

ภาคผนวก ค

ใบรับรองผลการวิเคราะห์

ภาคผนวก ค-1

คุณภาพอากาศในบรรยากาศโดยทั่วไป



Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315131

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2563412-1

Page 1 of 1

Sample Description	Air Quality
Location	Thai Tank Farm (GPS 47P 0731944, 1401162)
Date Analysis Commenced	Feb 24, 2023
Condition of Sample	Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2315131-1	Feb 20 - Feb 21, 2023	0.043	0.025	757	32
2315131-2	Feb 21 - Feb 22, 2023	0.105	0.012	757	33
2315131-3	Feb 22 - Feb 23, 2023	0.106	0.023	757	33
Guideline		0.33	0.12	-	-

Reference Method

Total Suspended Particulate : US EPA 40 CFR Part 50 Appendix B

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

Guideline : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Natthawut Duangpang

Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Approved by

Thanita K.

Thanita Kulsuriwong
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

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Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315131

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2563412-2

Page 1 of 1

Sample Description	Air Quality
Location	Map Ta Phut Port (North of Project) (GPS 47P 0731876, 1401633)
Date Analysis Commenced	Feb 24, 2023
Condition of Sample	Drawn into one glass filter paper (8x10 inch) placed in plastic bag and one quartz filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Particulate Matter (PM-10) (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2315131-4	Feb 20 - Feb 21, 2023	0.111	0.043	757	32
2315131-5	Feb 21 - Feb 22, 2023	0.107	0.049	757	33
2315131-6	Feb 22 - Feb 23, 2023	0.080	0.055	757	33
Guideline		0.33	0.12	-	-

Reference Method

Total Suspended Particulate : US EPA 40 CFR Part 50 Appendix B

Particulate Matter (PM-10) : US EPA 40 CFR Part 50 Appendix J

Guideline : Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

Sampled By : Natthawut Duangpang

Remark :

- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Approved by

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Thanita Kulsuriwong
Scientist (4)

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.

11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID : 2314958

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number : 2563415-1

Page 1 of 2

Sample Number 2314958-1 to 3
Parameter Wind Speed / Wind Direction
Location Thai Tank Farm (GPS 47P 0731944, 1401162)
Sampling Date Feb 20 - Feb 23, 2023
Sampling by Natthawut Duangpang

Time	Feb 20 - Feb 21, 2023			Feb 21 - Feb 22, 2023			Feb 22 - Feb 23, 2023			-			-			-			-		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		-	-		-	-		-	-		-	-	
10:00 AM - 11:00 AM	1.3	136.0	SE	0.3	25.0	NNE	2.7	107.0	ESE	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM - 12:00 PM	2.9	141.0	SE	3.3	68.0	ENE	4.9	78.0	ENE	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM - 01:00 PM	2.5	121.0	ESE	2.8	84.0	E	5.5	138.0	SE	-	-	-	-	-	-	-	-	-	-	-	-
01:00 PM - 02:00 PM	2.3	118.0	ESE	1.1	137.0	SE	1.6	100.0	E	-	-	-	-	-	-	-	-	-	-	-	-
02:00 PM - 03:00 PM	2.4	87.0	E	0.4	136.0	SE	0.7	123.0	ESE	-	-	-	-	-	-	-	-	-	-	-	-
03:00 PM - 04:00 PM	1.3	154.0	SSE	0.8	99.0	E	0.4	140.0	SE	-	-	-	-	-	-	-	-	-	-	-	-
04:00 PM - 05:00 PM	0.7	117.0	ESE	0.6	146.0	SE	0.7	153.0	SSE	-	-	-	-	-	-	-	-	-	-	-	-
05:00 PM - 06:00 PM	0.8	136.0	SE	1.2	137.0	SE	0.6	169.0	S	-	-	-	-	-	-	-	-	-	-	-	-
06:00 PM - 07:00 PM	0.8	164.0	SSE	0.2	-	-	0.5	314.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
07:00 PM - 08:00 PM	0.1	-	-	0.1	-	-	1.0	199.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 PM - 09:00 PM	0.2	-	-	0.4	153.0	SSE	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09:00 PM - 10:00 PM	0.5	212.0	SSW	0.2	-	-	1.0	74.0	ENE	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM - 11:00 PM	1.2	33.0	NNE	1.3	103.0	ESE	0.3	63.0	ENE	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM - 12:00 AM	0.2	-	-	0.2	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 01:00 AM	0.9	76.0	ENE	0.0	-	-	0.7	299.0	WNW	-	-	-	-	-	-	-	-	-	-	-	-
01:00 AM - 02:00 AM	0.0	-	-	0.1	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02:00 AM - 03:00 AM	0.6	307.0	NW	0.3	227.0	SW	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03:00 AM - 04:00 AM	0.0	-	-	0.5	226.0	SW	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04:00 AM - 05:00 AM	0.5	326.0	NW	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05:00 AM - 06:00 AM	0.0	-	-	0.5	24.0	NNE	0.7	257.0	WSW	-	-	-	-	-	-	-	-	-	-	-	-
06:00 AM - 07:00 AM	0.4	2.0	N	0.6	15.0	NNE	0.8	236.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
07:00 AM - 08:00 AM	2.4	14.0	NNE	1.2	22.0	NNE	1.4	207.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 AM - 09:00 AM	1.8	349.0	N	2.6	4.0	N	4.0	73.0	ENE	-	-	-	-	-	-	-	-	-	-	-	-
09:00 AM - 10:00 AM	1.7	292.0	WNW	1.2	293.0	WNW	3.2	89.0	E	-	-	-	-	-	-	-	-	-	-	-	-

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jittranont
Assistant General Manager



Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.

11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID : 2314958

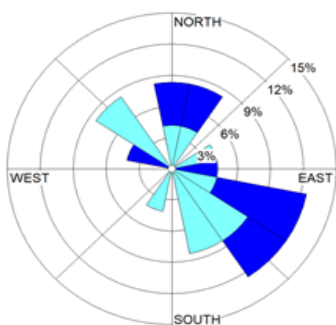
Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

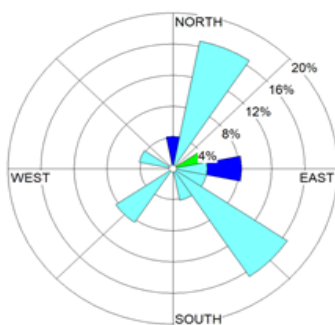
Report Number : 2563415-1

Page 2 of 2

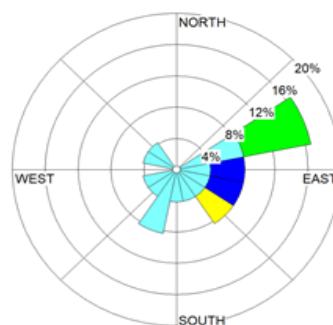
Wind Rose



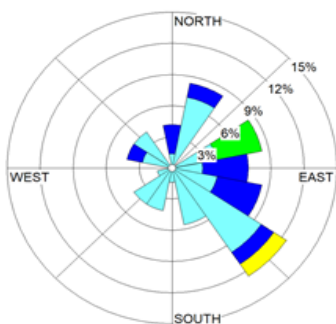
Date : Feb 20-21, 2023



Date : Feb 21-22, 2023



Date : Feb 22-23, 2023



Date : Feb 20-23, 2023

WS(m/s)	%
≥ 10.0	0.00
8.0-10.0	0.00
5.5-8.0	1.38
3.3-5.5	4.17
1.7-3.3	15.28
0.3-1.7	52.78
Calms	26.39

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Approved by

Sarayuth Jitranont
Assistant General Manager



Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.

11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID : 2314958

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number : 2563415-1

Page 1 of 2

Sample Number : 2314958-4 to 6
Parameter : Wind Speed / Wind Direction
Location : Map Ta Phut Port (North of Project) (GPS 47P 0731876, 1401633)
Sampling Date : Feb 20 - Feb 23, 2023
Sampling by : Natthawut Duangpang

Time	Feb 20 - Feb 21, 2023			Feb 21 - Feb 22, 2023			Feb 22 - Feb 23, 2023			-			-			-			-		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		-	-		-	-		-	-		-	-	
09:00 AM - 10:00 AM	1.9	120.0	ESE	0.6	121.0	ESE	1.9	135.0	SE	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM - 11:00 AM	1.3	132.0	SE	1.5	247.0	WSW	0.5	86.0	E	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM - 12:00 PM	1.4	184.0	S	1.4	92.0	E	1.1	121.0	ESE	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM - 01:00 PM	0.7	82.0	E	2.5	129.0	SE	1.9	123.0	ESE	-	-	-	-	-	-	-	-	-	-	-	-
01:00 PM - 02:00 PM	0.4	185.0	S	0.8	137.0	SE	2.7	165.0	SSE	-	-	-	-	-	-	-	-	-	-	-	-
02:00 PM - 03:00 PM	0.5	85.0	E	1.0	118.0	ESE	1.0	55.0	NE	-	-	-	-	-	-	-	-	-	-	-	-
03:00 PM - 04:00 PM	0.4	150.0	SSE	1.6	105.0	ESE	0.9	126.0	SE	-	-	-	-	-	-	-	-	-	-	-	-
04:00 PM - 05:00 PM	0.9	150.0	SSE	4.2	182.0	S	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05:00 PM - 06:00 PM	1.1	95.0	E	2.3	131.0	SE	1.0	45.0	NE	-	-	-	-	-	-	-	-	-	-	-	-
06:00 PM - 07:00 PM	0.3	97.0	E	0.8	101.0	E	0.9	294.0	WNW	-	-	-	-	-	-	-	-	-	-	-	-
07:00 PM - 08:00 PM	1.1	251.0	WSW	0.5	110.0	ESE	0.9	319.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 PM - 09:00 PM	0.4	324.0	NW	1.8	243.0	WSW	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09:00 PM - 10:00 PM	0.6	342.0	NNW	0.2	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM - 11:00 PM	0.5	316.0	NW	0.6	121.0	ESE	0.6	340.0	NNW	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM - 12:00 AM	0.2	-	-	1.0	108.0	ESE	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 01:00 AM	0.1	-	-	1.2	117.0	ESE	0.4	324.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
01:00 AM - 02:00 AM	0.6	316.0	NW	0.2	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02:00 AM - 03:00 AM	0.3	316.0	NW	0.4	332.0	NNW	0.9	311.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
03:00 AM - 04:00 AM	0.7	317.0	NW	0.4	332.0	NNW	0.5	311.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
04:00 AM - 05:00 AM	0.9	317.0	NW	0.8	332.0	NNW	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05:00 AM - 06:00 AM	0.4	317.0	NW	0.6	332.0	NNW	0.3	312.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
06:00 AM - 07:00 AM	0.6	288.0	WNW	0.2	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07:00 AM - 08:00 AM	1.2	324.0	NW	0.2	-	-	0.7	327.0	NNW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 AM - 09:00 AM	0.6	84.0	E	1.3	124.0	SE	0.3	322.0	NW	-	-	-	-	-	-	-	-	-	-	-	-

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

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Approved by

Sarayuth Jittranont
Assistant General Manager



Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.

11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID : 2314958

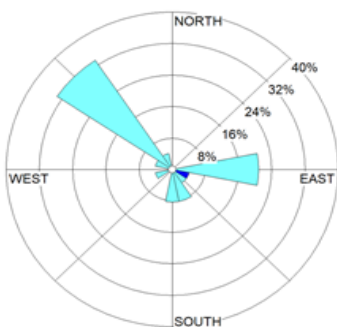
Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

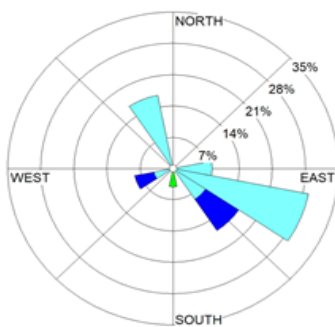
Report Number : 2563415-1

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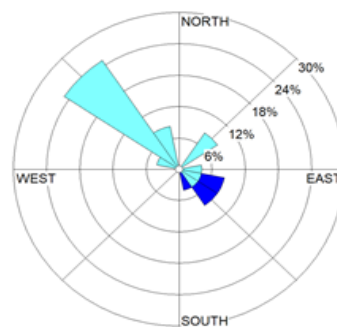
Wind Rose



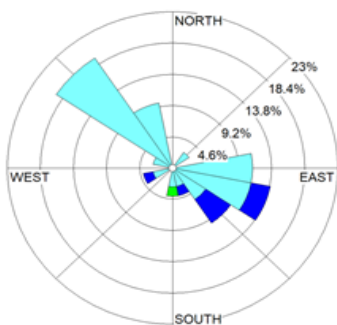
Date : Feb 20-21, 2023



Date : Feb 21-22, 2023



Date : Feb 22-23, 2023



Date : Feb 20-23, 2023

WS(m/s)	%
≥ 10.0	0.00
8.0-10.0	0.00
5.5-8.0	0.00
3.3-5.5	1.39
1.7-3.3	9.72
0.3-1.7	70.83
Calms	18.06

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Approved by

Sarayuth Jitranont
Assistant General Manager

ภาคผนวก ค-2

ระดับเสียงโดยทั่วไป



Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315133

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2582610-1

Page 1 of 1

Sample Number 2315133-1
Parameter Noise (Leq 24 hrs.)
Location Thai Tank Farm (GPS 47P 0731944, 1401162)
Measurement Date Feb 20 - Feb 21, 2023
Measurement by Natthawut Duangpang
Sound Level meter Serial No. 623387

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	60.2	85.6	57.9
11:00 AM - 12:00 PM	60.8	68.1	60.4
12:00 PM - 01:00 PM	61.6	71.7	60.6
01:00 PM - 02:00 PM	61.4	71.0	60.9
02:00 PM - 03:00 PM	62.3	83.2	60.8
03:00 PM - 04:00 PM	61.1	66.7	60.6
04:00 PM - 05:00 PM	61.3	77.7	60.8
05:00 PM - 06:00 PM	61.4	78.4	60.9
06:00 PM - 07:00 PM	61.6	72.5	61.2
07:00 PM - 08:00 PM	61.6	71.9	61.2
08:00 PM - 09:00 PM	61.3	63.3	60.8
09:00 PM - 10:00 PM	61.4	66.7	61.0
10:00 PM - 11:00 PM	61.6	66.4	61.2
11:00 PM - 12:00 AM	61.2	66.8	60.8
12:00 AM - 01:00 AM	60.2	64.0	59.8
01:00 AM - 02:00 AM	61.1	72.5	60.0
02:00 AM - 03:00 AM	60.6	77.2	59.7
03:00 AM - 04:00 AM	60.0	73.6	59.7
04:00 AM - 05:00 AM	60.4	65.2	59.8
05:00 AM - 06:00 AM	61.0	67.8	60.2
06:00 AM - 07:00 AM	61.2	65.3	60.7
07:00 AM - 08:00 AM	60.6	74.4	60.1
08:00 AM - 09:00 AM	59.9	63.8	59.5
09:00 AM - 10:00 AM	59.6	67.7	59.1

Leq Average 24 hrs. (dB(A)) 61.0
Lmax (dB(A)) 85.6
L90 (dB(A)) 60.6
Ldn (dB(A)) 67.3
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Thanita K.

Thanita Kulsuriwong
Scientist (4)

Approved by

Supot S.

Supot Salamteh
Section Head

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Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315133

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2582611-1

Page 1 of 1

Sample Number 2315133-2
Parameter Noise (Leq 24 hrs.)
Location Thai Tank Farm (GPS 47P 0731944, 1401162)
Measurement Date Feb 21 - Feb 22, 2023
Measurement by Natthawut Duangpang
Sound Level meter Serial No. 623387

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	60.9	80.6	59.6
11:00 AM - 12:00 PM	61.4	85.5	60.8
12:00 PM - 01:00 PM	62.9	89.8	61.7
01:00 PM - 02:00 PM	62.7	77.7	62.0
02:00 PM - 03:00 PM	61.9	66.5	61.6
03:00 PM - 04:00 PM	61.6	69.7	60.6
04:00 PM - 05:00 PM	61.9	79.0	61.5
05:00 PM - 06:00 PM	62.1	70.7	61.7
06:00 PM - 07:00 PM	62.2	68.6	61.8
07:00 PM - 08:00 PM	61.4	69.6	60.3
08:00 PM - 09:00 PM	62.0	64.7	60.5
09:00 PM - 10:00 PM	63.8	71.2	62.2
10:00 PM - 11:00 PM	62.5	66.0	61.7
11:00 PM - 12:00 AM	63.2	71.4	62.6
12:00 AM - 01:00 AM	63.0	70.0	62.6
01:00 AM - 02:00 AM	62.9	68.0	62.5
02:00 AM - 03:00 AM	62.9	66.1	62.5
03:00 AM - 04:00 AM	62.7	70.8	62.3
04:00 AM - 05:00 AM	62.6	65.0	62.2
05:00 AM - 06:00 AM	62.8	67.6	62.4
06:00 AM - 07:00 AM	62.8	70.9	62.4
07:00 AM - 08:00 AM	62.6	76.4	62.1
08:00 AM - 09:00 AM	61.9	75.3	61.3
09:00 AM - 10:00 AM	62.0	73.2	61.6

Leq Average 24 hrs. (dB(A)) 62.4
Lmax (dB(A)) 89.8
L90 (dB(A)) 61.7
Ldn (dB(A)) 69.1
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Thanita K.

Thanita Kulsuriwong
Scientist (4)

Approved by

Supot S.

Supot Salamteh
Section Head

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Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315133

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2582612-1

Page 1 of 1

Sample Number 2315133-3
Parameter Noise (Leq 24 hrs.)
Location Thai Tank Farm (GPS 47P 0731944, 1401162)
Measurement Date Feb 22 - Feb 23, 2023
Measurement by Natthawut Duangpang
Sound Level meter Serial No. 623387

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.8	75.7	61.4
11:00 AM - 12:00 PM	61.7	80.5	60.8
12:00 PM - 01:00 PM	61.4	80.5	60.8
01:00 PM - 02:00 PM	61.1	70.7	60.6
02:00 PM - 03:00 PM	61.2	83.0	60.2
03:00 PM - 04:00 PM	62.1	70.0	61.7
04:00 PM - 05:00 PM	62.3	78.7	61.8
05:00 PM - 06:00 PM	62.5	69.8	62.2
06:00 PM - 07:00 PM	62.6	64.3	62.2
07:00 PM - 08:00 PM	62.6	65.0	62.3
08:00 PM - 09:00 PM	62.7	65.2	62.3
09:00 PM - 10:00 PM	62.7	81.9	62.3
10:00 PM - 11:00 PM	62.9	75.8	61.5
11:00 PM - 12:00 AM	63.5	69.8	63.0
12:00 AM - 01:00 AM	63.6	70.3	63.1
01:00 AM - 02:00 AM	63.4	67.2	62.9
02:00 AM - 03:00 AM	63.2	66.4	62.4
03:00 AM - 04:00 AM	61.6	64.3	61.3
04:00 AM - 05:00 AM	62.1	68.4	61.3
05:00 AM - 06:00 AM	61.6	75.8	61.3
06:00 AM - 07:00 AM	63.4	74.5	62.7
07:00 AM - 08:00 AM	63.0	65.8	62.5
08:00 AM - 09:00 AM	62.6	78.7	62.2
09:00 AM - 10:00 AM	61.6	80.4	60.7

Leq Average 24 hrs. (dB(A)) 62.4
Lmax (dB(A)) 83.0
L90 (dB(A)) 61.8
Ldn (dB(A)) 69.2
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการ
โรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Thanita K.

Thanita Kulsuriwong
Scientist (4)

Approved by

Supot S.

Supot Salamteh
Section Head

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Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315133

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2582613-1

Page 1 of 1

Sample Number 2315133-4
Parameter Noise (Leq 24 hrs.)
Location Map Ta Phut Port (North of Project) (GPS 47P 0731896, 1401612)
Measurement Date Feb 20 - Feb 21, 2023
Measurement by Natthawut Duangpang
Sound Level meter Serial No. 900074

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:00 AM - 10:00 AM	55.8	81.2	53.9
10:00 AM - 11:00 AM	55.2	72.0	53.6
11:00 AM - 12:00 PM	54.6	75.5	52.8
12:00 PM - 01:00 PM	54.6	76.8	53.1
01:00 PM - 02:00 PM	54.1	69.2	52.7
02:00 PM - 03:00 PM	54.4	73.1	52.3
03:00 PM - 04:00 PM	54.0	72.3	52.1
04:00 PM - 05:00 PM	53.2	71.5	51.8
05:00 PM - 06:00 PM	55.8	77.8	50.1
06:00 PM - 07:00 PM	51.1	66.1	49.9
07:00 PM - 08:00 PM	51.7	77.9	49.7
08:00 PM - 09:00 PM	51.2	58.0	49.7
09:00 PM - 10:00 PM	50.7	62.6	49.8
10:00 PM - 11:00 PM	51.6	61.3	50.5
11:00 PM - 12:00 AM	51.2	65.2	50.4
12:00 AM - 01:00 AM	53.0	77.2	50.4
01:00 AM - 02:00 AM	51.5	57.6	50.4
02:00 AM - 03:00 AM	52.4	62.0	51.5
03:00 AM - 04:00 AM	53.6	69.6	51.3
04:00 AM - 05:00 AM	54.6	70.5	51.0
05:00 AM - 06:00 AM	56.7	77.1	51.7
06:00 AM - 07:00 AM	55.2	78.0	52.3
07:00 AM - 08:00 AM	57.9	73.4	55.0
08:00 AM - 09:00 AM	55.8	71.9	53.7

Leq Average 24 hrs. (dB(A)) 54.2
Lmax (dB(A)) 81.2
L90 (dB(A)) 51.5
Ldn (dB(A)) 60.2
Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Thanita K.

Thanita Kulsuriwong
Scientist (4)

Approved by

Supot S.

Supot Salamteh
Section Head

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Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315133

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2582614-1

Page 1 of 1

Sample Number 2315133-5
Parameter Noise (Leq 24 hrs.)
Location Map Ta Phut Port (North of Project) (GPS 47P 0731896, 1401612)
Measurement Date Feb 21 - Feb 22, 2023
Measurement by Natthawut Duangpang
Sound Level meter Serial No. 900074

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:00 AM - 10:00 AM	54.9	70.9	53.4
10:00 AM - 11:00 AM	55.1	71.8	53.5
11:00 AM - 12:00 PM	54.5	68.6	52.7
12:00 PM - 01:00 PM	55.9	82.4	53.4
01:00 PM - 02:00 PM	55.6	69.4	54.7
02:00 PM - 03:00 PM	55.6	73.9	54.5
03:00 PM - 04:00 PM	55.9	66.7	54.6
04:00 PM - 05:00 PM	55.8	69.6	54.6
05:00 PM - 06:00 PM	58.0	82.6	54.0
06:00 PM - 07:00 PM	54.8	68.0	53.8
07:00 PM - 08:00 PM	55.1	77.3	53.9
08:00 PM - 09:00 PM	54.9	73.3	53.8
09:00 PM - 10:00 PM	54.3	61.4	53.7
10:00 PM - 11:00 PM	54.6	60.6	54.0
11:00 PM - 12:00 AM	55.3	64.2	54.1
12:00 AM - 01:00 AM	54.5	59.6	53.9
01:00 AM - 02:00 AM	54.4	63.3	53.8
02:00 AM - 03:00 AM	54.6	58.2	54.0
03:00 AM - 04:00 AM	56.6	70.9	54.3
04:00 AM - 05:00 AM	57.3	70.7	54.6
05:00 AM - 06:00 AM	58.0	71.9	54.8
06:00 AM - 07:00 AM	56.6	75.7	54.8
07:00 AM - 08:00 AM	58.3	73.0	55.9
08:00 AM - 09:00 AM	56.6	73.2	55.3

Leq Average 24 hrs. (dB(A)) 55.9
Lmax (dB(A)) 82.6
L90 (dB(A)) 54.0
Ldn (dB(A)) 62.4
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Thanita K.

Thanita Kulsuriwong
Scientist (4)

Approved by

Supot S.

Supot Salamteh
Section Head

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Analysis / Test Report

TESTING
No.0042

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location : Sea dredging

Lot ID: 2315133

Date Received : Feb 23, 2023

Date Reported : Mar 02, 2023

Report Number: 2582615-1

Page 1 of 1

Sample Number 2315133-6
Parameter Noise (Leq 24 hrs.)
Location Map Ta Phut Port (North of Project) (GPS 47P 0731896, 1401612)
Measurement Date Feb 22 - Feb 23, 2023
Measurement by Natthawut Duangpang
Sound Level meter Serial No. 900074

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
09:00 AM - 10:00 AM	56.5	69.0	55.2
10:00 AM - 11:00 AM	56.3	74.3	54.9
11:00 AM - 12:00 PM	56.2	71.2	54.7
12:00 PM - 01:00 PM	56.0	67.6	55.1
01:00 PM - 02:00 PM	56.9	76.0	54.9
02:00 PM - 03:00 PM	58.2	82.9	54.8
03:00 PM - 04:00 PM	55.2	70.7	54.3
04:00 PM - 05:00 PM	54.8	66.7	53.9
05:00 PM - 06:00 PM	55.3	73.8	53.3
06:00 PM - 07:00 PM	54.1	71.8	53.4
07:00 PM - 08:00 PM	55.1	78.3	53.5
08:00 PM - 09:00 PM	54.2	65.0	53.6
09:00 PM - 10:00 PM	54.5	63.3	53.9
10:00 PM - 11:00 PM	55.4	67.0	54.1
11:00 PM - 12:00 AM	55.0	77.3	53.8
12:00 AM - 01:00 AM	55.2	67.1	54.2
01:00 AM - 02:00 AM	55.4	60.9	54.7
02:00 AM - 03:00 AM	55.8	67.5	54.6
03:00 AM - 04:00 AM	56.2	70.3	54.4
04:00 AM - 05:00 AM	57.0	70.6	54.6
05:00 AM - 06:00 AM	58.0	72.5	54.6
06:00 AM - 07:00 AM	55.9	72.1	54.6
07:00 AM - 08:00 AM	57.3	70.8	55.0
08:00 AM - 09:00 AM	55.7	69.1	54.4

Leq Average 24 hrs. (dB(A)) 56.0
Lmax (dB(A)) 82.9
L90 (dB(A)) 54.4
Ldn (dB(A)) 62.5
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Remark : The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

Thanita K.

Thanita Kulsuriwong
Scientist (4)

Approved by

Supot S.

Supot Salamteh
Section Head

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ภาคผนวก ค-3

คุณภาพน้ำทะเล



Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657198-1

Page 1 of 3

Sample Number	2315621-1						
Sampled Date	Feb 17, 2023 9:50 AM						
Sample Description	Sea Water						
Location	พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Cadmium	mg/L	0.0009	0.003	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Lead	mg/L	0.001	0.003	Not Detected	≤0.0085	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Mercury	mg/L	0.000003	0.00005	<0.00005	≤0.0001	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Zinc	mg/L	0.001	0.003	0.02	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Fecal Coliform	CFU/100mL	-	-	4	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9222 D	Bangkok
Total Coliform	MPN/100mL	-	-	4.5	≤1000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	-	40	60	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 C	Rayong

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Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657198-1

Page 2 of 3

Sample Number	2315621-1
Sampled Date	Feb 17, 2023 9:50 AM
Sample Description	Sea Water
Location	พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
Date Analysis Commenced	Feb 17, 2023
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	48200	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Cyanide as CN	mg/L	0.001	0.005	<0.005	≤0.007	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-CN (C, E)	Rayong
Depth	m	-	-	15.10	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen	mg/L	-	0.1	7.6	>4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-O (C)	Rayong
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C		-	-	8.1	7.0-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Phenol	mg/L	0.0005	0.001	Not Detected	≤0.03	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5530 D	Rayong
Salinity	ppt	-	0.1	29.7	Change from lower salinity not more than 10%	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Sulfide as H ₂ S	mg/L	-	0.01	0.01	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S ₂ (D)	Bangkok
Temperature	Degree C	-	-	29.3	Change from natural condition not more than 2 degree C	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong

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Approved by

N. Banchongkit

Narumon Banchongkit
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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657198-1

Page 3 of 3

Sample Number	2315621-1						
Sampled Date	Feb 17, 2023 9:50 AM						
Sample Description	Sea Water						
Location	พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	32150	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Solids Dried at 103-105 degree C	mg/L	-	5	32150	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 B	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency	m	-	-	1.5	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity	NTU	-	0.1	1.3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2130 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : This Analysis test report is reissued to supersede report No.2564621-1, Date Reported : Feb 24, 2023 due to revise analytical information.

Sampling By : Tanapat Sorat

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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P/O : GLOW-OM-22-103

Project Name :

Project Location: Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657199-1

Page 1 of 3

Sample Number	2315621-2						
Sampled Date	Feb 17, 2023 10:15 AM						
Sample Description	Sea Water						
Location	ทะเลใกล้บริเวณ Liquid Tank Farm						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Cadmium	mg/L	0.0009	0.003	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Lead	mg/L	0.001	0.003	<0.003	≤0.0085	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Mercury	mg/L	0.000003	0.00005	<0.00005	≤0.0001	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Zinc	mg/L	0.001	0.003	0.01	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Fecal Coliform	CFU/100mL	-	-	<1	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9222 D	Bangkok
Total Coliform	MPN/100mL	-	-	<1.8	≤1000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	-	40	66	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 C	Rayong

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657199-1

Page 2 of 3

Sample Number	2315621-2
Sampled Date	Feb 17, 2023 10:15 AM
Sample Description	Sea Water
Location	ทะเลใกล้บริเวณ Liquid Tank Farm
Date Analysis Commenced	Feb 17, 2023
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	48260	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Cyanide as CN	mg/L	0.001	0.005	Not Detected	≤0.007	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-CN (C, E)	Rayong
Depth	m	-	-	13.80	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen	mg/L	-	0.1	7.1	>4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-O (C)	Rayong
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C		-	-	8.1	7.0-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Phenol	mg/L	0.0005	0.001	Not Detected	≤0.03	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5530 D	Rayong
Salinity	ppt	-	0.1	29.8	Change from lower salinity not more than 10%	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Sulfide as H ₂ S	mg/L	-	0.01	<0.01	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S ₂ (D)	Bangkok
Temperature	Degree C	-	-	29.1	Change from natural condition not more than 2 degree C	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657199-1

Page 3 of 3

Sample Number	2315621-2						
Sampled Date	Feb 17, 2023 10:15 AM						
Sample Description	Sea Water						
Location	ทะเลใกล้บริเวณ Liquid Tank Farm						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	32800	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Solids Dried at 103-105 degree C	mg/L	-	5	32800	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 B	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency	m	-	-	1.6	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity	NTU	-	0.1	1.6	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2130 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : This Analysis test report is reissued to supersede report No.2564621-1, Date Reported : Feb 24, 2023 due to revise analytical information.

Sampling By : Tanapat Sorat

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Approved by

N. Banchoangkit

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P/O : GLOW-OM-22-103

Project Name :

Project Location: Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657200-1

Page 1 of 3

Sample Number	2315621-3						
Sampled Date	Feb 17, 2023 10:50 AM						
Sample Description	Sea Water						
Location	Port groove						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Cadmium	mg/L	0.0009	0.003	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Lead	mg/L	0.001	0.003	Not Detected	≤0.0085	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Mercury	mg/L	0.000003	0.00005	<0.00005	≤0.0001	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Zinc	mg/L	0.001	0.003	0.01	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Fecal Coliform	CFU/100mL	-	-	<1	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9222 D	Bangkok
Total Coliform	MPN/100mL	-	-	<1.8	≤1000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	-	40	54	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 C	Rayong

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657200-1

Page 2 of 3

Sample Number	2315621-3
Sampled Date	Feb 17, 2023 10:50 AM
Sample Description	Sea Water
Location	Port groove
Date Analysis Commenced	Feb 17, 2023
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	48300	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Cyanide as CN	mg/L	0.001	0.005	Not Detected	≤0.007	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-CN (C, E)	Rayong
Depth	m	-	-	16.90	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen	mg/L	-	0.1	6.2	>4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-O (C)	Rayong
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C		-	-	8.1	7.0-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Phenol	mg/L	0.0005	0.001	Not Detected	≤0.03	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5530 D	Rayong
Salinity	ppt	-	0.1	30.2	Change from lower salinity not more than 10%	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Sulfide as H ₂ S	mg/L	-	0.01	0.02	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S ₂ (D)	Bangkok
Temperature	Degree C	-	-	29.0	Change from natural condition not more than 2 degree C	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657200-1

Page 3 of 3

Sample Number	2315621-3
Sampled Date	Feb 17, 2023 10:50 AM
Sample Description	Sea Water
Location	Port groove
Date Analysis Commenced	Feb 17, 2023
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	32650	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Solids Dried at 103-105 degree C	mg/L	-	5	32650	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 B	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	<2	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency	m	-	-	1.6	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity	NTU	-	0.1	0.8	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2130 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : This Analysis test report is reissued to supersede report No.2564621-1, Date Reported : Feb 24, 2023 due to revise analytical information.

Sampling By : Tanapat Sorat

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

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P/O : GLOW-OM-22-103

Project Name :

Project Location: Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657201-1

Page 1 of 3

Sample Number	2315621-4						
Sampled Date	Feb 17, 2023 11:10 AM						
Sample Description	Sea Water						
Location	พื้นที่ทะเลที่ติดตั้งวันตกของเกาะสะเก็ด						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Metals Testing							
Cadmium	mg/L	0.0009	0.003	Not Detected	≤0.005	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Lead	mg/L	0.001	0.003	Not Detected	≤0.0085	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Mercury	mg/L	0.000003	0.00005	Not Detected	≤0.0001	In-house method : STM 05-007 based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E	Bangkok
Zinc	mg/L	0.001	0.003	0.01	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
Microbiological Testing							
Fecal Coliform	CFU/100mL	-	-	6	≤100	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9222 D	Bangkok
Total Coliform	MPN/100mL	-	-	7.8	≤1000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B	Bangkok
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	<2.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	-	40	48	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 C	Rayong

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657201-1

Page 2 of 3

Sample Number	2315621-4
Sampled Date	Feb 17, 2023 11:10 AM
Sample Description	Sea Water
Location	พื้นที่ทะเลที่ตักตัวอย่างของเกาะสะเก็ด
Date Analysis Commenced	Feb 17, 2023
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	47410	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Cyanide as CN	mg/L	0.001	0.005	Not Detected	≤0.007	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-CN (C, E)	Rayong
Depth	m	-	-	3.00	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen	mg/L	-	0.1	6.4	>4	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-O (C)	Rayong
Oil & Grease	mg/L	-	3	<3	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C		-	-	8.1	7.0-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Phenol	mg/L	0.0005	0.001	Not Detected	≤0.03	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5530 D	Rayong
Salinity	ppt	-	0.1	29.3	Change from lower salinity not more than 10%	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
Sulfide as H ₂ S	mg/L	-	0.01	0.01	≤0.01	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500-S ₂ (D)	Bangkok
Temperature	Degree C	-	-	29.5	Change from natural condition not more than 2 degree C	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2550 B	Rayong

Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O : GLOW-OM-22-103

Project Name :

Project Location : Sea dredging

Lot ID: 2315621

Date Received : Feb 17, 2023

Date Reported : May 20, 2023

Report Number : 2657201-1

Page 3 of 3

Sample Number	2315621-4						
Sampled Date	Feb 17, 2023 11:10 AM						
Sample Description	Sea Water						
Location	พื้นที่ทะเลที่ติดตะวันตกของเกาะเสม็ด						
Date Analysis Commenced	Feb 17, 2023						
Condition of Sample	Contained in two glass vials, one amber glass bottle, nine plastic bottles and one BOD bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	32500	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Solids Dried at 103-105 degree C	mg/L	-	5	32500	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 B	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	2	9	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Turbidity	NTU	-	0.1	3.0	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2130 B	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Note : This Analysis test report is reissued to supersede report No.2564621-1, Date Reported : Feb 24, 2023 due to revise analytical information.

Sampling By : Tanapat Sorat

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

N. Banchongkit

Narumon Banchongkit
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Analysis / Test Report

Client : Glow SPP 3 Co., Ltd.
11, I-5 Road, Map Ta Phut, Muang Rayong, Rayong Thailand 21150

P/O :

Project Name :

Project Location :

Lot ID: 2352655

Date Received : May 17, 2023

Date Reported : May 20, 2023

Report Number : 2651762-1

Page 1 of 1

Sample Number 2352655-1
Sampled Date May 17, 2023 10:20 AM
Sample Description Sea Water
Location พื้นที่ทะเลที่ติดตะวันตกของเกาะเสม็ด
Date Analysis Commenced May 17, 2023
Condition of Sample data sheet

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Transparency	m	-	-	1.2	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong

Guideline : Notification of the National Environmental Board, B.E.2564 : Coastal Water Quality Standard (Class 5)

Sampling By : Sansoen Khuiyoksui

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

N. Banchongkit

Narumon Banchongkit
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ภาคผนวก ค-4

นิเวศวิทยาทางทะเล



สถานีวิจัยประมงศรีราชา
101/12 หมู่ 9 ต. บางพระ
อ. ศรีราชา จ. ชลบุรี 20110
โทร./โทรสาร. (038) 311379

Client : Glow SPP 3 Co., Ltd.

Address : 11 I-5 Road, Map Ta Phut, Muang Rayong, Rayong, Thailand, 21150

Project Location : Sea dredging

รายงานผลการวิเคราะห์แพลงก์ตอนพืช

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Division Cyanophyta				
Class Cyanophyceae				
Order Nostocales				
Family Oscillatoriaceae				
1. <i>Oscillatoria</i> sp.	-	-	159,000	-
Family Nostocaceae				
2. <i>Pseudanabaena</i> sp.	40,000	427,000	147,000	33,000
3. <i>Richelia</i> sp.	13,000	76,000	-	-
Division Chlorophyta				
Class Chlorophyceae				
Order Chlorococcales				
Family Scenedesmaceae				
4. <i>Scenedesmus</i> sp.	-	-	11,000	-

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

(ต่อ)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Order Zygomatales				
Family Desmidiaceae				
5. <i>Xanthidium</i> sp.	-	-	23,000	-
Class Euglenophyceae				
Order Euglenales				
Family Euglenaceae				
6. <i>Euglena</i> sp.	27,000	-	-	-
7. <i>Phacus</i> sp.	265,000	198,000	46,000	-
Division Chromophyta				
Class Bacillariophyceae				
Order Biddulphiales				
Suborder Coscinodiscineae				
Family Thalassiosiraceae				
8. <i>Cyclotella</i> sp.	133,000	229,000	34,000	262,000
9. <i>Lauderia</i> sp.	133,000	-	-	-
10. <i>Planktoniella</i> sp.	-	-	-	22,000
11. <i>Skeletonema</i> sp.	318,000	915,000	2,712,000	1,199,000
12. <i>Thalassiosira</i> sp.	133,000	656,000	452,000	98,000
Family Melosiraceae				
13. <i>Melosira</i> sp.	15,635,000	13,161,000	4,543,000	567,000
14. <i>Paralia</i> sp.	-	122,000	45,000	65,000
Family Leptocylindraceae				
15. <i>Corethron</i> sp.	106,000	198,000	45,000	-
Family Coscinodiscaceae				
16. <i>Coscinodiscus</i> sp.	13,000	153,000	-	-
Family Asterolampraceae				
17. <i>Asterolampra</i> sp.	13,000	76,000	-	-

ตาราง ผลการวิเคราะห์เพลงก่ตอนพืช (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

(ต่อ)

สกุลเพลงก่ตอนพืช	ปริมาณเพลงก่ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
18. <i>Asteromphalus</i> sp. Family Hemidiscaceae	40,000	15,000	34,000	-
19. <i>Actinoptychus</i> sp. Suborder Biddulphiineae Family Hemiaulaceae	13,000	153,000	-	33,000
20. <i>Dactyliosolen</i> sp.	146,000	15,000	57,000	-
21. <i>Guinardia</i> sp.	649,000	488,000	305,000	99,000
22. <i>Proboscia</i> sp.	1,060,000	4,041,000	2,486,000	981,000
23. <i>Pseudosolenia</i> sp.	-	15,000	-	22,000
24. <i>Rhizosolenia</i> sp. Suborder Rhizosoleniineae Family Rhizosoleniaceae	239,000	366,000	237,000	197,000
25. <i>Cerataulina</i> sp.	1,935,000	1,373,000	102,000	131,000
26. <i>Climacodium</i> sp.	-	-	68,000	11,000
27. <i>Eucampia</i> sp.	2,385,000	732,000	881,000	185,000
28. <i>Hemiaulus</i> sp. Family Cymatosiraceae	3,764,000	8,037,000	11,379,000	9,984,000
29. <i>Cymatosira</i> sp. Family Chaetoceraceae	-	107,000	-	-
30. <i>Bacteriastrum</i> sp.	4,916,000	10,888,000	3,514,000	1,189,000
31. <i>Chaetoceros</i> sp. Family Lithodesmaceae	13,326,000	16,548,000	10,080,000	3,566,000
32. <i>Bellerocha</i> sp.	-	-	-	55,000
33. <i>Ditylum</i> sp.	53,000	46,000	45,000	-
34. <i>Helicotheca</i> sp. Family Eupodiscaceae	66,000	92,000	34,000	109,000
35. <i>Odontella</i> sp.	279,000	183,000	169,000	22,000

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

(ต่อ)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
36. <i>Triceratium</i> sp.	-	-	11,000	11,000
Order Bacillariales				
Suborder Fragilariineae				
Family Fragilariaceae				
37. <i>Synedra</i> sp.	-	46,000	-	-
Family Thalassionemataceae				
38. <i>Thalassionema</i> sp.	994,000	824,000	452,000	185,000
39. <i>Thalassiothrix</i> sp.	-	92,000	-	-
Family Licmophoriaceae				
40. <i>Licmophora</i> sp.	27,000	61,000	-	-
Suborder Bacillariineae				
Family Achnanthaceae				
41. <i>Achnanthes</i> sp.	27,000	137,000	-	-
Family Naviculaceae				
42. <i>Amphipleura</i> sp.	13,000	-	-	-
43. <i>Amphora</i> sp.	292,000	366,000	373,000	153,000
44. <i>Diploneis</i> sp.	13,000	15,000	23,000	66,000
45. <i>Haslea</i> sp.	-	46,000	34,000	-
46. <i>Navicula</i> sp.	53,000	168,000	-	-
47. <i>Pleurosigma</i> sp.	292,000	549,000	78,000	76,000
48. <i>Trachyneis</i> sp.	27,000	61,000	-	11,000
Family Naviculaceae				
49. <i>Bacillaria</i> sp.	-	92,000	-	763,000
50. <i>Cylindrotheca</i> sp.	-	-	45,000	75,000
51. <i>Nitzschia</i> sp.	186,000	260,000	34,000	77,000
52. <i>Pseudo-nitzschia</i> sp.	-	305,000	260,000	65,000
53. <i>Tryblionella</i> sp.	-	15,000	-	-

ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

(ต่อ)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Family Surirellaceae				
54. <i>Entomoneis</i> sp.	93,000	31,000	-	44,000
55. <i>Surirella</i> sp.	40,000	15,000	34,000	-
Class Dictyochophyceae				
Order Dictyochales				
Family Dictyochophyceae				
56. <i>Dictyocha</i> sp.	331,000	92,000	135,000	87,000
Class Dinophyceae				
Order Prorocentrales				
Family Prorocentraceae				
57. <i>Prorocentrum</i> sp.	13,000	-	101,000	11,000
Order Gonyaulacales				
Family Ceratiaceae				
58. <i>Ceratium</i> sp.	93,000	153,000	113,000	175,000
Family GoniDOMACEAE				
59. <i>Gonyaulax</i> sp.	13,000	15,000	34,000	-
Order Peridiniales				
Family Calciodinellaceae				
60. <i>Scrippsiella</i> sp.	27,000	-	-	-
Family Peridiniaceae				
61. <i>Peridinium</i> sp.	27,000	-	-	-
Family Protoperidiniaceae				
62. <i>Protoperidinium</i> sp.	93,000	107,000	226,000	121,000
สกุลแพลงก์ตอนพืช	45	48	40	36
ปริมาณแพลงก์ตอนพืช	48,354,000	62,760,000	39,561,000	20,750,000
ดัชนีความหลากหลายแพลงก์ตอนพืช	2.0849	2.2288	2.1496	1.9738
ดัชนีความสม่ำเสมอแพลงก์ตอนพืช	0.5477	0.5757	0.5827	0.5508


Sample Location :

1. สถานี 2315615-1 : พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
2. สถานี 2315615-2 : ทะเลใกล้บริเวณ Liquid Tank Farm
3. สถานี 2315615-3 : Port groove
4. สถานี 2315615-4 : พื้นที่ทะเลทิศตะวันตกของเกาะสะเก็ด

Condition of Sample : contained in one plastic bottle, sample containers comply to pretreatment-preservation standards (APHA, USEPA)



(นางสาวกนกวรรณ ขาวดอน)
ผู้วิเคราะห์



(นายอลงกต อินทรชาติ)
หัวหน้าสถานีวิจัยประมงศรีราชา



สถานีวิจัยประมงศรีราชา

101/12 หมู่ 9 ต. บางพระ

อ. ศรีราชา จ. ชลบุรี 20110

โทร./โทรสาร. (038) 311379

Client : Glow SPP 3 Co., Ltd.

Address : 11 I-5 Road, Map Ta Phut, Muang Rayong, Rayong, Thailand, 21150

Project Location : Sea dredging

รายงานผลการวิเคราะห์แพลงก์ตอนสัตว์

ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

สกุล/กลุ่มแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Phylum Protozoa				
Subphylum Plasmodroma				
Class Sarcodina				
Subclass Actinopoda				
Order Radiolarida				
Suborder Radiolarida				
1. <i>Globorotalia</i> sp.	-	15,000	-	-
Subphylum Ciliophora				
Class Ciliata				
Subclass Spirotricha				
Order Tintinnida				
Family Tintinnididae				
2. <i>Leprotintinnus</i> sp.	40,000	-	23,000	11,000
Family Codonellidae				
3. <i>Tintinnopsis</i> sp.	53,000	30,000	11,000	27,000

ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

(ต่อ)

สกุล/กลุ่มแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Family Codonellopsidae				
4. <i>Stenosemella</i> sp.	-	46,000	11,000	-
Family Coxiellidae				
5. <i>Helicostomella</i> sp.	40,000	-	-	-
Family Cyttarocylidae				
6. <i>Favella</i> sp.	-	-	-	11,000
Family Petalotrichidae				
7. <i>Metacylis</i> sp.	13,000	31,000	-	11,000
Family Rhabdonellidae				
8. <i>Protorhabdonella</i> sp.	-	15,000	-	-
Subclass Peritricha				
Order Peritrichida				
9. <i>Vorticella</i> sp.	-	107,000	11,000	-
Phylum Rotifera				
Class Monogononta				
Order Ploima				
Family Tricocercidae				
10. <i>Trichocerca</i> sp.	-	-	11,000	-
Phylum Annelida				
Class Polychaeta				
11. Polychaete larvae	27,000	-	-	-
Phylum Arthropoda				
Class Crustacea				
Subclass Copepoda				
12. Copepod nauplius	345,000	-	68,000	76,000
Order Calanoida				
13. Calanoid copepod	27,000	15,000	-	11,000

ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์ (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

(ต่อ)

สกุล/กลุ่มแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Order Cyclopoida 14. Cyclopoid copepod	-	31,000	-	-
Phylum Chordata Subphylum Urochordata Class Larvacea Family Oikopleuridae 15. <i>Oikopleura</i> sp.	13,000	15,000	-	-
สกุล/กลุ่มแพลงก์ตอนสัตว์	8	9	6	6
ปริมาณแพลงก์ตอนสัตว์	558,000	305,000	135,000	147,000
ดัชนีความหลากหลายแพลงก์ตอนสัตว์	1.3670	1.9382	1.4642	1.4283
ดัชนีความสม่ำเสมอแพลงก์ตอนสัตว์	0.6574	0.8821	0.8172	0.7971

Sample Location :

1. สถานี 2315615-1 : พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
2. สถานี 2315615-2 : ทะเลใกล้บริเวณ Liquid Tank Farm
3. สถานี 2315615-3 : Port groove
4. สถานี 2315615-4 : พื้นที่ทะเลทิศตะวันตกของเกาะสะเก็ด

Condition of Sample : contained in one plastic bottle, sample containers comply to pretreatment-preservation standards (APHA, USEPA)



(นางสาวกนกวรรณ ขาวค้อน)

ผู้วิเคราะห์



(นายอลงกต อินทรชาติ)

หัวหน้าสถานีวิจัยประมงศรีราชา



สถานีวิจัยประมงศรีราชา
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อ. ศรีราชา จ. ชลบุรี 20110
โทร./โทรสาร. (038) 311379

Client : Glow SPP 3 Co., Ltd.

Address : 11 I-5 Road, Map Ta Phut, Muang Rayong, Rayong, Thailand, 21150

Project Location : Sea dredging

รายงานผลการวิเคราะห์สัตว์หน้าดิน

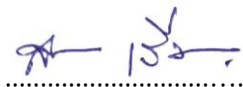
ตาราง ผลการวิเคราะห์สัตว์หน้าดิน (เก็บตัวอย่างวันที่ 17 กุมภาพันธ์ 2566)

สกุลสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)			
	2315615-1	2315615-2	2315615-3	2315615-4
Phylum Arthropoda Class Malacostraca Order Decapoda Family Diogenidae <i>Diogenes</i> sp. (ปูเสฉวน)	-	-	-	15
Phylum Mollusca Class Gastropoda Order Neogastropoda Family Nassariidae <i>Nassarius</i> sp. (หอยปากกระเจาด)	-	-	-	15
สกุลสัตว์หน้าดิน	-	-	-	2
ปริมาณสัตว์หน้าดิน	-	-	-	30
ค่าดัชนีความหลากหลายสัตว์หน้าดิน	-	-	-	0.6931

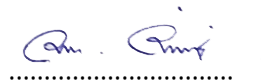
Sample Location :

1. สถานี 2315615-1 : พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
2. สถานี 2315615-2 : ทะเลใกล้บริเวณ Liquid Tank Farm
3. สถานี 2315615-3 : Port groove
4. สถานี 2315615-4 : พื้นที่ทะเลทิศตะวันตกของเกาะสะเก็ด

Condition of Sample : contained in one plastic zip bag



(นายสาโรจน์ เร่มดำริห์)
ผู้วิเคราะห์



(นายอลงกต อินทรชาติ)
หัวหน้าสถานีวิจัยประมงศรีราชา