

ภาคผนวก ค

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ใบรับรองผลการวิเคราะห์

ภาคผนวก ค-1

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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 :** GLOW-OM-22-103

**Project Name :**

**Project Location :**

**Lot ID: 23109039**

Date Received : Oct 30, 2023

Date Reported : Nov 03, 2023

Report Number: 2779487-1

Page 1 of 1

<b>Sample Description</b>	Air Quality				
<b>Location</b>	Thai Tank Farm (GPS 47P 0731944, 1401162)				
<b>Date Analysis Commenced</b>	Oct 31, 2023				
<b>Condition of Sample</b>	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)
23109039-1	Oct 24 - Oct 25, 2023	0.039	0.018	756	30
23109039-2	Oct 25 - Oct 26, 2023	0.034	0.019	756	30
23109039-3	Oct 26 - Oct 27, 2023	0.010	0.006	756	30
<b>Guideline</b>		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 :** Chatchai Sukpia

### 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 :** GLOW-OM-22-103

**Project Name :**

**Project Location :**

**Lot ID: 23109039**

Date Received : Oct 30, 2023

Date Reported : Nov 03, 2023

Report Number: 2779487-2

Page 1 of 1

<b>Sample Description</b>	Air Quality				
<b>Location</b>	Map Ta Phut Port (North of Project) (GPS 47P 0731876, 1401633)				
<b>Date Analysis Commenced</b>	Oct 31, 2023				
<b>Condition of Sample</b>	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)
23109039-4	Oct 24 - Oct 25, 2023	0.023	0.015	756	30
23109039-5	Oct 25 - Oct 26, 2023	0.040	0.021	756	30
23109039-6	Oct 26 - Oct 27, 2023	0.029	0.018	756	30
<b>Guideline</b>		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 :** Chatchai Sukpia

### Remark :

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

Approved by

*Thanita K.*

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** : GLOW-OM-22-103

**Project Name** :

**Project Location** :

**Lot ID: 23109037**

Date Received :Oct 30, 2023

Date Reported :Nov 02, 2023

Report Number :2779486-1

Page 1 of 2

**Sample Number** 23109037-1 to 3  
**Parameter** Wind Speed / Wind Direction  
**Location** Thai Tank Farm (GPS 47P 0731944, 1401162)  
**Sampling Date** Oct 24 - Oct 27, 2023  
**Sampling by** Chatchai Sukpia

Time	Oct 24 - Oct 25, 2023			Oct 25 - Oct 26, 2023			Oct 26 - Oct 27, 2023			-			-			-			-		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		-	-		-	-		-	-		-	-	
10:00 AM - 11:00 AM	2.6	62.0	ENE	1.4	113.0	ESE	3.2	204.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM - 12:00 PM	4.9	59.0	ENE	2.1	295.0	WNW	1.0	250.0	WSW	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM - 01:00 PM	2.2	155.0	SSE	2.7	194.0	SSW	2.8	107.0	ESE	-	-	-	-	-	-	-	-	-	-	-	-
01:00 PM - 02:00 PM	2.6	205.0	SSW	4.0	172.0	S	1.9	186.0	S	-	-	-	-	-	-	-	-	-	-	-	-
02:00 PM - 03:00 PM	5.3	261.0	W	5.3	170.0	S	2.2	181.0	S	-	-	-	-	-	-	-	-	-	-	-	-
03:00 PM - 04:00 PM	0.0	-	-	1.5	158.0	SSE	3.3	200.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
04:00 PM - 05:00 PM	2.2	203.0	SSW	2.6	168.0	SSE	2.0	206.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
05:00 PM - 06:00 PM	1.5	203.0	SSW	2.3	173.0	S	3.8	214.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
06:00 PM - 07:00 PM	1.8	136.0	SE	5.1	178.0	S	0.4	211.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
07:00 PM - 08:00 PM	0.8	133.0	SE	6.3	178.0	S	2.8	192.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 PM - 09:00 PM	1.7	129.0	SE	1.1	177.0	S	1.8	191.0	S	-	-	-	-	-	-	-	-	-	-	-	-
09:00 PM - 10:00 PM	1.0	276.0	W	0.1	-	-	2.1	193.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM - 11:00 PM	1.3	135.0	SE	0.3	357.0	N	2.1	178.0	S	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM - 12:00 AM	0.0	-	-	0.0	-	-	2.4	164.0	SSE	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 01:00 AM	1.9	14.0	NNE	0.0	-	-	1.2	191.0	S	-	-	-	-	-	-	-	-	-	-	-	-
01:00 AM - 02:00 AM	2.3	22.0	NNE	0.0	-	-	1.0	208.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
02:00 AM - 03:00 AM	1.0	73.0	ENE	0.2	-	-	1.7	195.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
03:00 AM - 04:00 AM	1.0	23.0	NNE	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04:00 AM - 05:00 AM	5.0	71.0	ENE	1.2	112.0	ESE	0.4	337.0	NNW	-	-	-	-	-	-	-	-	-	-	-	-
05:00 AM - 06:00 AM	2.9	72.0	ENE	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06:00 AM - 07:00 AM	0.0	-	-	2.1	22.0	NNE	3.4	204.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
07:00 AM - 08:00 AM	0.7	160.0	SSE	0.0	-	-	1.9	127.0	SE	-	-	-	-	-	-	-	-	-	-	-	-
08:00 AM - 09:00 AM	0.1	-	-	3.5	125.0	SE	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09:00 AM - 10:00 AM	0.0	-	-	2.8	167.0	SSE	2.0	125.0	SE	-	-	-	-	-	-	-	-	-	-	-	-

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** : GLOW-OM-22-103

**Project Name** :

**Project Location** :

**Lot ID: 23109037**

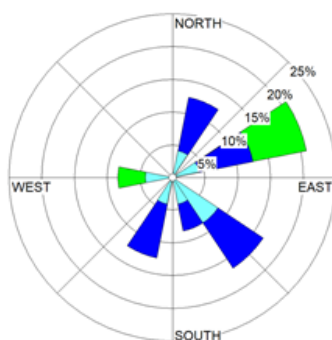
Date Received :Oct 30, 2023

Date Reported :Nov 02, 2023

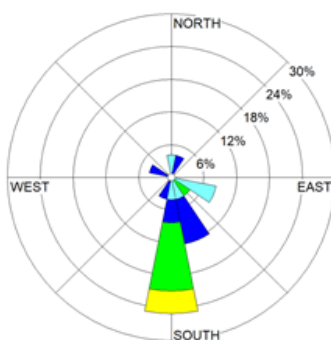
Report Number :2779486-1

Page 2 of 2

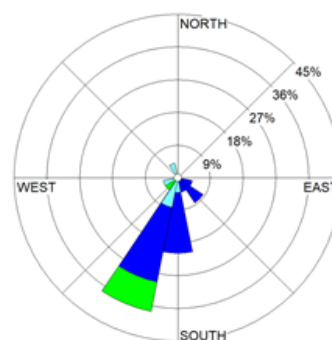
### Wind Rose



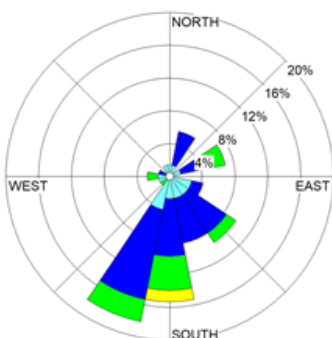
Date : Oct 24-25, 2023



Date : Oct 25-26, 2023



Date : Oct 26-27, 2023



Date : Oct 24-27, 2023

WS(m/s)		%
	≥ 10.0	0.00
	8.0-10.0	0.00
	5.5-8.0	1.39
	3.3-5.5	13.89
	1.7-3.3	38.89
	0.3-1.7	23.61
	Calms	22.22

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Sarayuth Jittrantont  
Assistant General Manager



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**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** :

**Lot ID: 23109037**

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number : 2779486-1

Page 1 of 2

**Sample Number** 23109037-4 to 6  
**Parameter** Wind Speed / Wind Direction  
**Location** Map Ta Phut Port (North of Project) (GPS 47P 0731876, 1401633)  
**Sampling Date** Oct 24 - Oct 27, 2023  
**Sampling by** Chatchai Sukpia

Time	Oct 24 - Oct 25, 2023			Oct 25 - Oct 26, 2023			Oct 26 - Oct 27, 2023			-			-			-			-		
	WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		WS (m/s)	WD (deg)		-	-		-	-		-	-		-	-	
11:00 AM - 12:00 PM	1.2	12.0	NNE	1.8	64.0	ENE	1.2	209.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM - 01:00 PM	2.2	21.0	NNE	0.5	255.0	WSW	0.5	231.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
01:00 PM - 02:00 PM	3.7	225.0	SW	1.4	190.0	S	2.1	183.0	S	-	-	-	-	-	-	-	-	-	-	-	-
02:00 PM - 03:00 PM	0.7	190.0	S	1.1	177.0	S	1.5	206.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
03:00 PM - 04:00 PM	2.0	142.0	SE	1.4	184.0	S	1.7	227.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
04:00 PM - 05:00 PM	1.0	195.0	SSW	1.7	175.0	S	1.5	229.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
05:00 PM - 06:00 PM	0.5	178.0	S	0.9	195.0	SSW	1.3	230.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
06:00 PM - 07:00 PM	0.3	234.0	SW	0.9	195.0	SSW	0.7	184.0	S	-	-	-	-	-	-	-	-	-	-	-	-
07:00 PM - 08:00 PM	0.9	209.0	SSW	0.6	0.0	N	0.7	215.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 PM - 09:00 PM	0.4	199.0	SSW	0.2	-	-	0.3	206.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
09:00 PM - 10:00 PM	0.0	-	-	1.0	67.0	ENE	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM - 11:00 PM	0.3	338.0	NNW	0.4	60.0	ENE	0.5	196.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM - 12:00 AM	0.0	-	-	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 01:00 AM	0.6	23.0	NNE	0.0	-	-	0.4	198.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
01:00 AM - 02:00 AM	0.5	15.0	NNE	0.4	355.0	N	0.5	170.0	S	-	-	-	-	-	-	-	-	-	-	-	-
02:00 AM - 03:00 AM	0.1	-	-	0.3	338.0	NNW	1.4	193.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
03:00 AM - 04:00 AM	0.2	-	-	0.0	-	-	0.5	222.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
04:00 AM - 05:00 AM	0.5	203.0	SSW	0.4	162.0	SSE	0.4	316.0	NW	-	-	-	-	-	-	-	-	-	-	-	-
05:00 AM - 06:00 AM	0.0	-	-	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06:00 AM - 07:00 AM	0.5	322.0	NW	0.5	280.0	W	0.4	207.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
07:00 AM - 08:00 AM	0.4	173.0	S	0.0	-	-	0.3	226.0	SW	-	-	-	-	-	-	-	-	-	-	-	-
08:00 AM - 09:00 AM	0.2	-	-	1.0	213.0	SSW	0.5	205.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
09:00 AM - 10:00 AM	0.3	161.0	SSE	1.4	189.0	S	0.5	199.0	SSW	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM - 11:00 AM	1.0	230.0	SW	0.8	221.0	SW	0.8	220.0	SW	-	-	-	-	-	-	-	-	-	-	-	-

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** : GLOW-OM-22-103

**Project Name** :

**Project Location** :

**Lot ID: 23109037**

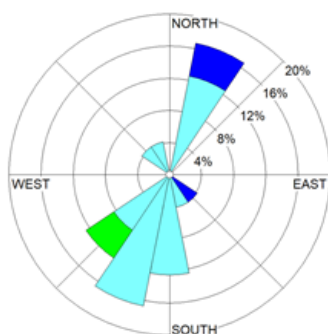
Date Received :Oct 30, 2023

Date Reported :Nov 02, 2023

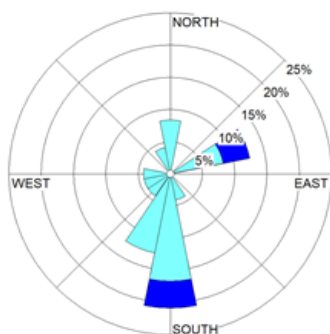
Report Number :2779486-1

Page 2 of 2

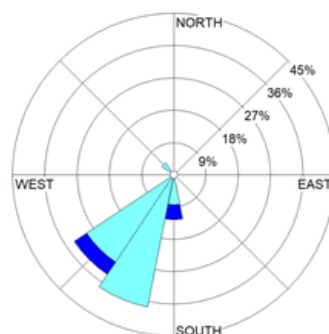
### Wind Rose



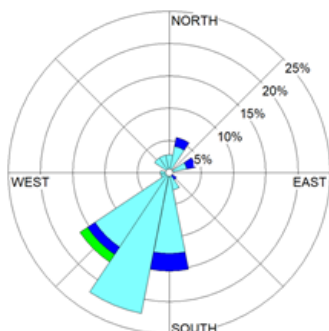
Date : Oct 24-25, 2023



Date : Oct 25-26, 2023



Date : Oct 26-27, 2023



Date : Oct 24-27, 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	8.33
	0.3-1.7	69.44
	Calms	20.83

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Approved by

Sarayuth Jittranont  
Assistant General Manager



ภาคผนวก ค-2

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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 : GLOW-OM-22-103

Project Name :

Project Location :

**Lot ID: 23109041**

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number: 2823775-1

Page 1 of 1

Sample Number 23109041-1  
Parameter Noise (Leq 24 hrs.)  
Location Thai Tank Farm (GPS 47P 0731944, 1401162)  
Measurement Date Oct 24 - Oct 25, 2023  
Measurement by Chatchai Sukpia  
Sound Level meter Serial No. 900071

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.4	83.5	59.7
11:00 AM - 12:00 PM	60.9	68.9	60.1
12:00 PM - 01:00 PM	60.5	78.4	59.8
01:00 PM - 02:00 PM	60.9	73.9	59.8
02:00 PM - 03:00 PM	61.1	71.4	60.0
03:00 PM - 04:00 PM	61.1	75.5	59.8
04:00 PM - 05:00 PM	60.7	75.0	59.8
05:00 PM - 06:00 PM	60.3	79.5	59.7
06:00 PM - 07:00 PM	60.3	73.3	59.9
07:00 PM - 08:00 PM	60.3	62.7	59.9
08:00 PM - 09:00 PM	60.1	61.8	59.8
09:00 PM - 10:00 PM	59.9	61.8	59.7
10:00 PM - 11:00 PM	60.1	63.4	59.8
11:00 PM - 12:00 AM	60.0	64.0	59.6
12:00 AM - 01:00 AM	60.3	65.1	58.6
01:00 AM - 02:00 AM	60.7	64.5	59.4
02:00 AM - 03:00 AM	60.2	63.4	59.2
03:00 AM - 04:00 AM	60.4	64.2	59.3
04:00 AM - 05:00 AM	60.3	63.5	59.2
05:00 AM - 06:00 AM	61.5	71.4	60.4
06:00 AM - 07:00 AM	61.2	74.4	60.2
07:00 AM - 08:00 AM	61.4	68.5	60.3
08:00 AM - 09:00 AM	61.5	78.6	60.2
09:00 AM - 10:00 AM	60.8	73.1	59.4

Leq Average 24 hrs. (dB(A)) 60.7  
Lmax (dB(A)) 83.5  
L90 (dB(A)) 59.8  
Ldn (dB(A)) 67.0  
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 :** GLOW-OM-22-103

**Project Name :**

**Project Location :**

**Lot ID: 23109041**

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number: 2823776-1

Page 1 of 1

**Sample Number** 23109041-2  
**Parameter** Noise (Leq 24 hrs.)  
**Location** Thai Tank Farm (GPS 47P 0731944, 1401162)  
**Measurement Date** Oct 25 - Oct 26, 2023  
**Measurement by** Chatchai Sukpia  
**Sound Level meter** Serial No. 900071

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.5	73.5	60.6
11:00 AM - 12:00 PM	61.4	68.8	60.7
12:00 PM - 01:00 PM	62.0	82.5	61.0
01:00 PM - 02:00 PM	61.7	79.7	60.9
02:00 PM - 03:00 PM	61.5	72.7	60.9
03:00 PM - 04:00 PM	61.2	72.8	60.7
04:00 PM - 05:00 PM	61.7	80.3	60.8
05:00 PM - 06:00 PM	61.6	74.7	60.8
06:00 PM - 07:00 PM	61.8	70.9	61.2
07:00 PM - 08:00 PM	61.0	64.4	60.7
08:00 PM - 09:00 PM	61.3	66.0	60.5
09:00 PM - 10:00 PM	60.7	61.9	60.5
10:00 PM - 11:00 PM	60.7	62.2	60.4
11:00 PM - 12:00 AM	60.7	61.8	60.4
12:00 AM - 01:00 AM	60.7	62.4	60.4
01:00 AM - 02:00 AM	60.7	64.0	60.4
02:00 AM - 03:00 AM	60.7	63.9	60.5
03:00 AM - 04:00 AM	60.8	63.5	60.5
04:00 AM - 05:00 AM	60.8	63.1	60.5
05:00 AM - 06:00 AM	61.8	70.8	61.0
06:00 AM - 07:00 AM	61.8	74.0	60.6
07:00 AM - 08:00 AM	61.5	76.2	60.6
08:00 AM - 09:00 AM	60.9	82.3	60.3
09:00 AM - 10:00 AM	62.4	72.1	60.7

Leq Average 24 hrs. (dB(A)) 61.3  
Lmax (dB(A)) 82.5  
L90 (dB(A)) 60.6  
Ldn (dB(A)) 67.5  
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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## 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 :** GLOW-OM-22-103

**Project Name :**

**Project Location :**

**Lot ID: 23109041**

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number: 2823777-1

Page 1 of 1

**Sample Number** 23109041-3  
**Parameter** Noise (Leq 24 hrs.)  
**Location** Thai Tank Farm (GPS 47P 0731944, 1401162)  
**Measurement Date** Oct 26 - Oct 27, 2023  
**Measurement by** Chatchai Sukpia  
**Sound Level meter** Serial No. 900071

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
10:00 AM - 11:00 AM	61.9	69.4	60.6
11:00 AM - 12:00 PM	61.5	80.6	60.7
12:00 PM - 01:00 PM	61.7	70.5	61.0
01:00 PM - 02:00 PM	61.4	76.9	60.6
02:00 PM - 03:00 PM	62.0	78.4	60.9
03:00 PM - 04:00 PM	61.6	72.1	60.7
04:00 PM - 05:00 PM	62.8	72.6	61.9
05:00 PM - 06:00 PM	63.6	72.5	62.8
06:00 PM - 07:00 PM	63.8	71.8	63.2
07:00 PM - 08:00 PM	63.4	69.2	62.9
08:00 PM - 09:00 PM	63.4	67.4	62.9
09:00 PM - 10:00 PM	64.2	71.6	63.5
10:00 PM - 11:00 PM	64.2	72.1	63.7
11:00 PM - 12:00 AM	63.8	67.6	63.3
12:00 AM - 01:00 AM	63.8	72.4	63.3
01:00 AM - 02:00 AM	63.9	67.1	63.4
02:00 AM - 03:00 AM	63.9	67.5	63.4
03:00 AM - 04:00 AM	64.3	68.1	63.7
04:00 AM - 05:00 AM	64.3	67.1	63.9
05:00 AM - 06:00 AM	64.6	67.3	64.1
06:00 AM - 07:00 AM	64.8	73.0	64.3
07:00 AM - 08:00 AM	64.8	69.1	64.4
08:00 AM - 09:00 AM	64.7	80.2	63.9
09:00 AM - 10:00 AM	63.7	67.3	63.2

Leq Average 24 hrs. (dB(A)) 63.6  
Lmax (dB(A)) 80.6  
L90 (dB(A)) 63.2  
Ldn (dB(A)) 70.5  
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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## 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 :** GLOW-OM-22-103

**Project Name :**

**Project Location :**

**Lot ID: 23109041**

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number: 2823778-1

Page 1 of 1

**Sample Number** 23109041-4  
**Parameter** Noise (Leq 24 hrs.)  
**Location** Map Ta Phut Port (North of Project) (GPS 47P 0731896, 1401612)  
**Measurement Date** Oct 24 - Oct 25, 2023  
**Measurement by** Chatchai Sukpia  
**Sound Level meter** Serial No. 709746

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	54.6	77.2	52.7
12:00 PM - 01:00 PM	52.9	63.9	52.0
01:00 PM - 02:00 PM	54.6	90.8	52.0
02:00 PM - 03:00 PM	54.7	75.9	51.0
03:00 PM - 04:00 PM	52.2	65.9	50.3
04:00 PM - 05:00 PM	52.1	69.4	50.7
05:00 PM - 06:00 PM	52.7	76.6	50.8
06:00 PM - 07:00 PM	50.5	64.4	48.9
07:00 PM - 08:00 PM	51.2	71.7	48.6
08:00 PM - 09:00 PM	49.9	60.6	48.7
09:00 PM - 10:00 PM	48.9	58.7	47.9
10:00 PM - 11:00 PM	48.8	57.9	47.5
11:00 PM - 12:00 AM	48.2	58.0	47.3
12:00 AM - 01:00 AM	51.2	61.6	48.5
01:00 AM - 02:00 AM	50.1	58.6	48.8
02:00 AM - 03:00 AM	49.9	57.7	48.8
03:00 AM - 04:00 AM	52.0	76.7	48.9
04:00 AM - 05:00 AM	51.7	70.9	49.0
05:00 AM - 06:00 AM	54.2	72.8	49.0
06:00 AM - 07:00 AM	55.3	84.2	48.5
07:00 AM - 08:00 AM	54.6	80.0	49.6
08:00 AM - 09:00 AM	53.2	75.5	51.6
09:00 AM - 10:00 AM	53.4	69.3	51.2
10:00 AM - 11:00 AM	52.3	71.7	50.7

Leq Average 24 hrs. (dB(A)) 52.5  
Lmax (dB(A)) 90.8  
L90 (dB(A)) 49.0  
Ldn (dB(A)) 58.4  
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 : GLOW-OM-22-103

Project Name :

Project Location :

Lot ID: 23109041

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number: 2823779-1

Page 1 of 1

Sample Number 23109041-5  
Parameter Noise (Leq 24 hrs.)  
Location Map Ta Phut Port (North of Project) (GPS 47P 0731896, 1401612)  
Measurement Date Oct 25 - Oct 26, 2023  
Measurement by Chatchai Sukpia  
Sound Level meter Serial No. 709746

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	53.1	79.4	51.0
12:00 PM - 01:00 PM	52.7	75.6	50.9
01:00 PM - 02:00 PM	53.0	69.6	51.8
02:00 PM - 03:00 PM	53.1	83.8	51.0
03:00 PM - 04:00 PM	52.8	68.2	51.0
04:00 PM - 05:00 PM	52.6	68.2	51.2
05:00 PM - 06:00 PM	53.3	70.6	51.1
06:00 PM - 07:00 PM	51.6	68.1	49.9
07:00 PM - 08:00 PM	52.0	78.5	48.5
08:00 PM - 09:00 PM	51.5	67.7	48.8
09:00 PM - 10:00 PM	50.2	66.3	49.3
10:00 PM - 11:00 PM	48.8	63.6	47.6
11:00 PM - 12:00 AM	48.4	61.3	47.4
12:00 AM - 01:00 AM	47.7	58.6	46.9
01:00 AM - 02:00 AM	47.7	58.6	46.8
02:00 AM - 03:00 AM	48.1	58.2	47.1
03:00 AM - 04:00 AM	50.8	68.4	47.6
04:00 AM - 05:00 AM	50.5	72.0	47.3
05:00 AM - 06:00 AM	52.1	69.4	47.9
06:00 AM - 07:00 AM	53.7	83.1	48.3
07:00 AM - 08:00 AM	52.8	68.2	48.5
08:00 AM - 09:00 AM	61.3	80.5	51.8
09:00 AM - 10:00 AM	53.3	70.4	51.6
10:00 AM - 11:00 AM	52.3	65.5	51.2

Leq Average 24 hrs. (dB(A)) 53.0  
Lmax (dB(A)) 83.8  
L90 (dB(A)) 48.8  
Ldn (dB(A)) 57.5  
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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## 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 : GLOW-OM-22-103

Project Name :

Project Location :

**Lot ID: 23109041**

Date Received : Oct 30, 2023

Date Reported : Nov 02, 2023

Report Number: 2823780-1

Page 1 of 1

**Sample Number** 23109041-6  
**Parameter** Noise (Leq 24 hrs.)  
**Location** Map Ta Phut Port (North of Project) (GPS 47P 0731896, 1401612)  
**Measurement Date** Oct 26 - Oct 27, 2023  
**Measurement by** Chatchai Sukpia  
**Sound Level meter** Serial No. 709746

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
11:00 AM - 12:00 PM	53.7	78.2	51.3
12:00 PM - 01:00 PM	52.5	65.1	51.1
01:00 PM - 02:00 PM	60.5	76.6	51.8
02:00 PM - 03:00 PM	60.2	76.9	51.2
03:00 PM - 04:00 PM	53.3	75.0	50.4
04:00 PM - 05:00 PM	55.3	71.6	51.7
05:00 PM - 06:00 PM	56.2	75.7	54.7
06:00 PM - 07:00 PM	54.8	64.4	54.2
07:00 PM - 08:00 PM	55.1	69.0	54.3
08:00 PM - 09:00 PM	55.0	65.7	54.3
09:00 PM - 10:00 PM	55.0	70.0	54.3
10:00 PM - 11:00 PM	55.0	60.5	54.4
11:00 PM - 12:00 AM	54.9	59.6	54.3
12:00 AM - 01:00 AM	54.7	59.7	54.1
01:00 AM - 02:00 AM	55.0	59.7	54.4
02:00 AM - 03:00 AM	54.8	67.3	54.2
03:00 AM - 04:00 AM	55.3	70.8	54.1
04:00 AM - 05:00 AM	56.7	76.5	54.4
05:00 AM - 06:00 AM	56.1	73.0	54.5
06:00 AM - 07:00 AM	56.7	76.5	54.5
07:00 AM - 08:00 AM	58.9	75.5	55.0
08:00 AM - 09:00 AM	59.0	77.1	55.5
09:00 AM - 10:00 AM	56.4	73.1	55.2
10:00 AM - 11:00 AM	58.7	76.8	55.2

Leq Average 24 hrs. (dB(A)) 56.5  
Lmax (dB(A)) 78.2  
L90 (dB(A)) 54.3  
Ldn (dB(A)) 62.2  
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.0009

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

**Client :** Glow SPP 3 Co., Ltd.

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

**P/O :**

**Project Name :**

**Project Location :**

Page 1 of 12

<b>Sample Number</b>	2385159-1						
<b>Sampled Date</b>	Jul 26, 2023 11:46 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.						
<b>Date Analysis Commenced</b>	Jul 26, 2023						
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
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	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
<b>Microbiological Testing</b>							
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
<b>Water Testing</b>							
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, part 4500 - O G	Rayong
COD *	mg/L	-	40	<40	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

Siriluk P.

Siriluk Puengpang  
Section Head



## 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 :**

**TESTING**

**No.0009**

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 2 of 12

<b>Sample Number</b>	2385159-1
<b>Sampled Date</b>	Jul 26, 2023 11:46 AM
<b>Sample Description</b>	Sea Water
<b>Location</b>	พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
<b>Date Analysis Commenced</b>	Jul 26, 2023
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C *	micromhos/cm	-	0.5	48250	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	-	-	4.50	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	7.8	≥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
Petroleum Hydrocarbon *	ug/L	0.015	0.05	0.14	≤5	Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984) , Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984)	Bangkok
pH at 25 degree C *		-	-	8.3	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

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Siriluk P.

Siriluk Puengpang  
Section Head



## Analysis / Test Report

TESTING

No.0009

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: 2385159

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 3 of 12

Sample Number	2385159-1
Sampled Date	Jul 26, 2023 11:46 AM
Sample Description	Sea Water
Location	พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
Date Analysis Commenced	Jul 26, 2023
Condition of Sample	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Sulfide as H <sub>2</sub> 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 <sub>2</sub> (D)	Bangkok
Temperature *	Degree C	-	-	31.1	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
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	35100	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	4	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency *	m	-	-	2.2	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity *	NTU	-	0.1	1.7	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)

**Sampling By :** Nattawut Athomprommarat , Samart Khumphlee

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
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Siriluk P.

Siriluk Puengpang  
Section Head



## Analysis / Test Report

TESTING

No.0009

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: 2385159

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 4 of 12

Sample Number	2385159-2						
Sampled Date	Jul 26, 2023 11:30 AM						
Sample Description	Sea Water						
Location	ทะเลใกล้บริเวณ Liquid Tank Farm						
Date Analysis Commenced	Jul 26, 2023						
Condition of Sample	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
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	Not Detected	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
<b>Microbiological Testing</b>							
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
<b>Water Testing</b>							
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, part 4500 - O G	Rayong
COD *	mg/L	-	40	<40	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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Siriluk P.

Siriluk Puengpang  
Section Head



## 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 :**

**TESTING**

**No.0009**

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 5 of 12

<b>Sample Number</b>	2385159-2
<b>Sampled Date</b>	Jul 26, 2023 11:30 AM
<b>Sample Description</b>	Sea Water
<b>Location</b>	ทะเลใกล้บริเวณ Liquid Tank Farm
<b>Date Analysis Commenced</b>	Jul 26, 2023
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C *	micromhos/cm	-	0.5	48490	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	-	-	4.10	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	7.7	≥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
Petroleum Hydrocarbon *	ug/L	0.015	0.05	0.20	≤5	Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984) , Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984)	Bangkok
pH at 25 degree C *		-	-	8.2	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	30.0	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

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Siriluk P.

Siriluk Puengpang  
Section Head



## Analysis / Test Report

TESTING

No.0009

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

**Client :** Glow SPP 3 Co., Ltd.

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

**P/O :**

**Project Name :**

**Project Location :**

Page 6 of 12

<b>Sample Number</b>	2385159-2						
<b>Sampled Date</b>	Jul 26, 2023 11:30 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	ทะเลใกล้บริเวณ Liquid Tank Farm						
<b>Date Analysis Commenced</b>	Jul 26, 2023						
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Sulfide as H <sub>2</sub> 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 <sub>2</sub> (D)	Bangkok
Temperature *	Degree C	-	-	30.4	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
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	33100	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	35000	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	-	-	2.0	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity *	NTU	-	0.1	1.8	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)

**Sampling By :** Nattawut Athomprommarat , Samart Khumphlee

**Remark :**

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

Siriluk Puengpang  
Section Head



## Analysis / Test Report

TESTING

No.0009

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

**Client :** Glow SPP 3 Co., Ltd.

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

**P/O :**

**Project Name :**

**Project Location:**

Page 7 of 12

<b>Sample Number</b>	2385159-3						
<b>Sampled Date</b>	Jul 26, 2023 11:13 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	Port groove						
<b>Date Analysis Commenced</b>	Jul 26, 2023						
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
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	0.007	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
<b>Microbiological Testing</b>							
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
<b>Water Testing</b>							
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, part 4500 - O G	Rayong
COD *	mg/L	-	40	<40	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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Siriluk P.

Siriluk Puengpang  
Section Head





## 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 :**

**TESTING**

**No.0009**

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 8 of 12

<b>Sample Number</b>	2385159-3
<b>Sampled Date</b>	Jul 26, 2023 11:13 AM
<b>Sample Description</b>	Sea Water
<b>Location</b>	Port groove
<b>Date Analysis Commenced</b>	Jul 26, 2023
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C *	micromhos/cm	-	0.5	48360	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	-	-	5.00	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	7.3	≥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
Petroleum Hydrocarbon *	ug/L	0.015	0.05	<0.05	≤5	Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984) , Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984)	Bangkok
pH at 25 degree C *		-	-	8.2	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

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*Siriluk P.*

Siriluk Puengpang  
Section Head

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## Analysis / Test Report

TESTING

No.0009

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

**Client :** Glow SPP 3 Co., Ltd.

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

**P/O :**

**Project Name :**

**Project Location :**

Page 9 of 12

<b>Sample Number</b>	2385159-3						
<b>Sampled Date</b>	Jul 26, 2023 11:13 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	Port groove						
<b>Date Analysis Commenced</b>	Jul 26, 2023						
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Sulfide as H <sub>2</sub> 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 <sub>2</sub> (D)	Bangkok
Temperature *	Degree C	-	-	31.0	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
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	33200	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	35850	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	4	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	2.7	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)

**Sampling By :** Nattawut Athomprommarat , Samart Khumphlee

**Remark :**

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

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Siriluk P.

Siriluk Puengpang  
Section Head



## 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 :**

**TESTING**

**No.0009**

**Lot ID: 23109033**

Date Received : Oct 18, 2023

Date Reported : Oct 26, 2023

Report Number : 2779483-1

Page 9 of 12

<b>Sample Number</b>	23109033-3						
<b>Sampled Date</b>	Oct 18, 2023 10:27 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	Port groove						
<b>Date Analysis Commenced</b>	Oct 18, 2023						
<b>Condition of Sample</b>	Contained in one amber glass bottle, one BOD bottle, eight plastic bottles and two glass vials, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	36600	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	37700	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	n/a	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency *	m	-	-	2.1	>1.6	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)

**Sampling By :** Sansoen Khuiyoksui

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

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*Chanatt L.*

Chanattagarn Imchom  
Section Head

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## Analysis / Test Report

TESTING

No.0009

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

**Client :** Glow SPP 3 Co., Ltd.

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

**P/O :**

**Project Name :**

**Project Location :**

Page 10 of 12

<b>Sample Number</b>	2385159-4						
<b>Sampled Date</b>	Jul 26, 2023 10:28 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	พื้นที่ทะเลที่ติดตะวันตกของเกาะเสม็ด						
<b>Date Analysis Commenced</b>	Jul 26, 2023						
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						
Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Metals Testing</b>							
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	<0.003	≤0.05	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 3125 B, 3030 F	Bangkok
<b>Microbiological Testing</b>							
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
<b>Water Testing</b>							
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, part 4500 - O G	Rayong
COD *	mg/L	-	40	<40	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

Siriluk P.

Siriluk Puengpang  
Section Head



## 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 :**

**TESTING**

**No.0009**

**Lot ID: 2385159**

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 11 of 12

<b>Sample Number</b>	2385159-4
<b>Sampled Date</b>	Jul 26, 2023 10:28 AM
<b>Sample Description</b>	Sea Water
<b>Location</b>	พื้นที่ทะเลที่ติดตะวันตกของเกาะเสม็ด
<b>Date Analysis Commenced</b>	Jul 26, 2023
<b>Condition of Sample</b>	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C *	micromhos/cm	-	0.5	48210	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	-	-	1.90	No Standard	Water Level Meter	Bangkok
Dissolved Oxygen *	mg/L	-	0.1	7.4	≥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
Petroleum Hydrocarbon *	ug/L	0.015	0.05	0.05	≤5	Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984) , Pre-Concentration, Fluorescence Spectrophotometric Method (IOC/UNESCO, 1984)	Bangkok
pH at 25 degree C *		-	-	8.2	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

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Approved by

Siriluk P.

Siriluk Puengpang  
Section Head



## Analysis / Test Report

TESTING

No.0009

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: 2385159

Date Received : Jul 26, 2023

Date Reported : Aug 10, 2023

Report Number : 2724192-1

Page 12 of 12

Sample Number	2385159-4
Sampled Date	Jul 26, 2023 10:28 AM
Sample Description	Sea Water
Location	พื้นที่ทะเลที่ติดตะวันตกของเกาะเสม็ด
Date Analysis Commenced	Jul 26, 2023
Condition of Sample	Contained in two glass vials, two amber glass bottles, one BOD bottle and nine plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Sulfide as H <sub>2</sub> 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 <sub>2</sub> (D)	Bangkok
Temperature *	Degree C	-	-	27.8	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
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	33800	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	35200	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	55	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency *	m	-	-	1.1	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity *	NTU	-	0.1	4.6	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)

**Sampling By :** Nattawut Athomprommarat , Samart Khumphlee

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

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Approved by

Siriluk P.

Siriluk Puengpang  
Section Head



## 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 :**

**TESTING**

**No.0009**

**Lot ID: 23109033**

Date Received : Oct 18, 2023

Date Reported : Oct 26, 2023

Report Number : 2779483-1

Page 12 of 12

<b>Sample Number</b>	23109033-4						
<b>Sampled Date</b>	Oct 18, 2023 11:00 AM						
<b>Sample Description</b>	Sea Water						
<b>Location</b>	พื้นที่ทะเลที่ติดตะวันตกของเกาะเสม็ด						
<b>Date Analysis Commenced</b>	Oct 18, 2023						
<b>Condition of Sample</b>	Contained in one amber glass bottle, one BOD bottle, eight plastic bottles and two glass vials, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Total Dissolved Solids Dried at 180 degree C *	mg/L	-	5	36100	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	37100	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	n/a	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong
Transparency *	m	-	-	1.5	>0.9	Visual Method	Rayong
Turbidity *	NTU	-	0.1	1.8	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)

**Sampling By :** Sansoen Khuiyoksui

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

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Approved by

*Chanatt L.*

Chanattagarn Imchom  
Section Head



## 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 :** Glow SPP 3

**Lot ID: 2377868**

Date Received : Jul 26, 2023

Date Reported : Aug 02, 2023

Report Number : 2705668-1

Page 1 of 2

<b>Sample Number</b>	2377868-1
<b>Sampled Date</b>	Jul 26, 2023 10:27 AM
<b>Sample Description</b>	Sea Water
<b>Location</b>	บริเวณ Station 2000 m
<b>Date Analysis Commenced</b>	Jul 26, 2023
<b>Condition of Sample</b>	Contained in one BOD bottle and one plastic bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
Conductivity at 25 Degree C	micromhos/cm	-	0.5	47660	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong
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
pH at 25 degree C		-	-	8.2	7.0-8.5	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Salinity	ppt	-	0.1	29.2	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
Temperature	Degree C	-	-	30.5	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
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	31000	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Transparency	m	-	-	1.4	Change from Natural condition not more than 10% of the lowest transparency	Visual Method	Rayong
Turbidity	NTU	-	0.1	5.9	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)

**Sampling By :** Surawit Narapong

Remark :

Approved by

*N. Banchongkit*

Narumon Banchongkit  
Supervisor

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ภาคผนวก ค-4

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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 18 ตุลาคม 2566)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Division Cyanophyta</b>				
<b>Class Cyanophyceae</b>				
<b>Order Nostocales</b>				
<b>Family Oscillatoriaceae</b>				
1. <i>Oscillatoria</i> sp.	128,000	18,000	40,000	69,000
<b>Division Chromophyta</b>				
<b>Class Bacillariophyceae</b>				
<b>Order Biddulphiales</b>				
<b>Suborder Coscinodiscineae</b>				
<b>Family Thalassiosiraceae</b>				
2. <i>Cyclotella</i> sp.	32,000	9,000	10,000	-
3. <i>Lauderia</i> sp.	214,000	-	40,000	236,000
4. <i>Thalassiosira</i> sp.	86,000	9,000	50,000	30,000
<b>Family Leptocyliodraceae</b>				
5. <i>Corethron</i> sp.	-	-	20,000	-

**ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช** (เก็บตัวอย่างวันที่ 18 ตุลาคม 2566)

(ต่อ)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Family Coscinodiscaceae</b>				
6. <i>Coscinodiscus</i> sp.	-	-	-	10,000
<b>Family Asterolampraceae</b>				
7. <i>Asteromphalus</i> sp.	11,000	-	10,000	-
<b>Suborder Rhizosoleniineae</b>				
<b>Family Rhizosoleniaceae</b>				
8. <i>Dactyliosolen</i> sp.	428,000	18,000	198,000	158,000
9. <i>Guinardia</i> sp.	32,000	-	40,000	-
10. <i>Proboscia</i> sp.	21,000	18,000	158,000	69,000
11. <i>Rhizosolenia</i> sp.	107,000	27,000	-	10,000
<b>Suborder Biddulphiineae</b>				
<b>Family Hemiaulaceae</b>				
12. <i>Cerataulina</i> sp.	54,000	72,000	-	394,000
13. <i>Hemiaulus</i> sp.	54,000	-	-	-
<b>Family Chaetoceraceae</b>				
14. <i>Bacteriastrum</i> sp.	5,885,000	609,000	2,871,000	6,304,000
15. <i>Chaetoceros</i> sp.	38,520,000	5,907,000	30,096,000	59,297,000
<b>Order Bacillariales</b>				
<b>Suborder Fragilariineae</b>				
<b>Family Thalassionemataceae</b>				
16. <i>Thalassionema</i> sp.	482,000	215,000	475,000	167,000
<b>Suborder Bacillariineae</b>				
<b>Family Naviculaceae</b>				
17. <i>Amphora</i> sp.	-	9,000	20,000	-
18. <i>Navicula</i> sp.	21,000	-	-	-
19. <i>Pleurosigma</i> sp.	11,000	9,000	158,000	-

**ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช (เก็บตัวอย่างวันที่ 18 ตุลาคม 2566)**

(ต่อ)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Family Bacillariaceae</b>				
20. <i>Cylindrotheca</i> sp.	-	9,000	-	-
21. <i>Nitzschia</i> sp.	-	9,000	30,000	-
22. <i>Pseudo-nitzschia</i> sp.	514,000	358,000	178,000	512,000
<b>Class Dinophyceae</b>				
<b>Order Prorocentrales</b>				
<b>Family Prorocentraceae</b>				
23. <i>Prorocentrum</i> sp.	-	9,000	20,000	79,000
<b>Order Dinophysiales</b>				
<b>Family Dinophysiaceae</b>				
24. <i>Dinophysis</i> sp.	-	-	20,000	39,000
<b>Order Gymnodiniales</b>				
<b>Family Gymnodiniaceae</b>				
25. <i>Gyrodinium</i> sp.	-	-	-	10,000
<b>Order Noctilucales</b>				
<b>Family Noctilucaceae</b>				
26. <i>Noctiluca</i> sp.	21,000	-	-	49,000
<b>Order Gonyaulacales</b>				
<b>Family Ceratiaceae</b>				
27. <i>Ceratium</i> sp.	43,000	-	30,000	49,000
<b>Family Gonyaulacaceae</b>				
28. <i>Gonyaulax</i> sp.	96,000	-	79,000	-
<b>Order Peridinales</b>				
<b>Family Calciodinellaceae</b>				
29. <i>Scrippsiella</i> sp.	11,000	-	-	-
<b>Family Peridiniaceae</b>				
30. <i>Peridinium</i> sp.	-	9,000	20,000	-

**ตาราง ผลการวิเคราะห์แพลงก์ตอนพืช** (เก็บตัวอย่างวันที่ 18 ตุลาคม 2566)

(ต่อ)

สกุลแพลงก์ตอนพืช	ปริมาณแพลงก์ตอนพืช (หน่วยต่อลูกบาศก์เมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Family Protoperidiniaceae</b> 31. <i>Protoperidinium</i> sp.	32,000	9,000	69,000	99,000
สกุลแพลงก์ตอนพืช	22	18	22	18
ปริมาณแพลงก์ตอนพืช	46,803,000	7,323,000	34,632,000	67,581,000
ดัชนีความหลากหลายแพลงก์ตอนพืช	0.6928	0.8158	0.5907	0.5054
ดัชนีความสม่ำเสมอแพลงก์ตอนพืช	0.2241	0.2822	0.1911	0.1749

**Sample Location :**

1. สถานี 23109035-1 : พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
2. สถานี 23109035-2 : ทะเลใกล้บริเวณ Liquid Tank Farm
3. สถานี 23109035-3 : Port groove
4. สถานี 23109035-4 : พื้นที่ทะเลทิศตะวันตกของเกาะสะเก็ด

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



(นางสาวกนกวรรณ ขาวด่อน)

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 18 ตุลาคม 2566)

สกุล/กลุ่มแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Phylum Protozoa</b>				
<b>Subphylum Ciliophora</b>				
<b>Class Ciliata</b>				
<b>Subclass Spirotricha</b>				
<b>Order Tintinnida</b>				
<b>Family Tintinnididae</b>				
1. <i>Leprotintinnus</i> sp.	21,000	18,000	10,000	-
<b>Family Codonellidae</b>				
2. <i>Tintinnopsis</i> sp.	21,000	27,000	10,000	20,000
<b>Subclass Peritricha</b>				
<b>Order Peritrichida</b>				
3. <i>Vorticella</i> sp.	-	-	-	20,000

**ตาราง ผลการวิเคราะห์แพลงก์ตอนสัตว์** (เก็บตัวอย่างวันที่ 18 ตุลาคม 2566)

(ต่อ)

สกุล/กลุ่มแพลงก์ตอนสัตว์	ปริมาณแพลงก์ตอนสัตว์ (หน่วยต่อลูกบาศก์เมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Phylum Arthropoda</b>				
<b>Class Crustacea</b>				
<b>Subclass Copepoda</b>				
4. Copepod nauplius	32,000	18,000	20,000	69,000
<b>Order Harpactioida</b>				
5. Harpactioid copepod	-	-	10,000	-
สกุล/กลุ่มแพลงก์ตอนสัตว์	3	3	4	3
ปริมาณแพลงก์ตอนสัตว์	74,000	63,000	50,000	109,000
ดัชนีความหลากหลายแพลงก์ตอนสัตว์	1.0774	1.0790	1.3322	0.9117
ดัชนีความสม่ำเสมอแพลงก์ตอนสัตว์	0.9807	0.9821	0.9610	0.8299

**Sample Location :**

1. สถานี 23109035-1 : พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
2. สถานี 23109035-2 : ทะเลใกล้บริเวณ Liquid Tank Farm
3. สถานี 23109035-3 : Port groove
4. สถานี 23109035-4 : พื้นที่ทะเลทิศตะวันตกของเกาะสะเก็ด

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



(นางสาวกนกวรรณ ขาวด่อน)

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

รายงานผลการวิเคราะห์สัตว์หน้าดิน

ตาราง ผลการวิเคราะห์สัตว์หน้าดิน (เก็บตัวอย่างวันที่ 18 ตุลาคม 2566)

สกุลสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Phylum Annelida</b>				
<b>Class Polychaeta</b>				
<b>Order Orbiniida</b>				
<b>Family Orbiniidae</b>				
<i>Scoloplos</i> sp. (ไส้เดือนทะเล)	15	-	-	-
<b>Order Phyllodocida</b>				
<b>Family Nephtyidae</b>				
<i>Nephtys</i> sp. (ไส้เดือนทะเล)	-	-	-	30
<b>Order Spionida</b>				
<b>Family Spionidae</b>				
<i>Prionospio</i> sp. (ไส้เดือนทะเล)	-	-	-	15
<b>Family Magelonidae</b>				
<i>Magelona</i> sp. (ไส้เดือนทะเล)	-	-	-	15
<b>Order Terebellida</b>				
<b>Family Cirratulidae</b>				
<i>Monticellina</i> sp. (ไส้เดือนทะเล)	-	-	45	-

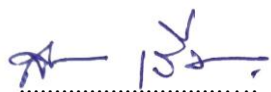
ตาราง ผลการวิเคราะห์สัตว์หน้าดิน (เก็บตัวอย่างวันที่ 18 ตุลาคม 2566) (ต่อ)

สกุลสัตว์หน้าดิน	ปริมาณสัตว์หน้าดิน (ตัว/ตารางเมตร)			
	23109035-1	23109035-2	23109035-3	23109035-4
<b>Phylum Arthropoda</b> <b>Class Malacostraca</b> <b>Order Decapoda</b> <b>Family Diogenidae</b> <i>Diogenes</i> sp. (ปูเสฉวน)	-	-	-	60
<b>Phylum Mollusca</b> <b>Class Bivalvia</b> <b>Order Mytilida</b> <b>Family Mytilidae</b> <i>Modiolus</i> sp. (หอยกะพง)	15	-	-	-
สกุลสัตว์หน้าดิน	2	-	1	4
ปริมาณสัตว์หน้าดิน	30	-	45	120
ค่าดัชนีความหลากหลายสัตว์หน้าดิน	0.6931	-	0.0000	1.2130

**Sample Location :**

1. สถานี 23109035-1 : พื้นที่ทะเลใกล้บริเวณท่าเทียบเรือ กนอ.
2. สถานี 23109035-2 : ทะเลใกล้บริเวณ Liquid Tank Farm
3. สถานี 23109035-3 : Port groove
4. สถานี 23109035-4 : พื้นที่ทะเลทิศตะวันตกของเกาะสะเก็ด

**Condition of Sample :** contained in one plastic zip bag



(นายสาโรจน์ เริ่มคำริห์)

ผู้วิเคราะห์



(นายอลงกต อินทรชาติ)

หัวหน้าสถานีวิจัยประมงศรีราชา