

ภาคผนวกที่ 4

ใบรายงานผลการวิเคราะห์จากห้องปฏิบัติการ

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Ambient Air Quality
Sampling Point : บ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690810 E, 1613145 N
Sampling Date : July 10-17, 2023
Sampling Time : 13:25
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

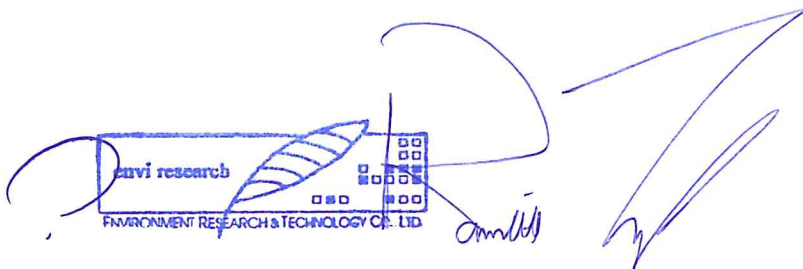
Quotation No. : 2023-00085
Analysis No. : 2023-AC960
Received Date : July 18, 2023
Analytical Date : July 18-21, 2023
Report No. : 2023-RAAN995
Report Date : July 24, 2023

Parameter	Unit	Method of Analysis	Result							Standard ^{1'}
			Jul 10-11, 23	Jul 11-12, 23	Jul 12-13, 23	Jul 13-14, 23	Jul 14-15, 23	Jul 15-16, 23	Jul 16-17, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, Gravimetric	0.035	0.042	0.052	0.042	0.051	0.050	0.063	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, High-Volume, Gravimetric	0.016	0.020	0.026	0.019	0.020	0.021	0.027	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

Ncl

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer



(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีตรอน
Sampling Source : Ambient Air Quality
Sampling Point : วิทยาลัยเทคนิคท่าหลวงอภิมณฑลไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691054 E, 1611876 N
Quotation No. : 2023-00085
Sampling Date : July 10-17, 2023
Analysis No. : 2023-AC960
Sampling Time : 12:55
Received Date : July 18, 2023
Sampling Method : U.S. EPA 40 CFR Part 50
Analytical Date : July 18-21, 2023
Sampling By : Mr.Assada Chaiyawong
Report No. : 2023-RAAN994
Analyzed By : Environment Research & Technology Co., Ltd.
Report Date : July 24, 2023

Parameter	Unit	Method of Analysis	Result							Standard ^{1'}
			Jul 10-11, 23	Jul 11-12, 23	Jul 12-13, 23	Jul 13-14, 23	Jul 14-15, 23	Jul 15-16, 23	Jul 16-17, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, Gravimetric	0.039	0.054	0.052	0.048	0.061	0.061	0.048	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, High-Volume, Gravimetric	0.023	0.031	0.031	0.027	0.035	0.032	0.028	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(Ms.Naticha Sermmatiwong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีตรัง
Sampling Source : Ambient Air Quality
Sampling Point : ชุมชนหมู่ที่ 9 ตำบลลำป่า อำเภอบำเหน็จ จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688467 E, 1610945 N
Sampling Date : July 10-17, 2023
Sampling Time : 14:30
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

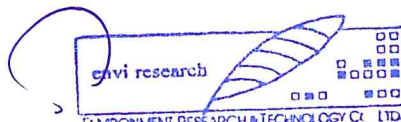
Quotation No. : 2023-00085
Analysis No. : 2023-AC960
Received Date : July 18, 2023
Analytical Date : July 18-21, 2023
Report No. : 2023-RAAN992
Report Date : July 24, 2023

Parameter	Unit	Method of Analysis	Result							Standard ^{1'}
			Jul 10-11, 23	Jul 11-12, 23	Jul 12-13, 23	Jul 13-14, 23	Jul 14-15, 23	Jul 15-16, 23	Jul 16-17, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, Gravimetric	0.048	0.050	0.052	0.062	0.075	0.093	0.060	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, High-Volume, Gravimetric	0.021	0.023	0.023	0.025	0.034	0.040	0.025	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

Not.

(Ms.Natricha Sermmatiwong)
Laboratory Reviewer



amita

(Ms.Ramita Taengthai)
Laboratory Supervisor


ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Ambient Air Quality
Sampling Point : ชุมชนหมู่ที่ 9 ตำบลบ้านควย อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689763 E, 1612143 N
Sampling Date : July 10-17, 2023
Sampling Time : 13:55
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960
Received Date : July 18, 2023
Analytical Date : July 18-21, 2023
Report No. : 2023-RAAN993
Report Date : July 24, 2023

Parameter	Unit	Method of Analysis	Result							Standard ^{1'}
			Jul 10-11, 23	Jul 11-12, 23	Jul 12-13, 23	Jul 13-14, 23	Jul 14-15, 23	Jul 15-16, 23	Jul 16-17, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, Gravimetric	0.089	0.087	0.101	0.070	0.092	0.110	0.102	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, High-Volume, Gravimetric	0.051	0.052	0.061	0.044	0.054	0.067	0.060	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


 (Ms. Natnicha Sermmatiwong)
 Laboratory Reviewer


 (Ms. Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Source : Ambient Air Quality
Measured Point : บ้านพักนาโลก ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690804 E, 1613161 N
Measured Date : July 10-17, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960-022 - 028
Report No. : 2023-RAAN904
Report Date : July 25, 2023

Date/Time	Jul 10-11, 23		Jul 11-12, 23		Jul 12-13, 23		Jul 13-14, 23		Jul 14-15, 23		Jul 15-16, 23		Jul 16-17, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
13:00-14:00	1.8	SSW	<0.4	Calm	1.3	W	1.3	WSW	1.3	W	1.3	WNW	1.8	W
14:00-15:00	<0.4	Calm	<0.4	Calm	1.3	W	1.3	SW	1.3	W	0.9	NNW	1.3	SW
15:00-16:00	0.4	SSE	0.9	SSE	1.3	SSW	1.3	SW	1.3	WNW	1.3	W	1.8	WSW
16:00-17:00	1.8	S	1.3	S	1.8	SSW	0.9	W	0.9	W	0.9	W	1.8	W
17:00-18:00	2.2	SSE	1.3	SSE	1.3	SW	0.4	W	0.9	SW	1.3	WSW	1.8	WSW
18:00-19:00	1.8	S	1.3	S	0.9	WSW	0.4	W	0.4	W	1.3	W	1.3	WSW
19:00-20:00	1.8	S	1.3	S	0.4	W	<0.4	Calm	1.3	SW	0.9	WSW	1.3	SW
20:00-21:00	1.8	S	0.9	S	<0.4	Calm	<0.4	Calm	1.8	SW	0.9	SW	0.9	SW
21:00-22:00	1.3	S	0.9	NNW	<0.4	Calm	1.3	SW	1.8	SW	1.3	WSW	1.3	SW
22:00-23:00	0.9	SSW	<0.4	Calm	<0.4	Calm	1.8	SW	1.3	SW	1.3	WSW	1.8	SW
23:00-00:00	<0.4	Calm	<0.4	Calm	0.4	SSW	0.9	NE	0.9	WSW	1.3	SW	1.8	SW
00:00-01:00	<0.4	Calm	<0.4	Calm	0.4	SSW	<0.4	Calm	0.9	WSW	1.8	WSW	1.8	SW
01:00-02:00	<0.4	Calm	<0.4	Calm	1.3	SSW	<0.4	Calm	0.4	WSW	1.8	SW	1.8	SW
02:00-03:00	0.4	SSW	<0.4	Calm	0.4	S	<0.4	Calm	0.9	W	1.8	SW	1.8	WSW
03:00-04:00	0.4	S	0.9	SW	0.4	SSW	<0.4	Calm	0.4	SW	1.3	WSW	0.9	SW
04:00-05:00	0.4	SSE	<0.4	Calm	0.9	SW	<0.4	Calm	<0.4	Calm	0.9	W	0.9	SW
05:00-06:00	0.4	SSE	<0.4	Calm	0.9	WSW	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	WSW
06:00-07:00	0.4	S	<0.4	Calm	0.4	SW	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	SSW
07:00-08:00	0.4	S	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	SSW
08:00-09:00	1.3	S	<0.4	Calm	0.4	SSW	0.4	SW	0.4	SW	0.4	SW	1.3	SSW
09:00-10:00	2.2	S	0.9	SSW	0.4	SSW	0.9	WSW	0.9	SW	0.9	W	2.2	SW
10:00-11:00	2.2	S	1.8	SSW	0.9	W	0.9	SSW	1.3	WSW	0.9	W	2.7	SW
11:00-12:00	1.8	S	1.8	SSW	1.3	SW	1.3	WSW	1.3	W	1.3	W	2.2	SW
12:00-13:00	<0.4	Calm	2.2	SSW	1.8	SW	1.3	SW	1.3	SW	0.9	WSW	2.2	WSW

Remark : WS = Wind Speed (m/s)
WD = Wind Direction
Height of wind vane and anemometer above ground 10 meters.

(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

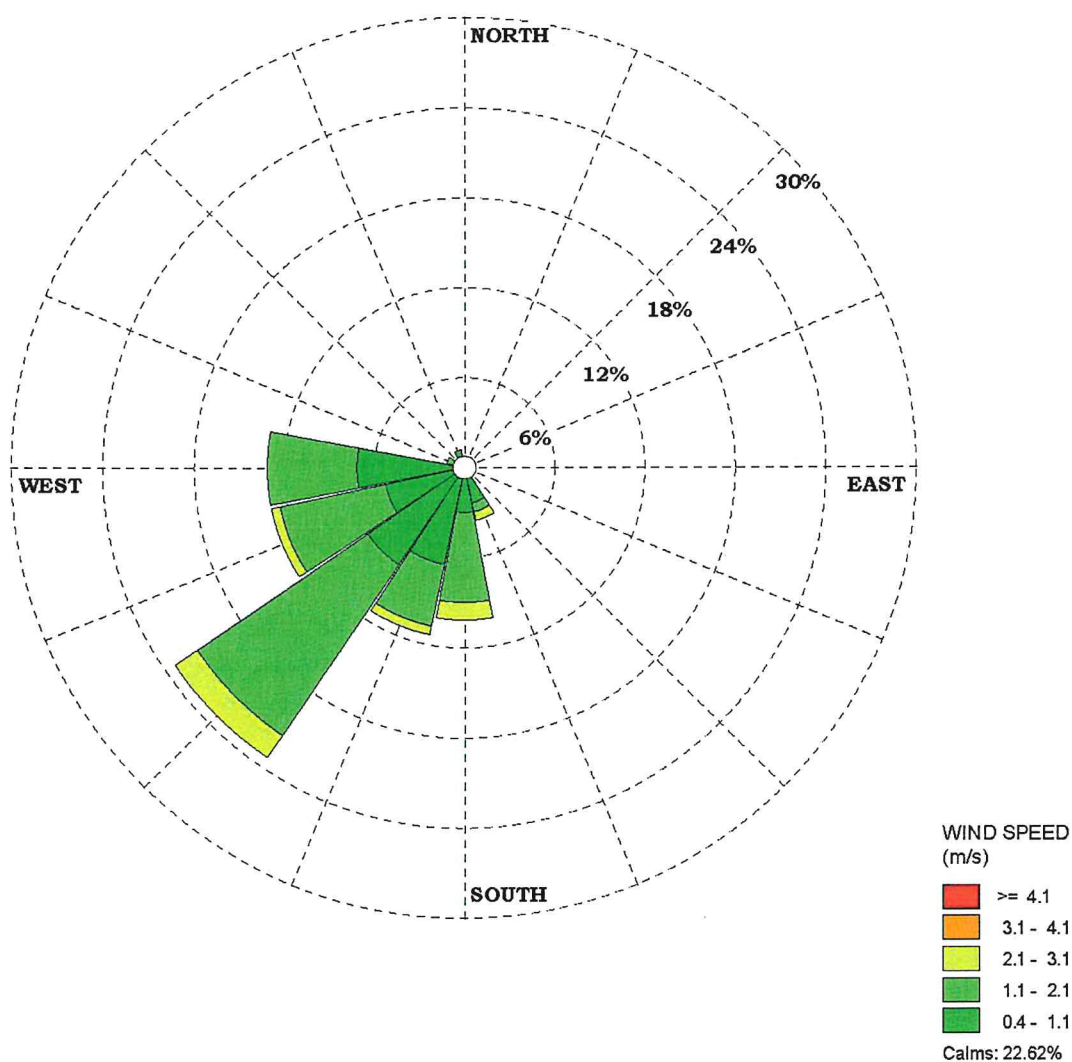
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Source : Ambient Air Quality
Measured Point : บ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690804 E, 1613161 N
Measured Date : July 10-17, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960-022 - 028
Report No. : 2023-RAAN904
Report Date : July 25, 2023

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
ENE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ESE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SSE	2.38095	0.59524	0.59524	0.00000	0.00000	3.57143
S	2.97619	5.95238	1.19048	0.00000	0.00000	10.11905
SSW	6.54762	4.16667	0.59524	0.00000	0.00000	11.30953
SW	7.73810	13.69050	1.78571	0.00000	0.00000	23.21431
WSW	5.35714	7.14286	0.59524	0.00000	0.00000	13.09524
W	7.14286	5.95238	0.00000	0.00000	0.00000	13.09524
WNW	0.00000	1.19048	0.00000	0.00000	0.00000	1.19048
NW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
Calm	22.61900					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
Measured Date : July 10-17, 2023
Report No. : 2023-RAAN904



ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)

Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270

Project Name : โครงการขยายโรงงานเหล็กรีดร้อน

Measured Source : Ambient Air Quality

Measured Point : วิทยาลัยเทคนิคท่าหลวงอสมอไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี

GPS. Coordinate : UTM (WGS84) 47P 0691060 E, 1611873 N

Measured Date : July 10-17, 2023

Measured By : Mr.Assada Chaiyawong

Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085

Analysis No. : 2023-AC960-015 - 021

Report No. : 2023-RAAN903

Report Date : July 25, 2023

Date/Time	Jul 10-11, 23		Jul 11-12, 23		Jul 12-13, 23		Jul 13-14, 23		Jul 14-15, 23		Jul 15-16, 23		Jul 16-17, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
13:00-14:00	<0.4	Calm	<0.4	Calm	0.9	W	1.3	WNW	2.2	WNW	1.8	NW	2.7	WNW
14:00-15:00	<0.4	Calm	<0.4	Calm	0.4	WNW	1.3	W	1.8	WNW	1.3	NW	2.7	NW
15:00-16:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	W	1.3	W	1.3	NW	2.2	NW
16:00-17:00	<0.4	Calm	<0.4	Calm	0.4	W	0.9	W	0.9	W	1.8	NW	2.7	NW
17:00-18:00	0.4	SSE	<0.4	Calm	0.9	W	0.4	WNW	0.9	W	2.2	NW	3.1	WNW
18:00-19:00	0.4	SE	0.4	SSE	0.4	W	<0.4	Calm	0.9	W	2.7	WNW	1.8	WNW
19:00-20:00	0.4	SSE	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	W	1.8	WNW	0.9	WNW
20:00-21:00	<0.4	Calm	0.4	WNW	<0.4	Calm	<0.4	Calm	<0.4	Calm	2.2	WNW	<0.4	Calm
21:00-22:00	<0.4	Calm	1.3	WNW	<0.4	Calm	0.9	W	1.8	W	1.8	WNW	<0.4	Calm
22:00-23:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	W	2.2	W	1.3	WNW	1.8	WNW
23:00-00:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	N	2.2	W	1.3	WNW	1.8	WNW
00:00-01:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.8	W	2.2	WNW	2.2	WNW
01:00-02:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	W	1.8	WNW	1.8	WNW
02:00-03:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	W	1.8	WNW	1.8	WNW
03:00-04:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	W	1.8	WNW	1.3	WNW
04:00-05:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	WSW	1.8	WNW	0.9	WNW
05:00-06:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	WNW	<0.4	Calm
06:00-07:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	WNW	<0.4	Calm
07:00-08:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
08:00-09:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	WNW	0.4	W
09:00-10:00	0.4	SE	<0.4	Calm	<0.4	Calm	0.4	WNW	0.4	WSW	1.3	WNW	1.3	W
10:00-11:00	<0.4	Calm	0.4	WNW	<0.4	Calm	0.9	WNW	2.2	W	1.8	NW	2.2	WNW
11:00-12:00	0.4	WNW	0.4	WNW	1.8	WNW	1.3	WNW	2.7	W	2.2	NW	2.2	WNW
12:00-13:00	<0.4	Calm	0.4	W	1.3	W	1.3	W	2.2	WNW	2.2	WNW	2.2	WNW

Remark : WS = Wind Speed (m/s)
WD = Wind Direction
Height of wind vane and anemometer above ground 10 meters.

(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)

Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270

Project Name : โครงการขยายโรงงานเหล็กรีดร้อน

Measured Source : Ambient Air Quality

Measured Point : วิทยาลัยเทคนิคท่าหลวงอภิมานต์ไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี

GPS. Coordinate : UTM (WGS84) 47P 0691060 E, 1611873 N

Quotation No. : 2023-00085

Measured Date : July 10-17, 2023

Analysis No. : 2023-AC960-015 - 021

Measured By : Mr.Assada Chaiyawong

Report No. : 2023-RAAN903

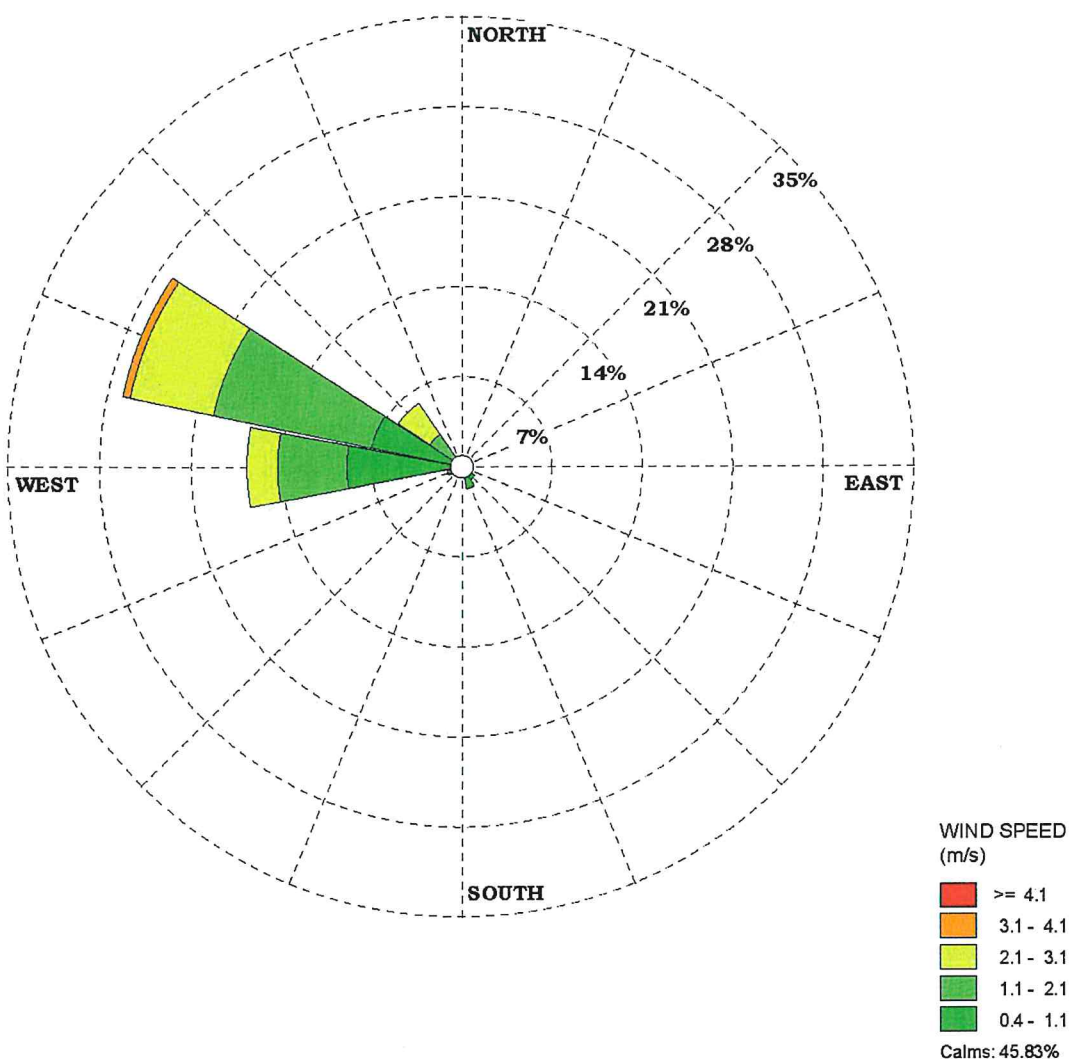
Analyzed By : Environment Research & Technology Co., Ltd.

Report Date : July 25, 2023

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ENE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ESE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SE	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
SSE	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
S	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SSW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
WSW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
W	8.92857	5.35714	2.38095	0.00000	0.00000	16.66666
WNW	7.14286	12.50000	6.54762	0.59524	0.00000	26.78572
NW	0.00000	2.97619	2.97619	0.00000	0.00000	5.95238
NNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Calm	45.83330					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : วิทยาลัยเทคนิคท่าหลวงอภิมหาสมุทร ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
Measured Date : July 10-17, 2023
Report No. : 2023-RAAN903



ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอท่าเรือ จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688473 E, 1610955 N
Measured Date : July 10-17, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960-001 - 007
Report No. : 2023-RAAN901
Report Date : July 25, 2023

Date/Time	Jul 10-11, 23		Jul 11-12, 23		Jul 12-13, 23		Jul 13-14, 23		Jul 14-15, 23		Jul 15-16, 23		Jul 16-17, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
15:00-16:00	0.4	ENE	0.4	ESE	0.9	S	1.3	W	1.3	WNW	1.8	WNW	1.8	W
16:00-17:00	0.4	SSE	<0.4	Calm	0.4	SSW	0.9	WNW	1.3	W	1.8	WNW	1.8	W
17:00-18:00	0.9	SE	0.4	ESE	0.4	S	0.4	W	0.9	W	1.3	W	1.8	W
18:00-19:00	0.9	SE	0.4	SE	0.4	W	0.4	W	0.9	WNW	1.3	W	1.3	W
19:00-20:00	0.4	SE	<0.4	Calm	0.9	W	<0.4	Calm	<0.4	Calm	0.9	W	0.4	W
20:00-21:00	<0.4	Calm	0.4	W	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	W	<0.4	Calm
21:00-22:00	<0.4	Calm	1.8	W	<0.4	Calm	0.4	SSW	1.3	W	0.9	W	<0.4	Calm
22:00-23:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	NNW	1.8	W	0.4	W	0.4	W
23:00-00:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	ENE	1.8	W	0.9	W	0.9	WSW
00:00-01:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	W	0.9	W	0.9	W
01:00-02:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	W	1.3	W	0.9	W
02:00-03:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	W	1.3	W	0.9	WNW
03:00-04:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	W	1.3	W	<0.4	Calm
04:00-05:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	W	1.3	W	<0.4	Calm
05:00-06:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	WNW	<0.4	Calm
06:00-07:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	W	<0.4	Calm
07:00-08:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	W	0.4	S
08:00-09:00	0.4	S	<0.4	Calm	0.4	S	0.4	SE	0.4	SSW	<0.4	Calm	0.4	S
09:00-10:00	0.4	SSW	<0.4	Calm	0.4	S	0.4	SSW	0.4	SSW	0.4	W	0.9	S
10:00-11:00	0.4	S	0.9	S	0.9	SSW	0.4	S	1.8	W	1.3	WNW	0.9	SW
11:00-12:00	0.4	S	0.9	SSW	1.8	W	0.9	SW	1.8	WNW	1.3	W	1.3	SW
12:00-13:00	<0.4	Calm	0.9	S	1.8	W	1.3	W	1.8	WNW	1.3	W	2.2	W
13:00-14:00	<0.4	Calm	1.3	W	1.3	W	1.3	WNW	1.8	W	2.7	W	1.3	W
14:00-15:00	<0.4	Calm	1.3	S	1.3	W	1.8	W	1.8	W	1.3	W	0.4	W

Remark : WS = Wind Speed (m/s)
WD = Wind Direction
Height of wind vane and anemometer above ground 10 meters.

(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

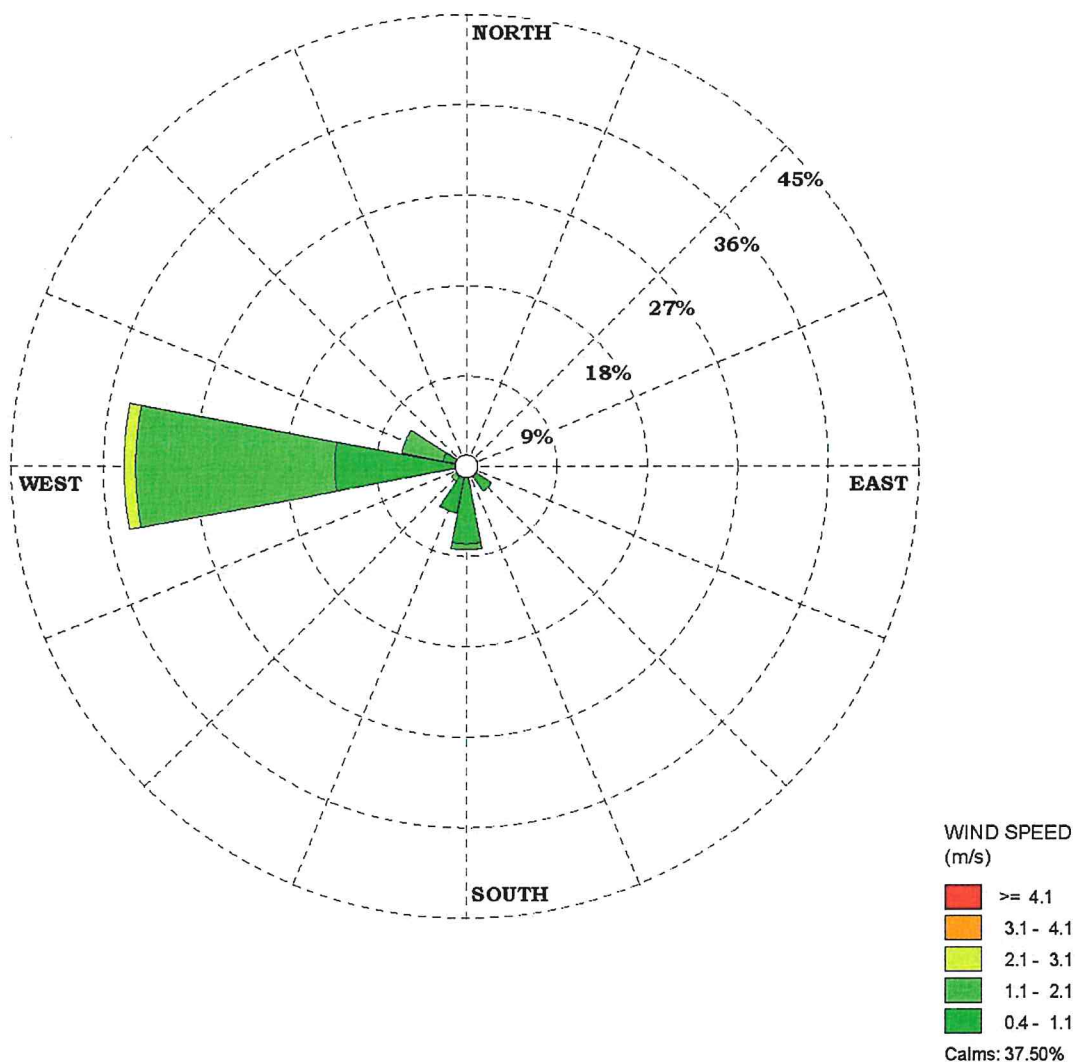
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอกาญจนบุรี จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688473 E, 1610955 N
Measured Date : July 10-17, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960-001 - 007
Report No. : 2023-RAAN901
Report Date : July 25, 2023

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ENE	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
E	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ESE	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
SE	2.97619	0.00000	0.00000	0.00000	0.00000	2.97619
SSE	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
S	7.73810	0.59524	0.00000	0.00000	0.00000	8.33334
SSW	4.76190	0.00000	0.00000	0.00000	0.00000	4.76190
SW	1.19048	0.59524	0.00000	0.00000	0.00000	1.78572
WSW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
W	13.09520	19.64290	1.19048	0.00000	0.00000	33.92858
WNW	2.38095	4.16667	0.00000	0.00000	0.00000	6.54762
NW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNW	0.00000	0.59524	0.00000	0.00000	0.00000	0.59524
Calm	37.50000					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรัตน
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอท่าเรือ จังหวัดพระนครศรีอยุธยา
Measured Date : July 10-17, 2023
Report No. : 2023-RAAN901



ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689742 E, 1612142 N
Measured Date : July 10-17, 2023
Measured By : Mr.Assada Chaipayong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960-008 - 014
Report No. : 2023-RAAN902
Report Date : July 25, 2023

Date/Time	Jul 10-11, 23		Jul 11-12, 23		Jul 12-13, 23		Jul 13-14, 23		Jul 14-15, 23		Jul 15-16, 23		Jul 16-17, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
14:00-15:00	0.4	WNW	0.9	W	1.8	W	1.8	W	2.7	WSW	2.2	WNW	2.7	WSW
15:00-16:00	1.3	E	1.8	ESE	2.2	SSE	1.8	WSW	2.2	WSW	2.7	WNW	2.7	SW
16:00-17:00	2.2	SE	1.8	ESE	1.8	SSE	1.8	W	1.8	W	2.7	W	2.7	WSW
17:00-18:00	3.1	ESE	2.2	ESE	1.8	S	1.3	W	1.8	SW	2.2	WSW	2.7	WSW
18:00-19:00	3.1	SE	2.2	SE	1.3	SSW	0.9	WSW	1.3	SW	2.2	WSW	2.2	SW
19:00-20:00	2.2	SE	2.7	SE	0.9	WSW	0.9	S	1.3	SSW	1.8	SW	1.3	SW
20:00-21:00	2.7	SE	1.8	SE	0.4	SW	1.3	SSE	1.8	S	1.8	SW	1.3	S
21:00-22:00	2.2	SE	2.2	W	0.4	SSE	2.2	S	2.2	SSW	1.8	SW	1.3	S
22:00-23:00	1.8	SE	0.4	E	<0.4	Calm	2.2	WNW	1.8	SW	1.3	SSW	1.8	SSW
23:00-00:00	1.8	SE	0.4	NE	2.2	SE	0.9	NNW	1.8	SW	1.8	SW	1.8	SSW
00:00-01:00	2.2	SE	<0.4	Calm	1.8	SSE	0.9	ENE	1.8	SW	1.8	SW	1.8	SSW
01:00-02:00	2.2	SE	0.4	SSW	1.3	S	1.3	ESE	1.3	WSW	2.2	SSW	1.8	SSW
02:00-03:00	1.8	SE	0.4	S	0.9	S	0.9	NE	1.3	WSW	2.2	SW	1.8	SSW
03:00-04:00	2.2	SE	0.9	S	1.3	SE	0.9	ENE	1.3	WSW	1.8	SW	1.3	SSW
04:00-05:00	1.3	ESE	0.4	S	1.8	S	0.9	E	0.9	WSW	1.8	SW	1.3	S
05:00-06:00	1.8	ESE	0.4	SSE	0.9	S	0.4	SSE	0.9	WSW	0.9	WSW	0.9	S
06:00-07:00	1.3	SE	<0.4	Calm	0.9	S	0.4	WSW	0.4	SSW	0.4	WSW	1.3	S
07:00-08:00	1.3	SE	1.3	SE	0.9	SSE	<0.4	Calm	<0.4	Calm	0.4	SW	1.3	S
08:00-09:00	2.2	SE	1.3	E	0.9	S	1.3	S	1.3	S	0.9	SSW	1.8	S
09:00-10:00	2.7	SE	1.3	SE	0.9	SSW	1.3	S	1.3	S	1.3	WSW	2.7	S
10:00-11:00	2.7	SSE	1.8	SSE	1.3	SW	1.8	S	2.2	WSW	2.2	WSW	2.7	SSW
11:00-12:00	2.2	SSE	2.2	S	2.2	WSW	1.8	SSW	2.2	WSW	2.2	W	3.1	SSW
12:00-13:00	<0.4	Calm	1.8	SSW	2.7	W	2.2	SW	2.2	W	1.8	WSW	2.7	SW
13:00-14:00	0.4	W	2.2	WSW	2.2	WSW	2.7	W	2.2	WNW	2.7	WSW	2.7	WSW

Remark : WS = Wind Speed (m/s)
WD = Wind Direction
Height of wind vane and anemometer above ground 10 meters.

(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

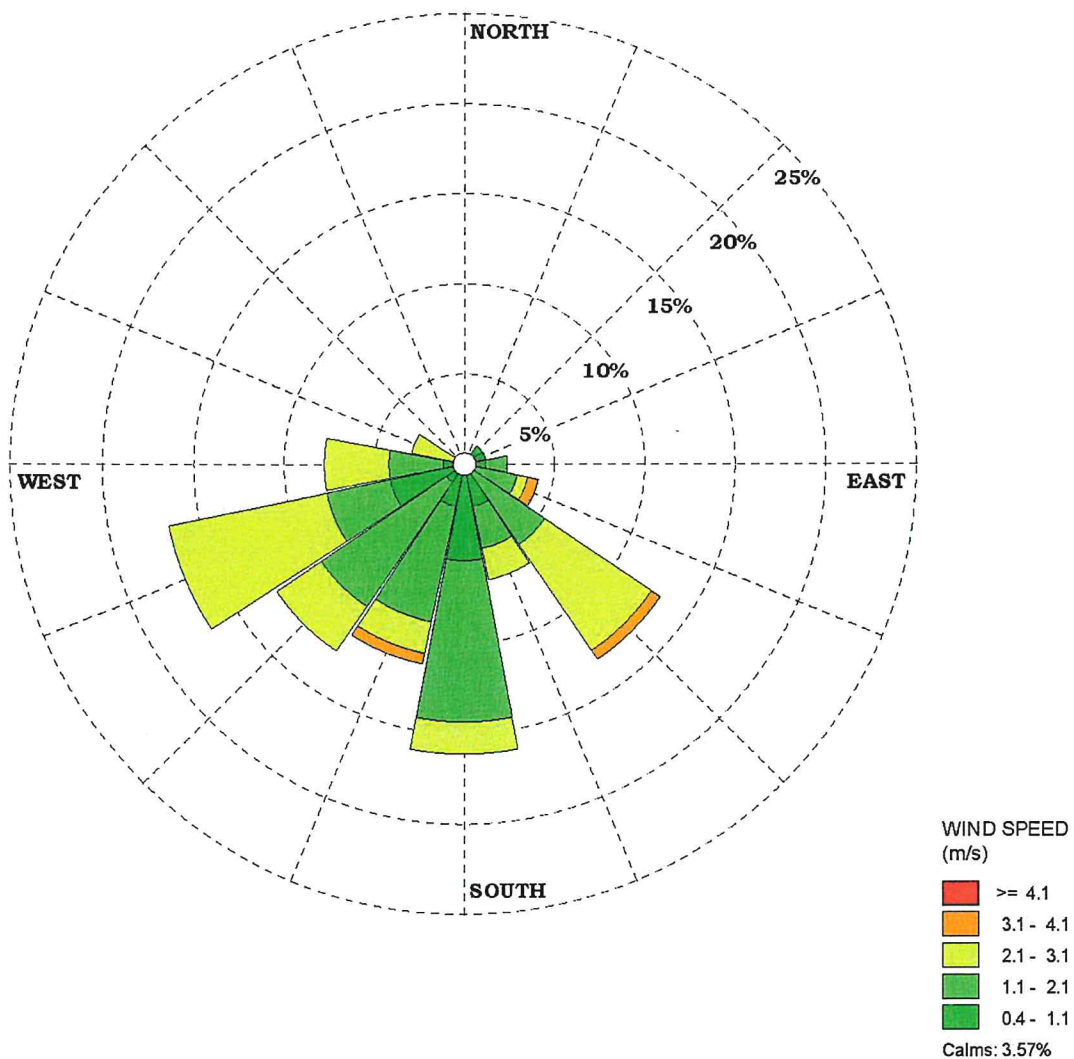
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีตรัง
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689742 E, 1612142 N
Measured Date : July 10-17, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC960-008 - 014
Report No. : 2023-RAAN902
Report Date : July 25, 2023

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
ENE	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
E	1.19048	1.19048	0.00000	0.00000	0.00000	2.38096
ESE	0.00000	2.97619	0.59524	0.59524	0.00000	4.16667
SE	0.00000	5.35714	7.14286	0.59524	0.00000	13.09524
SSE	2.38095	2.38095	1.78571	0.00000	0.00000	6.54761
S	5.35714	8.92857	1.78571	0.00000	0.00000	16.07142
SSW	2.38095	6.54762	1.78571	0.59524	0.00000	11.30952
SW	1.19048	8.33333	2.97619	0.00000	0.00000	12.50000
WSW	4.16667	3.57143	8.92857	0.00000	0.00000	16.66667
W	1.19048	2.97619	3.57143	0.00000	0.00000	7.73810
WNW	0.59524	0.00000	2.38095	0.00000	0.00000	2.97619
NW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
Calm	3.57143					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรัตน
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
Measured Date : July 10-17, 2023
Report No. : 2023-RAAN902




ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีนครินทร์
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689188 E, 1611723 N
Sampling Date : July 16, 2023
Sampling Time : 10:10-11:10
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AC954-003
Received Date : July 18, 2023
Analytical Date : July 18-26, 2023
Report No. : 2023-RAAN803
Report Date : August 5, 2023

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m	25.0
4	Stack Diameter	Measuring Tape	m	3.20
5	Flue Gas Temperature	Thermocouple	°C	78
6	Pressure in Stack	Incline Manometer	mmHg	748
7	Oxygen Rate	Electrochemical Sensor	%	20.5
8	Moisture	Condensation Method	%	3.1
9	Air Velocity	Type S Pitot Tube	m/s	27.4
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	661,735
11	Volumetric Flow Rate	Calculate	m ³ /hr	792,832
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	669

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.


 (Ms.Natnicha Sermmatiwong)
 Laboratory Reviewer


 (Ms.Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689194 E, 1611774 N
Sampling Date : July 16, 2023
Sampling Time : 10:10-11:10
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E
Sampling By : Mr.Watcharangkun Kongsang
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AC954-004
Received Date : July 18, 2023
Analytical Date : July 18-26, 2023
Report No. : 2023-RAAN804
Report Date : August 5, 2023

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	25.0	-
4	Stack Diameter	Measuring Tape	m	4.00	-
5	Flue Gas Temperature	Thermocouple	°C	60	-
6	Pressure in Stack	Incline Manometer	mmHg	757	-
7	Oxygen Rate	Electrochemical Sensor	%	20.7	-
8	Moisture	Condensation Method	%	3.7	-
9	Air Velocity	Type S Pitot Tube	m/s	10.2	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	413,714	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	463,338	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	800
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	2,096
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	20	200
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	38	376
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	1.6	240

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer


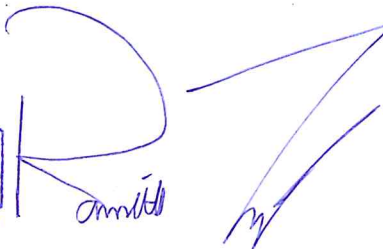
(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีนครินทร์
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689202 E, 1611725 N
Sampling Date : July 16, 2023
Sampling Time : 11:30-12:30
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AC954-001
Received Date : July 18, 2023
Analytical Date : July 18-20, 2023
Report No. : 2023-RAAN801
Report Date : August 5, 2023

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m	17.5
4	Stack Diameter	Measuring Tape	m	1.90
5	Flue Gas Temperature	Thermocouple	°C	70
6	Pressure in Stack	Incline Manometer	mmHg	749
7	Oxygen Rate	Electrochemical Sensor	%	20.1
8	Moisture	Condensation Method	%	4.1
9	Air Velocity	Type S Pitot Tube	m/s	27.7
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	241,421
11	Volumetric Flow Rate	Calculate	m ³ /hr	282,425
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	153

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

Not

 (Ms.Natnicha Sermmatiwong)
 Laboratory Reviewer

 (Ms.Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)

Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270

Project Name : โครงการขยายโรงงานเหล็กศรีนครินทร์

Sampling Source : Stack Air Quality

Sampling Point : Bag House (Outlet)

GPS. Coordinate : UTM (WGS84) 47P 0689230 E, 1611773 N

Sampling Date : July 16, 2023

Sampling Time : 11:30-12:25

Sampling Method : US.EPA. Method 1-4, 5D, 6C, 7E

Sampling By : Mr.Watcharangkun Kongsang

Analized By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085

Analysis No. : 2023-AC954-002

Received Date : July 18, 2023

Analytical Date : July 18-20, 2023

Report No. : 2023-RAAN802

Report Date : August 5, 2023

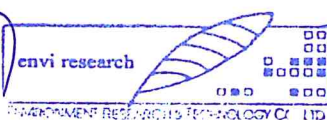
Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	17.5	-
4	Stack Diameter	Measuring Tape	m	10.00x17.30	-
5	Flue Gas Temperature	Thermocouple	°C	31	-
6	Pressure in Stack	Incline Manometer	mmHg	757	-
7	Oxygen Rate	Electrochemical Sensor	%	20.9	-
8	Moisture	Condensation Method	%	3.1	-
9	Air Velocity	Type S Pitot Tube	m/s	5.5	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	3,311,547	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	3,397,530	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	800
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	2,096
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	0.3	200
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	0.6	376
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	3.3	240

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

Not.

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer



(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689188 E, 1611723 N
Sampling Date : November 11, 2023
Sampling Time : 10:15-11:15
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart, Registration No. ๖-099-๖-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.๖-099

Quotation No. : 2023-00085
Analysis No. : 2023-AE923-002
Received Date : November 13, 2023
Analytical Date : November 13-17, 2023
Report No. : 2023-RAAW435
Report Date : November 22, 2023

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m	25.00
4	Stack Diameter	Measuring Tape	m	3.20
5	Flue Gas Temperature	Thermocouple	°C	70.08
6	Pressure in Stack	Incline Manometer	mmHg	753.63
7	Oxygen Rate	Electrochemical Sensor	%	20.82
8	Moisture	Condensation Method	%	5.78
9	Air Velocity	Type S Pitot Tube	m/s	23.40
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	550,150
11	Volumetric Flow Rate	Calculate	m ³ /hr	677,901
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	530

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

Not

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ๖-099-๖-7666



Ramita

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ๖-099-๖-7664

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กถรีร้อน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689194 E, 1611774 N
Sampling Date : November 11, 2023
Sampling Time : 10:15-11:15
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099

Quotation No. : 2023-00085
Analysis No. : 2023-AE923-004
Received Date : November 13, 2023
Analytical Date : November 13-17, 2023
Report No. : 2023-RAAW437
Report Date : November 22, 2023

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	25.00	-
4	Stack Diameter	Measuring Tape	m	4.00	-
5	Flue Gas Temperature	Thermocouple	°C	63.67	-
6	Pressure in Stack	Incline Manometer	mmHg	758.71	-
7	Oxygen Rate	Electrochemical Sensor	%	20.79	-
8	Moisture	Condensation Method	%	3.58	-
9	Air Velocity	Type S Pitot Tube	m/s	12.24	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	472,068	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	554,039	-
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	1.9	240

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

Nct.

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-7666



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

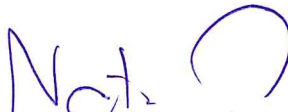
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689202 E, 1611725 N
Sampling Date : November 11, 2023
Sampling Time : 11:30-12:35
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099

Quotation No. : 2023-00085
Analysis No. : 2023-AE923-001
Received Date : November 13, 2023
Analytical Date : November 13-17, 2023
Report No. : 2023-RAAW434
Report Date : November 22, 2023

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m	17.50
4	Stack Diameter	Measuring Tape	m	1.90
5	Flue Gas Temperature	Thermocouple	°C	56.00
6	Pressure in Stack	Incline Manometer	mmHg	751.64
7	Oxygen Rate	Electrochemical Sensor	%	20.90
8	Moisture	Condensation Method	%	5.05
9	Air Velocity	Type S Pitot Tube	m/s	22.08
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	191,734
11	Volumetric Flow Rate	Calculate	m ³ /hr	225,414
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	<1.0

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

Not

 (Ms.Natnicha Sermmatiwong)
 Laboratory Reviewer No. ว-099-ค-7666




 (Ms.Ramita Taengthai)
 Laboratory Supervisor No. ว-099-ค-7664

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689230 E, 1611773 N
Sampling Date : November 11, 2023
Sampling Time : 11:30-12:25
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart, Registration No. ๖-099-๖-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.๖-099

Quotation No. : 2023-00085
Analysis No. : 2023-AE923-003
Received Date : November 13, 2023
Analytical Date : November 13-17, 2023
Report No. : 2023-RAAW436
Report Date : November 22, 2023

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	17.50	-
4	Stack Diameter	Measuring Tape	m	10.00x17.30	-
5	Flue Gas Temperature	Thermocouple	°C	34.42	-
6	Pressure in Stack	Incline Manometer	mmHg	758.92	-
7	Oxygen Rate	Electrochemical Sensor	%	20.83	-
8	Moisture	Condensation Method	%	2.85	-
9	Air Velocity	Type S Pitot Tube	m/s	5.95	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	3,484,658	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	3,705,500	-
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	<1.0	240

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer No. ๖-099-๖-7666

(Ms.Ramita Taengthai)
Laboratory Supervisor No. ๖-099-๖-7664

ANALYSIS REPORT


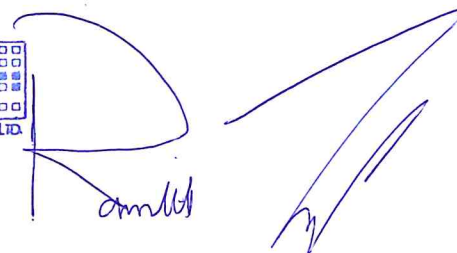
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Surface Water Sampling
Sampling Point : คลองระบายน้ำใกล้แม่น้ำป่าสัก
GPS. Coordinate : UTM (WGS84) 47P 0688438 E, 1610858 N
Sampling Date : August 22, 2023
Sampling Time : 10:54
Sampling Method : Grab
Sampling By : Mr.Watcharangkun Kongsang
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odorless

Quotation No. : 2023-00085
Analysis No. : 2023-AD527-002
Received Date : August 23, 2023
Analytical Date : August 23-September 1, 2023
Report No. : 2023-RAAQ539
Report Date : September 1, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.0	5.0-9.0
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	<0.001	0.05
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.4	-
Suspended Solids	mg/L	Dried at 103-105°C	22	-
Total Dissolved Solids	mg/L	Dried at 180°C	180	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{2'} Notification of the National Environment Board, No.8, B.E.2537 (1994), issued under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992), published in the Royal Government Gazette No.111 Part 16, dated February 24, B.E.2537 (1994). (Standard Value of Surface Water for Class 3)

(Ms.Yuwadee Na Ranong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Surface Water Sampling
Sampling Point : คลองระบายน้ำใกล้แม่น้ำป่าสัก
GPS. Coordinate : UTM (WGS84) 47P 0688420 E, 1610858 N
Sampling Date : November 11, 2023
Sampling Time : 13:08
Sampling Method : Grab
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odorless

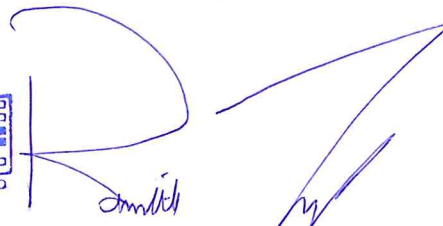
Quotation No. : 2023-00085
Analysis No. : 2023-AE915-004
Received Date : November 13, 2023
Analytical Date : November 13-21, 2023
Report No. : 2023-RAAW357
Report Date : November 21, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.1	5.0-9.0
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.001	0.05
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	4.1	-
Suspended Solids	mg/L	Dried at 103-105°C	5.6	-
Total Dissolved Solids	mg/L	Dried at 180°C	381	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{2'} Notification of the National Environment Board, No.8, B.E.2537 (1994), issued under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992), published in the Royal Government Gazette No.111 Part 16, dated February 24, B.E.2537 (1994). (Standard Value of Surface Water for Class 3)


 (Ms.Yuwadee Na Ranong)
 Laboratory Reviewer


 (Ms.Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)

Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270

Project Name : โครงการขยายโรงงานเหล็กที่ร่อน

Sampling Source : Work Place Air Quality

Sampling Date : November 11, 2023

Sampling Time : 08:56-13:39

Sampling Method : APHA, NIOSH, OSHA

Sampling By : Mr.Jirayuth Samart

Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085

Analysis No. : 2023-AE914

Received Date : November 13, 2023

Analytical Date : November 13-17, 2023

Report No. : 2023-RAAW494

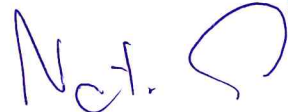
Report Date : November 20, 2023

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1'}	ACGIH ^{2'}
1	หน้าเตาหลอม	Carbon Monoxide	Non-Dispersive Infrared	ppm	0.8	50	25
		Lead Inorganic as Pb	Inductively Coupled Plasma (ICP-OES)	mg/m ³	<0.001	0.05	0.05
		Nitrogen Dioxide	Visible Absorption Spectrophotometry	ppm	<0.02	5C	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	0.80	-	10
2	ห้องเตาหลอมด้านหน้าเหล็ก 10 เมตร	Carbon Monoxide	Non-Dispersive Infrared	ppm	0.9	50	25
		Lead Inorganic as Pb	Inductively Coupled Plasma (ICP-OES)	mg/m ³	<0.001	0.05	0.05
		Nitrogen Dioxide	Visible Absorption Spectrophotometry	ppm	<0.02	5C	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	0.75	-	10
3	ฝุ่นที่ได้รับจากระบบดักฝุ่น	Lead Inorganic as Pb	Inductively Coupled Plasma (ICP-OES)	mg/m ³	<0.001	0.05	0.05

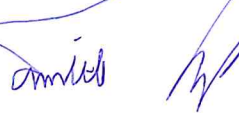
Remark : ^{1'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2556 (2013), published in the Royal Government Gazette Volume 134 Special Part 198D dated August 3, B.E.2560 (2017).

^{2'} ACGIH = American Conference of Governmental Industrial Hygienists, 2021.

C= Ceiling Limit.


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)

Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270

Project Name : โครงการขยายโรงงานเหล็กศรีดอน

Sampling Source : Work Place Air Quality

Sampling Date : December 20, 2023

Sampling Time : 07:32-08:36

Sampling Method : APHA, NIOSH

Sampling By : Mr.Anuwat Ruangan

Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085

Analysis No. : 2023-AF734

Received Date : December 20, 2023

Analytical Date : December 20, 2023-January 3, 2024

Report No. : 2024-RAAA004

Report Date : January 3, 2024

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1'}	ACGIH ^{2'}
1	หน้าเตาหลอม	Carbon Monoxide	Non-Dispersive Infrared	ppm	0.6	50	25
		Nitrogen Dioxide	Visible Absorption Spectrophotometry	ppm	<0.02	5C	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	0.24	-	10
2	ห่างเตาหลอมด้านหน้าเหล็ก 10 เมตร	Carbon Monoxide	Non-Dispersive Infrared	ppm	0.5	50	25
		Nitrogen Dioxide	Visible Absorption Spectrophotometry	ppm	<0.02	5C	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	0.54	-	10

Remark : ^{1'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2556 (2013), published in the Royal Government Gazette Volume 134 Special Part 198D dated August 3, B.E.2560 (2017).

^{2'} ACGIH = American Conference of Governmental Industrial Hygienists, 2021.

C= Ceiling Limit.

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor