	32.2	32.9	
APHA 2510 B	Conductivity	uS/cm	1	49200	50400	50500	50300	51300	
APHA 2130 B	Turbidity	NTU	1	5	7	6	6	7	
APHA 2540 D	Total Suspended Solid	mg/l	1	10	13	12	12	14	
APHA 5220 D	COD	mg/l	2	15	14	14	16	16	
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	5	5	5	5	
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1	
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4	0.4	1.0	1.2	0.7	
APHA 10200 H	Chlorophyll-A	mg/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.40	0.02	0.05	0.13	0.03	
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.46	0.50	0.38	0.05	0.33	
APHA 4500 P- F	Phosphate	mg/l	0.01	0.18	0.48	0.09	0.26	0.33	
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Arsenic	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
APHA 3125	Lead	mg/l	0.001	0.010	0.022	0.005	0.023	0.022	
APHA 3125	Copper	mg/l	0.001	0.001	<0.001	<0.001	0.001	0.002	
APHA 3125	Manganese	mg/l	0.001	0.003	0.009	0.004	0.004	0.010	
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Iron	mg/l	0.01	0.05	0.12	0.05	0.07	0.19	
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1	
APHA 9221D	Feecal Coliform	cfu/100ml	1	20	5800	4200	3900	2200	

LOR: Level of Reporting

DATE : 29 January 2016
 ALS Sample ID : ALSM148159678244
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



ALS Technichem

		Lab I.D		678269				
		Sample I.D		WQ13 F				
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		12/1/16				
APHA 4500-H+ B	pH Value	-	0.1	7.0				
APHA 2550 B	Temperature	°C	0.1	20.6				
APHA 4500 O G	Dissolved Oxygen	mg/l	0.01	7.67				
APHA 2520 B	Salinity	ppt	0.1	3.65				
APHA 2510 B	Conductivity	uS/cm	1	6830				
APHA 2130 B	Turbidity	NTU	1	6				
APHA 2540 D	Total Suspended Solid	mg/l	1	15				
APHA 5220 D	COD	mg/l	2	13				
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	6				
APHA 5520 B	Oil & Grease	mg/l	1	<1				
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4				
APHA 10200 H	Chlorophyll-A	mg/l	0.5	0.6				
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.11				
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.46				
APHA 4500 P- F	Phosphate	mg/l	0.01	0.33				
APHA 3125	Cadmium	mg/l	0.001	<0.001				
APHA 3125	Chromium	mg/l	0.001	0.002				
APHA 3125	Arsenic	mg/l	0.01	<0.01				
APHA 3125	Lead	mg/l	0.001	<0.001				
APHA 3125	Copper	mg/l	0.001	0.001				
APHA 3125	Manganese	mg/l	0.001	0.047				
APHA 3125	Nickel	mg/l	0.001	0.010				
APHA 3125	Iron	mg/l	0.01	0.71				
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1				
APHA 9221D	Feacal Coliform	cfu/100ml	1	135000				

LOR: Level of Reporting

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CERTIFICATE OF ANALYSIS



ALS Technichem

DATE : 19 February 2016

Page 1 of 13

ALS REF. : ALSM150651

ALS Sample ID : ALSM150651690719



MS ISO/IEC 17025
TESTING
SMM No. 147

COMPANY : Dr Nik & Associates Sdn Bhd

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No 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre Section 5,
Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur.
Tel: 03 - 41458888 Fax: 03-41458877
(Attn.: Ms Norsyakirin M. Bakari)

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

DATE SAMPLE RECEIVED : 5 February 2016

SAMPLE DESCRIPTION : Forty nine samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ1 (S) E	Marine	8-Jan-16	-	-
WQ1 (M) E	Marine	8-Jan-16	-	-
WQ1 (B) E	Marine	8-Jan-16	-	-
WQ2 (S) E	Marine	8-Jan-16	-	-
WQ2 (M) E	Marine	8-Jan-16	-	-
WQ2 (B) E	Marine	8-Jan-16	-	-
WQ3 E	River	9-Jan-16	-	-
WQ5 E	Marine	9-Jan-16	-	-
WQ6 E	Marine	8-Jan-16	-	-
WQ7 E	River	8-Jan-16	-	-
WQ8 (S) E	Marine	9-Jan-16	-	-
WQ8 (M) E	Marine	8-Jan-16	-	-
WQ8 (B) E	Marine	8-Jan-16	-	-
WQ9 (S) E	Marine	8-Jan-16	-	-
WQ9 (M) E	Marine	8-Jan-16	-	-
WQ9 (B) E	Marine	8-Jan-16	-	-
WQ10 E	Marine	8-Jan-16	-	-
WQ11 (S) E	Marine	8-Jan-16	-	-
WQ11 (M) E	Marine	8-Jan-16	-	-
WQ11 (B) E	Marine	8-Jan-16	-	-

BRANCH & COLLECTION CENTRE:

(JB): No.19, Jalan Kencana Mas 1/1,
Tebrau Business Park, Taman Daya,
81100 Johor Bahru, Johor.
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(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
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Laboratory Testing & Industrial Consultancy

766188

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ALS Technichem

DATE : 19 February 2016

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ALS REF. : ALSM150651

ALS Sample ID : ALSM150651690719

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ12 (S) E	Marine	8-Jan-16	-	-
WQ12 (M) E	Marine	8-Jan-16	-	-
WQ12 (B) E	Marine	8-Jan-16	-	-
WQ13 E	River	8-Jan-16	-	-
WQ 1 (S) F	Marine	8-Jan-16	-	-
WQ 1 (M) F	Marine	9-Jan-16	-	-
WQ 1 (B) F	Marine	9-Jan-16	-	-
WQ 2 (S) F	Marine	9-Jan-16	-	-
WQ 2 (M) F	Marine	8-Jan-16	-	-
WQ 2 (B) F	Marine	8-Jan-16	-	-
WQ 3 F	River	9-Jan-16	-	-
WQ 4 F	River	8-Jan-16	-	-
WQ 5 F	Marine	8-Jan-16	-	-
WQ 6 F	Marine	8-Jan-16	-	-
WQ 7 F	River	8-Jan-16	-	-
WQ8 (S) F	Marine	8-Jan-16	-	-
WQ8 (M) F	Marine	8-Jan-16	-	-
WQ8 (B) F	Marine	8-Jan-16	-	-
WQ9 (S) F	Marine	8-Jan-16	-	-
WQ9 (M) F	Marine	8-Jan-16	-	-

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ALS Technichem

DATE : 19 February 2016

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ALS REF. : ALSM150651

ALS Sample ID : ALSM150651690719

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ9 (B) F	Marine	8-Jan-16	-	-
WQ10 (S) F	Marine	8-Jan-16	-	-
WQ11 (S) F	Marine	8-Jan-16	-	-
WQ11 (M) F	Marine	8-Jan-16	-	-
WQ11 (B) F	Marine	8-Jan-16	-	-
WQ12 (S) F	Marine	9-Jan-16	-	-
WQ12 (M) F	Marine	9-Jan-16	-	-
WQ12 (B) F	Marine	9-Jan-16	-	-
WQ13 (F)	River	8-Jan-16	-	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.

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DATE : 19 February 2016

ALS Sample ID : ALSM150651690719

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		690719	690720	690721	690722	690723
		Sample I.D		WQ1 (S) E	WQ1 (M) E	WQ1 (B) E	WQ2 (S) E	WQ2 (M) E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	1	4	8	<1	<1
APHA 2540 D	Total Suspended Solid	mg/l	1	10	12	16	7	6
APHA 5220 D	COD	mg/l	2	16	18	20	19	19
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	6	8	8	7
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4	0.3	0.4	0.3	0.3
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.08	0.10	0.36	0.08	0.09
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	<0.01	0.02	0.22	0.12	0.02
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.003	0.002	0.003	0.003	0.001
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.001	0.004	0.019	<0.001	<0.001
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.03	0.16	0.30	0.09	0.07
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Colliform	cfu/100ml	1	<1	2000	400	<1	4500

LOR: Level of Reporting



DATE : 19 February 2016

ALS Sample ID : ALSM150651690719

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		690724	690725	690726	690727	690728
		Sample I.D		WQ2 (B) E	WQ3 E	WQ5 E	WQ6 E	WQ7 E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	<1	37	1	4	43
APHA 2540 D	Total Suspended Solid	mg/l	1	6	34	8	13	42
APHA 5220 D	COD	mg/l	2	15	14	16	18	18
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	4	4	4	9
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.3	7.9	0.9	1.5	5.0
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.10	3.18	0.15	0.33	1.16
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	2.27
APHA 4500 P- F	Phosphate	mg/l	0.01	0.02	6.11	0.04	0.06	0.88
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.001	0.003	0.003	0.001	0.007
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	0.009	0.002	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	<0.001	0.037	0.007	0.005	0.077
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	0.001	<0.001	0.001
APHA 3125	Iron	mg/l	0.01	0.03	0.69	0.08	0.10	1.00
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	27000	<1	<1	1100
APHA 9221D	Feecal Coliform	cfu/100ml	1	700	79000	4600	100	25000

LOR: Level of Reporting



DATE : 19 February 2016

ALS Sample ID : ALSM150651690719

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		690729	690730	690731	690732	690733
		Sample I.D		WQ8 (S) E	WQ8 (M) E	WQ8 (B) E	WQ9 (S) E	WQ9 (M) E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	<1	4	1	1	<1
APHA 2540 D	Total Suspended Solid	mg/l	1	5	14	9	7	5
APHA 5220 D	COD	mg/l	2	15	16	15	20	18
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	7	7	8	7	7
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.7	0.7	1.0	0.4	0.5
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.12	0.09	0.14	0.08	0.13
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	0.02	0.03	0.02	0.01	0.01
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.001	0.001	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.003	0.003	0.017	0.002	0.003
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.03	0.08	0.17	0.07	0.07
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Faecal Coliform	cfu/100ml	1	3400	3600	600	500	<1

LOR: Level of Reporting

DATE : 19 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



		Lab I.D		690734	690735	690736	690737	690738
		Sample I.D		WQ9 (B) E	WQ10 E	WQ11 (S) E	WQ11 (M) E	WQ11 (B) E
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	<1	1	<1	<1	1
APHA 2540 D	Total Suspended Solid	mg/l	1	7	8	6	6	7
APHA 5220 D	COD	mg/l	2	18	16	16	15	16
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	7	4	4	4	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	1.0	0.5	0.2	0.4	0.5
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.14	0.13	0.08	0.14	0.11
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	0.03	0.02	<0.01	0.01	<0.01
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.003	0.003	0.001	0.001	0.002
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.10	0.17	0.06	0.04	0.06
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	100	100	<1	2200	5900

LOR: Level of Reporting



ALS Technichem

DATE : 19 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water

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		Lab I.D		690739	690740	690741	690742	690743
		Sample I.D		WQ12 (S) E	WQ12 (M) E	WQ12 (B) E	WQ13 E	WQ 1 (S) F
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	1	1	1	37	1
APHA 2540 D	Total Suspended Solid	mg/l	1	8	10	9	34	8
APHA 5220 D	COD	mg/l	2	19	17	12	29	18
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	7	5	4	9	5
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.4	0.8	0.8	4.7	0.1
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.10	0.09	0.13	4.32	0.08
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	0.02	0.02	0.03	1.40	<0.01
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.001	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	0.015	<0.001
APHA 3125	Manganese	mg/l	0.001	0.002	0.002	0.003	0.042	0.001
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	<0.01	0.05	0.06	0.64	0.16
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	14900	<1
APHA 9221D	Feecal Coliform	cfu/100ml	1	<1	<1	300	420000	500

LOR: Level of Reporting



DATE : 19 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water

		Lab I.D		690744	690745	690746	690747	690748
		Sample I.D		WQ 1 (M) F	WQ 1 (B) F	WQ 2 (S) F	WQ 2 (M) F	WQ 2 (B) F
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	1	11	<1	<1	5
APHA 2540 D	Total Suspended Solid	mg/l	1	10	20	9	7	15
APHA 5220 D	COD	mg/l	2	17	16	15	16	17
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	4	4	4	5
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.5	0.2	0.3	0.3	0.3
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.12	0.09	0.20	0.07	0.11
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	0.05
APHA 4500 P- F	Phosphate	mg/l	0.01	0.01	0.02	0.01	0.02	0.02
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.001	0.001	0.002	0.001	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	0.015	<0.001
APHA 3125	Manganese	mg/l	0.001	0.002	0.013	<0.001	0.002	0.011
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.15	0.33	0.14	0.11	0.22
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	74000	1100	<1	<1	200

LOR: Level of Reporting

DATE : 19 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water



		Lab I.D		690749	690750	690751	690752	690753
		Sample I.D		WQ 3 F	WQ 4 F	WQ 5 F	WQ 6 F	WQ 7 F
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		10/2/16				
APHA 2130 B	Turbidity	NTU	1	3	2	1	23	43
APHA 2540 D	Total Suspended Solid	mg/l	1	46	6	9	11	54
APHA 5220 D	COD	mg/l	2	54	64	14	16	18
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	18	19	4	5	6
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	6.5	0.7	1.0	1.2	3.9
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	7.00	0.07	0.10	0.34	0.06
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	1.11	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	6.21	0.19	0.03	0.08	0.13
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	<0.001	0.001	0.002	0.006
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	0.004	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.035	0.007	0.007	0.017	0.066
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.45	0.15	0.03	0.25	1.21
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	44000	<1	<1	<1	3300
APHA 9221D	Feacal Coliform	cfu/100ml	1	660000	57000	6200	2600	114000

LOR: Level of Reporting



DATE : 19 February 2016

ALS Sample ID : ALSM150651690719

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		690754	690755	690756	690757	690758	
		Sample I.D		WQ8 (S) F	WQ8 (M) F	WQ8 (B) F	WQ9 (S) F	WQ9 (M) F	
		Units	LOR						
Method Reference	Analysis Description	Date of Analysis		10/2/16					
APHA 2130 B	Turbidity	NTU	1	2	2	1	<1	2	
APHA 2540 D	Total Suspended Solid	mg/l	1	10	11	10	8	10	
APHA 5220 D	COD	mg/l	2	18	16	17	12	14	
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	8	7	7	4	5	
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1	
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.9	1.1	1.2	0.3	0.7	
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.14	0.47	0.39	0.09	0.18	
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	0.08	<0.01	
APHA 4500 P- F	Phosphate	mg/l	0.01	0.05	0.03	0.03	0.03	0.01	
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Arsenic	mg/l	0.001	0.002	0.001	0.002	0.002	0.002	
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Copper	mg/l	0.001	<0.001	0.002	<0.001	<0.001	<0.001	
APHA 3125	Manganese	mg/l	0.001	0.006	0.009	0.007	<0.001	0.004	
APHA 3125	Nickel	mg/l	0.001	<0.001	0.001	0.001	<0.001	<0.001	
APHA 3125	Iron	mg/l	0.01	0.07	0.06	0.08	0.02	0.11	
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1	
APHA 9221D	Feacal Coliform	cfu/100ml	1	70	1000	57000	<1	3200	

LOR: Level of Reporting



DATE : 19 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Water

Method Reference	Analysis Description	Lab I.D		690759	690760	690761	690762	690763
		Sample I.D		WQ9 (B) F	WQ10 (S) F	WQ11 (S) F	WQ11 (M) F	WQ11 (B) F
		Units	LOR	10/2/16				
		Date of Analysis						
APHA 2130 B	Turbidity	NTU	1	2	3	1	<1	1
APHA 2540 D	Total Suspended Solid	mg/l	1	9	11	10	7	10
APHA 5220 D	COD	mg/l	2	13	17	16	15	14
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	4	4	4	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.3	0.4	0.4	0.4	0.3
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.09	0.31	0.08	0.08	0.09
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	0.01	0.02	<0.01	0.02	<0.01
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.001	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.005	0.008	0.002	<0.001	0.001
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.08	0.17	0.11	0.09	0.07
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	400	300	<1	6000	400

LOR: Level of Reporting



DATE : 19 February 2016

ALS Sample ID : ALSM150651690719

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

Method Reference	Analysis Description	Lab I.D		690764	690765	690766	690767
		Sample I.D		WQ12 (S) F	WQ12 (M) F	WQ12 (B) F	WQ13 (F)
		Units	LOR	Date of Analysis			
				10/2/16			
APHA 2130 B	Turbidity	NTU	1	1	1	3	4
APHA 2540 D	Total Suspended Solid	mg/l	1	8	8	13	26
APHA 5220 D	COD	mg/l	2	14	16	15	34
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	4	4	9
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.6	1.1	1.1	3.3
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.09	0.12	0.13	5.15
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	1.71
APHA 4500 P- F	Phosphate	mg/l	0.01	0.02	<0.01	0.03	2.46
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.001	<0.001	0.002	0.001
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	0.003
APHA 3125	Manganese	mg/l	0.001	0.002	0.001	0.011	0.028
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	0.002
APHA 3125	Iron	mg/l	0.01	0.04	0.06	0.13	0.55
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	50000
APHA 9221D	Feacal Coliform	cfu/100ml	1	<1	600	9600	1140000

LOR: Level of Reporting

ALS TECHNICHEM (M) SDN BHD

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ALS Technichem

CERTIFICATE OF ANALYSIS

DATE : 24 February 2016

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ALS REF. : ALSM150651

ALS Sample ID : ALSM150651690719

COMPANY : Dr Nik & Associates Sdn Bhd

Wisma Dr Nik,

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Tel: 03 - 41458888

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(Attn.: Ms Norsyakirin M. Bakari)



MS ISO/IEC 17025
TESTING
SMM No. 147

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

DATE SAMPLE RECEIVED : 5 February 2016

SAMPLE DESCRIPTION : Thirteen samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
SQ 1	Sediment	8-Jan-16	-	-
SQ 2	Sediment	9-Jan-16	-	-
SQ 3	Sediment	8-Jan-16	-	-
SQ 5	Sediment	8-Jan-16	-	-
SQ 6	Sediment	8-Jan-16	-	-
SQ 7	Sediment	8-Jan-16	-	-
SQ 8	Sediment	8-Jan-16	-	-
SQ 9	Sediment	8-Jan-16	-	-
SQ 10	Sediment	8-Jan-16	-	-
SQ 11	Sediment	3-Feb-16	-	-
SQ 12	Sediment	3-Feb-16	-	-
SQ 13	Sediment	4-Feb-16	-	-
SQ 4	Sediment	16-Feb-16	9.00pg	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.

Nazirah Ariffin

BSc. (Hons) Chem (Frc. Analysis), MSc. (Chem), AMIC

IKM No.: A/3878/6603/13

Lab Supervisor - Environment

BRANCH & COLLECTION CENTRE:

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(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
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Kota Kinabalu 88450 Sabah.
Tel: (6088) - 431 075

Laboratory Testing & Industrial Consultancy

766239

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DATE : 24 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Soil

		Lab I.D		690768	690769	690770	690771	690772
		Sample I.D		SQ 1	SQ 2	SQ 3	SQ 5	SQ 6
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		12/2/16				
Leaching, APHA 4500-NO3- H	Nitrate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
USEPA 3050B, 6010B	Total Phosphorus	mg/kg	1	598	528	820	648	353
APHA 5520 E	Oil & Grease	mg/kg	10	<10	<10	<10	<10	<10
Leaching, APHA 4500 S2-D	Sulphide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
APHA 2540 G	Organic Matter	%	0.1	32.6	28.8	4.0	43.8	3.9
USEPA 9060	Total Organic Carbon	%	0.1	1.6	2.6	1.2	2.8	1.2
USEPA 3050B, 6010B	Nickel	mg/kg	1	10	8	4	11	3
USEPA 3050B, 6010B	Copper	mg/kg	1	9	5	55	21	6
USEPA 3050B, 6010B	Chromium	mg/kg	1	18	16	8	20	5
USEPA 3050B, 6010B	Lead	mg/kg	1	14	12	10	15	6
USEPA 3050B, 6010B	Arsenic	mg/kg	1	3	5	2	6	3
USEPA 3050B, 6010B	Cadmium	mg/kg	1	<1	<1	<1	<1	<1
USEPA 3050B, 6010B	Zinc	mg/kg	1	41	33	128	53	24
USEPA 3050B, 6010B	Manganese	mg/kg	1	319	327	74	294	144
USEPA 3050B, 6010B	Iron	mg/kg	1	21700	23000	12200	29000	12100

LOR: Level of Reporting



DATE : 24 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Soil

		Lab I.D		690773	690774	690775	690776	690777
		Sample I.D		SQ 7	SQ 8	SQ 9	SQ 10	SQ 11
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		12/2/16				
Leaching, APHA 4500-NO3- H	Nitrate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
USEPA 3050B, 6010B	Total Phosphorus	mg/kg	1	594	740	444	669	620
APHA 5520 E	Oil & Grease	mg/kg	10	<10	<10	<10	<10	<10
Leaching, APHA 4500 S2-D	Sulphide	mg/kg	0.1	<0.1	<0.1	0.5	<0.1	<0.1
APHA 2540 G	Organic Matter	%	0.1	5.2	48.9	3.1	33.5	34.0
USEPA 9060	Total Organic Carbon	%	0.1	1.2	2.3	1.3	0.9	1.7
USEPA 3050B, 6010B	Nickel	mg/kg	1	5	11	1	10	10
USEPA 3050B, 6010B	Copper	mg/kg	1	14	33	3	8	9
USEPA 3050B, 6010B	Chromium	mg/kg	1	9	20	2	19	18
USEPA 3050B, 6010B	Lead	mg/kg	1	16	16	3	16	15
USEPA 3050B, 6010B	Arsenic	mg/kg	1	5	7	3	7	5
USEPA 3050B, 6010B	Cadmium	mg/kg	1	<1	<1	<1	<1	<1
USEPA 3050B, 6010B	Zinc	mg/kg	1	58	52	10	46	42
USEPA 3050B, 6010B	Manganese	mg/kg	1	123	406	184	362	303
USEPA 3050B, 6010B	Iron	mg/kg	1	19100	27900	4820	28500	22400

LOR: Level of Reporting



DATE : 24 February 2016
 ALS Sample ID : ALSM150651690719
 PROJECT : Teluk Kumbar Water Quality & Sediment Sampling
 Sample Type : Soil

		Lab I.D		690778	690779	694034		
		Sample I.D		SQ 12	SQ 13	SQ 4		
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		12/2/16				
Leaching, APHA 4500-NO3- H	Nitrate	mg/kg	0.1	<0.1	<0.1	<0.1		
USEPA 3050B, 6010B	Total Phosphorus	mg/kg	1	648	625	33		
APHA 5520 E	Oil & Grease	mg/kg	10	<10	<10	<10		
Leaching, APHA 4500 S2-D	Sulphide	mg/kg	0.1	<0.1	<0.1	<0.1		
APHA 2540 G	Organic Matter	%	0.1	27.4	4.0	2.0		
USEPA 9060	Total Organic Carbon	%	0.1	1.4	1.8	0.6		
USEPA 3050B, 6010B	Nickel	mg/kg	1	9	2	<1		
USEPA 3050B, 6010B	Copper	mg/kg	1	10	34	<1		
USEPA 3050B, 6010B	Chromium	mg/kg	1	17	5	<1		
USEPA 3050B, 6010B	Lead	mg/kg	1	14	13	1		
USEPA 3050B, 6010B	Arsenic	mg/kg	1	6	1	<1		
USEPA 3050B, 6010B	Cadmium	mg/kg	1	<1	<1	<1		
USEPA 3050B, 6010B	Zinc	mg/kg	1	41	47	4		
USEPA 3050B, 6010B	Manganese	mg/kg	1	361	40	13		
USEPA 3050B, 6010B	Iron	mg/kg	1	24400	5350	1030		

LOR: Level of Reporting

DATE : March 2016

ALS Sample ID : ALSM152914700708

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

DR NIK

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IN: 4/3/16 OUT:11/3/16

		Lab I.D		700708	700709	700710	700711	700712
		Sample I.D		WQ 14 E	WQ 14 F	WQ 15 (S) E	WQ 15 (B) E	WQ 15 (S) F
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		14/3/16				
APHA 2130 B	Turbidity	NTU	1	40	40	2	3	3
APHA 2540 D	Total Suspended Solid	mg/l	1	26	26	8	13	4
APHA 5220 D	COD	mg/l	2	18	20	15	16	13
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	6	7	5	5	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.9	0.8	0.2	0.6	0.3
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01					
APHA 4500-NO3- H	Nitrate	mg/l	0.01					
APHA 4500 P- F	Phosphate	mg/l	0.01					
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.028	0.030	0.003	0.003	0.003
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.01	0.01	0.03	0.03	0.06
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	400	900	2400	600	500

LOR: Level of Reporting

DATE : March 2016

ALS Sample ID : ALSM152914700708

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PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		700713	700714	700715	700716	700717
		Sample I.D		WQ 15 (B) F	WQ 16 (S) E	WQ 16 (B) E	WQ 16 (S) F	WQ 16 (B) F
		Units	LOR	E				
Method Reference	Analysis Description	Date of Analysis		14/3/16				
APHA 2130 B	Turbidity	NTU	1	3	3	3	3	2
APHA 2540 D	Total Suspended Solid	mg/l	1	14	14	4	3	11
APHA 5220 D	COD	mg/l	2	16	17	12	11	12
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	5	4	3	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.6	0.5	1.1	0.4	0.9
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01					
APHA 4500-NO3- H	Nitrate	mg/l	0.01					
APHA 4500 P- F	Phosphate	mg/l	0.01					
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.004	0.005	0.005	0.004	0.004
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.02	0.04	0.02	0.02	0.02
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	<1	<1	<1	<1	<1

LOR: Level of Reporting

DATE : March 2016

ALS Sample ID : ALSM152914700708

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PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		700718	700719	700720	700721	700722
		Sample I.D		WQ 17 (S) E	WQ 17 (B) E	WQ 17 (S) F	WQ 17 (B) F	WQ 18 (S) E
		Units	LOR	E				
Method Reference	Analysis Description	Date of Analysis		14/3/16				
APHA 2130 B	Turbidity	NTU	1	3	2	3	3	3
APHA 2540 D	Total Suspended Solid	mg/l	1	5	14	13	5	5
APHA 5220 D	COD	mg/l	2	10	10	13	13	11
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	3	3	4	4	3
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.5	0.9	0.3	0.4	1.9
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01					
APHA 4500-NO3- H	Nitrate	mg/l	0.01					
APHA 4500 P- F	Phosphate	mg/l	0.01					
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.002	0.003	0.003	0.003	0.003
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.02	0.06	0.05	0.04	0.03
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	<1	<1	700	<1	<1

LOR: Level of Reporting

DATE : March 2016

ALS Sample ID : ALSM152914700708

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		700723	700724	700725	700726	700727
		Sample I.D		WQ 18 (M)	WQ 18 (B)	WQ 18 (S) F	WQ 18 (M)	WQ 18 (B) F
		Units	LOR	E	E		F	
Method Reference	Analysis Description	Date of Analysis		14/3/16				
APHA 2130 B	Turbidity	NTU	1	2	3	2	3	4
APHA 2540 D	Total Suspended Solid	mg/l	1	10	11	1	10	12
APHA 5220 D	COD	mg/l	2	10	7	6	10	11
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	3	2	2	3	3
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.8	0.6	0.2	0.7	0.6
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01					
APHA 4500-NO3- H	Nitrate	mg/l	0.01					
APHA 4500 P- F	Phosphate	mg/l	0.01					
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.003	0.004	0.001	0.003	0.010
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.03	0.03	0.02	0.02	0.02
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	400	<1	<1	<1	200

LOR: Level of Reporting

DATE : March 2016

ALS Sample ID : ALSM152914700708

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		700728	700729	700730	700731	700732
		Sample I.D		WQ 19 (S) E	WQ 19 (M) E	WQ 19 (B) E	WQ 19 (S) F	WQ 19 (M) F
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		14/3/16				
APHA 2130 B	Turbidity	NTU	1	4	7	7	8	8
APHA 2540 D	Total Suspended Solid	mg/l	1	12	14	14	10	11
APHA 5220 D	COD	mg/l	2	11	13	14	13	14
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	3	4	4	4	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	1.3	0.9	1.1	1.6	1.2
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01					
APHA 4500-NO3- H	Nitrate	mg/l	0.01					
APHA 4500 P- F	Phosphate	mg/l	0.01					
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.007	0.005	0.010	0.014	0.013
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.02	0.02	0.05	0.05	0.04
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	<1	<1	400	200	<1

LOR: Level of Reporting

DATE : March 2016

ALS Sample ID : ALSM152914700708

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		700733	700734	700735	700736	700737
		Sample I.D		WQ 19 (B) F	WQ 20 E	WQ 20 F	WQ 21 E	WQ 21 F
		Units	LOR					
Method Reference	Analysis Description	Date of Analysis		14/3/16				
APHA 2130 B	Turbidity	NTU	1	7	4	3	2	4
APHA 2540 D	Total Suspended Solid	mg/l	1	14	14	13	14	8
APHA 5220 D	COD	mg/l	2	13	13	14	13	14
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	4	4	4	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.8	0.9	1.0	1.1	0.9
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01					
APHA 4500-NO3- H	Nitrate	mg/l	0.01					
APHA 4500 P- F	Phosphate	mg/l	0.01					
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Manganese	mg/l	0.001	0.020	0.007	0.005	0.006	0.005
APHA 3125	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Iron	mg/l	0.01	0.03	0.04	0.02	0.02	0.02
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9221D	Feacal Coliform	cfu/100ml	1	<1	800	300	900	<1

LOR: Level of Reporting

ALS TECHNICHEM (M) SDN BHD

(117964-P)

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Tel: (603) 7845 8257 Fax: (603) 7845 8258 E-mail: info@alsglobal.com.my

CERTIFICATE OF ANALYSIS



ALS Technichem

DATE : 10 June 2016

Page 1 of 2

ALS REF. : ALSM160378

ALS Sample ID : ALSM160378735640

COMPANY : Dr Nik & Associates Sdn Bhd

Wisma Dr Nik,
No 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre Section 5,
Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur.
Tel: 03 - 41458888 Fax: 03-41458877
(Attn.: Mr Arrabe)



MS ISO/IEC 17025
TESTING
SMM No. 147

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

DATE SAMPLE RECEIVED : 26 May 2016

SAMPLE DESCRIPTION : Four samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ 18 (S) F	Marine	25-May-16	-	-
WQ 18 (B) F	Marine	25-May-16	-	-
WQ 18 (S) E	Marine	25-May-16	-	-
WQ 18 (B) E	Marine	25-May-16	-	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.

Nazirah Ariffih
BSc. (Hons) Chem (Frc. Analysis), MSc. (Chem), AMIC
IKM No.: A/3878/6603/13
Lab Supervisor - Environment

Lee Su Ann
Laboratory Manager - Microbiology
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MJMM No: 0288

BRANCH & COLLECTION CENTRE:

(JB): No.19, Jalan Kencana Mas 1/1,
Tebrau Business Park, Taman Daya,
81100 Johor Bahru, Johor.
Tel : (607) - 354 9604

(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
Off Jalan Kilang Kelombong, Jalan Ulam Raja, Kelombong
Kota Kinabalu 88450 Sabah.
Tel: (6088) - 431 075



DATE : 10 June 2016

ALS Sample ID : ALSM160378735640

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

		Lab I.D		735640	735641	735642	735643	
		Sample I.D		WQ 18 (S) F	WQ 18 (B) F	WQ 18 (S) E	WQ 18 (B)	
		Units	LOR					E
Method Reference	Analysis Description	Date of Analysis		27/5/16				
APHA 2130 B	Turbidity	NTU	1	6	58	11	64	
APHA 2540 D	Total Suspended Solid	mg/l	1	5	44	8	40	
APHA 5220 D	COD	mg/l	2	15	18	15	17	
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	5	6	6	5	
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.6	0.6	0.7	0.5	
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5	<0.5	<0.5	
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.31	0.20	0.18	0.18	
APHA 4500-NO3- H	Nitrate	mg/l	0.01	0.03	0.03	0.03	0.03	
APHA 4500 P- F	Phosphate	mg/l	0.01	0.04	0.16	0.03	0.18	
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	
APHA 3125	Chromium	mg/l	0.001	<0.001	0.001	<0.001	0.002	
APHA 3125	Arsenic	mg/l	0.001	0.004	0.004	0.003	0.005	
APHA 3125	Lead	mg/l	0.001	0.002	0.003	<0.001	0.003	
APHA 3125	Copper	mg/l	0.001	0.006	0.003	<0.001	0.002	
APHA 3125	Manganese	mg/l	0.001	0.019	0.091	0.023	0.085	
APHA 3125	Nickel	mg/l	0.001	0.002	0.003	0.002	0.002	
APHA 3125	Iron	mg/l	0.01	0.15	0.94	0.07	1.25	
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	
APHA 9222D	Feacal Coliform	cfu/100ml	1	25000	42000	700	4000	

LOR: Level of Reporting

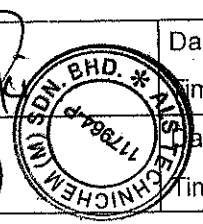
**ALS TECHNICHEM (M) SDN BHD** (117964-P)

No. 9, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor Darul Ehsan.
 Tel: (603) 7845 8257 Fax: (603) 7845 8258

CHAIN OF CUSTODY RECORD

No. 32501

COMPANY: DR. NIK & Associates Sdn Bhd		PROJECT: Teluk Kumbar		PURCHASE ORDER NO.:			
POSTAL ADDRESS: No 22 & 24, Jalan Wangsa Delima 6 Kuala Lumpur Satellite Center (KLSC) Seksyen 5, Pusat Bandar Wangsa Maja				FOR LAB USE ONLY			
PHONE:		FAX:		LAB BATCH NO.:			
SEND REPORT TO: Mohd Arrabe Syakirin				NO OF SAMPLES:			
SEND INVOICE TO:				ANALYSIS REQUIRED			
				AS per attachment.			
				REMARKS			
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.		
1 WQ 18 (S) F	marine	25/5					
2 WQ 18 (B) F	"	"					
3 WQ 18 (S) E	"	"					
4 WQ 18 (B) E	"	"					
 ALSM160378735640 DR NIK & ASSOCIATES SDN BHD (COD) EV_MB Recv: 2016-05-26 Due: 2016-06-03		 ALSM160378735641 DR NIK & ASSOCIATES SDN BHD (COD) EV_MB Recv: 2016-05-26 Due: 2016-06-03		 ALSM160378735642 DR NIK & ASSOCIATES SDN BHD (COD) EV_MB Recv: 2016-05-26 Due: 2016-06-03		 ALSM160378735643 DR NIK & ASSOCIATES SDN BHD (COD) EV_MB Recv: 2016-05-26 Due: 2016-06-03	
Sampled by: Arrabe		Shipped Via:		Consignment No.:			
Relinquished by:	Date:	Received by:	Date:	COMMENTS / SPECIAL HANDLING			
Print Name	Time:	Print Name: <i>maizuk</i>	Time: 26/5				
Relinquished by:	Date:	Received by:	Date:				
Print Name	Time:	Print Name:	Time:				
Received by Lab:	Date:	Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.					
Print Name	Time:						





Analytical Charges

Table 1: Marine Water Quality Testing

Test Parameter	ALS Method Reference	Unit	ALS Detection Limit	Unit Price (RM)
pH value	APHA 4500 H + B	-	In-Situ by DNA	In-Situ by DNA
Temperature	APHA 2550 B	°C		
Dissolved oxygen	APHA 4500 O G	mg/L		
Conductivity	APHA 2510 B	µS/cm		
Salinity	APHA 2520 B	ppt / %		
Turbidity	APHA 2130 B	NTU	1	15
Total suspended solids (TSS)	APHA 2540 D	mg/L	1	20
Chemical oxygen demand (COD)	APHA 5220 D	mg/L	2	25
Biochemical oxygen demand (BOD)	APHA 5210 B	mg/L	1	25
Oil & Grease	APHA 5520 B	mg/L	1	35
Total Organic Carbon	APHA 5310 D	mg/L	0.1	70
Chlorophyll-a	APHA 10200 H	ug/L	0.5	150
Ammoniacal nitrogen (NH ₃ -N)	APHA 4500 NH ₃ -G	mg/L	0.01	28
Phosphate	APHA 4500 P F	mg/L	0.01	35
Nitrate	APHA 4500 NO ₃ -H	mg/L	0.01	28
Feecal coliform	APHA 9222 B	cfu/100 ml	<1	28
<i>E.Coli</i>	In-House method based on APHA 9222 D	cfu/100 ml	<1	28
Cadmium	USEPA 6020A	mg/L	0.001	60
Chromium		mg/L	0.001	60
Arsenic		mg/L	0.001	60
Lead		mg/L	0.001	60
Copper		mg/L	0.001	60
Manganese		mg/L	0.001	60
Nickel		mg/L	0.001	60
Iron		mg/L	0.01	60
Package Cost				520

ALS TECHNICHEM (M) SDN BHD

(117964-P)

21, Jalan Astaka U8/84, Seksyen U8, Bukit Jelutong, 40150 Shah Alam, Selangor.
Tel: (603) 7845 8257 Fax: (603) 7845 8258 E-mail: info@alsglobal.com.my

CERTIFICATE OF ANALYSIS



ALS Technichem

DATE : 17 June 2016

Page 1 of 2

ALS REF. : ALSM161237

ALS Sample ID : ALSM161237740958



MS ISO/IEC 17025
TESTING
SAMM No. 147

COMPANY : Dr Nik & Associates Sdn Bhd

Wisma Dr Nik,

No 22 & 24, Jalan Wangsa Delima 6,

Kuala Lumpur Suburban Centre Section 5,

Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur.

Tel: 03 - 41458888

Fax: 03-41458877

(Attn.: Mr Arrabe)

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

DATE SAMPLE RECEIVED : 3 June 2016

SAMPLE DESCRIPTION : Two samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
WQ 18 E	-	3-Mar-16	-	-
WQ 18 F	-	3-Mar-16	-	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.

Nazirah Ariffin

BSc. (Hons) Chem (Frc. Analysis), MSc. (Chem), AMIC

IKM No.: A/3878/6603/13

Lab Supervisor - Environment

Chum Wei Lon

Senior Microbiologist

BSc (Hons) Biotechnology

BRANCH & COLLECTION CENTRE:

(JB): No.19, Jalan Kencana Mas 1/1,
Tebrau Business Park, Taman Daya,
81100 Johor Bahru, Johor.
Tel : (607) - 354 9604

(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
Off Jalan Kilang Kelombong, Jalan Ulam Raja, Kelombong
Kota Kinabalu 88450 Sabah.
Tel: (6088) - 431 075

DATE : 17 June 2016

ALS Sample ID : ALSM161237740958

PROJECT : Teluk Kumbar Water Quality & Sediment Sampling

Sample Type : Water

Page 2 of 2



ALS Technichem

		Lab I.D		740958	740959			
		Sample I.D		WQ 18 E	WQ 18 F			
		Units	LOR					
Method Reference	Analysis Description							
APHA 2130 B	Turbidity	NTU	1	12	9			
APHA 2540 D	Total Suspended Solid	mg/l	1	6	4			
APHA 5220 D	COD	mg/l	2	12	10			
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	3			
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1			
APHA 5310 D	Total Organic Carbon	mg/l	0.1	1.2	0.6			
APHA 10200 H	Chlorophyll-A	ug/l	0.5	<0.5	<0.5			
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.29	0.22			
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01			
APHA 4500 P- F	Phosphate	mg/l	0.01	0.04	0.05			
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001			
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001			
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002			
APHA 3125	Lead	mg/l	0.001	0.002	0.004			
APHA 3125	Copper	mg/l	0.001	0.002	0.002			
APHA 3125	Manganese	mg/l	0.001	0.009	0.010			
APHA 3125	Nickel	mg/l	0.001	0.001	0.002			
APHA 3125	Iron	mg/l	0.01	0.15	0.21			
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1			
APHA 9222D	Feacal Coliform	cfu/100ml	1	<1	<1			

LOR: Level of Reporting



ALS TECHNICHEM (M) SDN BHD (117964-P)
 WISMA ALS, No. 21, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor.
 Tel: (603) 7847 8257 Fax: (603) 7845 8258

CHAIN OF CUSTODY RECORD

No. 4315

COMPANY: DR. NIK & ASSOC PROJECT: TELUK KUNBAR PURCHASE ORDER NO.:
 POSTAL ADDRESS: LAB BATCH NO.:
 NO OF SAMPLES:

PHONE: 03 41458888 FAX:
 SEND REPORT TO: Arrape'
 SEND INVOICE TO:

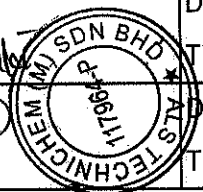
ANALYSIS REQUIRED																																			

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	REMARKS
WQ18E		2/6/16	11.00 am 3.00pm			NEAPTIDES
WQ18F		2/6/16	11.00 am 11.00 am			NEAPTIDES

ALSM161237740958
 DR NIK & ASSOCIATES SDN BHD
 (COD) EV_MB
 Recv: 2016-06-03 Due: 2016-06-13

ALSM161237740959
 DR NIK & ASSOCIATES SDN BHD
 (COD) EV_MB
 Recv: 2016-06-03 Due: 2016-06-13

Sampled by: Shipped Via: Consignment No.:
 Relinquished by: Date: Received by: Date: 2/6/16 COMMENTS / SPECIAL HANDLING
 Print Name Time: Print Name Time: 940 am
 Relinquished by: Date: Received by: Date:
 Print Name Time: Print Name Time:



Received by Lab: Date: Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.



Analytical Charges

Table 1: Marine Water Quality Testing

Test Parameter	ALS Method Reference	Unit	ALS Detection Limit	Unit Price (RM)
pH value	APHA 4500 H + B	-	In-Situ by DNA	In-Situ by DNA
Temperature	APHA 2550 B	°C		
Dissolved oxygen	APHA 4500 O G	mg/L		
Conductivity	APHA 2510 B	µS/cm		
Salinity	APHA 2520 B	ppt / %		
Turbidity	APHA 2130 B	NTU	1	15
Total suspended solids (TSS)	APHA 2540 D	mg/L	1	20
Chemical oxygen demand (COD)	APHA 5220 D	mg/L	2	25
Biochemical oxygen demand (BOD)	APHA 5210 B	mg/L	1	25
Oil & Grease	APHA 5520 B	mg/L	1	35
Total Organic Carbon	APHA 5310 D	mg/L	0.1	70
Chlorophyll-a	APHA 10200 H	ug/L	0.5	150
Ammoniacal nitrogen (NH ₃ -N)	APHA 4500 NH ₃ -G	mg/L	0.01	28
Phosphate	APHA 4500 P F	mg/L	0.01	35
Nitrate	APHA 4500 NO ₃ -H	mg/L	0.01	28
Feacal coliform	APHA 9222 B	cfu/100 ml	<1	28
<i>E.Coli</i>	In-House method based on APHA 9222 D	cfu/100 ml	<1	28
Cadmium	USEPA 6020A	mg/L	0.001	60
Chromium		mg/L	0.001	60
Arsenic		mg/L	0.001	60
Lead		mg/L	0.001	60
Copper		mg/L	0.001	60
Manganese		mg/L	0.001	60
Nickel		mg/L	0.001	60
Iron		mg/L	0.01	60
Package Cost				520

ALS TECHNICHEM (M) SDN BHD

(117964-P)

21, Jalan Astaka U8/84, Seksyen U8, Bukit Jelutong, 40150 Shah Alam, Selangor.
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CERTIFICATE OF ANALYSIS



ALS Technichem

DATE : 24 June 2016

Page 1 of 8

ALS REF. : ALSM161239

ALS Sample ID : ALSM161239740967



MS ISO/IEC 17025
TESTING
SMM No. 147

COMPANY : Dr Nik & Associates Sdn Bhd
Wisma Dr Nik,
No 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre Section 5,
Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur.
Tel: 03 - 41458888 Fax: 03-41458877
(Attn.: Mr Arrabe)

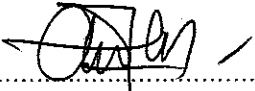
PROJECT : DEIA Penang Reclamation


DATE SAMPLE RECEIVED : 3 June 2016

SAMPLE DESCRIPTION : Nine samples were received with the following references:

SAMPLE I.D	MATRIX	DATE	TIME (hrs)	REMARKS
OCEAN SEA CULTURE (1)	Seawater	2-Jun-16	1245	-
BE BIOMARINE (1)	Seawater	2-Jun-16	1300	-
GERTAK SANGGOL (1)	Seawater	2-Jun-16	1515	-
GERTAK SANGGOL (2)	Seawater	2-Jun-16	1545	-
EXAUHALL	Seawater	2-Jun-16	1230	-
YU FULL AQUA	Seawater	2-Jun-16	1110	-
OCEAN STAR	Seawater	2-Jun-16	1045	-
GLOBAL AERO LIFE	Seawater	2-Jun-16	1120	-
SEA HARVEST	Seawater	2-Jun-16	1200	-

Note : Results apply to sample(s) as submitted. This report supersedes any previous reports of the same reference number.


.....
Nazirah Ariffin
BSc. (Hons) Chem (Frc. Analysis), MSc. (Chem), AMIC
IKM No.: A/3878/6603/13
Lab Supervisor - Environment


.....
Chum Wei Lon
Senior Microbiologist
BSc (Hons) Biotechnology

BRANCH & COLLECTION CENTRE:

(JB): No.19, Jalan Kencana Mas 1/1,
Tebrau Business Park, Taman Daya,
81100 Johor Bahru, Johor.
Tel : (607) - 354 9604

(KK): Mezzanine Floor, No.3, Lot 5, Lorong Kilang (SLIE),
Off Jalan Kilang Kelombong, Jalan Ulam Raja, Kelombong
Kota Kinabalu 88450 Sabah.
Tel: (6088) - 431 075

DATE : 24 June 2016
 ALS Sample ID : ALSM161239740967
 PROJECT : DEIA Penang Reclamation
 Sample Type : Water



		Lab I.D		740967	740968	740969	740970	740971
		Sample I.D		OCEAN SEA CULTURE	BE BIOMARINE (1)	GERTAK SANGGOL (1)	GERTAK SANGGOL (2)	EXAUHALL
		Units	LOR					
Method Reference	Analysis Description							
APHA 2540 D	Total Suspended Solid	mg/l	1	1	1	1	1	1
APHA 5220 D	COD	mg/l	2	12	11	13	11	12
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	4	4	4	4
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	0.3	0.4	0.3	1.2	0.3
APHA 10200 H	Chlorophyll-A	ug/l	0.5	2.0	<0.5	<0.5	0.7	1.5
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.10	0.09	0.08	0.06	0.09
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	0.25	0.18	0.13	0.22	0.07
APHA 4500-CN- C&E	Cyanide	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	0.002	0.002	0.002	0.003	0.002
APHA 3125	Copper	mg/l	0.001	0.002	0.002	0.013	0.010	0.002
APHA 3125	Manganese	mg/l	0.001	0.016	0.005	0.003	0.007	0.002
APHA 3125	Nickel	mg/l	0.001	0.001	0.001	0.001	0.001	0.001
APHA 3125	Iron	mg/l	0.01	0.10	0.11	0.07	0.08	0.06
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1	<1
APHA 9222D	Feacal Coliform	cfu/100ml	1	<1	<1	<1	<1	300

LOR: Level of Reporting

DATE : 24 June 2016
 ALS Sample ID : ALSM161239740967
 PROJECT : DEIA Penang Reclamation
 Sample Type : Water



Method Reference	Analysis Description	Lab I.D		740972	740973	740974	740975
		Sample I.D		YU FULL	OCEAN	GLOBAL	SEA
		Units	LOR	AQUA	STAR	AERO LIFE	HARVEST
APHA 2540 D	Total Suspended Solid	mg/l	1	147	139	67	118
APHA 5220 D	COD	mg/l	2	11	14	15	13
APHA 5210 B	BOD5 at 20 ° C	mg/l	1	4	5	5	5
APHA 5520 B	Oil & Grease	mg/l	1	<1	<1	<1	<1
APHA 5310 D	Total Organic Carbon	mg/l	0.1	1.1	1.1	1.1	0.9
APHA 10200 H	Chlorophyll-A	ug/l	0.5	13.9	13.4	16.6	4.6
APHA 4500 NH3 G	Ammoniacal Nitrogen	mg/l	0.01	0.10	0.06	0.09	0.15
APHA 4500-NO3- H	Nitrate	mg/l	0.01	<0.01	<0.01	<0.01	<0.01
APHA 4500 P- F	Phosphate	mg/l	0.01	0.19	0.17	0.12	0.37
APHA 4500-CN ⁻ C&E	Cyanide	mg/l	0.05	<0.05	<0.05	<0.05	<0.05
APHA 3125	Cadmium	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
APHA 3125	Chromium	mg/l	0.001	0.001	0.001	<0.001	0.001
APHA 3125	Arsenic	mg/l	0.001	0.002	0.002	0.002	0.002
APHA 3125	Lead	mg/l	0.001	0.005	0.005	0.004	0.005
APHA 3125	Copper	mg/l	0.001	0.005	0.004	0.004	0.004
APHA 3125	Manganese	mg/l	0.001	0.030	0.032	0.021	0.073
APHA 3125	Nickel	mg/l	0.001	0.002	0.002	0.001	0.002
APHA 3125	Iron	mg/l	0.01	0.85	1.00	0.40	0.84
In House Method QW-MB/17-22, based on APHA 9222D	Escherichia coli	cfu/100 ml	1	<1	<1	<1	<1
APHA 9222D	Feecal Coliform	cfu/100ml	1	<1	250	<1	<1

LOR: Level of Reporting

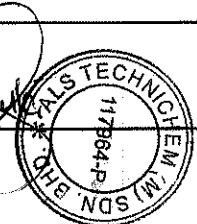


ALS TECHNICHEM (M) SDN BHD (117964-P)
 WISMA ALS, No. 21, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor.
 Tel: (603) 7847 8257 Fax: (603) 7845 8258

CHAIN OF CUSTODY RECORD

No. 4192

COMPANY: DR. NIK S ASSOCIATES S/B		PROJECT: DEIA PENANG RECLAMATION		PURCHASE ORDER NO.:															
POSTAL ADDRESS: NO. 22524, JLN WANGSA OBLIMA 6, KUALA LUMPUR SATELLITE CENTRE (KLSC) SEKSYEN 5, PUSAT BANDAR WANGSA MAJU				FOR LAB USE ONLY															
PHONE: 03-4145 8888 FAX: 03-4145 8921				LAB BATCH NO.:															
SEND REPORT TO: DR. NIK S ASSOCIATES S/B				NO OF SAMPLES: 8 48															
SEND INVOICE TO: DR. NIK S ASSOCIATES S/B				ANALYSIS REQUIRED															
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	Chlorophyll-a	BOD	TSS	COD	NO3	AN	PO4	Oils Grease	TOC	Metals	Cyanide	E. coli	F. Coliform	REMARKS
① OCEANSEA CULTURE (1)	Seawater	2/6/16	1245		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
OCEANSEA CULTURE (2)	"	"	"		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
OCEANSEA CULTURE (3)	"	"	"		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
② BE BIOMARINE (1)	"	"	1300		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
BE BIOMARINE (2)	"	"	"		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
BE BIOMARINE (3)	"	"	"		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
③ GERTAK SANGGOL (1)	"	"	1515		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
④ GERTAK SANGGOL (2)	"	"	1545		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
⑤ EXAUHALL	"	"	1230		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
⑥ YU FULL AQUA	"	"	1110		8	/	/	/	/	/	/	/	/	/	/	/	/	/	
Sampled by:		Shipped Via:		Consignment No.:															
Relinquished by:		Date: 2/6/16	Received by:	Date: 3/6/16	COMMENTS / SPECIAL HANDLING														
Print Name: S. PRABHAVARAM		Time: 2000	Print Name:	Time: 4 pm															
Relinquished by:		Date:	Received by:	Date:															
Print Name:		Time:	Print Name:	Time:															
Received by Lab:		Date:	Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.																



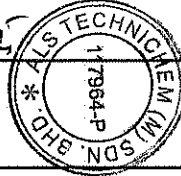


ALS TECHNICHEM (M) SDN BHD (117964-P)
 WISMA ALS, No. 21, Jalan Astaka U8/84,
 Seksyen U8, Bukit Jelutong,
 40150 Shah Alam, Selangor.
 Tel: (603) 7847 8257 Fax: (603) 7845 8258

CHAIN OF CUSTODY RECORD

No. 4193

COMPANY: DR. NIK S ASSOCIATES S/B		PROJECT: DEIA PENANG RECLAMATION		PURCHASE ORDER NO.:																
POSTAL ADDRESS: NO. 22 & 24, JLN WANGSA DELIMA 6, KWALA LUMPUR SATELLITE CENTRE (KUSC), SEKSYEN 5, PUSAT BANDAR WANGSA MAJU, 53300 KWALA LUMPUR				FOR LAB USE ONLY																
PHONE: 03-4145 8888 FAX: 03-4145 8921				LAB BATCH NO.:																
SEND REPORT TO: DR. NIK S ASSOCIATES S/B				NO OF SAMPLES:		24														
SEND INVOICE TO: DR. NIK S ASSOCIATES S/B				ANALYSIS REQUIRED																
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	Chlorophyll-a	BOD	TSS	COO	NO3	AM	PO4	Oil & Grease	TOC	Metals	Cyanide	E. coli	F. Coliform	REMARKS	
① OCEAN STAR	Seawater	2/6/10	1045		8	/	/	/	/	/	/	/	/	/	/	/	/	/		
② GLOBAL AGRO LIFE	"	"	1120		8	/	/	/	/	/	/	/	/	/	/	/	/	/		
③ SEA HARVEST	"	"	1200		8	/	/	/	/	/	/	/	/	/	/	/	/	/		
Sampled by:		Shipped Via:				Consignment No.:														
Relinquished by:		Date: 2/6/10		Received by:		Date: 3/6/10		COMMENTS / SPECIAL HANDLING												
Print Name: P. PRABHAKARAN		Time: 2000		Print Name: MGR JUK		Time: 4pm														
Relinquished by:		Date:		Received by:		Date:														
Print Name:		Time:		Print Name:		Time:														
Received by Lab:		Date:		Container Type & Preservatives Codes: P=Plastic; G=Glass; V=Vial; J=Jar; HN=Nitric acid preserved; HC=Hydrochloric acid preserved; HS=Sulfuric acid preserved; ST=Sterile bottle; B=Sodium hydroxide preserved; Z=Zinc acetate preserved; E=EDTA preserved.																
Print Name:		Time:																		





ALSM161239740967

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740968

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740969

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740970

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740971

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740972

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740973

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740974

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14



ALSM161239740975

DR NIK & ASSOCIATES SDN BHD

(COD)	EV_MB
Recv: 2016-06-03	Due: 2016-06-14

ALS TECHNICHEM (M) SDN BHD

(117964-P)

21, Jalan Astaka U8/84, Seksyen U8, Bukit Jelutong, 40150 Shah Alam, Selangor.
Tel: (603) 7845 8257 Fax: (603) 7845 8258 E-mail: info@alsglobal.com.my



ALS Technichem

CERTIFICATE OF ANALYSIS

DATE : 03 March 2016

OUR REF : ALSM151708

COMPANY : Dr. Nik & Associates Sdn Bhd
No. 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre (KLSC)
Section 5, Pusat Bandar Wangsa Maju
53300, Kuala Lumpur, MALAYSIA
Phone: +603-4145 8888 Fax: +603-4145 8877



MS ISO/IEC 17025
TESTING
SAMM No. 147

Page 1 of 3

(Attn.: Arrabe')

DATE RECEIVED: 22nd February 2016

SAMPLING DATE: 16th to 19th February 2016

ANALYSIS RESULTS

(As per sample)

ALS Lab ID	Date	Location	Description	Coordinates
695484	17.02.2016	AQ1 / N1	Sekolah Jenis Kebangsaan Cina Poi Eng	5°16'56.24"N 100°11'45.44"E
695485	16.02.2016	AQ2 / N2	Sekolah Kebangsaan Teluk Kumbar	5°17'26.32"N 100°13'58.69"E
695486	18.02.2016	AQ3 / N3	Perkarangan Masjid Al Qahhar	5°16'28.95"N 100°15'59.58"E

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ALS Technichem

CERTIFICATE OF ANALYSIS

DATE : 03 March 2016

OUR REF : ALSM151708



MS ISO/IEC 17025
TESTING
SAMM No. 147

AMBIENT AIR QUALITY

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Test Parameters	Duration	Units	LOR*	Results			Method Reference
				AQ1	AQ2	AQ3	
Total Suspended Particulates (TSP)	24 hrs	$\mu\text{g}/\text{m}^3$	1	42	14	111	In-House Method QWI-CH/17-83 based on USEPA Method IO 1.1
Particulate Matter (PM _{2.5})	24 hrs	$\mu\text{g}/\text{m}^3$	1	28	< 1	69	
Sulphur Dioxide (SO ₂)	1 hr	$\mu\text{g}/\text{m}^3$	83	167	167	167	In-House Method QWI-CH/17-36 based on J.P. Lodge 704C
Oxides of Nitrogen (NO ₂)	1 hr	$\mu\text{g}/\text{m}^3$	42	< 42	< 42	< 42	In-House Method QWI-CH/17-36 based on J.P. Lodge 407
Carbon Monoxide (CO)	1 hr	mg/m^3	0.1	< 0.1	< 0.1	< 0.1	Portable Gas Analyzer by Graywolf Sensing Solution
Ozone (O ₃)	1 hr	$\mu\text{g}/\text{m}^3$	20	< 20	< 20	< 20	J.P. Lodge 819

*LOR = Limit of reporting

Lee Yiu Lay

Laboratory Manager – EV

BSc. (Chem & Bio), MSc. (Chem), AMIC

IKM No. : A/2712/4566/04/08

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AMBIENT NOISE MONITORING

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Time: 0700 to 2200

Sample Marking (DAY)	Noise Level, dB (A)					Method
	L _{eq}	L _{min}	L _{max}	L ₁₀	L ₉₀	
N1	54.2	48.6	68.2	60.3	53.7	ISO 1996 Part 1 and Part 2
N2	53.1	47.4	60.2	57.9	52.2	
N3	48.3	45.5	60.3	50.2	48.0	

Time: 2200 to 0700

Sample Marking (NIGHT)	Noise Level, dB (A)					Method
	L _{eq}	L _{min}	L _{max}	L ₁₀	L ₉₀	
N1	49.7	46.9	57.0	52.9	49.2	ISO 1996 Part 1 and Part 2
N2	49.6	46.2	54.7	51.2	48.5	
N3	46.7	43.4	59.6	49.7	45.9	

Sound Level Meter Model : BSWA308

Laboratory Manager – EV

BSc. (Chem & Bio), MSc. (Chem), AMIC
IKM No. : A/2712/4566/04/08

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