

ภาคผนวก ค

ใบรับรองผลการตรวจวัดและวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ค-1

ผลการตรวจวัดระดับเสียงโดยทั่วไป

ใบรายงานผลการวิเคราะห์

ชื่อลูกค้า	: บริษัท ที เอส เอ็น ไวร์ จำกัด	วันที่รับตัวอย่าง	: 2-5 พฤษภาคม 2566
ที่อยู่	: 199 หมู่ 11 นิคมอุตสาหกรรมเหมราชระยอง ตำบลหนองละลอก อำเภอบ้านค่าย จังหวัดระยอง 21120	วันที่วิเคราะห์	: 2-5 พฤษภาคม 2566
ข้อมูลผู้ติดต่อ	: โทรศัพท์ : 0 3892 4178 Ext.101 อีเมล : palida_i@tsnwires.co.th	เลขที่ใบรายงานผล	: 2023-U035429
สถานที่ตรวจวัด	: ร่มรั้วโครงการด้านทิศเหนือ (N1)	เลขที่งาน	: 2022-009195
ประเภทการตรวจวัด	: ระดับเสียงโดยทั่วไป	หมายเลขปฏิบัติการ	: T23AI525-0001 - T23AI525-0003
วันที่ตรวจวัด	: 2-5 พฤษภาคม 2566		
เวลาที่ตรวจวัด	: *		
อุปกรณ์ตรวจวัด	: มาตรระดับเสียง		
ผู้ตรวจวัด	: นายชนินทร์ พานแก้ว		

เวลา *	ผลการวิเคราะห์ (เดซิเบลเอ)		
	ร่มรั้วโครงการด้านทิศเหนือ (N1)		
	2-3 พฤษภาคม 2566		
	T23AI525-0001		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
13:00-14:00 น.	58.4	81.6	54.4
14:00-15:00 น.	59.5	87.7	54.5
15:00-16:00 น.	56.9	80.4	53.0
16:00-17:00 น.	55.8	73.3	54.1
17:00-18:00 น.	55.9	78.1	53.0
18:00-19:00 น.	56.5	77.4	51.2
19:00-20:00 น.	55.0	65.0	52.9
20:00-21:00 น.	55.5	65.9	54.5
21:00-22:00 น.	55.9	66.4	54.6
22:00-23:00 น.	55.7	66.9	53.6
23:00-00:00 น.	55.8	68.1	53.4
00:00-01:00 น.	55.4	63.9	54.0
01:00-02:00 น.	56.8	66.8	54.2
02:00-03:00 น.	62.0	76.8	60.2
03:00-04:00 น.	59.6	69.8	55.7
04:00-05:00 น.	55.1	66.8	51.8
05:00-06:00 น.	55.6	80.8	53.5
06:00-07:00 น.	55.5	72.9	52.2
07:00-08:00 น.	55.5	73.9	52.6
08:00-09:00 น.	58.7	81.1	53.0
09:00-10:00 น.	58.2	81.9	52.4
10:00-11:00 น.	57.3	79.0	53.0
11:00-12:00 น.	58.8	79.1	53.4
12:00-13:00 น.	58.5	79.4	55.1
L _{Aeq} 24 hours		57.4	



เวลา *	ผลการวิเคราะห์ (เดซิเบลเอ)		
	ริมรั้วโครงการด้านทิศเหนือ (N1)		
	3-4 พฤษภาคม 2566		
	T23AI525-0002		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
13:00-14:00 น.	61.5	90.0	54.3
14:00-15:00 น.	65.0	94.1	53.2
15:00-16:00 น.	66.3	97.6	60.0
16:00-17:00 น.	61.1	89.2	54.0
17:00-18:00 น.	55.1	72.0	52.2
18:00-19:00 น.	63.3	88.1	55.0
19:00-20:00 น.	55.1	76.8	53.6
20:00-21:00 น.	53.5	68.2	52.2
21:00-22:00 น.	55.2	60.5	54.3
22:00-23:00 น.	55.7	66.1	55.0
23:00-00:00 น.	57.1	75.1	55.2
00:00-01:00 น.	56.5	67.2	55.3
01:00-02:00 น.	56.9	64.8	55.3
02:00-03:00 น.	58.5	66.4	56.2
03:00-04:00 น.	56.8	72.8	52.8
04:00-05:00 น.	56.1	66.3	55.6
05:00-06:00 น.	57.0	70.5	55.3
06:00-07:00 น.	61.7	85.0	53.9
07:00-08:00 น.	56.9	69.8	55.3
08:00-09:00 น.	60.2	81.8	53.6
09:00-10:00 น.	60.1	89.3	56.1
10:00-11:00 น.	59.2	87.1	54.7
11:00-12:00 น.	61.3	84.7	55.0
12:00-13:00 น.	56.1	68.1	55.1
L _{Aeq} 24 hours		60.0	

เวลา *	ผลการวิเคราะห์ (เดซิเบลเอ)		
	ริมรั้วโครงการด้านทิศเหนือ (N1)		
	4-5 พฤษภาคม 2566		
	T23A1525-0003		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
13:00-14:00 น.	57.6	80.7	54.1
14:00-15:00 น.	57.7	75.4	55.2
15:00-16:00 น.	58.5	79.7	54.6
16:00-17:00 น.	57.1	71.5	54.7
17:00-18:00 น.	56.7	74.1	54.2
18:00-19:00 น.	57.6	83.1	54.7
19:00-20:00 น.	55.6	69.9	54.2
20:00-21:00 น.	56.2	69.1	54.0
21:00-22:00 น.	57.9	75.2	55.8
22:00-23:00 น.	57.7	74.9	55.0
23:00-00:00 น.	57.7	69.5	55.9
00:00-01:00 น.	56.9	69.3	55.0
01:00-02:00 น.	57.1	70.4	55.7
02:00-03:00 น.	58.0	79.9	56.3
03:00-04:00 น.	56.6	71.6	55.1
04:00-05:00 น.	55.9	71.9	54.4
05:00-06:00 น.	62.0	80.9	54.2
06:00-07:00 น.	56.5	70.8	54.4
07:00-08:00 น.	56.4	71.8	55.2
08:00-09:00 น.	57.7	77.5	54.7
09:00-10:00 น.	57.8	82.3	54.1
10:00-11:00 น.	57.0	75.6	54.2
11:00-12:00 น.	58.7	80.9	54.4
12:00-13:00 น.	55.8	73.1	53.7
L _{Aeq} 24 hours		57.6	



(นายศิลา บุรจงใจรักษ์)
ผู้ควบคุมห้องปฏิบัติการ

12 พฤษภาคม 2566

ภาคผนวก ค-2

ผลการตรวจวัดและวิเคราะห์คุณภาพน้ำทิ้ง



Analysis / Test Report

TESTING
No.0042

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 234652

Date Received : Jan 16, 2023

Date Reported : Jan 23, 2023

Report Number : 2542683-1

Page 1 of 1

Sample Number	234652-1
Sampled Date	Jan 16, 2023 1:55 PM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรด่านหน้า)
Date Analysis Commenced	Jan 16, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	13.0	≤500	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	25	37	≤750	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	5	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	7.4	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	28.8	≤45	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	208	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	<5	≤200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornawat ทะเบียนเลขที่ ว-323-จ-9468

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.

Technical Management

N. Banongkit

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 234652

Date Received : Jan 16, 2023

Date Reported : Jan 23, 2023

Report Number : 2542683-2

Page 1 of 1

Sample Number	234652-1
Sampled Date	Jan 16, 2023 1:55 PM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรตดำนหน้า)
Date Analysis Commenced	Jan 17, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, 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	473	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By :

Remark :

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N. Banchongkit

Narumon Banchongkit
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Analysis / Test Report

TESTING

No.0042

Lot ID: 234727

Date Received : Feb 13, 2023

Date Reported : Feb 27, 2023

Report Number : 2579458-1

Client : TSN Wires Co., Ltd.

199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Page 1 of 1

Sample Number	234727-1						
Sampled Date	Feb 13, 2023 1:45 PM						
Sample Description	Wastewater						
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรดด้านหน้า)						
Date Analysis Commenced	Feb 13, 2023						
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)						

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	73.3	≤500	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	25	157	≤750	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
pH at 25 degree C *		-	-	7.6	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	29.5	≤45	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	420	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	29	≤200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Note : This Analysis test report is reissued to supersede report No.2542689-1, Date Reported : Feb 20, 2023 due to revise analytical information.

Sampling By : Pathompong Kornawat ทะเบียนเลขที่ ว-323-จ-9468

Remark :

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- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

N. Banongkit

Narumon Banchongkit
Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 234727

Date Received : Feb 13, 2023

Date Reported : Feb 27, 2023

Report Number : 2579458-2

Page 1 of 1

Sample Number	234727-1
Sampled Date	Feb 13, 2023 1:45 PM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจอดรลดน้ำ)
Date Analysis Commenced	Feb 14, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, 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	1403	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Note : This Analysis test report is reissued to supersede report No.2542689-2, Date Reported : Feb 20, 2023 due to revise analytical information.

Sampling By : Pathompong Kornawat

Remark :

- LOD : Limit of Detection
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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O :

Project Name :

Project Location:

Lot ID: 2319699

Date Received : Feb 27, 2023

Date Reported : Mar 03, 2023

Report Number : 2576841-1

Page 1 of 1

Sample Number 2319699-1
Sampled Date Feb 24, 2023 9:00 AM
Sample Description Wastewater
Location บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจอดรดน้ำหน้า)
Date Analysis Commenced Feb 25, 2023
Condition of Sample Contained in one amber glass bottle, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
Oil & Grease	mg/L	-	3	4	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornawat ทะเบียนเลขที่ ว-323-จ-9468

Remark :

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

Technical Management

N. Banchongkit

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

TESTING

No.0042

Lot ID: 2319198

Date Received : Mar 10, 2023

Date Reported : Mar 17, 2023

Report Number : 2573208-1

Client : TSN Wires Co., Ltd.

199 Moo 11, T.Nonglalom, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Page 1 of 1

Sample Number	2319198-1
Sampled Date	Mar 10, 2023 3:25 PM
Sample Description	Wastewater
Location	บ่อกักน้ำทิ้ง (Effluent Pond) (โรงจวดรดด้านหน้า)
Date Analysis Commenced	Mar 10, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	80.8	≤500	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	25	190	≤750	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	8	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	7.9	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	30.4	≤45	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	480	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	23	≤200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornawat ทะเบียนเลขที่ ว-323-จ-9468

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
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- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

Technical Management

N. Banchongkit

Narumon Banchongkit
Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 2319198

Date Received : Mar 10, 2023

Date Reported : Mar 17, 2023

Report Number : 2573208-2

Page 1 of 1

Sample Number	2319198-1
Sampled Date	Mar 10, 2023 3:25 PM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรลดน้ำหน้า)
Date Analysis Commenced	Mar 11, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, 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	1744	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornasawat

Remark :

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

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Approved by

Narumon Banchongkit
Supervisor

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Analysis / Test Report

TESTING

No.0042

Lot ID: 2338094

Date Received : Apr 10, 2023

Date Reported : Apr 19, 2023

Report Number : 2613474-1

Client : TSN Wires Co., Ltd.

199 Moo 11, T.Nonglalom, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Page 1 of 1

Sample Number	2338094-1
Sampled Date	Apr 10, 2023 11:27 AM
Sample Description	Wastewater
Location	บ่อกักน้ำทิ้ง (Effluent Pond) (โรงจวดรด่านหน้า)
Date Analysis Commenced	Apr 10, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	44.8	≤500	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	25	109	≤750	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	7	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	7.8	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	31.2	≤45	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	340	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	13	≤200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Paramet Sattayakun ทะเบียนเลขที่ ว-323-จ-9476

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.

Technical Management

N. Banchongkit

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 2338094

Date Received : Apr 10, 2023

Date Reported : Apr 19, 2023

Report Number : 2613474-2

Page 1 of 1

Sample Number	2338094-1
Sampled Date	Apr 10, 2023 11:27 AM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรลด่านหน้า)
Date Analysis Commenced	Apr 11, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, 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	1238	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Paramet Sattayakun

Remark :

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

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Approved by

N. Banchongkit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

TESTING

No.0042

Lot ID: 2350919

Date Received : May 10, 2023

Date Reported : May 17, 2023

Report Number : 2642168-1

Client : TSN Wires Co., Ltd.

199 Moo 11, T.Nonglalom, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Page 1 of 1

Sample Number	2350919-1
Sampled Date	May 10, 2023 9:19 AM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรลดน้ำหน้า)
Date Analysis Commenced	May 10, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	35.8	≤500	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5210 B	Rayong
COD	mg/L	1.5	25	134	≤750	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	8	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	7.7	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	30.8	≤45	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	464	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	18	≤200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornawat ทะเบียนเลขที่ ว-323-จ-9468

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.

Technical Management

N. Banongkit

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 2350919

Date Received : May 10, 2023

Date Reported : May 17, 2023

Report Number : 2642168-3

Page 1 of 1

Sample Number	2350919-1
Sampled Date	May 10, 2023 9:19 AM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรลดานหน้า)
Date Analysis Commenced	May 11, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, 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	1438	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornawat

Remark :

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N. Banchongkit

Narumon Banchongkit
Supervisor

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Analysis / Test Report

TESTING

No.0042

Lot ID: 2366314

Date Received : Jun 09, 2023

Date Reported : Jun 16, 2023

Report Number : 2676568-1

Client : TSN Wires Co., Ltd.

199 Moo 11, T.Nonglalom, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Page 1 of 1

Sample Number	2366314-1
Sampled Date	Jun 09, 2023 11:00 AM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรลดน้ำหน้า)
Date Analysis Commenced	Jun 09, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
Water Testing							
BOD (5 days at 20 Degree C)	mg/L	-	2.0	46.4	≤500	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	1.5	25	134	≤750	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5220 D	Rayong
Oil & Grease *	mg/L	-	3	10	≤10	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B	Rayong
pH at 25 degree C *		-	-	7.5	5.5-9.0	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H (B)	Rayong
Temperature *	Degree C	-	-	30.1	≤45	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	328	≤3000	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	20	≤200	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2540 D	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornasawat ทะเบียนเลขที่ ว-323-จ-9468

Remark :

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

N. Banongkit

Narumon Banchongkit
Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

D. Changchon

Dej Changchon
Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

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Analysis / Test Report

Client : TSN Wires Co., Ltd.
199 Moo 11, T.Nonglalo, A.Bankhai, Rayong Thailand 21120

P/O : 9200005514

Project Name :

Project Location :

Lot ID: 2366314

Date Received : Jun 09, 2023

Date Reported : Jun 16, 2023

Report Number : 2676568-2

Page 1 of 1

Sample Number	2366314-1
Sampled Date	Jun 09, 2023 11:00 AM
Sample Description	Wastewater
Location	บ่อพักน้ำทิ้ง (Effluent Pond) (โรงจวดรลด่านหน้า)
Date Analysis Commenced	Jun 12, 2023
Condition of Sample	Contained in one amber glass bottle and three plastic bottles, 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	1382	No Standard	Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 2510 B	Rayong

Guideline : Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

Sampling By : Pathompong Kornawat

Remark :

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Supervisor

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ภาคผนวก ค-3

ผลการตรวจวัดด้านอาชีวอนามัยและความปลอดภัย

ความร้อนในสถานประกอบการ

ANALYSIS REPORT

CUSTOMER NAME : TSN WIRES CO.,LTD
ADDRESS : 199 MOO.11 HEMARAJ RAYONG INDUSTRIAL NONG LALOK BAN KHAI RAYONG 21120
CONTACT INFORMATION : TEL : 0 3892 4178 Ext.101 e-mail : palida_i@tsnwires.co.th
MEASURING PLACE : TSN WIRES CO.,LTD
MEASURING TYPE : WORKPLACE (HEAT STRESS) **RECEIVED DATE** : FEBRUARY 10, 2023
MEASURING DATE : FEBRUARY 10, 2023 **ANALYTICAL DATE** : FEBRUARY 10, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U011043
MEASURING EQUIPMENT : WET BULB GLOBE TEMPERATURE **WORK NO.** : 2022-009195
MEASURED BY : MISS WANNEE SAYBOONRUAN **ANALYSIS NO.** : T23AC452-0001 - T23AC452-0002

ANALYSIS NO.	MEASURING SITE	DURATION TIME*	RESULT (DEGREE CELSIUS)				
			NWB	DB	GT	WBGT	WBGT _{AVG}
T23AC452-0001	พื้นที่เครื่องอบ ชุดที่ 1 (H1) (คุณธัญพิสิษฐ์ ชุ่มหอม)	10:05-12:05 HOUR	26.5	32.4	33.5	28.6	28.6
T23AC452-0002	พื้นที่อ่างขุบสังกะสี ชุดที่ 1 (H3) (คุณเจนภพ มีสิทธิ์ดี)	10:00-12:00 HOUR	26.3	31.0	32.6	28.2	28.2

Nattawat

(MR NATTAWAT DANGSAWAT)
LABORATORY SUPERVISOR

FEBRUARY 16, 2023



ใบรายงานผลการวิเคราะห์

ชื่อลูกค้า : บริษัท ที เอส เอ็น ไวร์ จำกัด
ที่อยู่ : 199 หมู่ 11 นิคมอุตสาหกรรมเหมราชระยอง ตำบลหนองละลอก อำเภอบ้านค่าย จังหวัดระยอง 21120
ข้อมูลผู้ติดต่อ : โทรศัพท์ : 0 3892 4178 Ext.101 อีเมล : palida_i@tsnwires.co.th
สถานที่ตรวจวัด : บริษัท ที เอส เอ็น ไวร์ จำกัด
ชนิดตัวอย่าง : ความร้อนภายในสถานประกอบการ
วันที่ตรวจวัด : 2 พฤษภาคม 2566
เวลาที่ตรวจวัด : *
วิธีตรวจวัด : WET BULB GLOBE TEMPERATURE
ผู้ตรวจวัด : นางสาวสุกัสนรา เขื่อนเงิน

วันที่รับตัวอย่าง : 2 พฤษภาคม 2566
วันที่วิเคราะห์ : 2 พฤษภาคม 2566
เลขที่ใบรายงานผล : 2023-U034203
เลขที่งาน : 2022-009195
หมายเลขปฏิบัติการ : T23AH924-0001 - T23AH924-0002

หมายเลขปฏิบัติการ	จุดตรวจวัด	เวลา *	ผลการวิเคราะห์ (องศาเซลเซียส)				
			NWB	DB	GT	WBGT	WBGT AVG
T23AH924-0001	พื้นที่เครื่องอบ ชุดที่ 1 (H1) (คุณอาทิตย์ จำเริญสาร)	13:00-15:00 น.	29.0	31.4	35.3	30.8	30.8
T23AH924-0002	พื้นที่อ่างชุบสังกะสี ชุดที่ 1 (H3) (คุณธีรพล เขียวประเสริฐ)	10:00-12:00 น.	29.8	31.7	35.7	31.5	31.5

(นายณัฐวัฒน์ แดงสวัสดิ์)
ผู้ควบคุมห้องปฏิบัติการ

10 พฤษภาคม 2566



คุณภาพอากาศภายในสถานประกอบการ

ANALYSIS REPORT

CUSTOMER NAME : TSN WIRES CO.,LTD
ADDRESS : 199 MOO.11 HEMARAJ RAYONG INDUSTRIAL NONG LALOK BAN KHAI RAYONG 21120
CONTACT INFORMATION : TEL : 0 3892 4178 Ext.101 e-mail : palida_i@tsnwires.co.th
SAMPLING SOURCE : พื้นที่อ่างขุมสังกะสี ชุดที่ 1 (Z1)
SAMPLE TYPE : WORKPLACE
SAMPLING DATE : FEBRUARY 10, 2023
SAMPLING TIME : 08:30-16:30 HOUR
SAMPLING BY : MR AEKARAT PATACAMIN
ANALYZED BY : MR NOPPARAT JATO

RECEIVED DATE : FEBRUARY 13, 2023
ANALYTICAL DATE : FEBRUARY 13-22, 2023
REPORT NO. : 2023-U013587
WORK NO. : 2022-009195
ANALYSIS NO. : T23AC453-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT
			พื้นที่อ่างขุมสังกะสี ชุดที่ 1 (Z1) T23AC453-0001
ZINC FUME	mg/m ³	DIRECT AIR-ACETYLENE FLAME, ATOMIC ABSORPTION SPECTROMETRIC METHOD (OSHA METHOD ID121) AND CALCULATION METHOD	< 0.001
SAMPLE CONDITION			COMPLETE

REMARK

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.

Budsakorn ✓

(MISS BUDSAKORN LERDPANUMAS)
LABORATORY SUPERVISOR

FEBRUARY 28, 2023



ANALYSIS REPORT

CUSTOMER NAME : TSN WIRES CO.,LTD
ADDRESS : 199 MOO.11 HEMARAJ RAYONG INDUSTRIAL NONG LALOK BAN KHAI RAYONG 21120
CONTACT INFORMATION : TEL : 0 3892 4178 Ext.101 e-mail : palida_i@tsnwires.co.th
SAMPLING SOURCE : พื้นที่อ่างขุดสังกะสี ชุดที่ 1 (Z1)
SAMPLE TYPE : WORKPLACE
SAMPLING DATE : MAY 2, 2023
SAMPLING TIME : 08:43-16:43 HOUR
SAMPLING BY : MISS MEWIKI SUEAKHAMCHAN
ANALYZED BY : MR NOPPARAT JATO

RECEIVED DATE : MAY 4, 2023
ANALYTICAL DATE : MAY 4-12, 2023
REPORT NO. : 2023-U040737
WORK NO. : 2022-009195
ANALYSIS NO. : T23AH925-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT
			พื้นที่อ่างขุดสังกะสี ชุดที่ 1 (Z1) T23AH925-0001
ZINC FUME	mg/m ³	DIRECT AIR-ACETYLENE FLAME, ATOMIC ABSORPTION SPECTROMETRIC METHOD (OSHA METHOD ID121) AND CALCULATION METHOD	0.001
SAMPLE CONDITION			COMPLETE

REMARK
RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

MAY 26, 2023



ระดับเสียงภายในสถานประกอบการ

ANALYSIS REPORT

CUSTOMER NAME : TSN WIRES CO.,LTD
ADDRESS : 199 MOO.11 HEMARAJ RAYONG INDUSTRIAL NONG LALOK BAN KHAI RAYONG 21120
CONTACT INFORMATION : TEL : 0 3892 4178 Ext.101 e-mail : palida_j@tsnwires.co.th
MEASURING PLACE : TSN WIRES CO.,LTD
MEASURING TYPE : WORKPLACE (NOISE) **RECEIVED DATE** : FEBRUARY 10, 2023
MEASURING DATE : FEBRUARY 10, 2023 **ANALYTICAL DATE** : FEBRUARY 10, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U011050
MEASURING EQUIPMENT : INTEGRATED SOUND LEVEL METER **WORK NO.** : 2022-009195
MEASURED BY : MISS WANNEE SAYBOONRUAN **ANALYSIS NO.** : T23AC455-0001 - T23AC455-0002

ANALYSIS NO.	MEASURING SITE	TIME* (HOUR)	RESULT (dB(A))	
			L _{Aeq} 8 hours	L _{Amax} 8 hours
T23AC455-0001	บริเวณเครื่องดัดลวด ชุดที่ 1 (N2)	08:35-16:35	84.4	96.1
T23AC455-0002	บริเวณพื้นที่แป้นจ่าย ชุดที่ 1 (N4)	08:40-16:40	79.8	89.9

Nattawat

(MR NATTAWAT DANGSAWAT)
LABORATORY SUPERVISOR

FEBRUARY 16, 2023

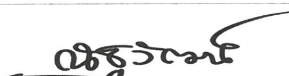


ใบรายงานผลการวิเคราะห์

ชื่อลูกค้า : บริษัท ที เอส เอ็น ไวร์ จำกัด
ที่อยู่ : 199 หมู่ 11 นิคมอุตสาหกรรมเหมราชระยอง ตำบลหนองละลอก อำเภอบ้านค่าย จังหวัดระยอง 21120
ข้อมูลผู้ติดต่อ : โทรศัพท์ : 0 3892 4178 Ext.101 อีเมล : palida_j@tsnwires.co.th
สถานที่ตรวจวัด : บริษัท ที เอส เอ็น ไวร์ จำกัด
ชนิดตัวอย่าง : ระดับเสียงภายในสถานประกอบการ
วันที่ตรวจวัด : 2 พฤษภาคม 2566
เวลาที่ตรวจวัด : *
วิธีตรวจวัด : มาตรฐานระดับเสียง
ผู้ตรวจวัด : นางสาวสุภัทสรา เนียนเงิน

วันที่รับตัวอย่าง : 2 พฤษภาคม 2566
วันที่วิเคราะห์ : 2 พฤษภาคม 2566
เลขที่ใบรายงานผล : 2023-U034204
เลขที่งาน : 2022-009195
หมายเลขปฏิบัติการ : T23AH926-0001 - T23AH926-0002

หมายเลขปฏิบัติการ	จุดตรวจวัด	เวลา*	ผลการวิเคราะห์ (เดซิเบลเอ)	
			ระดับเสียงเฉลี่ย 8 ชั่วโมง	ระดับเสียงสูงสุด 8 ชั่วโมง
T23AH926-0001	บริเวณเครื่องดัดท่อ ชุดที่ 1 (N2)	09:04-17:04 น.	85.1	92.9
T23AH926-0002	บริเวณพื้นที่แป้นจ่าย ชุดที่ 1 (N4)	09:10-17:10 น.	79.0	93.6



(นายณัฐวัฒน์ แดงสวัสดิ์)
ผู้ควบคุมห้องปฏิบัติการ

10 พฤษภาคม 2566

