

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 : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Ambient Air Quality
Sampling Point : บ้านพักมณฑล ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690805 E, 1613142 N
Sampling Date : January 25-February 1, 2023
Sampling Time : 10:25
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-AA289
Received Date : February 2, 2023
Analytical Date : February 2-6, 2023
Report No. : 2023-RAAB962
Report Date : February 6, 2023

Parameter	Unit	Method of Analysis	Result							Standard ¹
			Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m³	High-Volume, Gravimetric	0.103	0.166	0.125	0.117	0.105	0.122	0.186	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m³	PM10 Size Selective, High-Volume, Gravimetric	0.063	0.093	0.058	0.056	0.060	0.073	0.108	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 : โครงการขยายโรงงานเหล็กศรีตรัง
Sampling Source : Ambient Air Quality
Sampling Point : วิทยาลัยเทคนิคท่าหลวงฯ วัฒนานคร ตำบลบ้านควย อำเภอบ้านหมอล จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691052 E, 1611873 N
Sampling Date : January 25-February 1, 2023
Sampling Time : 09:30
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-AA289
Received Date : February 2, 2023
Analytical Date : February 2-6, 2023
Report No. : 2023-RAAC041
Report Date : February 15, 2023

Parameter	Unit	Method of Analysis	Result							Standard ^{1'}
			Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, Gravimetric	0.137	0.186	0.115	0.109	0.121	0.132	0.224	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, High-Volume, Gravimetric	0.082	0.104	0.058	0.063	0.063	0.080	0.108	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 : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Ambient Air Quality
Sampling Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอน้ำเรือ จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688470 E, 1610945 N
Sampling Date : January 25-February 1, 2023
Sampling Time : 12:15
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-AA289
Received Date : February 2, 2023
Analytical Date : February 2-6, 2023
Report No. : 2023-RAAB959
Report Date : February 6, 2023

Parameter	Unit	Method of Analysis	Result							Standard ¹
			Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31- Feb 1, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m³	High-Volume, Gravimetric	0.174	0.186	0.212	0.167	0.180	0.197	0.249	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m³	PM10 Size Selective, High-Volume, Gravimetric	0.109	0.104	0.099	0.077	0.093	0.107	0.115	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 : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Ambient Air Quality
Sampling Point : ชุมชนหมู่ที่ 9 ตำบลบ้านควาย อำเภอบ้านหมือ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689761 E, 1612141 N
Sampling Date : January 25-February 1, 2023
Sampling Time : 11:30
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-AA289
Received Date : February 2, 2023
Analytical Date : February 2-6, 2023
Report No. : 2023-RAAC040
Report Date : February 15, 2023

Parameter	Unit	Method of Analysis	Result							Standard ¹
			Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, Gravimetric	0.126	0.172	0.174	0.157	0.144	0.151	0.198	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, High-Volume, Gravimetric	0.075	0.112	0.090	0.076	0.077	0.095	0.101	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)
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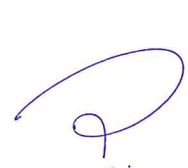
ANALYSIS REPORT

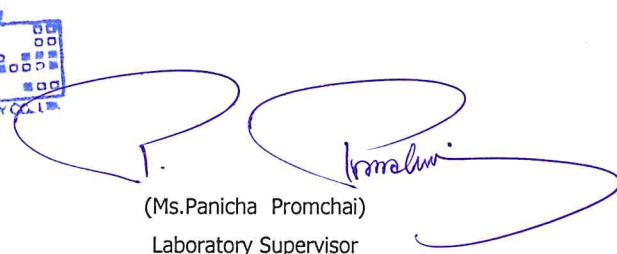
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Measured Source : Ambient Air Quality
Measured Point : บ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690805 E, 1613142 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer, Horiba Model APNA-370 Serial Number U9LS50WU

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-022 - 028
Report No. : 2023-RAAC817
Report Date : February 21, 2023

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
11:00-12:00	0.0112	0.0140	0.0125	0.0114	0.0111	0.0113	0.0153	
12:00-13:00	0.0123	0.0152	0.0116	0.0114	0.0115	0.0117	0.0145	
13:00-14:00	0.0117	0.0167	0.0120	0.0121	0.0119	0.0114	0.0143	
14:00-15:00	0.0119	0.0125	0.0121	0.0115	0.0112	0.0116	0.0130	
15:00-16:00	0.0122	0.0128	0.0123	0.0113	0.0110	0.0115	0.0129	
16:00-17:00	0.0133	0.0128	0.0125	0.0114	0.0106	0.0120	0.0137	
17:00-18:00	0.0129	0.0134	0.0113	0.0127	0.0107	0.0130	0.0161	
18:00-19:00	0.0141	0.0176	0.0128	0.0136	0.0120	0.0161	0.0203	
19:00-20:00	0.0184	0.0266	0.0144	0.0138	0.0123	0.0168	0.0251	
20:00-21:00	0.0212	0.0293	0.0130	0.0156	0.0128	0.0180	0.0202	
21:00-22:00	0.0248	0.0388	0.0148	0.0123	0.0123	0.0146	0.0251	
22:00-23:00	0.0204	0.0321	0.0171	0.0124	0.0117	0.0141	0.0216	
23:00-00:00	0.0146	0.0291	0.0155	0.0119	0.0123	0.0130	0.0206	
00:00-01:00	0.0154	0.0303	0.0167	0.0126	0.0130	0.0135	0.0300	
01:00-02:00	0.0158	0.0254	0.0132	0.0129	0.0126	0.0138	0.0293	
02:00-03:00	0.0144	0.0214	0.0124	0.0128	0.0139	0.0159	0.0287	
03:00-04:00	0.0146	0.0199	0.0118	0.0131	0.0118	0.0200	0.0242	
04:00-05:00	0.0127	0.0204	0.0106	0.0118	0.0120	0.0187	0.0189	
05:00-06:00	0.0147	0.0180	0.0115	0.0116	0.0109	0.0197	0.0197	
06:00-07:00	0.0253	0.0179	0.0116	0.0112	0.0116	0.0236	0.0208	
07:00-08:00	0.0258	0.0177	0.0124	0.0119	0.0118	0.0374	0.0237	
08:00-09:00	0.0259	0.0224	0.0119	0.0115	0.0126	0.0198	0.0252	
09:00-10:00	0.0180	0.0235	0.0116	0.0116	0.0125	0.0154	0.0309	
10:00-11:00	0.0131	0.0151	0.0113	0.0115	0.0114	0.0148	0.0238	
24 Hours Average	0.0164	0.0210	0.0128	0.0122	0.0119	0.0162	0.0212	-
1 Hour Maximum	0.0259	0.0388	0.0171	0.0156	0.0139	0.0374	0.0309	0.17

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), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


 (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 : บ้านพักมหาโลก ตำบลบ้านควั อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690805 E, 1613142 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer, Thermo Model 43C Serial Number 60772-328/2

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-022 - 028
Report No. : 2023-RAAC818
Report Date : February 21, 2023

Interval Time	Result SO ₂ (ppm)							Standard
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
11:00-12:00	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0014	
12:00-13:00	0.0011	0.0014	0.0013	0.0012	0.0012	0.0013	0.0014	
13:00-14:00	0.0012	0.0014	0.0013	0.0012	0.0012	0.0013	0.0014	
14:00-15:00	0.0012	0.0014	0.0012	0.0012	0.0012	0.0013	0.0014	
15:00-16:00	0.0012	0.0014	0.0013	0.0012	0.0012	0.0013	0.0014	
16:00-17:00	0.0013	0.0014	0.0012	0.0012	0.0012	0.0013	0.0014	
17:00-18:00	0.0013	0.0014	0.0012	0.0013	0.0012	0.0013	0.0015	
18:00-19:00	0.0013	0.0014	0.0012	0.0012	0.0012	0.0013	0.0014	
19:00-20:00	0.0013	0.0013	0.0012	0.0012	0.0012	0.0013	0.0013	
20:00-21:00	0.0013	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
21:00-22:00	0.0013	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
22:00-23:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
23:00-00:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
00:00-01:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
01:00-02:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
02:00-03:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
03:00-04:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
04:00-05:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	
05:00-06:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	
06:00-07:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	
07:00-08:00	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
08:00-09:00	0.0013	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	
09:00-10:00	0.0013	0.0009	0.0012	0.0012	0.0012	0.0014	0.0012	
10:00-11:00	0.0013	0.0013	0.0012	0.0012	0.0013	0.0014	0.0014	
24 Hours Average	0.0012	0.0013	0.0012	0.0012	0.0012	0.0013	0.0013	0.12^{1'}
1 Hour Maximum	0.0013	0.0014	0.0013	0.0013	0.0013	0.0014	0.0015	0.30^{2'}

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).
^{2'} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(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 : วัดวิทยาลัยเทคนิคท่าหลวงขีเมนดไทยอนุสรณ์ ตำบลบ้านควี้ อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691052 E, 1611873 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer, Horiba Model APNA-370 Serial Number KPACV8NA

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-015 - 021
Report No. : 2023-RAAC815
Report Date : February 21, 2023

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
10:00-11:00	0.0077	0.0273	0.0297	0.0126	0.0128	0.0176	0.0283	
11:00-12:00	0.0148	0.0297	0.0253	0.0134	0.0136	0.0150	0.0337	
12:00-13:00	0.0148	0.0288	0.0185	0.0136	0.0137	0.0181	0.0229	
13:00-14:00	0.0142	0.0312	0.0206	0.0152	0.0141	0.0171	0.0205	
14:00-15:00	0.0161	0.0236	0.0204	0.0163	0.0199	0.0179	0.0196	
15:00-16:00	0.0169	0.0239	0.0238	0.0174	0.0143	0.0169	0.0189	
16:00-17:00	0.0209	0.0213	0.0249	0.0213	0.0145	0.0181	0.0226	
17:00-18:00	0.0226	0.0145	0.0270	0.0304	0.0204	0.0256	0.0228	
18:00-19:00	0.0332	0.0175	0.0298	0.0335	0.0225	0.0356	0.0210	
19:00-20:00	0.0458	0.0291	0.0394	0.0312	0.0336	0.0531	0.0527	
20:00-21:00	0.0451	0.0540	0.0434	0.0350	0.0460	0.0513	0.0864	
21:00-22:00	0.0491	0.0538	0.0498	0.0248	0.0456	0.0538	0.0725	
22:00-23:00	0.0534	0.0517	0.0500	0.0158	0.0385	0.0455	0.0723	
23:00-00:00	0.0393	0.0462	0.0385	0.0125	0.0214	0.0327	0.0605	
00:00-01:00	0.0367	0.0441	0.0304	0.0130	0.0178	0.0276	0.0473	
01:00-02:00	0.0258	0.0355	0.0145	0.0125	0.0184	0.0268	0.0438	
02:00-03:00	0.0245	0.0305	0.0116	0.0098	0.0128	0.0208	0.0425	
03:00-04:00	0.0245	0.0354	0.0095	0.0099	0.0089	0.0315	0.0359	
04:00-05:00	0.0257	0.0349	0.0083	0.0106	0.0087	0.0378	0.0337	
05:00-06:00	0.0362	0.0373	0.0084	0.0103	0.0095	0.0457	0.0362	
06:00-07:00	0.0367	0.0377	0.0101	0.0097	0.0118	0.0571	0.0468	
07:00-08:00	0.0377	0.0386	0.0109	0.0103	0.0125	0.0515	0.0478	
08:00-09:00	0.0380	0.0416	0.0109	0.0115	0.0158	0.0485	0.0501	
09:00-10:00	0.0386	0.0478	0.0121	0.0133	0.0160	0.0382	0.0580	
24 Hours Average	0.0299	0.0348	0.0237	0.0168	0.0193	0.0335	0.0415	-
1 Hour Maximum	0.0534	0.0540	0.0500	0.0350	0.0460	0.0571	0.0864	0.17

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), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).



 (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 : โครงการขยายโรงงานเหล็กรัตน
Measured Source : Ambient Air Quality
Measured Point : วิทยาลัยเทคนิคท่าหลวงอสนีศรีอยุธยา ตำบลบ้านควย อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691052 E, 1611873 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer, Thermo Model 43C Serial Number 64389-343/2

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-015 - 021
Report No. : 2023-RAAC816
Report Date : February 21, 2023

Interval Time	Result SO ₂ (ppm)							Standard
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
10:00-11:00	0.0012	0.0022	0.0018	0.0023	0.0019	0.0018	0.0017	
11:00-12:00	0.0010	0.0024	0.0018	0.0023	0.0022	0.0018	0.0017	
12:00-13:00	0.0012	0.0023	0.0018	0.0022	0.0019	0.0016	0.0016	
13:00-14:00	0.0017	0.0022	0.0019	0.0021	0.0019	0.0018	0.0015	
14:00-15:00	0.0017	0.0022	0.0019	0.0020	0.0019	0.0017	0.0015	
15:00-16:00	0.0018	0.0022	0.0019	0.0021	0.0018	0.0018	0.0016	
16:00-17:00	0.0020	0.0023	0.0019	0.0021	0.0018	0.0017	0.0014	
17:00-18:00	0.0021	0.0021	0.0018	0.0021	0.0019	0.0016	0.0014	
18:00-19:00	0.0022	0.0021	0.0018	0.0021	0.0018	0.0016	0.0015	
19:00-20:00	0.0021	0.0019	0.0017	0.0021	0.0018	0.0015	0.0013	
20:00-21:00	0.0021	0.0023	0.0018	0.0021	0.0018	0.0017	0.0016	
21:00-22:00	0.0022	0.0023	0.0019	0.0020	0.0019	0.0016	0.0017	
22:00-23:00	0.0022	0.0021	0.0018	0.0020	0.0018	0.0014	0.0014	
23:00-00:00	0.0021	0.0021	0.0017	0.0020	0.0017	0.0014	0.0014	
00:00-01:00	0.0023	0.0020	0.0016	0.0019	0.0017	0.0015	0.0014	
01:00-02:00	0.0021	0.0019	0.0016	0.0019	0.0018	0.0015	0.0013	
02:00-03:00	0.0020	0.0020	0.0017	0.0019	0.0015	0.0012	0.0014	
03:00-04:00	0.0020	0.0019	0.0015	0.0019	0.0016	0.0015	0.0013	
04:00-05:00	0.0019	0.0019	0.0015	0.0019	0.0016	0.0013	0.0014	
05:00-06:00	0.0022	0.0018	0.0015	0.0019	0.0015	0.0014	0.0013	
06:00-07:00	0.0023	0.0022	0.0017	0.0018	0.0018	0.0014	0.0016	
07:00-08:00	0.0023	0.0022	0.0016	0.0019	0.0017	0.0013	0.0017	
08:00-09:00	0.0024	0.0019	0.0018	0.0018	0.0016	0.0014	0.0016	
09:00-10:00	0.0018	0.0018	0.0017	0.0018	0.0015	0.0013	0.0015	
24 Hours Average	0.0020	0.0021	0.0017	0.0020	0.0018	0.0015	0.0015	0.12^{1'}
1 Hour Maximum	0.0024	0.0024	0.0019	0.0023	0.0022	0.0018	0.0017	0.30^{2'}

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).
^{2'} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(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 อำเภอนาแก จังหวัดนครพนม
GPS. Coordinate : UTM (WGS84) 47P 0688470 E, 1610945 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer, API Model 200A Serial Number 1051


Quotation No. : 2023-00085
Analysis No. : 2023-AA289-001 - 007
Report No. : 2023-RAAC811
Report Date : February 21, 2023

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
12:00-13:00	0.0151	0.0206	0.0157	0.0146	0.0147	0.0120	0.0176	
13:00-14:00	0.0167	0.0178	0.0126	0.0212	0.0130	0.0099	0.0056	
14:00-15:00	0.0172	0.0127	0.0182	0.0173	0.0167	0.0143	0.0134	
15:00-16:00	0.0182	0.0094	0.0200	0.0234	0.0129	0.0135	0.0107	
16:00-17:00	0.0163	0.0080	0.0247	0.0256	0.0131	0.0094	0.0106	
17:00-18:00	0.0180	0.0100	0.0190	0.0232	0.0135	0.0113	0.0088	
18:00-19:00	0.0189	0.0116	0.0225	0.0302	0.0191	0.0165	0.0101	
19:00-20:00	0.0313	0.0151	0.0271	0.0253	0.0205	0.0277	0.0216	
20:00-21:00	0.0337	0.0149	0.0219	0.0274	0.0156	0.0393	0.0247	
21:00-22:00	0.0288	0.0148	0.0289	0.0222	0.0208	0.0295	0.0334	
22:00-23:00	0.0362	0.0206	0.0400	0.0276	0.0215	0.0383	0.0396	
23:00-00:00	0.0275	0.0188	0.0287	0.0187	0.0221	0.0296	0.0276	
00:00-01:00	0.0462	0.0260	0.0280	0.0173	0.0352	0.0358	0.0312	
01:00-02:00	0.0328	0.0197	0.0193	0.0184	0.0267	0.0346	0.0262	
02:00-03:00	0.0253	0.0233	0.0159	0.0177	0.0288	0.0146	0.0321	
03:00-04:00	0.0190	0.0265	0.0155	0.0169	0.0219	0.0166	0.0314	
04:00-05:00	0.0165	0.0247	0.0165	0.0195	0.0228	0.0146	0.0244	
05:00-06:00	0.0213	0.0246	0.0135	0.0175	0.0237	0.0147	0.0222	
06:00-07:00	0.0268	0.0312	0.0135	0.0160	0.0228	0.0256	0.0292	
07:00-08:00	0.0263	0.0287	0.0143	0.0201	0.0227	0.0273	0.0342	
08:00-09:00	0.0273	0.0281	0.0135	0.0159	0.0171	0.0347	0.0289	
09:00-10:00	0.0243	0.0275	0.0167	0.0147	0.0173	0.0210	0.0304	
10:00-11:00	0.0152	0.0203	0.0145	0.0127	0.0142	0.0218	0.0386	
11:00-12:00	0.0185	0.0163	0.0143	0.0164	0.0126	0.0219	0.0270	
24 Hours Average	0.0241	0.0196	0.0198	0.0200	0.0196	0.0223	0.0241	-
1 Hour Maximum	0.0462	0.0312	0.0400	0.0302	0.0352	0.0393	0.0396	0.17

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), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


 (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 อำเภอนาโพธิ์ จังหวัดนครราชสีมา
GPS. Coordinate : UTM (WGS84) 47P 0688470 E, 1610945 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer, Thermo Model 43C Serial Number 0611116460

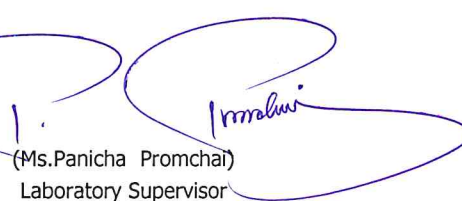
Quotation No. : 2023-00085
Analysis No. : 2023-AA289-001 - 007
Report No. : 2023-RAAC812
Report Date : February 21, 2023

Interval Time	Result SO ₂ (ppm)							Standard
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
12:00-13:00	0.0013	0.0013	0.0013	0.0007	0.0011	0.0012	0.0012	
13:00-14:00	0.0012	0.0012	0.0013	0.0008	0.0011	0.0010	0.0013	
14:00-15:00	0.0011	0.0012	0.0015	0.0008	0.0011	0.0011	0.0011	
15:00-16:00	0.0009	0.0012	0.0013	0.0008	0.0010	0.0027	0.0012	
16:00-17:00	0.0010	0.0013	0.0013	0.0008	0.0010	0.0011	0.0013	
17:00-18:00	0.0009	0.0016	0.0014	0.0009	0.0011	0.0011	0.0012	
18:00-19:00	0.0010	0.0016	0.0015	0.0010	0.0012	0.0013	0.0011	
19:00-20:00	0.0011	0.0017	0.0014	0.0010	0.0013	0.0020	0.0020	
20:00-21:00	0.0010	0.0020	0.0012	0.0008	0.0014	0.0022	0.0034	
21:00-22:00	0.0010	0.0019	0.0015	0.0009	0.0011	0.0013	0.0029	
22:00-23:00	0.0010	0.0023	0.0015	0.0009	0.0010	0.0016	0.0025	
23:00-00:00	0.0009	0.0022	0.0012	0.0009	0.0012	0.0018	0.0034	
00:00-01:00	0.0011	0.0019	0.0010	0.0008	0.0014	0.0018	0.0026	
01:00-02:00	0.0010	0.0014	0.0007	0.0008	0.0013	0.0024	0.0036	
02:00-03:00	0.0010	0.0015	0.0008	0.0008	0.0013	0.0015	0.0049	
03:00-04:00	0.0010	0.0017	0.0007	0.0008	0.0011	0.0012	0.0020	
04:00-05:00	0.0010	0.0015	0.0006	0.0009	0.0013	0.0012	0.0017	
05:00-06:00	0.0010	0.0014	0.0006	0.0008	0.0013	0.0011	0.0032	
06:00-07:00	0.0025	0.0017	0.0005	0.0009	0.0013	0.0015	0.0026	
07:00-08:00	0.0038	0.0024	0.0006	0.0009	0.0014	0.0018	0.0034	
08:00-09:00	0.0044	0.0032	0.0005	0.0002	0.0015	0.0017	0.0036	
09:00-10:00	0.0030	0.0022	0.0006	0.0011	0.0014	0.0016	0.0033	
10:00-11:00	0.0003	0.0017	0.0006	0.0010	0.0014	0.0015	0.0018	
11:00-12:00	0.0013	0.0015	0.0007	0.0012	0.0012	0.0015	0.0014	
24 Hours Average	0.0014	0.0017	0.0010	0.0009	0.0012	0.0016	0.0024	0.12^{1'}
1 Hour Maximum	0.0044	0.0032	0.0015	0.0012	0.0015	0.0027	0.0049	0.30^{2'}

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).
^{2'} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


 (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 : ขุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689761 E, 1612141 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer, API Model 200A Serial Number 1975

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-008 - 014
Report No. : 2023-RAAC813
Report Date : February 21, 2023

Interval Time	Result NO ₂ (ppm)							Standard ^{1'}
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
12:00-13:00	0.0090	0.0134	0.0113	0.0079	0.0075	0.0074	0.0122	
13:00-14:00	0.0087	0.0131	0.0100	0.0090	0.0075	0.0075	0.0182	
14:00-15:00	0.0086	0.0101	0.0098	0.0082	0.0071	0.0074	0.0090	
15:00-16:00	0.0096	0.0092	0.0107	0.0081	0.0071	0.0073	0.0097	
16:00-17:00	0.0105	0.0094	0.0120	0.0092	0.0073	0.0090	0.0128	
17:00-18:00	0.0108	0.0093	0.0111	0.0089	0.0080	0.0100	0.0132	
18:00-19:00	0.0125	0.0117	0.0114	0.0141	0.0092	0.0135	0.0167	
19:00-20:00	0.0170	0.0141	0.0127	0.0116	0.0125	0.0192	0.0161	
20:00-21:00	0.0188	0.0175	0.0147	0.0140	0.0145	0.0303	0.0208	
21:00-22:00	0.0345	0.0143	0.0159	0.0110	0.0123	0.0214	0.0323	
22:00-23:00	0.0386	0.0177	0.0216	0.0101	0.0095	0.0239	0.0423	
23:00-00:00	0.0201	0.0208	0.0201	0.0092	0.0099	0.0157	0.0435	
00:00-01:00	0.0185	0.0226	0.0182	0.0088	0.0085	0.0148	0.0375	
01:00-02:00	0.0149	0.0203	0.0110	0.0087	0.0100	0.0119	0.0322	
02:00-03:00	0.0125	0.0184	0.0088	0.0081	0.0071	0.0136	0.0261	
03:00-04:00	0.0141	0.0190	0.0087	0.0084	0.0079	0.0214	0.0217	
04:00-05:00	0.0115	0.0207	0.0075	0.0082	0.0066	0.0176	0.0209	
05:00-06:00	0.0137	0.0201	0.0075	0.0072	0.0068	0.0199	0.0223	
06:00-07:00	0.0183	0.0207	0.0079	0.0079	0.0069	0.0197	0.0265	
07:00-08:00	0.0162	0.0200	0.0079	0.0072	0.0077	0.0277	0.0261	
08:00-09:00	0.0208	0.0216	0.0076	0.0071	0.0075	0.0180	0.0047	
09:00-10:00	0.0223	0.0296	0.0075	0.0070	0.0074	0.0144	0.0058	
10:00-11:00	0.0124	0.0172	0.0081	0.0075	0.0079	0.0146	0.0312	
11:00-12:00	0.0140	0.0138	0.0075	0.0071	0.0073	0.0145	0.0249	
24 Hours Average	0.0162	0.0169	0.0112	0.0089	0.0085	0.0159	0.0219	-
1 Hour Maximum	0.0386	0.0296	0.0216	0.0141	0.0145	0.0303	0.0435	0.17

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), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(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 : โครงการขยายโรงงานเหล็กศรีนครินทร์
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689761 E, 1612141 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer, Thermo Model 43C Serial Number 0335804029

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-008 - 014
Report No. : 2023-RAAC814
Report Date : February 21, 2023

Interval Time	Result SO ₂ (ppm)							Standard
	Jan 25-26, 23	Jan 26-27, 23	Jan 27-28, 23	Jan 28-29, 23	Jan 29-30, 23	Jan 30-31, 23	Jan 31-Feb 1, 23	
12:00-13:00	0.0014	0.0017	0.0016	0.0018	0.0018	0.0017	0.0017	
13:00-14:00	0.0013	0.0018	0.0017	0.0017	0.0018	0.0017	0.0016	
14:00-15:00	0.0013	0.0018	0.0016	0.0016	0.0017	0.0017	0.0016	
15:00-16:00	0.0015	0.0018	0.0016	0.0017	0.0017	0.0017	0.0017	
16:00-17:00	0.0015	0.0018	0.0016	0.0017	0.0016	0.0017	0.0016	
17:00-18:00	0.0015	0.0018	0.0017	0.0016	0.0016	0.0018	0.0017	
18:00-19:00	0.0017	0.0017	0.0016	0.0016	0.0017	0.0018	0.0017	
19:00-20:00	0.0018	0.0017	0.0017	0.0016	0.0018	0.0018	0.0017	
20:00-21:00	0.0018	0.0019	0.0018	0.0018	0.0018	0.0019	0.0018	
21:00-22:00	0.0019	0.0019	0.0017	0.0018	0.0018	0.0018	0.0018	
22:00-23:00	0.0020	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	
23:00-00:00	0.0018	0.0019	0.0017	0.0018	0.0017	0.0018	0.0019	
00:00-01:00	0.0019	0.0018	0.0017	0.0017	0.0017	0.0018	0.0018	
01:00-02:00	0.0018	0.0018	0.0017	0.0018	0.0018	0.0017	0.0017	
02:00-03:00	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	
03:00-04:00	0.0019	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	
04:00-05:00	0.0018	0.0017	0.0017	0.0018	0.0017	0.0017	0.0016	
05:00-06:00	0.0019	0.0018	0.0016	0.0018	0.0017	0.0017	0.0017	
06:00-07:00	0.0019	0.0017	0.0017	0.0017	0.0017	0.0017	0.0016	
07:00-08:00	0.0019	0.0018	0.0017	0.0018	0.0017	0.0017	0.0017	
08:00-09:00	0.0019	0.0019	0.0017	0.0017	0.0018	0.0017	0.0018	
09:00-10:00	0.0018	0.0010	0.0017	0.0018	0.0017	0.0018	0.0015	
10:00-11:00	0.0018	0.0017	0.0017	0.0018	0.0017	0.0018	0.0015	
11:00-12:00	0.0018	0.0016	0.0017	0.0018	0.0017	0.0018	0.0015	
24 Hours Average	0.0017	0.0018	0.0017	0.0017	0.0017	0.0018	0.0017	0.12^{1'}
1 Hour Maximum	0.0020	0.0019	0.0018	0.0018	0.0018	0.0019	0.0019	0.30^{2'}

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).

^{2'} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(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 : โครงการขยายโรงงานเหล็กรัตน

Measured Source : Ambient Air Quality

Measured Point : บ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี

GPS. Coordinate : UTM (WGS84) 47P 0690804 E, 1613162 N

Measured Date : January 25-February 1, 2023

Measured By : Mr.Assada Chaiyawong

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

Quotation No. : 2023-00085

Analysis No. : 2023-AA289-022 - 028

Report No. : 2023-RAAC284

Report Date : February 10, 2023

Date/Time	Jan 25-26, 23		Jan 26-27, 23		Jan 27-28, 23		Jan 28-29, 23		Jan 29-30, 23		Jan 30-31, 23		Jan 31-Feb 1, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
10:00-11:00	1.8	ENE	1.8	NE	1.8	ENE	3.6	SE	4.9	E	3.1	E	2.2	NNE
11:00-12:00	1.8	NE	1.8	E	2.2	NE	4.0	SE	4.5	E	3.6	NNE	1.8	NNE
12:00-13:00	3.1	NE	0.9	NE	2.7	ENE	3.6	SE	4.0	ESE	3.1	NNE	1.8	SE
13:00-14:00	3.1	NE	0.9	ESE	2.7	NE	3.1	SE	3.6	E	3.1	NNE	0.9	E
14:00-15:00	2.7	ENE	1.3	NE	2.2	NE	2.7	SE	3.1	ESE	2.7	ENE	0.9	ENE
15:00-16:00	2.2	NE	0.9	NNE	2.2	ENE	2.7	SE	3.1	E	2.7	NNE	0.9	NNW
16:00-17:00	1.8	NE	1.3	NNE	2.2	ESE	2.2	SSE	3.1	E	2.7	NNE	1.3	NW
17:00-18:00	1.8	NE	1.3	NW	1.8	E	2.2	SSE	2.7	E	2.2	NNE	0.4	WNW
18:00-19:00	1.3	ENE	0.9	WNW	1.3	E	1.8	SSE	2.2	E	1.8	NNE	0.9	S
19:00-20:00	0.4	E	<0.4	Calm	0.9	E	1.3	SE	1.3	ESE	0.4	NNE	<0.4	Calm
20:00-21:00	0.4	E	<0.4	Calm	0.9	E	1.3	ESE	0.9	ESE	0.4	NNE	<0.4	Calm
21:00-22:00	<0.4	Calm	<0.4	Calm	0.4	E	0.9	SE	0.4	ESE	0.4	NNE	<0.4	Calm
22:00-23:00	0.4	SE	<0.4	Calm	0.4	ENE	1.3	SE	0.9	ESE	0.4	NNE	<0.4	Calm
23:00-00:00	0.4	E	<0.4	Calm	0.4	NE	1.8	ESE	1.3	E	0.9	NNE	<0.4	Calm
00:00-01:00	0.4	ENE	<0.4	Calm	0.9	NE	1.8	SE	1.8	E	0.9	NNE	<0.4	Calm
01:00-02:00	0.4	ENE	<0.4	Calm	2.2	ENE	1.8	SE	1.3	E	0.9	NNE	<0.4	Calm
02:00-03:00	0.9	ENE	<0.4	Calm	2.7	ENE	2.2	ESE	0.9	E	0.9	NNE	<0.4	Calm
03:00-04:00	0.4	ENE	<0.4	Calm	3.1	ENE	2.7	SE	2.2	E	0.4	NNW	<0.4	Calm
04:00-05:00	<0.4	Calm	<0.4	Calm	3.6	E	2.7	ESE	2.7	E	<0.4	Calm	<0.4	Calm
05:00-06:00	<0.4	Calm	<0.4	Calm	4.0	E	3.6	ESE	3.1	E	0.4	NNW	<0.4	Calm
06:00-07:00	<0.4	Calm	<0.4	Calm	4.0	E	3.1	ESE	2.7	E	0.4	N	<0.4	Calm
07:00-08:00	<0.4	Calm	<0.4	Calm	3.6	E	3.6	ESE	3.1	E	0.9	NNE	<0.4	Calm
08:00-09:00	<0.4	Calm	<0.4	Calm	4.0	E	4.0	ESE	3.6	ESE	0.9	NE	<0.4	Calm
09:00-10:00	1.3	NE	0.4	NE	4.0	ESE	4.9	SSE	3.6	E	2.2	NNE	<0.4	Calm

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 : บ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี

GPS. Coordinate : UTM (WGS84) 47P 0690804 E, 1613162 N

Measured Date : January 25-February 1, 2023

Measured By : Mr.Assada Chaiyawong

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

Quotation No. : 2023-00085

Analysis No. : 2023-AA289-022 - 028

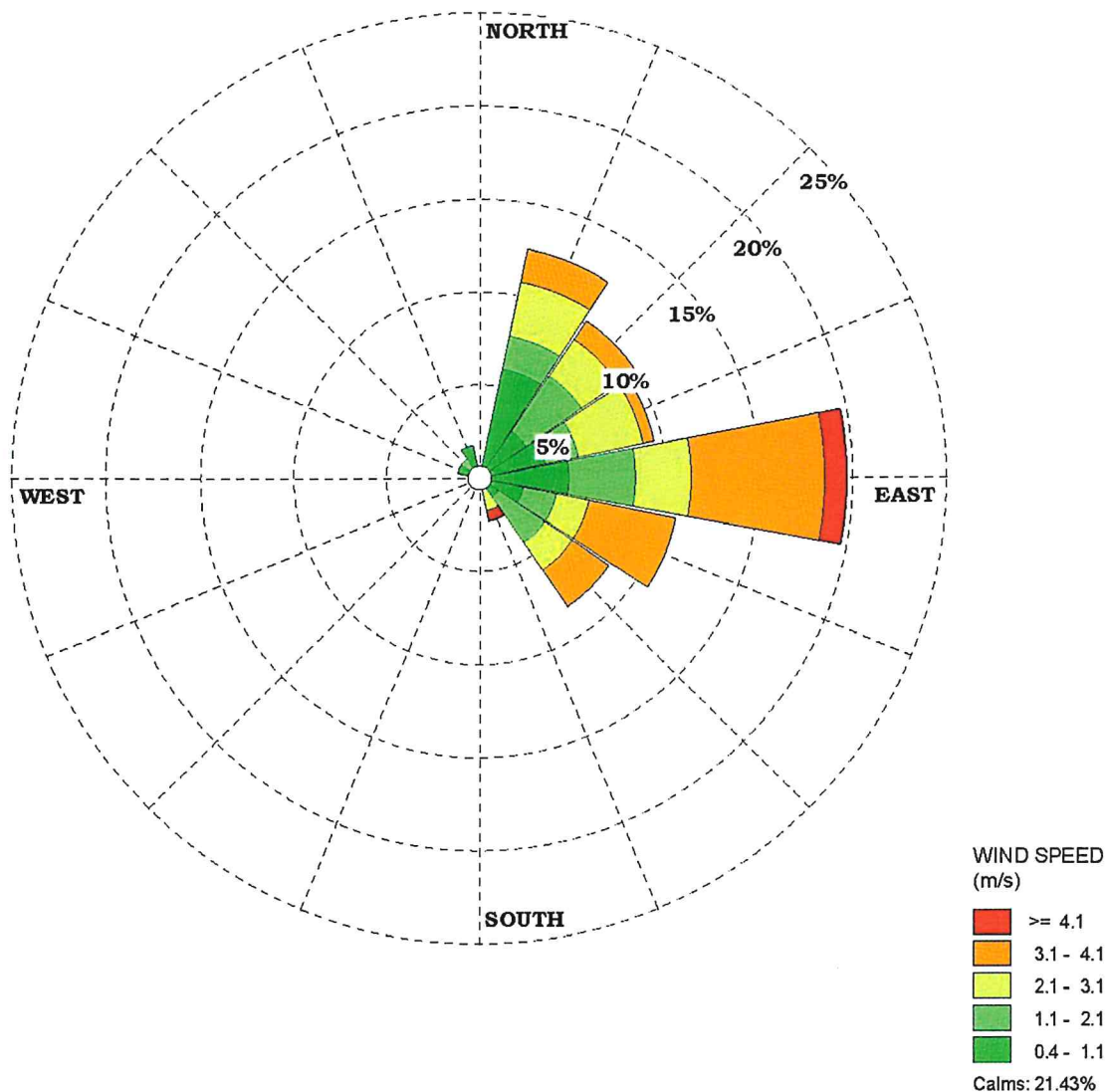
Report No. : 2023-RAAC284

Report Date : February 10, 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	5.95238	1.78571	2.97619	1.78571	0.00000	12.49999
NE	2.97619	3.57143	2.38095	1.19048	0.00000	10.11905
ENE	3.57143	1.78571	3.57143	0.59524	0.00000	9.52381
E	4.76190	3.57143	2.97619	7.14286	1.19048	19.64286
ESE	2.38095	1.78571	1.78571	4.76190	0.00000	10.71427
SE	1.19048	2.97619	1.78571	2.38095	0.00000	8.33333
SSE	0.00000	0.59524	1.19048	0.00000	0.59524	2.38096
S	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
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	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
W	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
WNW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
NW	0.00000	1.19048	0.00000	0.00000	0.00000	1.19048
NNW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
Calm	21.42860					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บ้านพิกมหาโลก ตำบลบ้านครัว อำเภอบ้านหม้อ จังหวัดสระบุรี
Measured Date : January 25 – February 1, 2023
Report No. : 2023-RAAC284



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 : วิทยาลัยเทคนิคท่าหลวงขีเมนตโยชนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี

GPS. Coordinate : UTM (WGS84) 47P 0691062 E, 1611870 N

Measured Date : January 25-February 1, 2023

Measured By : Mr.Assada Chaiyawong

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

Quotation No. : 2023-00085

Analysis No. : 2023-AA289-015 - 021

Report No. : 2023-RAAC285

Report Date : February 10, 2023

Date/Time	Jan 25-26, 23		Jan 26-27, 23		Jan 27-28, 23		Jan 28-29, 23		Jan 29-30, 23		Jan 30-31, 23		Jan 31-Feb 1, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
10:00-11:00	1.3	NE	2.2	NE	2.2	NNE	4.0	ENE	4.0	NE	3.6	NE	2.2	NNE
11:00-12:00	3.6	NE	1.8	NE	2.7	NE	3.6	NE	4.0	NE	3.6	NE	1.8	NE
12:00-13:00	3.1	NE	1.3	NE	2.7	NE	3.6	NE	4.5	NE	3.6	NNE	1.3	E
13:00-14:00	3.1	NE	1.3	NE	3.1	NE	2.7	NE	3.6	NE	3.6	NE	0.9	NE
14:00-15:00	2.7	NE	1.8	NNE	2.2	NE	2.7	NE	3.1	NE	2.2	NE	0.9	E
15:00-16:00	2.7	NNE	1.3	NW	2.2	NE	2.2	NE	3.6	NE	2.7	NE	0.9	NNE
16:00-17:00	2.2	NNE	1.8	NW	1.3	E	1.8	E	3.1	NE	3.1	NNE	0.9	W
17:00-18:00	1.8	NE	2.7	WSW	1.8	NE	1.8	NE	2.7	NE	2.2	NNE	0.9	WSW
18:00-19:00	0.9	NNE	2.2	WSW	1.3	NE	1.3	ENE	2.2	NE	1.8	NNE	0.4	S
19:00-20:00	0.4	NE	<0.4	Calm	0.4	NE	1.3	NE	0.9	NE	0.9	NNE	<0.4	Calm
20:00-21:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	NE	<0.4	Calm	0.9	NNE	<0.4	Calm
21:00-22:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	NE	<0.4	Calm	0.9	NE	<0.4	Calm
22:00-23:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	2.2	NE	0.4	NNE	1.3	NE	<0.4	Calm
23:00-00:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	2.2	NE	1.8	NNE	0.9	NE	<0.4	Calm
00:00-01:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	2.2	NE	1.8	NNE	1.3	NNE	<0.4	Calm
01:00-02:00	<0.4	Calm	<0.4	Calm	1.8	NE	2.2	NE	1.3	NE	1.3	NNE	<0.4	Calm
02:00-03:00	0.9	NE	<0.4	Calm	1.8	NE	2.7	NE	2.2	NE	1.3	N	<0.4	Calm
03:00-04:00	0.4	NNE	<0.4	Calm	3.6	NE	2.7	NE	3.1	NE	0.9	NW	<0.4	Calm
04:00-05:00	<0.4	Calm	<0.4	Calm	4.0	NE	3.1	NE	3.1	NNE	0.4	NW	<0.4	Calm
05:00-06:00	<0.4	Calm	<0.4	Calm	4.0	NE	3.6	NE	4.0	NNE	0.4	NNW	<0.4	Calm
06:00-07:00	<0.4	Calm	<0.4	Calm	4.0	NE	3.6	NE	3.6	NNE	0.9	N	<0.4	Calm
07:00-08:00	<0.4	Calm	<0.4	Calm	4.0	NE	4.0	NE	3.6	NE	1.8	NNE	<0.4	Calm
08:00-09:00	<0.4	Calm	<0.4	Calm	4.5	NE	4.9	NE	3.6	NE	1.8	NNE	<0.4	Calm
09:00-10:00	1.8	NNE	0.4	NNE	4.9	NE	4.9	NE	3.6	NE	2.2	NNE	<0.4	Calm

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

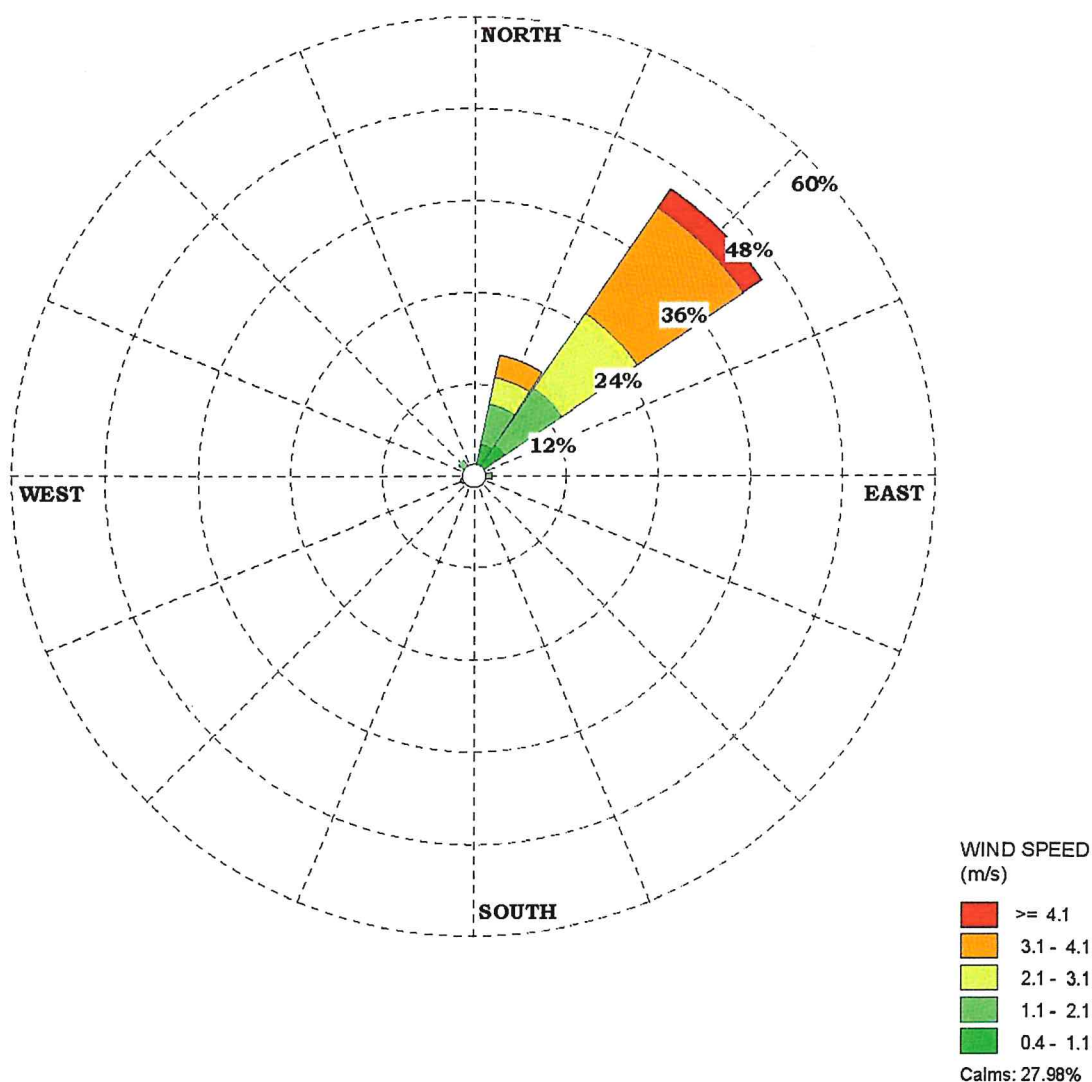
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Measured Source : Ambient Air Quality
Measured Point : วิทยาลัยเทคนิคท่าหลวงอภิมหาสมุทร ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691062 E, 1611870 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-015 - 021
Report No. : 2023-RAAC285
Report Date : February 10, 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	0.59524	0.00000	0.00000	0.00000	1.19048
NNE	4.16667	5.35714	3.57143	2.97619	0.00000	16.07143
NE	4.76190	8.92857	11.90480	16.66670	2.97619	45.23816
ENE	0.00000	0.59524	0.00000	0.59524	0.00000	1.19048
E	0.59524	1.78571	0.00000	0.00000	0.00000	2.38095
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	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
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	0.59524	0.00000	1.19048	0.00000	0.00000	1.78572
W	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
WNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NW	1.19048	1.19048	0.00000	0.00000	0.00000	2.38096
NNW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
Calm	27.97620					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กถรีร้อน
Measured Point : วิทยาลัยเทคนิคท่าหลวงอภิมหาสมุทร ตำบลบ้านครัว อำเภอบ้านหมือ จังหวัดสระบุรี
Measured Date : January 25 – February 1, 2023
Report No. : 2023-RAAC285



ANALYSIS REPORT

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

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

Project Name : โครงการขยายโรงงานเหล็กรัตน

Measured Source : Ambient Air Quality

Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนครชัยศรี จังหวัดนครปฐม

GPS. Coordinate : UTM (WGS84) 47P 0688472 E, 1610955 N

Measured Date : January 25-February 1, 2023

Measured By : Mr.Assada Chaiyawong

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

Quotation No. : 2023-00085


Analysis No. : 2023-AA289-001 - 007

Report No. : 2023-RAAC286

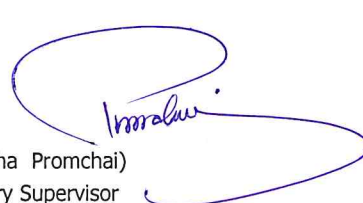
Report Date : February 10, 2023

Date/Time	Jan 25-26, 23		Jan 26-27, 23		Jan 27-28, 23		Jan 28-29, 23		Jan 29-30, 23		Jan 30-31, 23		Jan 31-Feb 1, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
12:00-13:00	0.9	NE	0.4	NE	1.3	NE	4.0	ENE	3.1	ENE	2.7	N	0.4	N
13:00-14:00	0.9	NE	0.4	ENE	1.8	NE	2.2	ENE	3.1	ENE	1.8	N	<0.4	Calm
14:00-15:00	0.9	NE	0.4	NW	1.8	NE	2.7	ENE	2.7	NE	1.8	N	<0.4	Calm
15:00-16:00	0.9	NE	0.4	NW	1.3	NE	1.8	ENE	2.7	NE	1.3	N	<0.4	Calm
16:00-17:00	0.4	NE	0.4	NNW	0.9	ENE	1.3	ENE	2.7	NE	1.3	N	0.4	N
17:00-18:00	0.4	NE	0.9	WNW	1.3	NE	0.9	E	2.2	ENE	0.9	N	<0.4	Calm
18:00-19:00	0.4	NE	0.4	WNW	1.8	ENE	0.9	ENE	2.2	ENE	0.4	N	<0.4	Calm
19:00-20:00	0.4	NE	<0.4	Calm	0.4	NE	1.8	ENE	0.9	ENE	<0.4	Calm	<0.4	Calm
20:00-21:00	0.4	ENE	<0.4	Calm	<0.4	Calm	1.3	ENE	0.4	ENE	<0.4	Calm	<0.4	Calm
21:00-22:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	ENE	0.4	ENE	<0.4	Calm	<0.4	Calm
22:00-23:00	<0.4	Calm	<0.4	Calm	0.4	NE	1.8	ENE	0.9	ENE	0.9	N	<0.4	Calm
23:00-00:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	2.2	ENE	2.2	ENE	0.4	N	<0.4	Calm
00:00-01:00	0.4	NE	<0.4	Calm	0.4	NE	2.2	ENE	0.9	ENE	<0.4	Calm	<0.4	Calm
01:00-02:00	0.4	NE	<0.4	Calm	2.7	NE	2.2	ENE	1.8	ENE	<0.4	Calm	<0.4	Calm
02:00-03:00	0.4	NE	<0.4	Calm	2.7	NE	1.8	ENE	0.9	ENE	<0.4	Calm	<0.4	Calm
03:00-04:00	<0.4	Calm	<0.4	Calm	3.6	NE	2.2	ENE	3.1	ENE	<0.4	Calm	<0.4	Calm
04:00-05:00	<0.4	Calm	<0.4	Calm	4.0	NE	3.6	ENE	2.2	NE	<0.4	Calm	<0.4	Calm
05:00-06:00	<0.4	Calm	<0.4	Calm	4.5	NE	4.0	ENE	3.1	ENE	<0.4	Calm	<0.4	Calm
06:00-07:00	<0.4	Calm	<0.4	Calm	4.0	NE	4.0	ENE	2.7	NE	<0.4	Calm	<0.4	Calm
07:00-08:00	<0.4	Calm	<0.4	Calm	3.6	NE	3.6	ENE	2.7	ENE	<0.4	Calm	<0.4	Calm
08:00-09:00	<0.4	Calm	<0.4	Calm	4.5	NE	4.5	ENE	3.6	ENE	0.4	N	<0.4	Calm
09:00-10:00	0.4	NE	0.4	ENE	4.5	ENE	4.5	ENE	3.6	ENE	0.9	N	<0.4	Calm
10:00-11:00	0.9	NE	1.3	NE	3.6	ENE	3.6	ENE	3.6	ENE	0.9	N	<0.4	Calm
11:00-12:00	0.9	NE	1.8	NE	4.0	ENE	2.7	ENE	3.6	ENE	0.4	N	<0.4	Calm

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

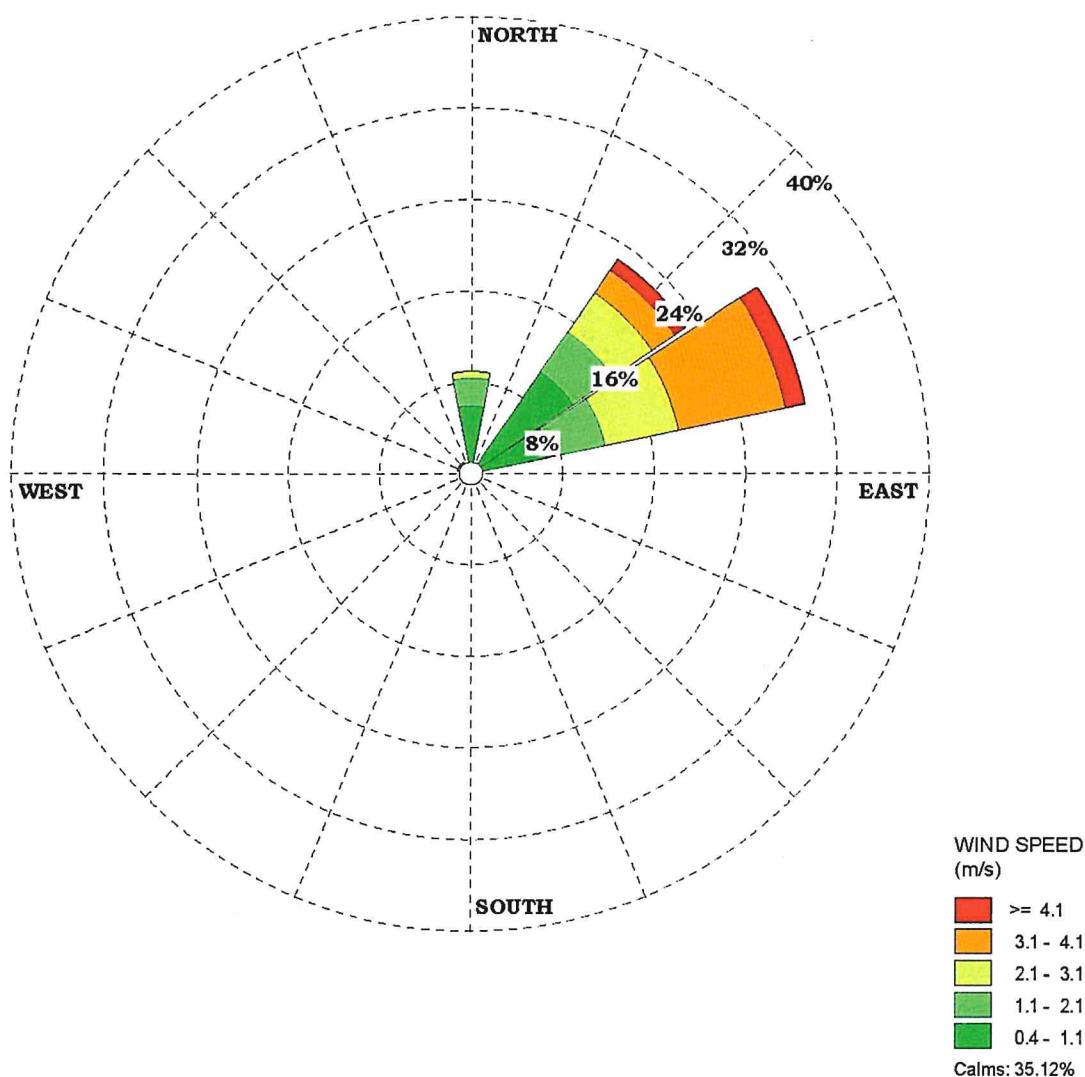
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีกรีดร้อน
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอกำแพง จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688472 E, 1610955 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-001 - 007
Report No. : 2023-RAAC286
Report Date : February 10, 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	5.95238	2.38095	0.59524	0.00000	0.00000	8.92857
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	10.71430	4.16667	4.16667	2.38095	1.19048	22.61907
ENE	7.14286	4.76190	6.54762	9.52381	1.78571	29.76190
E	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
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	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
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	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
W	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
WNW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
NW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
NNW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
Calm	35.11900					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอท่าเรือ จังหวัดพระนครศรีอยุธยา
Measured Date : January 25 – February 1, 2023
Report No. : 2023-RAAC286



ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านควย อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689740 E, 1612142 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-008 - 014
Report No. : 2023-RAAC287
Report Date : February 10, 2023

Date/Time	Jan 25-26, 23		Jan 26-27, 23		Jan 27-28, 23		Jan 28-29, 23		Jan 29-30, 23		Jan 30-31, 23		Jan 31-Feb 1, 23	
	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
12:00-13:00	3.1	NE	1.3	E	2.7	NE	3.6	E	4.0	ENE	3.1	NE	1.3	E
13:00-14:00	3.1	NE	1.3	E	2.7	NE	3.1	E	3.6	ENE	3.1	NE	1.3	E
14:00-15:00	2.7	NE	1.3	N	2.7	NE	3.6	E	3.1	E	3.1	E	0.9	E
15:00-16:00	2.2	NE	1.3	NNW	2.2	E	3.1	E	3.6	NE	3.1	NE	0.9	N
16:00-17:00	1.8	NE	1.3	NW	2.7	E	3.1	E	3.1	NE	2.7	NE	1.8	N
17:00-18:00	1.8	NE	2.2	NW	2.2	E	2.7	E	2.7	ENE	1.8	NE	0.9	W
18:00-19:00	1.3	NE	0.9	WNW	1.8	E	2.7	E	2.2	NE	1.8	NE	0.9	WSW
19:00-20:00	0.9	ENE	0.4	NW	1.3	E	1.8	E	1.3	NE	0.9	NE	0.4	WNW
20:00-21:00	0.9	E	<0.4	Calm	1.3	E	1.3	NE	0.9	ENE	0.9	NE	<0.4	Calm
21:00-22:00	0.9	E	<0.4	Calm	0.9	ENE	0.9	NE	0.4	NE	0.9	NNE	<0.4	Calm
22:00-23:00	0.9	E	<0.4	Calm	0.9	NE	1.8	ENE	0.9	ENE	0.9	NE	<0.4	Calm
23:00-00:00	0.9	E	<0.4	Calm	0.9	NE	1.8	NE	1.3	NE	0.9	NE	0.4	ENE
00:00-01:00	0.4	ENE	<0.4	Calm	0.9	NE	1.8	ENE	1.8	NE	1.3	NE	<0.4	Calm
01:00-02:00	0.9	NE	<0.4	Calm	1.8	NE	1.8	NE	1.3	NE	1.3	NE	<0.4	Calm
02:00-03:00	0.4	ENE	<0.4	Calm	2.2	NE	2.2	NE	1.3	NE	1.3	NNE	<0.4	Calm
03:00-04:00	0.4	ENE	<0.4	Calm	3.1	NE	2.2	NE	2.2	NE	0.9	N	<0.4	Calm
04:00-05:00	<0.4	Calm	<0.4	Calm	3.1	NE	2.7	NE	2.7	NE	0.9	N	<0.4	Calm
05:00-06:00	<0.4	Calm	<0.4	Calm	3.6	NE	3.1	NE	3.1	NE	0.9	N	0.4	WNW
06:00-07:00	<0.4	Calm	0.4	ENE	4.0	ENE	3.1	NE	3.1	NE	0.9	N	0.4	N
07:00-08:00	<0.4	Calm	<0.4	Calm	3.6	ENE	3.1	NE	3.1	NE	0.9	N	<0.4	Calm
08:00-09:00	<0.4	Calm	<0.4	Calm	4.5	ENE	4.0	NE	3.6	ENE	1.8	NE	<0.4	Calm
09:00-10:00	1.3	NE	0.9	NE	5.4	E	4.5	E	3.6	NE	1.8	NE	0.4	ENE
10:00-11:00	2.2	NE	1.8	NE	4.0	E	4.5	ENE	3.1	NE	2.2	NE	0.9	E
11:00-12:00	2.2	E	2.7	NE	4.0	NE	4.0	NE	3.6	NE	2.2	NE	0.9	E

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

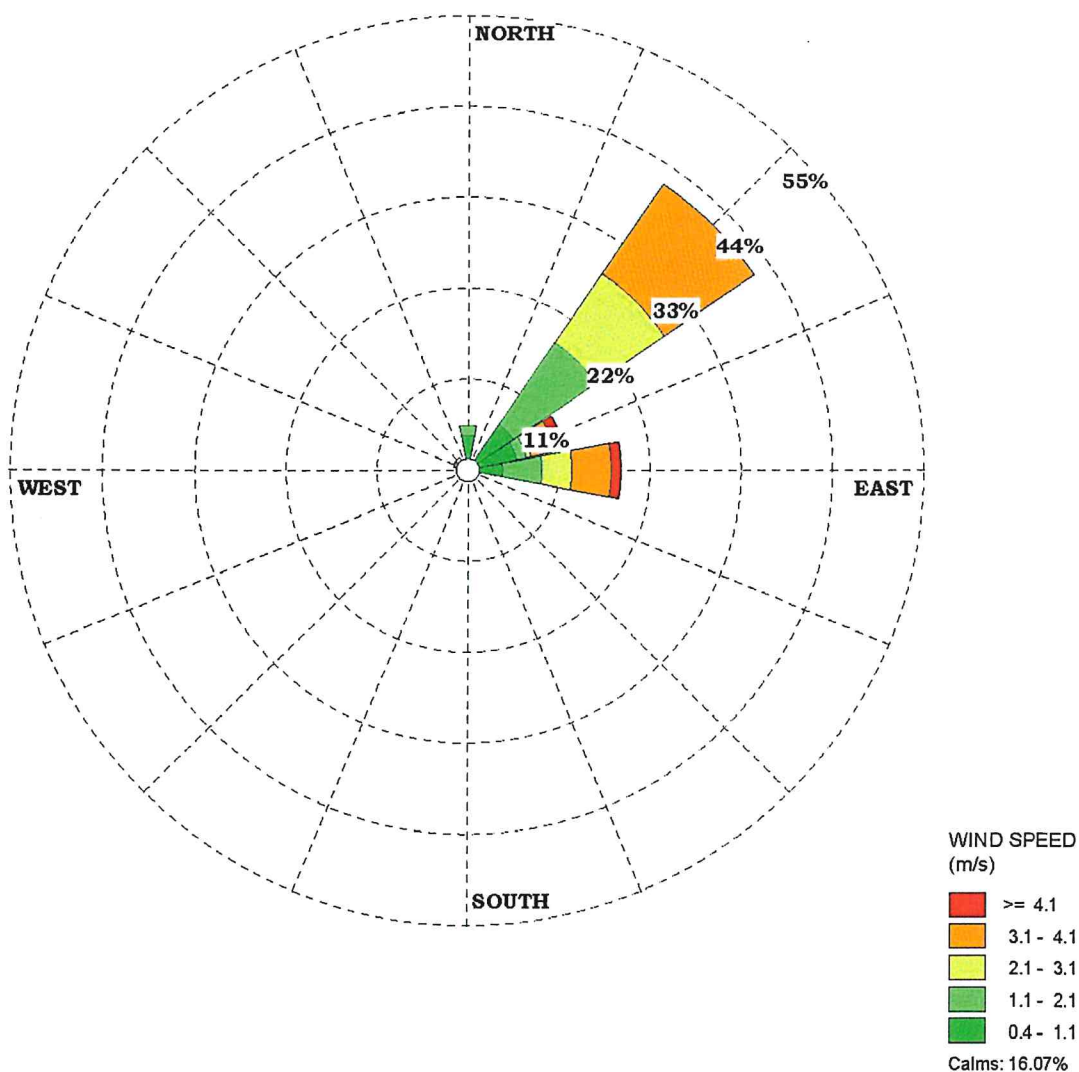
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Measured Source : Ambient Air Quality
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านคว่ำ อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689740 E, 1612142 N
Measured Date : January 25-February 1, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-008 - 014
Report No. : 2023-RAAC287
Report Date : February 10, 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	4.16667	1.19048	0.00000	0.00000	0.00000	5.35715
NNE	0.59524	0.59524	0.00000	0.00000	0.00000	1.19048
NE	6.54762	11.90480	10.11900	13.09520	0.00000	41.66662
ENE	5.95238	1.19048	0.59524	2.97619	1.19048	11.90477
E	4.16667	4.76190	3.57143	4.76190	1.19048	18.45238
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	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
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	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
W	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
WNW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
NW	0.59524	0.59524	0.59524	0.00000	0.00000	1.78572
NNW	0.00000	0.59524	0.00000	0.00000	0.00000	0.59524
Calm	16.07140					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : ชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหม้อ จังหวัดสระบุรี
Measured Date : January 25 – February 1, 2023
Report No. : 2023-RAAC287




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 Noise
Measured Point : ริมรั้วด้านติดชุมชน (ทิศใต้)
GPS. Coordinate : UTM (WGS84) 47P 0689419 E, 1611425 N
Measured Date : January 26-27, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00221384

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-029
Report No. : 2023-RAAC235
Report Date : February 9, 2023

Interval Time	Noise Level, dB(A)	
	Leq	Lmax
08:00-09:00	63.9	78.5
09:00-10:00	73.3	91.4
10:00-11:00	74.0	90.4
11:00-12:00	54.7	89.6
12:00-13:00	54.7	75.1
13:00-14:00	63.3	78.8
14:00-15:00	54.0	81.0
15:00-16:00	53.5	68.0
16:00-17:00	54.3	76.9
17:00-18:00	54.2	78.9
18:00-19:00	54.9	80.8
19:00-20:00	53.1	74.7
20:00-21:00	51.7	68.9
21:00-22:00	55.6	66.1
22:00-23:00	57.4	74.5
23:00-00:00	58.0	74.7
00:00-01:00	57.3	70.7
01:00-02:00	57.4	75.5
02:00-03:00	59.0	76.0
03:00-04:00	57.6	74.8
04:00-05:00	59.4	75.4
05:00-06:00	60.0	77.3
06:00-07:00	58.4	77.7
07:00-08:00	59.0	76.0
24 Hours Measurement	64.0	91.4
Standard¹⁾	70	115

Remark : ¹⁾ Notification of the Ministry of Industry B.E.2548 (2005), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 11D dated January 25, B.E.2549 (2006).


 (Ms.Thidarat Pukha)
 Laboratory Reviewer


 (Ms.Thanida Bunrungrueang)
 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 Noise
Measured Point : ริมรั้วด้านติดชุมชน (ทิศใต้)
GPS. Coordinate : UTM (WGS84) 47P 0689419 E, 1611425 N
Measured Date : January 27-28, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00221384

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-029
Report No. : 2023-RAAC235
Report Date : February 9, 2023

Interval Time	Noise Level, dB(A)	
	Leq	Lmax
08:00-09:00	55.8	69.0
09:00-10:00	57.5	76.7
10:00-11:00	56.1	79.1
11:00-12:00	55.3	72.3
12:00-13:00	55.6	70.6
13:00-14:00	56.0	79.4
14:00-15:00	56.4	79.3
15:00-16:00	55.7	70.8
16:00-17:00	55.9	72.9
17:00-18:00	55.4	77.7
18:00-19:00	54.6	75.4
19:00-20:00	54.6	70.7
20:00-21:00	54.3	63.0
21:00-22:00	57.3	73.6
22:00-23:00	57.1	64.4
23:00-00:00	56.7	69.2
00:00-01:00	56.6	66.9
01:00-02:00	57.2	64.2
02:00-03:00	57.8	67.8
03:00-04:00	58.6	74.8
04:00-05:00	59.6	76.8
05:00-06:00	60.7	78.1
06:00-07:00	60.1	73.2
07:00-08:00	61.5	79.2
24 Hours Measurement	57.4	79.4
Standard^{1'}	70	115

Remark : ^{1'} Notification of the Ministry of Industry B.E.2548 (2005), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 11D dated January 25, B.E.2549 (2006).




(Ms.Thidarat Pukkha)
Laboratory Reviewer



(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กวีรธร
Measured Source : Ambient Noise
Measured Point : ริมรั้วด้านติดชุมชน (ทิศใต้)
GPS. Coordinate : UTM (WGS84) 47P 0689419 E, 1611425 N
Measured Date : January 28-29, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00221384

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-029
Report No. : 2023-RAAC235
Report Date : February 9, 2023

Interval Time	Noise Level, dB(A)	
	Leq	Lmax
08:00-09:00	61.2	78.2
09:00-10:00	58.9	70.1
10:00-11:00	59.0	70.2
11:00-12:00	57.9	73.8
12:00-13:00	56.9	74.9
13:00-14:00	57.9	79.0
14:00-15:00	55.6	67.7
15:00-16:00	56.4	67.2
16:00-17:00	55.9	75.2
17:00-18:00	57.9	77.5
18:00-19:00	58.2	77.5
19:00-20:00	56.4	73.7
20:00-21:00	55.7	71.5
21:00-22:00	56.9	74.3
22:00-23:00	56.7	73.1
23:00-00:00	57.0	65.7
00:00-01:00	56.6	66.3
01:00-02:00	56.5	65.2
02:00-03:00	56.3	63.6
03:00-04:00	57.0	66.3
04:00-05:00	59.0	77.0
05:00-06:00	60.5	77.9
06:00-07:00	60.1	78.2
07:00-08:00	60.5	76.9
24 Hours Measurement	58.0	79.0
Standard¹⁾	70	115

Remark : ¹⁾ Notification of the Ministry of Industry B.E.2548 (2005), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 11D dated January 25, B.E.2549 (2006).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
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 Noise
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนาทวี จังหวัดนครศรีธรรมราช
GPS. Coordinate : UTM (WGS84) 47P 0688444 E, 1610981 N
Measured Date : January 26-27, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-21 Serial Number 00754448

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-030
Report No. : 2023-RAAC236
Report Date : February 9, 2023

Interval Time	Noise Level, dB(A)	
	Leq	Lmax
08:00-09:00	59.2	81.7
09:00-10:00	55.6	78.2
10:00-11:00	59.2	77.8
11:00-12:00	53.5	73.0
12:00-13:00	59.7	75.6
13:00-14:00	52.7	72.3
14:00-15:00	51.6	67.8
15:00-16:00	56.5	74.5
16:00-17:00	54.4	76.1
17:00-18:00	54.3	76.3
18:00-19:00	58.2	78.6
19:00-20:00	69.2	88.6
20:00-21:00	51.8	68.7
21:00-22:00	51.2	71.0
22:00-23:00	51.5	65.3
23:00-00:00	51.4	79.4
00:00-01:00	50.0	63.0
01:00-02:00	48.7	63.2
02:00-03:00	49.4	79.9
03:00-04:00	47.7	62.7
04:00-05:00	54.6	78.4
05:00-06:00	53.9	76.5
06:00-07:00	56.1	73.9
07:00-08:00	57.6	73.7
24 Hours Measurement	58.2	88.6
Standard^{1'}	70	115

Remark : ^{1'} Notification of the Ministry of Industry B.E.2548 (2005), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 11D dated January 25, B.E.2549 (2006).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungreang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Measured Source : Ambient Noise
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนาแก จังหวัดนครพนม
GPS. Coordinate : UTM (WGS84) 47P 0688444 E, 1610981 N
Measured Date : January 27-28, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-21 Serial Number 00754448

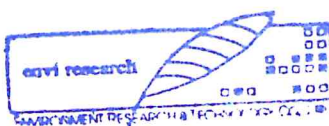
Quotation No. : 2023-00085
Analysis No. : 2023-AA289-030
Report No. : 2023-RAAC236
Report Date : February 9, 2023

Interval Time	Noise Level, dB(A)	
	Leq	Lmax
08:00-09:00	56.4	79.1
09:00-10:00	53.8	74.4
10:00-11:00	54.2	70.8
11:00-12:00	53.7	72.9
12:00-13:00	53.9	74.1
13:00-14:00	51.6	70.4
14:00-15:00	52.0	82.4
15:00-16:00	56.9	75.2
16:00-17:00	55.5	72.7
17:00-18:00	58.6	82.0
18:00-19:00	64.0	82.2
19:00-20:00	68.5	85.7
20:00-21:00	50.6	69.6
21:00-22:00	51.0	65.6
22:00-23:00	50.4	63.9
23:00-00:00	51.0	62.8
00:00-01:00	50.9	63.1
01:00-02:00	50.9	58.2
02:00-03:00	52.8	63.3
03:00-04:00	54.6	63.2
04:00-05:00	54.9	74.8
05:00-06:00	56.8	75.7
06:00-07:00	57.2	74.8
07:00-08:00	59.6	84.2
24 Hours Measurement	58.3	85.7
Standard^{1/}	70	115

Remark : ^{1/} Notification of the Ministry of Industry B.E.2548 (2005), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 11D dated January 25, B.E.2549 (2006).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กครีตร้อน
Measured Source : Ambient Noise
Measured Point : ชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอกำแพง จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688444 E, 1610981 N
Measured Date : January 28-29, 2023
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-21 Serial Number 00754448

Quotation No. : 2023-00085
Analysis No. : 2023-AA289-030
Report No. : 2023-RAAC236
Report Date : February 9, 2023

Interval Time	Noise Level, dB(A)	
	Leq	Lmax
08:00-09:00	59.5	79.9
09:00-10:00	62.4	81.1
10:00-11:00	62.6	80.0
11:00-12:00	61.3	81.3
12:00-13:00	57.3	77.1
13:00-14:00	67.9	86.3
14:00-15:00	63.0	82.4
15:00-16:00	54.3	71.5
16:00-17:00	55.1	87.2
17:00-18:00	68.7	83.0
18:00-19:00	66.7	85.5
19:00-20:00	54.5	68.2
20:00-21:00	57.2	78.5
21:00-22:00	53.0	67.9
22:00-23:00	52.8	65.0
23:00-00:00	52.7	70.6
00:00-01:00	51.6	63.6
01:00-02:00	51.4	62.2
02:00-03:00	51.9	71.5
03:00-04:00	53.4	72.0
04:00-05:00	69.5	86.9
05:00-06:00	72.4	88.8
06:00-07:00	65.0	81.0
07:00-08:00	58.3	80.1
24 Hours Measurement	63.9	88.8
Standard^{1'}	70	115

Remark : ^{1'} Notification of the Ministry of Industry B.E.2548 (2005), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 11D dated January 25, B.E.2549 (2006).

(Ms.Thidarat Pukkha)
Laboratory Reviewer



(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT


Customer Name	: Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)	Quotation No.	: 2023-00085
Address	: 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270	Analysis No.	: 2023-AA273-003
Project Name	: โครงการขยายโรงงานเหล็กรีดร้อน	Received Date	: January 31, 2023
Sampling Source	: Stack Air Quality	Analytical Date	: January 31-February 2, 2023
Sampling Point	: Canopy Hood (Inlet)	Report No.	: 2023-RAAC205
GPS. Coordinate	: UTM (WGS84) 47P 0689186 E, 1611721 N	Report Date	: February 8, 2023
Sampling Date	: January 28, 2023		
Sampling Time	: 08:40-09:30		
Sampling Method	: US.EPA. Method 1-4, 5		
Sampling By	: Mr.Watcharangkun Kongsang		
Analyzed By	: Environment Research & Technology Co., Ltd.		

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	63
6	Pressure in Stack	Incline Manometer	mmHg	750
7	Oxygen Rate	Electrochemical Sensor	%	20.2
8	Moisture	Condensation Method	%	4.0
9	Air Velocity	Type S Pitot Tube	m/s	32.2
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	815,660
11	Volume Metric Flow Rate	Calculate	m ³ /hr	931,637
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	619

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 : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689194 E, 1611774 N
Sampling Date : January 28, 2023
Sampling Time : 08:40-09:40
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-AA273-004
Received Date : January 28, 2023
Analytical Date : January 28-February 2, 2023
Report No. : 2023-RAAC206
Report Date : February 8, 2023

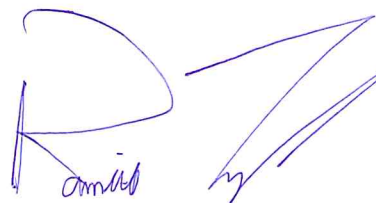
Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electeic	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	25.0	-
4	Stack Diameter	Measuring Tape	m	4.00	-
5	Flue Gas Temperature	Thermocouple	°C	55	-
6	Pressure in Stack	Incline Manometer	mmHg	761	-
7	Oxygen Rate	Electrochemical Sensor	%	20.2	-
8	Moisture	Condensation Method	%	5.0	-
9	Air Velocity	Type S Pitot Tube	m/s	15.4	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	634,100	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	698,395	-
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 (NO _x) ^{1'}	Instrumental Analyzer Method	ppm	5.4	200
15	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	mg/m ³	10	376
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	8.8	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 : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689200 E, 1611725 N
Sampling Date : January 28, 2023
Sampling Time : 09:45-10:50
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AA273-001
Received Date : January 31, 2023
Analytical Date : January 31-February 10, 2023
Report No. : 2023-RAAC203
Report Date : February 8, 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	66
6	Pressure in Stack	Incline Manometer	mmHg	755
7	Oxygen Rate	Electrochemical Sensor	%	20.0
8	Moisture	Condensation Method	%	3.3
9	Air Velocity	Type S Pitot Tube	m/s	21.2
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	188,936
11	Volume Metric Flow Rate	Calculate	m ³ /hr	216,282
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	781

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 : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689230 E, 1611773 N
Sampling Date : January 28, 2023
Sampling Time : 09:45-10:40
Sampling Method : US.EPA. Method 1-4, 5D, 6C, 7E
Sampling By : Mr.Watcharangkun Kongsang
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AA273-002
Received Date : January 28, 2023
Analytical Date : January 28-February 2, 2023
Report No. : 2023-RAAC204
Report Date : February 8, 2023

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electeic	-
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	761	-
7	Oxygen Rate	Electrochemical Sensor	%	20.6	-
8	Moisture	Condensation Method	%	4.5	-
9	Air Velocity	Type S Pitot Tube	m/s	5.2	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	3,177,794	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	3,237,916	-
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 (NO _x) ^{1'}	Instrumental Analyzer Method	ppm	1.2	200
15	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	mg/m ³	2.2	376
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	5.1	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

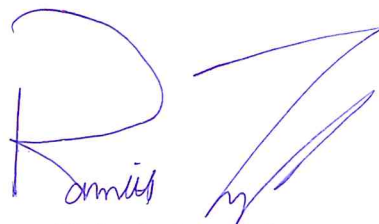
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689188 E, 1611723 N
Sampling Date : May 6, 2023
Sampling Time : 08:50-09:50
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AB699-003
Received Date : May 8, 2023
Analytical Date : May 8-12, 2023
Report No. : 2023-RAAI603
Report Date : May 17, 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	76
6	Pressure in Stack	Incline Manometer	mmHg	743
7	Oxygen Rate	Electrochemical Sensor	%	20.3
8	Moisture	Condensation Method	%	5.6
9	Air Velocity	Type S Pitot Tube	m/s	26.5
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	638,957
11	Volume Metric Flow Rate	Calculate	m ³ /hr	766,231
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	914

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 : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 1689194 E, 1611774 N
Sampling Date : May 6, 2023
Sampling Time : 08:50-09:48
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AB699-004
Received Date : May 8, 2023
Analytical Date : May 8-12, 2023
Report No. : 2023-RAAI604
Report Date : May 17, 2023

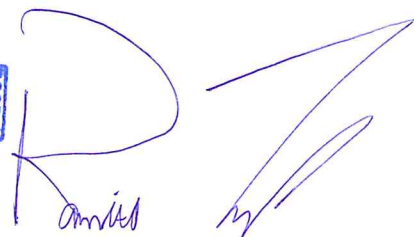
Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electeic	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	25.0	-
4	Stack Diameter	Measuring Tape	m	4.00	-
5	Flue Gas Temperature	Thermocouple	°C	55	-
6	Pressure in Stack	Incline Manometer	mmHg	755	-
7	Oxygen Rate	Electrochemical Sensor	%	20.9	-
8	Moisture	Condensation Method	%	3.7	-
9	Air Velocity	Type S Pitot Tube	m/s	6.3	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	256,223	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	283,803	-
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

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

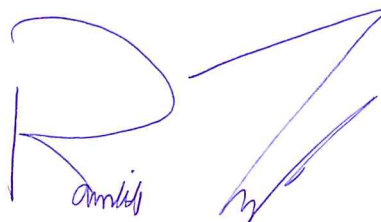
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689202 E, 1611725 N
Sampling Date : May 6, 2023
Sampling Time : 10:05-10:55
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : 2023-00085
Analysis No. : 2023-AB699-001
Received Date : May 8, 2023
Analytical Date : May 8-12, 2023
Report No. : 2023-RAAI601
Report Date : May 17, 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	69
6	Pressure in Stack	Incline Manometer	mmHg	744
7	Oxygen Rate	Electrochemical Sensor	%	20.3
8	Moisture	Condensation Method	%	6.6
9	Air Velocity	Type S Pitot Tube	m/s	28.5
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	247,634
11	Volume Metric Flow Rate	Calculate	m ³ /hr	290,585
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	1,008

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

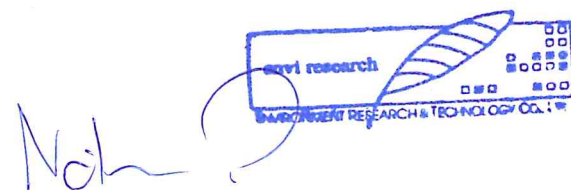
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีตรรก
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689230 E, 1611178 N
Sampling Date : May 6, 2023
Sampling Time : 10:05-11:00
Sampling Method : US.EPA. Method 1-4, 5D
Sampling By : Mr.Siwawut Thamnita
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2023-00085
Analysis No. : 2023-AB699-002
Received Date : May 8, 2023
Analytical Date : May 8-12, 2023
Report No. : 2023-RAAI602
Report Date : May 17, 2023

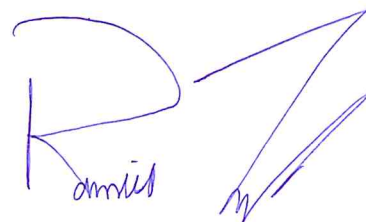
Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electeic	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	17.5	-
4	Stack Diameter	Measuring Tape	m	10.00x17.30	-
5	Flue Gas Temperature	Thermocouple	°C	40	-
6	Pressure in Stack	Incline Manometer	mmHg	755	-
7	Oxygen Rate	Electrochemical Sensor	%	20.9	-
8	Moisture	Condensation Method	%	3.3	-
9	Air Velocity	Type S Pitot Tube	m/s	5.6	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	3,325,916	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	3,518,105	-
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	30	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 : โครงการขยายโรงงานเหล็กรัตน
Sampling Source : Stack Air Quality
Sampling Point : ปล่องเตาอบ WHF
GPS. Coordinate : UTM (WGS84) 47P 0689150 E, 1611571 N
Sampling Date : February 4, 2023
Sampling Time : 13:30-14:30
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-AA344-001
Received Date : February 4, 2023
Analytical Date : February 4-15, 2023
Report No. : 2023-RAAC402
Report Date : February 15, 2023

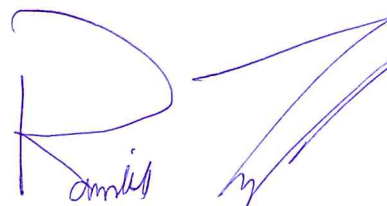
Item	Description	Method of Analysis	Unit	Result		Standard ^{2'}
				Actual Condition	Convert to Excess Oxygen 7%	
1	Fuel Type	-	-	Heavy Oil Grade C		-
2	Combustion System	-	-	Close		-
3	Stack Height	Measuring Tape	m	40.0		-
4	Stack Diameter	Measuring Tape	m	1.50		-
5	Flue Gas Temperature	Thermocouple	°C	271	-	-
6	Pressure in Stack	Incline Manometer	mmHg	758	-	-
7	Oxygen Rate	Electrochemical Sensor	%	6.2	-	-
8	Moisture	Condensation Method	%	5.5	-	-
9	Air Velocity	Type S Pitot Tube	m/s	17.7	-	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	61,490	-	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	112,497	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	30	28	800
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	80	76	2,096
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	159	150	200
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	299	283	376
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	5.8	5.5	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 : โครงการขยายโรงงานเหล็กศรีนคร
Sampling Source : Stack Air Quality
Sampling Point : ปล่องเตาอบ RHF
GPS. Coordinate : UTM (WGS84) 47P 0689110 E, 1611606 N
Sampling Date : February 1, 2023
Sampling Time : 13:30-14:30
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-AA310-001
Received Date : February 3, 2023
Analytical Date : February 3-6, 2023
Report No. : 2023-RAAC220
Report Date : February 9, 2023


Item	Description	Method of Analysis	Unit	Result		Standard ^{2'}
				Actual Condition	Convert to Excess Oxygen 7%	
1	Fuel Type	-	-	Heavy Oil Grade C		-
2	Combustion System	-	-	Close		-
3	Stack Height	Measuring Tape	m	23.0		-
4	Stack Diameter	Measuring Tape	m	1.10		-
5	Flue Gas Temperature	Thermocouple	°C	160	-	-
6	Pressure in Stack	Incline Manometer	mmHg	759	-	-
7	Oxygen Rate	Electrochemical Sensor	%	15.2	-	-
8	Moisture	Condensation Method	%	3.5	-	-
9	Air Velocity	Type S Pitot Tube	m/s	9.6	-	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	22,525	-	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	32,762	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	24	59	800
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	63	154	2,096
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	40	98	200
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	76	185	376
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	17	41	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 : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Wastewater Sampling
Sampling Point : คลองระบายน้ำใกล้แม่น้ำป่าสัก
GPS. Coordinate : UTM (WGS84) 47P 0688420 E, 1610971 N
Sampling Date : February 4, 2023
Sampling Time : 11:43
Sampling Method : Grab
Sampling By : Mr.Watcharangkun Kongsang, Registration No.ว-099-จ-7672
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odorless

Quotation No. : 2023-00085
Analysis No. : 2023-AA334-001
Received Date : February 6, 2023
Analytical Date : February 6-14, 2023
Report No. : 2023-RAAC282
Report Date : February 15, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.4	5.5-9.0
Total Dissolved Solids	mg/L	Dried at 180°C	200	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	27	50
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.003	0.2

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

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

* The standard value of TDS is divided into 2 cases;

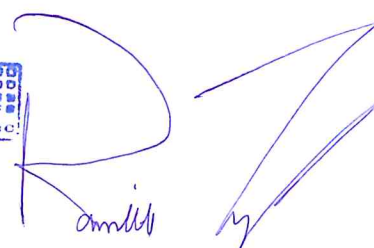
- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l. TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 mg/l.



(Ms.Sudarat Khejonrak)

Laboratory Reviewer No. ว-099-จ-7037

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-7664

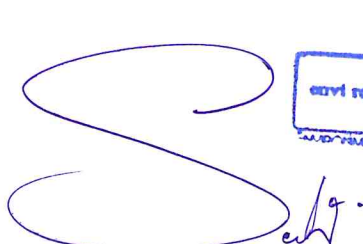
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีนครินทร์
Sampling Source : Wastewater Sampling
Sampling Point : น้ำทิ้งก่อนเข้าระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0689095 E, 1611530 N
Sampling Date : February 23, 2023
Sampling Time : 11:27
Sampling Method : Grab
Sampling By : Mr.Jirayuth Samart, Registration No.ว-099-จ-0007
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : 2023-00085
Analysis No. : 2023-AA574-001
Received Date : February 24, 2023
Analytical Date : February 24-March 7, 2023
Report No. : 2023-RAAD324
Report Date : March 8, 2023

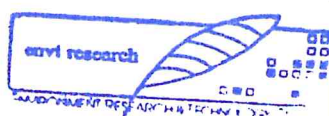
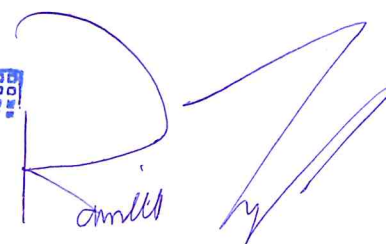
Parameter	Unit	Method of Analysis ^{1'}	Result
pH	-	Electrometric	8.3
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15
Total Dissolved Solids	mg/L	Dried at 180°C	578
Total Suspended Solids	mg/L	Dried at 103-105°C	<5.0
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	<40
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.2

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



(Ms.Sudarat Khejonrak)

Laboratory Reviewer No. ว-099-จ-7037

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-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 : Wastewater Sampling

Sampling Point : น้ำทิ้งหลังผ่านระบบบำบัด

GPS. Coordinate : UTM (WGS84) 47P 0688523 E, 1611442 N

Sampling Date : February 23, 2023

Sampling Time : 11:41

Sampling Method : Grab

Sampling By : Mr.Jirayuth Samart, Registration No.จ-099-จ-0007

Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099

Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : 2023-00085

Analysis No. : 2023-AA574-002

Received Date : February 24, 2023

Analytical Date : February 24-March 7, 2023

Report No. : 2023-RAAD325

Report Date : March 8, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.3	5.5-9.0
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	13	300
Total Dissolved Solids	mg/L	Dried at 180°C	590	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	7.3	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	63	120
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.2	5

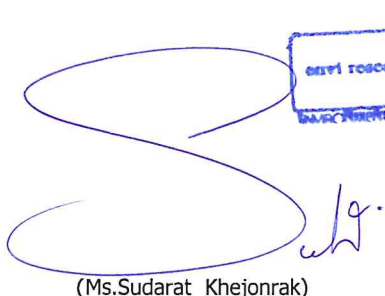
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

* The standard value of TDS is divided into 2 cases;

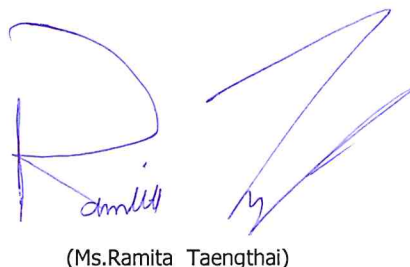
- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l. TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 mg/l.



(Ms.Sudarat Khejonrak)

Laboratory Reviewer No. จ-099-จ-7037



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-จ-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 : Wastewater Sampling

Sampling Point : คลองระบายน้ำใกล้แม่น้ำป่าสัก

GPS. Coordinate : UTM (WGS84) 47P 0688459 E, 1610876 N

Sampling Date : May 6, 2023

Sampling Time : 11:21

Sampling Method : Grab

Sampling By : Mr.Siwawut Thamnita, Registration No.ว-099-จ-8840

Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099

Physical Properties : Turbid, Light Yellow, Sediment, Odorless

Quotation No. : 2023-00085

Analysis No. : 2023-AB694-001

Received Date : May 8, 2023

Analytical Date : May 8-15, 2023

Report No. : 2023-RAAI705

Report Date : May 15, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.8	5.5-9.0
Total Dissolved Solids	mg/L	Dried at 180°C	180	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	5.9	50
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	<0.001	0.2

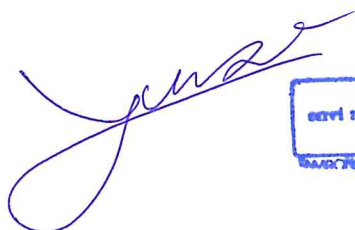
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

* The standard value of TDS is divided into 2 cases;

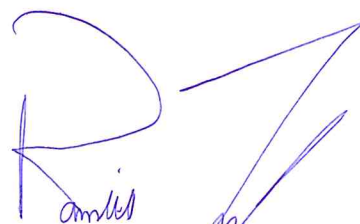
- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l. TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 mg/l.



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ก-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-7664


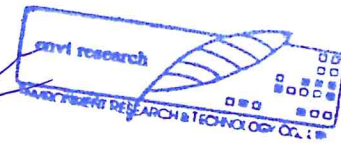
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Wastewater Sampling
Sampling Point : น้ำทิ้งก่อนเข้าระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0689072 E, 1611532 N
Sampling Date : May 6, 2023
Sampling Time : 11:02
Sampling Method : Grab
Sampling By : Mr.Siwawut Thamnita, Registration No.ว-099-จ-8840
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor


Quotation No. : 2023-00085
Analysis No. : 2023-AB694-002
Received Date : May 8, 2023
Analytical Date : May 8-15, 2023
Report No. : 2023-RAAI707
Report Date : May 15, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result
pH	-	Electrometric	8.1
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	18
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17
Total Dissolved Solids	mg/L	Dried at 180°C	434
Total Suspended Solids	mg/L	Dried at 103-105°C	28
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	44
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0

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

(Ms.Yuwadee Na Ranong)
Laboratory Reviewer No. ว-099-ค-8805



(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 : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Wastewater Sampling
Sampling Point : น้ำทิ้งหลังผ่านระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0688522 E, 1611497 N
Sampling Date : May 6, 2023
Sampling Time : 10:48
Sampling Method : Grab
Sampling By : Mr.Siwawut Thamnita, Registration No.จ-099-จ-8840
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odorless
Quotation No. : 2023-00085
Analysis No. : 2023-AB694-003
Received Date : May 8, 2023
Analytical Date : May 8-15, 2023
Report No. : 2023-RAAI708
Report Date : May 15, 2023

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.9	5.5-9.0
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	21	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	21	300
Total Dissolved Solids	mg/L	Dried at 180°C	436	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	5.7	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	41	120
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

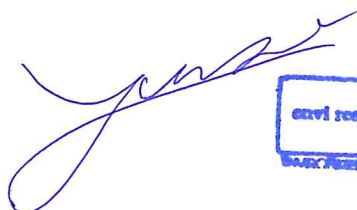
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

* The standard value of TDS is divided into 2 cases;

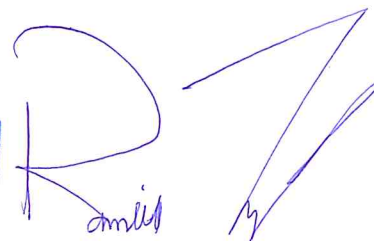
- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l. TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 mg/l.



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-จ-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-จ-7664

ANALYSIS REPORT

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

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

Project Name : โครงการขยายโรงงานเหล็กรัตน

Sampling Source : Work Place Air Quality

Sampling Date : February 23, 2023

Sampling Time : 11:01-15:26

Sampling Method : APHA, NIOSH, OSHA

Sampling By : Mr.Jirayuth Samart

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

Quotation No. : 2023-00085

Analysis No. : 2023-AA573

Received Date : February 24, 2023

Analytical Date : February 24-March 9, 2023

Report No. : 2023-RAAD244


Report Date : March 3, 2023

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1'}	ACGIH ^{2'}
1	หน้าเตาหลอม	Carbon Monoxide	Non-Dispersive Infrared Method	ppm	0.5	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	0.85	-	10
2	ห้องเตาหลอมด้านหน้าเหล็ก 10 เมตร	Carbon Monoxide	Non-Dispersive Infrared Method	ppm	0.5	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	<0.10	-	10
3	ฝุ่นที่ได้รับจากระบบดักฝุ่น	Lead Inorganic as Pb	Inductively Coupled Plasma (ICP-OES)	mg/m ³	0.003	0.05	0.05
4	ห้องต้มทดสอบบิลเล็ด	Hydrogen Chloride	Ion Chromatography, Conductivity Detection	ppm	<0.02	5C	2C

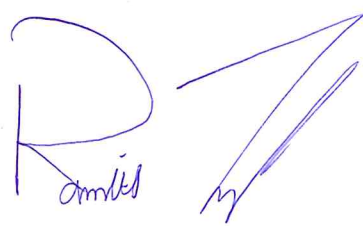
Remark : ^{1'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2556 (2013), published in the Royal Government Gazette Volume 134 Special Part 198D dated August 3, B.E.2560 (2017).

^{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 : โครงการขยายโรงงานเหล็กที่ร่อน

Sampling Source : Work Place Air Quality

Sampling Date : May 6, 2023

Sampling Time : 09:22-10:28

Sampling Method : APHA, NIOSH

Sampling By : Mr.Siwawut Thamnita

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

Quotation No. : 2023-00085

Analysis No. : 2023-AB695

Received Date : May 8, 2023

Analytical Date : May 8-10, 2023

Report No. : 2023-RAAI672

Report Date : May 15, 2023

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1'}	ACGIH ^{2'}
1	หน้าเตาหลอม	Carbon Monoxide	Non-Dispersive Infrared	ppm	1.0	50	25
		Nitrogen Dioxide	Visible Absorption Spectrophotometry	ppm	0.03	5C	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	0.68	-	10
2	ห่างเตาหลอมด้านหน้าเหล็ก 10 เมตร	Carbon Monoxide	Non-Dispersive Infrared	ppm	0.9	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	0.29	-	10

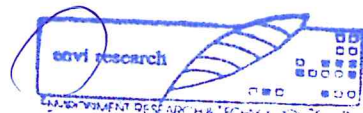
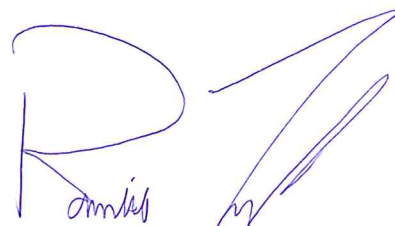
Remark : ^{1'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2556 (2013), published in the Royal Government Gazette Volume 134 Special Part 198D dated August 3, B.E.2560 (2017).

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

C= Ceiling Limit.



(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่วัดบ้าน
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Quest Technologies Model QT-34 Serial Number TEG040249

Quotation No. : 2023-00085
Analysis No. : 2023-AB450-001
Report No. : 2023-RAAH416
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature: °C				Job Description/ Activities	Work Load, WL		Standard ^{2/}
			T _{wb}	T _{db}	T _{gr}	WBGT ^{1/} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
Control Room : EAF (Indoor)	คุณสมพร แสงสว่าง	10:15-12:15	18.4	22.5	23.2	19.8	ควบคุมเครื่องจักร - นั่ง ทำงานด้วยแขนทั้ง 2 ข้าง (เบา) - การเผาผลาญพื้นฐานของร่างกาย	108.0	168.0	34.0
								60.0		

Remark : T_{wb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_{gr} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1/} Calculate by $((WBGT_1 \times Time_1) + \dots + (WBGT_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n)$

^{2/} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Bannmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กดีรัล
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Metrosonics Model hs-32 Serial Number MCD070019

Quotation No. : 2023-00085
Analysis No. : 2023-AB450-002
Report No. : 2023-RAAH417
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{wb}	T _{db}	T _{gr}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
ประกอบ Tundish (Indoor)	คุณประสาน เรืองฉาย	10:18-12:18	28.6	36.9	38.0	31.4	ประกอบ และซ่อมชิ้นงาน - ขึ้น ฟางงานด้วยแขนทั้ง 2 ข้าง (หนัก) การเดินหลายพื้นฐานของร่างกาย	186.0	246.0	32.0
								60.0		

Remark : T_{wb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_{gr} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by $((WBGT \times Time) + (WBGT_2 \times Time) + \dots + (WBGT_n \times Time)) / (Time_1 + Time_2 + \dots + Time_n)$

^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).




(Ms. Thidar Pukkha)
Laboratory Reviewer



(Ms. Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่รั้ว
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Metrosonics Model hs-32 Serial Number MCB110008

Quotation No. : 2023-00085
Analysis No. : 2023-AB450-003
Report No. : 2023-RAAH418
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{wb}	T _{db}	T _{gr}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
ประเภทมould (Indoor)	คุณสุรชัย ช่างทอง	10:20-12:20	29.2	37.2	41.7	33.0	ประกอบ และซ่อมชิ้นงาน - ชิน ทำงานด้วยแขนทั้ง 2 ข้าง (หนัก) การแปลนลายพื้นฐานของร่างกาย	186.0	246.0	32.0
								60.0		

Remark : T_{wb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_{gr} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by $((WBGT_1 \times Time_1) + (WBGT_2 \times Time_2) + \dots + (WBGT_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n)$

^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).

* Not within standard.




(Ms.Thanida Bunrungrueang)
Laboratory Supervisor



(Ms.Thidarat Pukkha)
Laboratory Reviewer

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic JANTYTECH Model JT2011-E2A Serial Number 3522210168

Quotation No. : 2023-00085
Analysis No. : 2023-AB450-004
Report No. : 2023-RAAH419
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{wb}	T _{db}	T _g	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
CCM Cast น้ำเหล็ก (Indoor)	คุณเอก ทองอ่อน	10:23-12:23	32.4	45.6	46.5	36.6	ควบคุมเครื่องจักร - นั่ง ทำงานด้วยแขนทั้ง 2 ข้าง (นาน) การเผาผลาญพื้นฐานของร่างกาย	108.0	168.0	34.0
			-	-	-	-		60.0		

Remark : T_{wb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_g = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by $(WBGT_1 \times Time_1) + (WBGT_2 \times Time_2) + \dots + (WBGT_n \times Time_n) / (Time_1 + Time_2 + \dots + Time_n)$

^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).

* Not within standard.



(Ms. Thidar Pukkha)
Laboratory Reviewer




(Ms. Thanida Bunrungrueang)
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
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPE110019

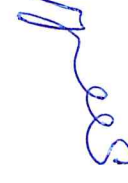
Quotation No. : 2023-00085
Analysis No. : 2023-AB450-005
Report No. : 2023-RAAH420
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{NWB}	T _{DB}	T _{Gr}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
ใต้หัว-ทาง Coil (Indoor)	คุณอุทุมพร กลิ่นสุคนธ์	10:34-12:34	28.8	36.9	37.5	31.4	พักผ่อนเพื่อตรวจสอบคุณภาพ			
							- ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (เบา)	115.5		
							- นั่ง ทำการยกของ (เบา)	3.5		
							การเผาผลาญพื้นฐานของร่างกาย	60.0	179.0	34.0

Remark : T_{NWB} = Nature Wet Bulb Temperature, T_{DB} = Dry Bulb Temperature, T_{Gr} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by ((WBGT₁ x Time₁) + (WBGT₂ x Time₂) + ... + (WBGT_n x Time_n)) / (Time₁ + Time₂ + ... + Time_n)

^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).

(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่วัดบ้าน
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPH030060

Quotation No. : 2023-00085
Analysis No. : 2023-AB450-006
Report No. : 2023-RAAH421
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{wb}	T _{db}	T _g	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
Control Room : Turn Foaming Head (Indoor)	คุณทรงยศ สดศรี	10:37-12:37	28.6	38.3	39.0	31.7	ควบคุมเครื่องจักร - นั่ง ทำงานด้วยแขนทั้ง 2 ข้าง (เบา) การเผาผลาญพื้นฐานของร่างกาย	108.0	168.0	34.0
								60.0		

Remark : T_{wb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_g = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by $((WBGT_1 \times Time) + (WBGT_2 \times Time) + \dots + (WBGT_n \times Time)) / (Time_1 + Time_2 + \dots + Time_n)$

^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Ms.Thidar Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Bannmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กดีรชั่น
Measured Source : Work Place Air Temperature
Measured Date : April 22, 2023
Measured By : Ms.Geschanok Khinawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Quest Technologies Model QT-34 Serial Number TEH040040

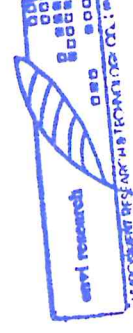
Quotation No. : 2023-00085
Analysis No. : 2023-AB450-007
Report No. : 2023-RAAH422
Report Date : May 4, 2023

Measured Location	Employee Name	Duration	Measurement Temperature; °C					Job Description/ Activities	Work Load, WL		Standard ^{2/}
			T _{wb}	T _{db}	T _{gr}	WBGT	WBGT ^{1/} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
Guide Shop (Indoor)	คุณศราวุฒิ ตั้งรัตน์	10:40-12:40	27.5	33.1	33.3	29.2	29.2	ประกอบชิ้นงาน - ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (หนัก) การเผาลายพื้นฐานของร่างกาย	186.0	246.0	32.0
									60.0		

Remark : T_{wb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_{gr} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1/} Calculate by $((WBGT_1 \times Time_1) + (WBGT_2 \times Time_2) + \dots + (WBGT_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n)$

^{2/} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



Signature of Ms. Thidarat Pukkha

(Ms. Thidarat Pukkha)
Laboratory Reviewer

(Ms. Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีนคร
Measured Source : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6226 Serial Number 180061


Quotation No. : 2023-00085
Analysis No. : 2023-AC126-001
Report No. : 2023-RAAK454
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
ห้อง Control EAF (คุณเพรชชัย ชัยสิทธิ์ศรี)	08:26 - 09:26	72.9	92.6	-
	09:26 - 10:26	75.0	93.3	-
	10:26 - 11:26	72.2	87.9	-
	11:26 - 12:26	72.4	89.9	-
	12:26 - 13:26	71.4	96.1	-
	13:26 - 14:26	72.0	90.4	-
	14:26 - 15:26	70.6	86.1	-
	15:26 - 16:26	76.1	92.4	-
	Equivalent Level 8 hrs (Leq 8 hrs)	73.2		-
	Time Weighted Average (TWA 8 hrs) ^{1'}	73.2		85 ^{2'}
	Maximum Level (Lmax)	96.1		115 ^{3'}


Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).


 (Ms.Thidarat Pukkha)
 Laboratory Reviewer




 (Ms.Thanida Bunrungrueang)
 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
Measured Source : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6226 Serial Number 180067


Quotation No. : 2023-00085
Analysis No. : 2023-AC126-002
Report No. : 2023-RAAK455
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
Refractory (คุณเสงขร โสพระสังข)	08:46 - 09:46	89.3	102.5	-
	09:46 - 10:46	91.5	105.1	-
	10:46 - 11:46	91.1	103.9	-
	11:46 - 12:46	91.4	103.8	-
	12:46 - 13:46	89.6	101.0	-
	13:46 - 14:46	91.4	102.3	-
	14:46 - 15:46	89.9	104.8	-
	15:46 - 16:46	90.1	102.7	-
	Equivalent Level 8 hrs (Leq 8 hrs)	90.6		-
	Time Weighted Average (TWA 8 hrs) ^{1'}	90.6		85 ^{2'}
	Maximum Level (Lmax)	105.1		115 ^{3'}


Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).


 (Ms.Thidar Pukkha)
 Laboratory Reviewer




 (Ms.Thanida Bunrungrueang)
 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 : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6226 Serial Number 180063


Quotation No. : 2023-00085
Analysis No. : 2023-AC126-003
Report No. : 2023-RAAK456
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
ประกอบ Mould (คุณเสกสรร ศรีทอง)	08:49 - 09:49	83.1	96.5	-
	09:49 - 10:49	85.6	98.6	-
	10:49 - 11:49	85.3	97.9	-
	11:49 - 12:49	85.3	96.9	-
	12:49 - 13:49	84.0	94.1	-
	13:49 - 14:49	85.1	95.0	-
	14:49 - 15:49	84.5	98.2	-
	15:49 - 16:49	88.7	96.2	-
	Equivalent Level 8 hrs (Leq 8 hrs)		85.5	-
	Time Weighted Average (TWA 8 hrs) ^{1'}		85.5	85 ^{2'}
Maximum Level (Lmax)		98.6	115 ^{3'}	


Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).


(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Measured Source : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222123


Quotation No. : 2023-00085
Analysis No. : 2023-AC126-004
Report No. : 2023-RAAK457
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
โรงเจียร ดัดตัวอย่าง (คุณกฤษฎา อยู่เย็น)	08:53 - 09:53	81.1	100.7	-
	09:53 - 10:53	84.7	104.8	-
	10:53 - 11:53	85.7	107.0	-
	11:53 - 12:53	77.0	103.0	-
	12:53 - 13:53	79.3	96.9	-
	13:53 - 14:53	85.0	107.5	-
	14:53 - 15:53	83.2	105.1	-
	15:53 - 16:53	80.0	100.8	-
	Equivalent Level 8 hrs (Leq 8 hrs)	82.9		-
	Time Weighted Average (TWA 8 hrs) ^{1'}	82.9		85 ^{2'}
	Maximum Level (Lmax)	107.5		115 ^{3'}

Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).


 (Ms.Thidarat Pukkha)
 Laboratory Reviewer




 (Ms.Thanida Bunrungrueang)
 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 : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222119

Quotation No. : 2023-00085
Analysis No. : 2023-AC126-005
Report No. : 2023-RAAK458
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
ตัดหัว-หาง Coil (คุณเพรชชัย พรหมสุวรรณ)	09:14 - 10:14	85.8	89.9	-
	10:14 - 11:14	85.3	89.6	-
	11:14 - 12:14	85.5	88.2	-
	12:14 - 13:14	85.0	88.7	-
	13:14 - 14:14	85.0	88.5	-
	14:14 - 15:14	85.2	88.9	-
	15:14 - 16:14	84.0	89.0	-
	16:14 - 17:14	85.2	88.8	-
	Equivalent Level 8 hrs (Leq 8 hrs)	85.2		-
	Time Weighted Average (TWA 8 hrs) ^{1'}	85.2		85 ^{2'}
	Maximum Level (Lmax)	89.9		115 ^{3'}

Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
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 : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222115


Quotation No. : 2023-00085
Analysis No. : 2023-AC126-006
Report No. : 2023-RAAK459
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
Shear 3A (คุณจันทร์ภักษ์ ขุนทอง)	09:21 - 10:21	78.6	98.8	-
	10:21 - 11:21	75.8	97.4	-
	11:21 - 12:21	73.9	90.8	-
	12:21 - 13:21	70.9	87.9	-
	13:21 - 14:21	70.4	91.7	-
	14:21 - 15:21	70.9	89.5	-
	15:21 - 16:21	72.9	93.7	-
	16:21 - 17:21	69.0	89.0	-
	Equivalent Level 8 hrs (Leq 8 hrs)	73.9		-
	Time Weighted Average (TWA 8 hrs) ^{1'}	73.9		85 ^{2'}
	Maximum Level (Lmax)	98.8		115 ^{3'}


Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).


 (Ms.Thidarat Pukkha)
 Laboratory Reviewer




 (Ms.Thanida Bunrungrueang)
 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 : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6226 Serial Number 180068



Quotation No. : 2023-00085
Analysis No. : 2023-AC126-007
Report No. : 2023-RAAK460
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
ห้อง Control LF (คุณเทอดศักดิ์ สงครอด และคุณสุรชาติ ศรีประจักษ์)	08:25 - 09:25	72.6	87.8	-
	09:25 - 10:25	74.6	89.2	-
	10:25 - 11:25	70.0	82.8	-
	11:25 - 12:25	70.1	88.0	-
	12:25 - 13:25	64.6	78.8	-
	13:25 - 14:25	68.2	80.5	-
	14:25 - 15:25	68.3	81.0	-
	15:25 - 16:25	70.1	82.0	-
	Equivalent Level 8 hrs (Leq 8 hrs)	70.7		-
	Time Weighted Average (TWA 8 hrs)^{1'}	70.6		85^{2'}
	Maximum Level (Lmax)	89.2		115^{3'}

Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).

(Ms.Thidarat Pukkha)
Laboratory Reviewer



(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กคีรีดร้อน
Measured Source : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6226 Serial Number 180060

Quotation No. : 2023-00085
Analysis No. : 2023-AC126-009
Report No. : 2023-RAAK462
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
ห้อง Control CCM (คุณเทวินกร ชนมรรคา)	08:59 - 09:59	73.4	93.6	-
	09:59 - 10:59	72.7	91.5	-
	10:59 - 11:59	74.2	103.5	-
	11:59 - 12:59	72.1	88.0	-
	12:59 - 13:59	72.7	91.3	-
	13:59 - 14:59	74.1	92.9	-
	14:59 - 15:59	72.1	91.2	-
	15:59 - 16:59	72.9	87.8	-
	Equivalent Level 8 hrs (Leq 8 hrs)	73.1		-
	Time Weighted Average (TWA 8 hrs)^{1'}	73.1		85^{2'}
	Maximum Level (Lmax)	103.5		115^{3'}

Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
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 : Work Place Noise
Measured Date : May 27, 2023
Measured By : Ms.Natnalita Kotphan
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222111

Quotation No. : 2023-00085
Analysis No. : 2023-AC126-010
Report No. : 2023-RAAK463
Report Date : June 9, 2023

Measured Location/ Employee Name	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard
ห้องควบคุมเครื่องมัด Coil (คุณเอกกราช ขุพันธ์ และคุณอนุชาติ พละทรัพย์)	09:14 - 10:14	76.8	89.0	-
	10:14 - 11:14	75.6	87.5	-
	11:14 - 12:14	75.6	88.4	-
	12:14 - 13:14	75.3	92.2	-
	13:14 - 14:14	75.4	82.3	-
	14:14 - 15:14	75.4	83.7	-
	15:14 - 16:14	75.1	85.9	-
	16:14 - 17:14	75.5	83.1	-
	Equivalent Level 8 hrs (Leq 8 hrs)	75.6		-
	Time Weighted Average (TWA 8 hrs)^{1'}	75.6		85^{2'}
	Maximum Level (Lmax)	92.2		115^{3'}

Remark : ^{1'} Calculates the Case of Employees Working in this Area throughout the Work Period.

^{2'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

^{3'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



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