MATERIAL SAFETY DATA SHEET (MSDS) Ferric Chloride (FeCl₃) REFERENCES: Sax and Lewis, Dangerous Properties of Industrial Materials, seventh edition, Van Nostrand Reinhold Co., N.Y., 1989. : MSDS (From Mallinekrodt Baker, Inc.) MSDS Number : S8234



Customer Service 800-864-1742 FAX 888-273-6226

Material Safety Data Sheet (MSDS) Ferric Chloride Solution

SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

CAS #: 7705-08-0 Product Name: Ferric Chloride Solution Product Use: Water Treatment Chemical Product Formula: FeCl₃

Manufacturer's Name: Pencco, inc.
Manufacturer's Address: P.O. Box 600, San Felipe, TX 77473
Emergency Phone Number: PENCCO (979) 885-005
CHEMTREC (800) 424-9300 – 24 hours a day

Revision Date: February 4 2014

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Inches of fame	7000	T	7 14 1 11 OOK	110	LHC
Ingredient	CA2#	Weignt Percentage	ACGIH ILV	OSHA PEL	2 5
Water	7732-18-5	58-72%	N/A	N/A	N/A
Ferric Chloride	7705-08-0	28-42%	1 mg/m³	1 mg/m²	N/A
Ferrous Chloride	7758-94-3	<0.5%	1 mg/m²	1 mg/m²	N/A
Hydrochloric Acid	7647-01-0	<0.5%	5 ppm	5 ppm	N/A

Section 313 Supplier Notification: The hydrochloric acid mentioned above is subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (AC GFR 372). This notification must be included in all MSDS's that are copied and distributed for hits material.

SECTION 3 - HAZARD IDENTIFICATION

Appearance and Odor: Reddish-brown liquid with a slightly acidic odor.

Eye or skin contact may cause irritation. Contact with liquid or vapor form of this chemical may Emergency Overview: A corrosive chemical. Harmful or fatal if swallowed. Harmful if inhaled.

cause severe injury or death. Avoid overexposure.

Fire and Explosion Hazards: Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic furnes, such as hydrogen chloride and phosgene gas. Ferric chloride can react with metals to form flammable and potentially explosive hydrogen gas. Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC. NTP, OSHA, or ACGIH.

Summary of Acute Health Hazards

may lead to abnormal liver function with nausea or vomiting, stomach pain, diarrhea, fast and weak pulse, lethargy, pallor, shock, hypertension, dilated pupils, fever, coma and even death. Ingestion - Toxic by ingestion. May cause irritation to the mouth and stomach. Higher doses



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individuals with pre-existing liver diseases may have increased susceptibility to the toxicity of

Inhalation - May cause irritation of the upper respiratory tract, resulting in difficulty breathing Skin Contact - Irritation and possibly burns.

Eye Contact - Irritation and possibly burns

SECTION 4 - FIRST AID MEASURES

Eye Contact First Aid: Immediately flush eyes for 15 minutes with large amounts of water while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Obtain medical attention IMMEDIATELY after flushing.

Skin Contact First Aid: Flush skin with water. Remove contaminated clothing; wash before reuse. If irritation is still present, seek medical attention IMMEDIATELY.

Inhalation First Aid: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention IMMEDIATELY.

Ingestion First Aid: DO NOT INDUCE VOMITING, Give 1 or 2 glasses of water or milk. Never give anything by mouth to an unconscious individual. Obtain medical attention IMMEDIATELY.

SECTION 5 - FIRE FIGHTING MEASURES

Flash Point: Not applicable.

Upper/Lower Explosion Limits in Air: Not applicable.

Auto Ignition Temperature: Not applicable

Extinguishing Media: Will not burn; use materials appropriate for surrounding fire.

heating to produce corrosive and/or toxic fumes, such as hydrogen chloride and phosgene gas. Ferric chloride can react with metals to form flammable and potentially explosive hydrogen gas. Fire and Explosion Hazards: Substance itself does not burn, but may decompose upon

Fire Fighting Instructions: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face-piece operated in a positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers and tanks cool.

Hazardous Product of Decomposition or Combustion: Hydrogen chloride, hydrogen, phosgene.

	NFPA Rating	HMIS Rating	4 = Extreme / Severe
Health	2	2	3 = High / Serious
Reactivity	0	0	2 = Moderate
Flammability	0	0	1 = Slight



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SECTION 6 - ACCIDENTAL RELEASE MEASURES

Review safety precautions before proceeding with cleanup. Use appropriate personal protection limestone (calcium carbonate), or soda ash (sodium carbonate). Restrict access to area until equipment. Do not touch spilled material. Neutralize spill with lime (calcium hydroxide), completion of clean up. Caution: limestone and soda ash will evolve CO2; ventilation should be provided in enclosed areas. Dike area around spill to prevent spreading, and use absorbent material to pick up spill CERCLA Reportable Discharge (RQ): 1000 lbs. (454 kg), Based on anhydrous ferric chloride. Divide by solution concentration to obtain solution weight.

the user to determine whether a substance should be classified as a hazardous waste at the time Disposal: Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Dispose of waste in accordance with applicable federal, state,

RCRA: Test waste material for corrosivity, DOO2, prior to disposal

Steps To Be Taken In Case Material Is Released Or Spilled: Notify the appropriate environmental authorities. Note that spills may need to be reported to the National Response Center ((800) 424-8802)

SECTION 7 - HANDLING AND STORAGE

Handing: Store and handle in corrosion-proof materials (and area). Use FRP or PVC pipes. Be cautious of substance residue in empty containers. Act according to precautions and warnings

Storage: Store in a tightly closed container. Do not store in metal containers. Fiberglass plastic, or rubber-lined tanks may be used for storage. Protect from damage and keep separated from incompatible substances.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

mists below exposure limits. The exposure limits for some components are listed in Section 2. Wear a NIOSH/OSHA approved respirator with a dust/mist cartridge if there is potential of exposure to mists in excess of applicable limits, in any situation where product vapor or mists Respiratory Protection: Adequate general ventilation should be provided to keep vapor and may be present, such as in confined spaces. Eye Protection: Wear splash resistant goggles and/or safety glasses with side shields. Wear a full face shield if possibility of material splashing or spraying exists. Maintain eye wash fountain. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.



a safety shower with quick opening valves. Water should be supplied through insulated and heat-traced avoid skin contact: gloves impervious to material, apron, boots, hood, pants, and jacket. Maintain Skin Protection: Where there is possibility of skin contact, use the following as appropriate, to ines to prevent freeze-ups in cold weather.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	106°C (223°F)	pH:	< 2.0
Melting Point:	N/A	Solubility in Water: Complete	Complete
Specific Gravity:	1.2 – 1.6	Vapor Pressure:	40 mm Hg @ 20°C
% Volatile:	60 - 75 (Water)	Evaporation Rate:	N/A
Vapor Density (Air = 1):	N/A	Molecular Weight:	162.2
Appearance:	Red/Brown Colored Liquid Odor:	Odor:	Slightly acrid

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable at normal conditions

Polymerization: Will not occur.

Decomposition: Decomposes upon heating to produce corrosive and/or toxic fumes, such as flammable, potentially explosive hydrogen gas. Avoid contact with nylon, aluminum/aluminum alloys, carbon steel, stainless steel, and copper / copper alloys. Metals, bases, halocarbons, Incompatibility: Rapidly corrodes most metals (titanium is one exception); may generate hydrogen chloride. Contact with metals may evolve flammable hydrogen gas. acids, and combustible materials can be considered incompatible.

SECTION 11 - TOXOLOGICAL INFORMATION

Chronic Effects: Repeated dosage may cause hemosiderosis, including possible damage to

Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, Toxicological Data: Anhydrous Ferric Chloride Solid Oral LD50 (rat) = 450 mg/kg NTP, OSHA, or ACGIH.

Reproductive Effects: TDLo Rat 1 day (intratesticular) 12976 µg/kg; TDLo Rat 1 day (intravaginal) 29 mg/kg pre pregnancy continuous. Target Organs: No data available.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information: TLm Daphnia 15 ppm/96 hr fresh water/ conditions of bioassay

Persistence and Degradation: No data available



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SECTION 13 - DISPOSAL CONSIDERATIONS

Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. nature of the product. Product containers should be thoroughly emptied before disposal. Dispose of This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the waste in accordance with applicable federal, state, and local laws.

SECTION 14 - TRANSPORTATION INFORMATION

DOT Shipping Name: Ferric Chloride Solution Hazard Class: 8 – Corrosive Material UN Number: UN 2582

Packing Group: III

Reportable Quantity: 1000 lbs (454 kg)
Shipping Containers: Rubber-lined steel tank cars/trucks; polyethylene drums, bottles Storage Conditions: Keep containers closed

SECTION 15 - REGULATORY INFORMATION

OSHA: Hazardous Corrosive Liquid - 29 CFR 1920.1200 OSHA Process Safety (29 CFR 1910.119): No CERCLA: Hazardous Substance - Reportable Quantity (RQ) = 1000 lbs (454 kg)

SARA Hazard Categories, SARA Sections 311/312 (40 CFR 370.21): SARA Regulations: 313 and 40 CFR 372: No

Acute: Yes; Chronic: No; Fire: No; Reactive: No; Sudden Release: No

Amendments of 1977 and 1978. This chemical is subject to regulations regarding its discharge. Clean Water Act: Designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act; ferric chloride is also regulated by the Clean Water Act

TSCA Inventory Status: Yes

Right-To-Know Lists: Massachusetts, California, Pennsylvania, New Jersey. This substance does not contain nor is manufactured with ozone-depleting substances California Proposition 65: No



SECTION 16 - OTHER INFORMATION

IMPORTANTI Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information

before use or other exposure.

Pencco provides the information contained in each material safety data sheet ("MSDS"), technical data sheet ("TDS"), product information brochure and/or information contained herein (including data and statements) in good faith and makes no representations as to its comprehens/inensor or accuracy as of the date of publication. The MSDSs, TDSs, and product information brochures are referred to collectively as the "Data Sheets". It is the responsibility of the user to obtain and use the most recent version of the Data Sheets. Each Data Sheet relates only to the specific product Pencco, Pencco expressly disclaims any and all liability as to any consequential damages or results obtained or arising from any use of the products or the information contained in the Data Sheets. NO WARRANIY OF MERCHANTABILITY, FITHESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANITY, EXPRESS OR IMPLIED, IS MADE AS CONCERNS THE DATA SHEETS OR THE RELATED PRODUCTS. designated therein and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and information are beyond the control of

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MATERIAL SAFETY DATA SHEET (MSDS)

Polymer

SAFETY DATA SHEET

Date of issue : 01/06/2006

SECTION 1 - PRODUCT IDENTIFICATION AND COMPANY INFORMATION KURITA-GK CHEMICAL CO., LTD. KURITA C-3310 Brandname Company

Product name: KURITA C-3310

460 M.17 Bangphil Industrial Estate, Bangsaothong, ompany name: KURITA-GK CHEMICAL CO., LTD.

Bangsaothong Sub-District, Samutprakarn 10540, Tel. 02-3152300 Fax.02-3152302

SECTION 2 - INFORMATION ON HAZARDOUS INGREDIENTS OF COMPOSITION

Anionic Polyacrylamide CAS. NO.25987-30-8 omposition:

SECTION 3 - HAZARDOUS IDENTIFICATION

Reapiratory protection : dustmask esonal profective equipment:

Hand protection : gloves Other: Eye protection: chem.-saf. goggles

breathe dusts and product vapours. Change contaminated clothing immediately and thorughly wash before reuse. Indus. hygiene Do not eat, drink or smoke at the working place. Avoid any direct contact with the product. Do not

SECTION 4 - EMERGENCY AND FIRST AID MEASURES

After spillage/leakage/gas leakage : Wear protective clothing.Exhaust dusts.Close drains.Cather larger amounts of the product. Cover residue with and adsorbant, take up by mechanical means and hold product for waste disposal as discribed in section 6.

First aid : Eye contact : After separating the eyelids flust with copious amounts of water, contact an oculist if irritation persists. observation. Inhalation : Remove affected person immediately from contaminated area, if inconvenience persists contact a Skin contact : Remove contaminated clothing, take a shower, carefully wash affected skin with soap and plenty of water. Ingestion: If affected person is conscious give copious amounts of water to drink, immediately take care for medical physician. Notes to the Physician: There is not specialist information available. Treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

equipment required for fire-fighting : Cool drums exposed to the fire with water spray. In case of fire wear a self-containing combustion of the product. Combustion gases are irritating to respiratory tract and mucous membranes. Special protective Suitable extinguishing medin : Coordinate with primary case of fire and environmental vicinity. Special exposure hazards arising from substance or combustion products : Formation of harmful carbon monoxide and carbon dioxide at the breathing apparatus and OSHA/MSHA approved protective clothing. Collect all contaminated water if possible dispose according to local regulations.

SECTION 6 - ACCIDENT RELEASE MEASURES

Wear protective clothing (see section 3.). Close drains. Exhaust product vapours. Cover spill with inert material. Pump off large amounts of the product into marked, resistant containers. Cover residues with an inert absorbant, take up by machanical means into marked containers and hold for waste disposal as described in section 13. Thoroughly rinse affected ground with plenty of water,

SECTION 7 - HANDLING AND STORAGE

Store product in tightly closed containers in a cool, dark and ventilated area. Install spillage containers. Avoid spills and splashes during refilling process. Handling product only in well ventilated areas. Provide eye bath at the working place. Avoid inhalation of vapours when handling the thermal treated product. Only use corrosion resistant tools and equipments.

SS.TANGAJUN.º66 TD-SC33100-013

KURITA C-3310 Brandname

SECTION 8 - EXPOSURE CONTROL AND PERSONAL PROTECTION

FireExplosion protection: The product itselfs is not flammable. Coordinate personal protective clothing and extinguishing media according with the case of fire. Collect all contaminated water is containers and dispose local regulations. Extinguishing media Suitable: Water spray, Carbondioxide, Dry chemical, Foam.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Odour : Slight ammonical Colour : White Form: Powder

Bulk density: not applicable Vapour pressure: not applicable Solubility in water: max, 0,5 %
Limited by viscosity: Forms Gel pH values (0,1 % solution): (2,5 °c,6.8-8,5 Explosion limits: Lower:- Upper:Flash point: (non-flammable solid): not applicable

SECTION 10 - REACTIVITY AND STABILITY

Condition to avoid : strong exidizing conditions.

Hazerdous decomposition products: none if used as indicated Products to avoid: strong oxidizers.

SECTION 11 - TOXILOGICAL INFORMATION

Acute oral toxicity (mouse) LD(50): > 3,500 mg/kg. Contact of the powder with skin or eyes can cause itching and skin slightly redden.

SECTION 12 - ECOLOGICAL INFORMATION

Never release concentrated product to the environment. Neutralize polluted wastewater before its release into the drains.

SECTION 13 - DISPOSAL CONSIDERATION

Disposal: Burn the product in a chemical incinerator equipped with an afterburner and a scrubber. Empty used containers completely, wash with water, dispose containers excluding possible external reuse. Suitable cleaning agent is water.

SECTION 14 - TRANSPORTATION INFORMATION

ICAO/IATA-DGR: ria/adr: -GGVSee/IMDG-Code: GGVE/GGVS: -

SECTION 15 - REGULATORY INFORMATION

According to general regulations the formulation is not a dangerous substance.

SECTION 16 - OTHER INFORMATION

The preparation itself is not limited by transport regulations. This chemical's shelf life is one year upon receiving date.

The data given here do not signify any warranty with regard to the products' properties.

MATERIAL SAFETY DATA SHEET (MSDS)

Aqueous Ammonia (NH3-25%)

1/5

REVISION DATE: 6th February 2009

AMMONIA SOLUTION 10-25% MSDS

Ammonia Solution 10 - 25%

I IDENTIFICATION OF THE SUBSTANCEPREPARATION AND OF THE

COMPANY/UNDERTAKING

Ammonia Solution 10 - 25%

Ammonium Hydroxide Solution, , Aqueous Ammonia, SYNONYMS, TRADE NAMES

Abbey Chemicals

27-30 North River Road

Norfolk

Tel: +44 1493 850303 NR30 1SH

www.abbey-chemicals.co.uk Fax: +44 [493 330909

+44 1493 850303

Emergency Contact Number (Office

Emergency Contact Number (Outside +441493 850303

A042

2 HAZARDS IDENTIFICATION

CLASSIFICATION

3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
AMMONIA%	215-647-6	1336-21-6	10.25%	C-R34 N-R50

The Full Text for all R-Phrases are Displayed in Section 16

4 FIRST-AID MEASURES

Move the exposed person to fresh air at once. Get medical attention.

Provide rest, warnath and fresh air. Immediately rinse mouth and drink plenty of water (200-300 ml). Get medical attention

SKIN CONTACT

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately, BYECONTACT

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention immediately. Continue to rinse.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Fire can be extinguished using: Water spray, fog or mist.

REVISION DATE: 6th February 2009

Ammonia Solution 10 - 25%

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SPECIFIC HAZARDS

Antmonia or amines. Oxides of: Nitrogen.

Self contained breathing apparatus and full protective clothing must be worn in case of fire. PROTECTIVE MEASURES IN FIRE

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of spray mist and contact with skin and eyes. Provide adequate ventilation.

ENVIRONMENTAL PRECAUTIONS

Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Ageney or other appropriate regulatory body.

SPILL CLEAN UP METHODS

Absorb with inert, damp, non-combustible material, then flush area with water. Collect spillage in containers, seal securely and deliver for disposal according to local regulations,

7 HANDLING AND STORAGE

USAGE PRECAUTIONS

Avoid spilling, skin and eye contact. Avoid forming spray mists/acrosols. Provide good ventilation.

STORAGE PRECAUTIONS

Keep containers tightly closed. Keep in original container.

STORAGE CLASS

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

PROTECTIVE EQUIPMENT



If ventilation is insufficient, suitable respiratory protection must be provided.

RESPIRATORY ROUIPMENT

Protective gloves are recommended.

HAND PROTECTION

Wear approved safety goggles.

OTHER PROTECTION











9 PHYSICAL AND CHEMICAL PROPERTIES

Wear rubber apron. Wear rubber footwear,

Clear liquid Colourless Pungent APPEARANCE COLOUR ODOUR

Soluble in water. -100 MELTING POINT (°C)

10 STABILITY AND REACTIVITY

RELATIVE DENSITY

0.957 - 0.880

315

REVISION DATE: 6th February 2009

Ammonia Solution 10 - 25%

Stable under normal temperature conditions and recommended use.

CONDITIONS TO AVOID

Avoid excessive heat for prolonged periods of time. Avoid contact with acids,

MATERIALS TO AVOID

HAZARDOUS DECOMPOSITION PRODUCTS

Ammonia or anines.

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 INHALATION

350 mg/kg (oral rat)

Vapour may irritate respiratory system or lungs.

INGESTION

Ingestion may cause severe irritation of the mouth, the oesophagus and the gastrointestinal fract. Causes burns.

SKIN CONTACT

frritating to skin. Causes burns.

EYE CONTACT

Causes burns.

12 ECOLOGICAL INFORMATION

ECOTOXICITY

The product components are not classified as environmentally hazardous. However, this does not exclude the possibility

that large or frequent spills can have a harmful or damaging effect on the environment. LC 50, 96 Hex, FISH mg/l <1

EC 50, 48 Hrs, DAPHNIA, mg-1

The product is soluble in water.

DEGRADABILITY

The product is biodegradable.

WATER HAZARD CLASSIFICATION

13 DISPOSAL CONSIDERATIONS

GENERAL INFORMATION

Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.

Do not puncture or incincrate even when empty

DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements.

14 TRANSPORT INFORMATION

REVISION DATE: 6th February 2009

Ammonia Solution 10 - 25%

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III Class 8: Corrosive substances. 30 8 2672 III No. ZR MARINE POLLUTANT UK ROAD PACK GR. HAZARD No. (ADR) HAZCHEM CODE IMDG PACK GR. RID CLASS NO. ADR CLASS 80GC5-II+III AMMONIA F-A, S-B 2672 2672 PROPER SHIPPING NAME ADR PACK GROUP CEFIC TEC(R) NO. RID PACK GROUP UK ROAD CLASS ADR LABEL NO. ADR CLASS NO. UN NO. ROAD AIR PACK OR. IMDG CLASS UN NO. AIR

15 REGULATORY INFORMATION

LABELLING

Conosive

AMMONIA 24%

Causes burns. R34

RISK PHRASES

CONTAINS

Keep Jocked up and out of the reach of children. \$1/2

SAPETY PHRASES

In case of contact with eyes, rinse immediately with plenty of water and seek 826

medical advice. \$36/37/39

Wear suitable protective clothing, gloves and cyc/face protection.

In case of accident or if you feel unwell, seek medical advice immediately (show S45

Avoid release to the environment. Refer to special instructions/safety data label where possible).

STATUTORY INSTRUMENTS

Chemicals (Hazard Information and Packaging) Regulations.

APPROVED CODE OF PRACTICE

Safety Data Sheets for Substances and Preparations. Classification and Labelling of Substances and Preparations

Dangerous for Supply. GUIDANCE NOTES CHIP for everyone HSG(108).

16 OTHER INFORMATION

REVISION DATE

6th February 2009

REVISION DATE 6th February 2009

REV. MOALEPL. SDS GENERATED 02

SDS NO.

SAFETY DATA SHEET STATUS

Approved.
Approved.
Figh February 2009

SAFETY BATE

APPROVED

APP

MATERIAL SAFETY DATA SHEET (MSDS)

- Trisodium Phosphate (Na3PO4)





0 Reactivity Personal

Sodium phosphate tribasic dodecahydrate MSDS Material Safety Data Sheet

Section 1: Chemical Product and Company Identification

Contact Information:

Product Name: Sodium phosphate tribasic dodecahydrate

Catalog Codes: SLS1858, SLS3280 CAS#: 10101-89-0

TSCA: TSCA 8(b) inventory: Sodium phosphate tribasic RTECS: TC9575000

CI#: Not available. dodecahydrate

Chemical Name: Not available. Synonym:

Chemical Formula: Na3PO4,12H2O

International Sales: 1-281-441-4400 US Sales: 1-800-901-7247 Houston, Texas 77396 Sciencelab.com, Inc. 14025 Smith Rd.

CHEMTREC (24HR Emergency Telephone), call:

Order Online: ScienceLab.com

For non-emergency assistance, call: 1-281-441-4400 International CHEMTREC, call: 1-703-527-3887

Section 2: Composition and Information on Ingredients

Composition:

Sodium phosphate tribasic dodecahydrate

% by Weight

Foxicological Data on Ingredients: Sodium phosphate tribasic dodecahydrate: ORAL (LD50); Acute: 7400 mg/kg [Rat],

10101-89-0

Section 3: Hazards Identification

Potential Acute Health Effects:

damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death, inflammation of the eye is characterized by redness, watering, and itching. Very hazardous in case of eye contact (irritant). Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhelation of dust can produce varying degree of respiratory irritation or lung damage.

Section 4: First Aid Measures

p. 1

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye oinfiment. Seek medical attention.

Skin Contact:

your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive scap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting contaminated clothing before reusing.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention

Serious Inhalation: Not available.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in Presence of mechanical impact: Not available. Risks of explosion of the product in presence of mechanical impact: presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available

Section 6: Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements

Large Spill:

Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:

Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product in case of insufficient venitation, wear suitable respiratory equipment if ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage: Corrosive materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure limits below the exposure limit.

Personal Protection: Splash goggles. Lab coat. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splass described by the product of the product. Splash goggles. Full suit. Vapor and dust respirator. Boots. Glovos. A self contained breathing appearatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available,

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid

Odor: Not available.

Taste: Not available.

Molecular Weight: 380.12 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: Decomposes.

Melting Point: 75°C (167°F)

Critical Temperature: Not available. Specific Gravity: 1.62 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available. Ionicity (in Water): Not available. Dispersion Properties: See solubility in water.

Solubility: Soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion

Toxicity to Animals: Acute oral toxicity (LD50): 7400 mg/kg [Rat].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available

Special Remarks on Chronic Effects on Humans: Not available,

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States),

Identification: : Not available. : NA9148 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

p. 3

Pennsylvania RTK: Sodium phosphate tribasic dodecahydrate Massachusetts RTK: Sodium phosphale tribasic dodecahydrato TSCA 8(b) inventory: Sodium phosphate tribasic dodecahydrate CERCLA: Hazardous substances.: Sodium phosphate tribasic dodecahydrale

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS E: Corrosive solid.

DSCL (EEC): R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Personal Protection: j Reactivity: 0

National Fire Protection Association (U.S.A.);

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:27 PM

Last Updated: 11/01/2010 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warrantly of merchantability or any other warrantly, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost porfits or any speciel, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

MATERIAL SAFETY DATA SHEET (MSDS)

-Scale Inhibitor (KURILEX L111)

KURILEX L-111 MSDS No.24811

PRINT DATE 2010/10/08

GHS 1007211 SAFETY DATA SHEET

1 IDENTIFICATION (PRODUCT AND COMPANY INFORMATION)

L - 1111PRODUCT NAME: KURILEX : Chemical for closed recirculating cooling water systems

COMPANY NAME: KURITA WATER INDUSTRIES L'ID.

: 4-7 NISHI-SHINJUKU 3-CHOME, SHINJUKU-KU, TOKYO DEPARTMENT : QUALITY ASSURANCE DEPT. ADDRESS

160-8383, JAPAN

03-3347-3324 PHONE

03-3347-3048 FACSIMILE

EMERGENCY COMMUNICATION :: 2rd Section of Process Tech II Dept.

Phone:03-3347-3340

DATE OF ISSUE : July 21, 2010

DATE OF REPLACED:

HAZARDOUS IDENTIFICATION

HAZARDOUS INFORMATION: Not Applicable

According to the law regulated in Japan

GHS CLASSIFICATION

: Category 3 ACUTE TOXICITY-ORAL

SPECIFIC TARGET ORGAN TOXICITY (REPEATEDEXPOSURE): Category 1 SPECIFIC TARGET ORGAN TOXICITY(SINGLE EXPOSURE): Category 1

: Category 3

HAZARDOUS TO THE AQUATIC ENVIRONMENT ACUTE HAZARD

HAZARDOUS TO THE AQUATIC ENVIRONMENT CHRONIC HAZARD

:Ctegory 3

Labelling

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MSDS No.24811

KURILEX L-111

PRINT DATE 2010/10/08



Signal Word: Danger

Symbol

Hazard statements

Toxic if swallowed

Causes damage to organs

Causes damage to oragans through prolomged or repeated exposure.

Harmful to aquatic life

Harmful to aquatic life with long lasting

effects

Precautionary statement

Prevention : Do not eat, drink or smoke when using this product

Wash thoroughly after handling.

Wear protective gloves.

Wear eye protection/face protection.

Contaminated work clothing should not be allowed out of the workplace

Obtain special instructions before use.

Do not handle until all safety precautions have been read and

understood.

Use personal protective equipment as required.

Do not breathe dust/fume/mist/vapours/spray.

Do not eat, drink or smoke when using this product.

: IF SWALOOWED: Immediately call a POISON CENTER or doctor. Response

Rinse mouth.

If exposed or concerned: Get medical attention.

Wash contaminated clothing before use.

: Store locked up.

Strage

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MSDS No.24811

KURILEX L-111

PRINT DATE 2010/10/08

Dispose of contents/container to follow the regional regulation. Disposal:

COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE OR MIXTURE : Mixture

CONTENT(%) CHEMICAL COMPOSITION GENERAL NAMES

Organic nitrogen copper

Corrosion inhibitor

Organic nitrogen compound

Sodium Nitrite

MITI No. GENERAL NAMES

MHLW No.

CAS No.

Organic nitrogen copper

Organic nitrogen compound Corrosion inhibitor

Sodium Nitrite

HAZARDOUS INPURITIES

TOTAL CHROMIUM:Less than 0.5mg/kgCr CYANOGEN:Less than 1.0mg/kgCN TOTAL MERCURY: Less than 0.01mg/kgHg ARSENIC :Less than 0.1mg/kgAs2O3

CADMIUM : Less than 0.01mg/kgCd

FIRST-AID MEASURES

LEAD :Less than 0.05mg/kgPb

A INHALATION

May cause irritation. Remove from exposed area immediately to fresh air. Keep warm and at rest. Take cure for medical treatment.

SKIN CONTACT

May cause irritation. Wash the affected area with plenty of water Take off immediately contaminated clothing. Wash it with plenty of water. If burns occur, cover affected area securely with sterile, dry, loose fitting dressing. Get medical attention.

C EYE CONTACT

May cause irritation. Wash eyes immediately with large amount of water for more than 15 minutes. Get medical attention immediately.

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KURILEX L-111 MSDS No.24811

PRINT DATE 2010/10/08

D INGESTION

May cause unwell. Give large amount of water or milk immediately. Do not induce vomiting. Get medical attention immediately.

FIRE-FIGHTING MEASURES

Keep away from the source of fire or cool containers with water in case of difficult transportation.

ACCIDENTAL RELEASE MEASURES

making liquid flow into sewer. Thoroughly rinse affected ground with plonty of flooding amount of water. For large spills, stop the flow with dike, etc. without Wear protective clothing. Stop leak. For small liquid spills, flush area with water.

HANDLING AND STORAGE

Operate with filter respirator, chemical safety goggles, working clothes with long sleeve and rubber globes to avoid inhalation, eye and skin contact. Do not use empty containers for drinking water supply, etc. Store product in tightly closed containers in the cool, dry and well-ventilated indoor Area. Store separating from acids, bases, oxidizers, reducers and flammables.

EXPOSURE CONTROLS/PERASONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMIT : Not Established

clothes with long sleeve and synthetic rubber globes. PROTTECTING EQUIPMENTS :Filter respirator, chemical safety goggles, working

PHYSICAL AND CHEMICAL PROPERTIES

: Slightly yellowish to yelowish liquid APPEARANCE

: 7.0 ~ 9.0 (20°C)

SPECIFIC GRAVITY: 1.24 \sim 1.28 (20°C)

WATER SOLUBILITY: Miscible at any ratio FREEZING POINT : Less than -10°C

None FLASH POINT

COD Min : 6.3%

Total Phosphorus: 0.1% Total Nitrogen 7.2%

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KURILEX L-111 MSDS No.24811

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10 STABILITY AND REACTIVITY

: Stable on normal usage and handling. STABILITY

11 TOXICOLOGICAL INFORMATION

ACUTIS TOXICITY: Oral xat LD50 : 248 mg/kg (Estimated value from components.) SKIN CORROSION/IRRITATION : May cause irritation when product contact skin. EYE CORROSION/IRRITATION : May cause irritation when product contact eye.

12 ECOLOGICAL INFORMATION

FISH TOXICITY: L C 50: Killifish (24hrs) : 84 mg/l

13 DISPOSAL CONDITIONS

PPRODUCT: Never draw chemical directly to waste water line.

Request treatment to licensed waste-treatment company as "Special controled industrial waste (Waste alkaline).

PACKAGE: Empty used containers completely, dispose containers.

14 TRANPORT INFORMATION

UN No. : Not applicable UN Class: Not Applicable Prevent destruction by keeping away from water and careless dealing.

15 REGULATORY INFORMATION

The poisonous and deleterious substances control law: Not Applicable Chemical weapon control law : Not Applicable

Export trade control order : Not Applicable

Industrial safety and health law : Not Applicable

Fire service law: Not Applicable

Ship safety law: Not Applicable

Civil aeronautic act : Not Applicable

Act on port regulation : Not Applicable

PRTR law: Not Applicable

Act on prevention of marine pollution and maritime disaster: Applicable

Sodium nitrite solution: Hazardous liquid: Class Y

"According to the law regulated in Japan.

MSDS No.24811

KURILEX L-111

PRINT DATE 2010/10/08

OTHER INFORMATION 91 *The information herein may be revised by the newest knowledge.

"The information herein be only translated from MSDS written in Japanese

language and nothing should be assured.

E.O.D.

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MATERIAL SAFETY DATASHEET (MSDS)
-Corrosion and Scale Inhibitor (Kurita T-7682)

SAFETY DATA SHEET

Date of issue : 30/09/2014

SECTION 1 - PRODUCT IDENTIFICATION AND COMPA SECTION 1 - PRODUCT IDENTIFICATION AND COMPA Corresion and scale labilitor and studge dispersant for upon rec 460 M.17 Bangasathong District , Samuiprakarn 19540. Tel. 02-315230 SECTION 2 - HAZARBOUS IDENTIFICATION SECTION 2 - HAZARBOUS IDENTIFICATION SECTION 3 - HAZARBOUS IDENTIFICATION ACUTE TOXICITY : SKIN CORROSION/HRITATION Ing : ACUTE TOXICITY : SKIN CORROSION/HRITATION Ing : Ing		KURITA- GR CHEMICAL CO., LTD.
TRRING: CLASSIF Ing: CLASSIF Ing: CLASSIF Ing: Ing: Ing:	Brandname KURITA	-7682
CLASSIF	SECTION	1 - PRODUCT IDENTIFICATION AND COMPANY INFORMATION
: Co ARDOUS CLASSIE Ing : Ing : Ing : Aword : May be ha Causes see Causes see Causes see Causes see Causes see Causes see :	Product name: KURITA	1-7682
SECTION 1 - LIAZARDOUS INFORMATION. SECTION 2 - LIAZARDOUS INFORMATION. SECTION 2 - LIAZARDOUS INFORMATION. LI INZANDOUS INFORMATION. ACUTE TOXINITY : Category 5 SKIT ON ACUTE TOXINITY : Category 1 EYE DAMAGEMENTATION : Category 1 EYE DAMAGEMENTATION : Category 1 EYE DAMAGEMENTATION : Category 1 EXTERNATION : Category 1 EXTERN	USAGE : Corrosion at	d scale inhibitor and shudge dispersant for open recirculating cooling water systems.
Hangusathong District, Innegreshione; Hangusathong District, Sanatyachara 18540 7-13.02.182.100 Pa.d.2-15.2302 SECTION 2 - ILAZARDOUS DENTIFICATION Caregory 5	Company name: KURITA-	GK CHEMICAL CO, LTD.
Bangasulmag District, Samulprakarn 19540, Tel. 02-3152100 Pa.c.D-3152302 SECTION 2 - 14XARDOUS IDENTIFICATION Category 5 SKIN CORROSSINGTON Carroshe substance. ACUTE TOXICITY Category 5 SKIN CORROSSINGTON Category 1 EYE DAMAGEMENTATION Category 1 EYE CATEGORY (standard Category 1 Category 2 Category 3 Category 4 behavioral of category 1 Category 6 damage Category 6 damage Category 7 Cate	460 NL17	sangphil Industrial Estate, Bangsaothong,
SECTION 2 - HAZARDOUS IDENTIFICATION LIGHIS CLASSIFICATION : Carcavive substance. ACUTE TONICITY : Category 5 SKIN CORROSONARIUMTATION : Category 1 EXEDANAGENIRITATION : Category 1 EXEMPLE 2 STANDAGENIRITATION : Category 1 EXEMPLE 3 S	Bangsaotl	ong District, Samutprakarn 10540. Tel. 02-3152300 Fax.02-3152302
LI INZARDOUS INFORMATION: Cerresive substance. La GIIS CLASSIPICATION: Category I EVE DAMAGERIREITATION: Category I EVE DAMAGERIREITATION: Category I EVE DAMAGERIREITATION: Category I EASymbol: La Symbol: La Symbol: Damage severe skilb hurra and eye damage Causes vere skilb hurra and eye damage Causes vere skilb hurra and eye damage Causes vere skilb protective equality Damage state and include an and eye at emilic. Use presentionary Statements: Do not liverable dast or milic. Use presentionary Statements Do not liverable dast or milic. Use presentionary Statements Do not liverable dast or milic. Use presentionary Statements Do not liverable dast or milic. Use presentionary Statements Liverable	SECTION	2 - HAZARDOUS IDENTIFICATION
12 GHIS CLASSIFICATION : CACUE TOXICITY : Category 5 SKIN CORROSSION/RRITATION : Category 1 EVE DAMAGE/RRITATION : Category 1 Cat	2.1 HAZARDOUS INFORM	ATION: Corrosive substance.
La Labeling: La Symbol: May be harmful if swallowed (oral) Causes secrete skile burns and eye damage Use purposed to mile. Use purposed to a seel-burning and explained to be and the secrete of the workplace Avoid release to the environment Commanisated deshing should not be allowed out of the workplace Avoid release to the environment Commanisated deshing should not be allowed out of the workplace Avoid release to the environment Commanisated deshing should not be allowed and of the workplace Avoid release to the environment Commission which which prefer to great and water of the workplace Avoid release to the environment Commission which which prefer to great and water of the position confortable for breathing. If this tritiation occurs: Celt medical advice attention. Take off contaminated coluting and wash before rests. If skin ritiation persists: Celt medical advice attention. If skin ritiation persists: Celt medical advice attention. Store in a well-Yentilated place. Keep container to lead disposal regulation.	22 GHS CLASSIPICATION	: ACUTE TOXICITY: SKIN CORNOSIOMIRRITATION: EYE DAMAGERIRUTATION:
Lá Symbol : Lá Inaard Statements : May be harraful if smalleneed (oral) Causes secrete skil burns and eye damage Lye burnsalpu porecever quantum a required West inseringly affer handing Use authors or in a well-rentified area Contaminated defining should not be allowed out of the warkplace Avaid release to the environment Contaminated defining should not be allowed out of the warkplace Avaid release to the environment If fininged is Emone viellant of rests air and keep at rest in a position confortable for breathing. If on a size is those with water for several minutes. Remove contact lenter, if present and easy to da If eye irritation persists; Ced medical advice / attention. If eye irritation persists; Ced medical advice / attention. If some is a well-Ventifated place. Keep container tightly closed. Store locked up. Disposal of contents / container to la accerdance to local disposal regulation.	2.3 Labeling :	
1.5 Signal word: Warning May be harmful if swallowed (oral) Causes severe skin burns and eye damage Causes sevious eye damage Causes sevious eye damage Causes sevious eye damage Causes sevious eye damage Causes serious eye damage Causes sevious eye damage Treecautionary Statements: Do not breathe dast or mikt. Do not breathe dast or mikt. Use audours or he avel-ventilated area Contaminated clothing should not be allowed out of the workplace Avaid release to the environment Response: If swallowed: Raneo evicinis to fresh air and keps at rest in a position confortable for breathing. If habited: Remove vicinis to fresh air and keps at rest in a position confortable for breathing. If on skin: Wash with plenty of soap and water. If skin irritation persists: Get medical advice (a steution. Take off contaminated clothing and wash before rease. If eye irritation persists: Get medical advice (a steution. If eye irritation persists: Get medical advice (a steution. Store in a well-Ventilated place. Keep container to local disposal regulation. Disposal of contents / container to In accordance to local disposal regulation.	2.4 Symbol :	
Causes severe skin burns and eye damage Causes are severe skin burns and eye damage 1.7 Precautionary Statements: Do not breathe david or mixt. Use personal protective equipment as required With thoroughly after handling Use outdoors or in a well-vestifiated area Contaminated clothing should not be allowed out of the workplace Avoid release to the environment Response: If swallowed: Rines mouth. Do not induce vomitting and call a Poison center or Ductor/Physician. If thinked: Remove victin to fresh air and keep at rest in a position confortable for breathing. If on skin: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice f attention. If eye irritation persists: Get medical advice f attention. If eye irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention. If skin irritation persists: Get medical advice f attention.	2.5 Signal word : Warning	>
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Precautionary Statements: Do not eat, drink or anake when using this product. Do not breathe dast or mist. Use personnal protective equipment as required With internegably the handling Use outdoors or in a well-realisted area Contaminated clothing should not be allowed out of the workplace Avaid release to the environment Avaid release to the environment If this declare to the environment If the environment If this declare to the environment If the environment If the environment	Causes serious eye	anisage
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	Avoid rel	ANY CAMBER SHOWN IN THE ADDRESS OF THE POLICE FOR REPROCE
		ed : Rinse mouth . Da not induce vontiting and call a Poison center or Ductor/Physician. Remove victim to fresh air and keep at rest in a position confortable for breathing. Wash with plenty of soap and water.
	Ifskin irr Ifin eyes If eye irrb	Tation occurs : Get medical advice/attention. Take off contaminated cinhing and wash before reuse. Rinse with water for several minutes. Remove contact leases, if present and easy to do , ation persists : Get medical advice/attention .
		well-Ventilated place . Keep container tightly closed. Store locked up.
	Disposal: Disposal o	f contents / container to in accordance to local disposal regulation.

SS.TANGJSEP.114 TD-SB76820-220

KURITA T-7682 randname : SECTION 3 - INFORMATION ON HAZARDOUS INGREDIENTS OF COMPOSITION

A SUBSTANCE OR MIXTURE: Mixture

CONTENT(%) 20-30 5-10 5-10 CHEMICAL COMPOSITION Organic Polymer compound 2 GENERAL NAMES Potassium hydroxide Phosphonate

MIII.W No. CAS No. Confidential 2809-21-4 37971-36-1 1310-73-2 MITI No. Organic Polymer compaund GENERAL NAMES Potassium hydroxide Phosphonate Phosphonate

SECTION 4 - EMERGENCY AND FIRST AID MEASURES

After spillagesteakagegas teakage : Wear protective clothing. Exhaust dusts. Close drains. Gather larger amounts of the product. Cover residue with an adsorbant, take up by mechanical means and hold product for waste disposal as discribed in irst aid : Eye contact : After separating the cyclids flush with copious amounts of water, contact an oculist if irritation persists. Skin contact: Remove contaminated clothing, take a shower, carefully wash affected skin with soap and plenty of water. observation, Inhalation : Remove affected person immediately from contaminated aren, if inconvenience persists contact Ingestion: If affected person is conscious give copious amounts of water to drink, immediately take care for medical a physician. Notes to the Physician: There is not special information available. Treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

ire/Explosion protection: The product itselfs is not flammable. Coordinate personal protective clothing and extinguishing media according with the case of five, Collect all contaminated water in containers and dispose local regulations. atinguishing media suitable: Dry Chemical, carbondioxide, water spray (fog.) and foam

xiinguishing media not suitable : Water spray jet

SECTION 6 - ACCIDENT RELEASE MEASURES

marked containers and hold for waste disposal as described in section 13. Thoroughly rinse affected ground with plenty of water. Wear protective elothing. Close drains. Exhaust product vapours. Cover spill with inert material. Pump off large amounts of the product into marked, resistant containers. Cover residues with an inert absorbant, take up by machanical means into

SECTION 7 - HANDLING AND STORAGE

Store product in tightly closed containers in a cool, dark and ventilated area. Install spillage containers, Avoid spills and splastes during refilling process. Handling product only in well ventilated areas. Provide cye bath at the working place. Avoid inhalation of vapours when handling the thermal treated product. Only use corrosion resistant tools and equipments.

SS.TANGJSEP.14 TD-SB76810-220

Personal protective equipment; Respiratory protective; mask, Follow the OSHA respirator regulations found in 29 CFR 1910.134 ar Hand protection: Chemical resistant protective gloves (EN 374); Suitable materials such as polyvinylchloride (PVC) - 0.7 mm coating SECTION 8 - EXPOSURE CONTROL AND PERSONAL PROTECTION OCCUPATIONAL EXPOSURE LIMIT: Not applicable European Standard EN 143 or 149, Type P3 or FFP3.

KURITA T-7682

: amdname :

Other: Long sleeve wearing. Industrial Hygiene : Do not eat, drink or smoke at the working place. Avoid any direct contact with the product. Do not breath dust and product vapour. Change contaminated elothing immediately and thorughly wash Eye protection: chemical safety gaggle with side shields. ,

thickness or equivalent,

fore reuse.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

10. pH values (as delivered) : (25 °C) 6.0 - 8.0 9. Ignition temperature: not application 8. Explosion limits : not applicable 7. Freezing Point: not applicable 6. Colour : Colorless to yellow Solubility in water: soluble in every proportion 4. Flash point: not application 1. Vapour pressure : no data 2. Density: 1.08 - 1.16 g/ml. Form : Liquid

SECTION 10 - REACTIVITY AND STABILITY

; STABILITY ; Stable on normal usage and handling Condition to avoid: Storng oxidizing conditions.; Products to avoid: strong exidizers Hazardous decomposition products : none if used as indicated

SECTION 11 - TOXICOLOGICAL INFORMATION

SKIN CORROSION/IRRITATION: Causes severe skin burns and eye damage EYE CORROSION/IRRITATION: Causes serious eye damage ACUTE TOXICITY: Oral rat LD50: 3,653 mg/kg

SECTION 12 - ECOLOGICAL INFORMATION

Never release concentrated product to the environment. Neutralize polluted wastewater before its release into the drains,

SECTION 13 - DISPOSAL CONSIDERATION

PRODUCT : Never draw chemical directly to waste water line. Request treatment to licensed industrial waste-treatment company as " Special controlled industrial waste ".

PACKAGE: Dispose contaminate packaging follow Regulation law and dispose non contaminate packaging same genaral waste or reuse .

If no special regulation, contact with manufacturer.

SECTION 14 - TRANSPORTATION INFORMATION

Prevent destruction by keeping away from strong oxidizing agents.

SS.TANGJSEP.14 TD-SB76820-220 BESCHON 14 - OTHER INCORDANTENS

SECTION 14 - OTHER INCORDANTENS

Medical Experimentary of Translation of Comments of Manager and Manager

MATERIAL SAFETY DATASHEET (MSDS) -Hydrochloric Acid (HCI)



Science John Colling Chemicals & Laboratory Equipment



Reactivity Personal

Material Safety Data Sheet Hydrochloric acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid	Contact Information:
Catalog Codes: SLH1462, SLH3154	Sciencelab.com, Inc.
CAS#: Mixture.	Houston, Texas 77396
RTECS: MW4025000	US Sales: 1-800-901-724
TSCA: TSCA 8(b) inventory: Hydrochloric acid	International Sales: 1-28
CI#: Not applicable	Order Online: Sciencelal

Section 2: Composition and Information on Ingredients

Composition:	
Name	CAS#
Hydrogen chloride	7647-01-0
Water	7732-18-5

% by Weight 20-38 62-80

Section 3: Hazards Identification

4701 ppm 0.5 hours [Rat]

Potential Acute Health Effects:

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce lissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns, Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and tiching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper

Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact tenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

For non-emergency assistance, call: 1-281-441-4400

CHEMTREC (24HR Emergency Telephone), call: International CHEMTREC, call: 1-703-527-3887

1-800-424-9300

Synonym: Hydrochloric Acid; Muriatic Acid

Chemical Formula: Not applicable.

Chemical Name: Not applicable.

es: 1-281-441-4400

-901-7247

iencel.ab.com

Serious Ingestion: Not available.

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable

Products of Combustion: Not available Flammable Limits: Not applicable.

Fire Hazards in Presence of Various Substances: of metals

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable

Special Remarks on Fire Hazards:

used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas.

Special Remarks on Explosion Hazards:

beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCI), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4, Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C. Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-Litanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HCIO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate,

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate

Large Spill:

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves, Boots, Personal Protection:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid Personal Protection in Case of a Large Spill:

inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this Exposure Limits:

CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent, Irritating (Strong.)

Taste: Not available

Molecular Weight: Not applicable

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point:

108:58 C @ 760 mm Hg (for 20.22% HCI in water) 83 C @ 760 mm Hg (for 31% HCI in water) 50.5 C (for 37% HCI in water) Melting Point:

-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water) Critical Temperature: Not available

Specific Gravity:

1.1 - 1.19 (Water = 1) 1.10 (20% and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38%HCI solutions)

Vapor Pressure: 16 kPa (@ 20°C) average

Vapor Density: 1.267 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 to 10 ppm

Water/Oil Dist. Coeff.: Not available,

Ionicity (in Water): Not available

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, water

Incompatibility with various substances:

Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:

Exfremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:

onto silicon dioxide results in exothmeric reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. alkali metals, carbides, borides, metal oxides, vinyl acetale, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with, brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalies (reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with Hydrogen chloride or Hydrochloric Acid in contact with the folloiwng can cause explosion or ignition on contact or

Special Remarks on Corrosivity:

Highly corrosive, Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinium, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation

Toxicity to Animals:

Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat]

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

Other Toxic Effects on Humans: Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive)

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (fetoxicity). May affect genetic material.

Special Remarks on other Toxic Effects on Humans:

and larryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well has headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and chills, fever, uneasiness, shock, strictures and stenosis (esophogeal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys-renal Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjuntivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to itssue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, infection. Can also cause nausea, vomitting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, Effects: dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

Section 12: Ecological Information

Ecotoxicity: Not available

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hydrochloric acid, solution UNNA: 1789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid California Director's List of Hazardous Substances: Hydrochloric acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg) hazardous substances. Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK RTK. Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list:

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910,1200), EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):

R34- Causes burns. R37- Inritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Gloves, Full suit, Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventitation is inadequate, Face shield. Protective Equipment:

Section 16: Other Information

References:

-Hawley, G. G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987, -SAX, N.I.
Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of
Chemical Safety Data, Edition II. -Guide de la loi et du réglement sur le transport des marchandises dangeureuses au canada.
Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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MATERIAL SAFETY DATASHEET (MSDS) -Sodium Chlorite (NaClO2)

keavyscorner.com

168 McCoy Drive

Lake Placid FL 33852 863-658-0235

THIS PRODUCT IS SHIPPED

ORM-D/LIMITED QTY

25% SODIUM CHLORITE SOLUTION **MATERIAL DATA SAFETY SHEET**

Chemical Product And Company Information

Chemical Name: Sodium Chlorite Solution 25% Synonyms/Trade Names: Sodium Chlorite Solution, Chlorite Solution Chemical Family:

Formula: NaClO2

Molecular Weight: 90.45

CAS No.: 7758-19-2

UN# 1908 Uses:

Generation of chlorine dioxide for use as a disinfectant or for use as a water purifier Manufacturer & Supplier Transportation Emergency Telephone Numbers: Sodium Chlorite manufactured by Aragonesas S.A. Madrid Spain Sol Emergency Telephone Numbers 888 751 4964 863-451-2175

2. Composition / Information.On Ingredients

Name: Conc. % By Weight CAS No. Sodium Chlorie 25 % 7758-19-2. Inert Ingredients 6.25% Water Balance 7732-18-5

3. Hazard Identification

Emergency Overview:

Colouriess, odouriess solution with a slight greenish lint. Does not burn when wet. When dried it can decompose explosively under intense fire conditions forming oxygen and hydrogen chloride gas. MODERATE to STRONG OXIDIZER

Promotes combustion when dried. Can be ignited readily by heat,

shock or firstion, and/or explote when contaminated by combustible or flammable materials (dry organic materials). Reacts violently with sulfur and sulfur-containing materials, red phosphorus and strong reducing agents. At low pt, reacts releasing corrosive and dangerously reactive chlorine doxide.

Routes of Entry:

Inhalation, Skin Contact/absortion, Eye Contact or Ingestion Symptoms of Exposure:

Inhalation: Inhalation of vapors or mists may cause irritation of the muscus membranes and respiatory tract. Symptoms may include coughing, bloody nose, and sneczing, sevore exposure may cause lung

damage. Skin Contact/absortion: Direct contact may cause irritation and or burns with symptoms of rechess , itching, swelling and possestile destruction of tissue.

Eye Contact: Direct contact may cause irritation and or burns with symptoms of redness, itching, swelling and posssible destruction of tissue.

Ingestion: Ingestion may cause gastroenteritis with any or all of the following symptoms: nausea, vorniting, lethargy, diarrha, bleeding, or ulceration. Acute ingestion of large quantities may also cause anemia due to the oxidizing affects of the chemical.

4. First Aid Measures

Skin: Remove contaminated clothing and keep it wet until washed.
Wash the affected area with soap and water. If initation develops, get medical attention.
Eyes: Flush with water for a minimum of 15 minutes. Get medical attention.

Inhalation: Il irritation or other symptoms are experienced, remove victim to fresh air. Il symptoms persist get

Ingestion:DO NOT INDUCE VOMITING, DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Otherwise rinse mouth with water and give 8 to 10 ounces (or 250 to 300 ml) of milk, egg whites or gelatin solution. Get medical attention immediately.

5. Fire-Fighting Measures

Conditions Of Flammability:

Does not burn, but combustibles wetted with this solution and subsequently dried are easily ignited and

Means To Extinguish: Water is the only effective extinguisher.

Hazardous Combustion Products: None, does not burn. Flash Point & Method: Not applicable

Upper Flammability Limit: Not applicable

Lower Flammability Limit: Not applicable Auto-Ignition Temperature: Not applicable

Mechanical Impact Sensitivity: Not applicable (water solution)

Static Discharge Sensitivity: Not applicable (water solution)

Accidental Release Measures

Leak Or Spill Procedures: Contain spills. Collect into clean compatible metal or high density polyethylene containers. Wash

residues with large amounts of water. DO NOT USE RAGS, SAWDUST OR OTHER COMBUSTIBLE ABSORBENTS. Waste Control Procedures:

Wash or incinerate all contaminated combustible material in an environmentally acceptable manner before it dries out. Consult supplier regarding disposal of reclaimed sodium chlorite.

7. Handling StorageHandling

Procedures And Equipment:
Use corrosion resistant tools and equipment. Avoid skin or clothing contact.
Storage:

Store in a cool, dry fireproof building. KEEP AWAY FROM COMBUSTIBLES, ORGANICS AND ACIDS.

8. Exposures Controls / Personal Protection

Butyl rubber or neoprene glaves. Protective Equipment: Chemical safety goggles.

Butyl rubber or neoprene gloves. Chemical safety goggles.

Dust/mist mask in dusty or misty locations.

Wear waterproof or washable outer clothing. Remove contaminated clothing and wash it before it dries.

Engineering Controls: Use separate, corrosion-resistant ventilation system to capture mist or fume. Do not use wood or other combustibles to construct vent system. Prevent entry into bearings or gear boxes, contact with organics (oils) could cause an explosion.

Physical And Chemical Properties

Odor: Faint bleach-like odour

Boiling Point: Depends on concentration 100 - 105℃ Metting Point: Not applicable

Freezing Point: Depends on concentration -4 - - 10 °C pH: 12.5 to 13.5

Appearance: Clear Solution, pale green clear Specific Gravity: Depends on concentration 1.28 @ 20°C for 25 wt%. Soln.

Stability And Reactivity

Chemical Stability:Stable in itself, but reactive as detailed below.

Reactivity Conditions Reacts on mixing with acids to give toxic chlorine dioxide and chlorine gases. Mixtures with combustibles, if allowed to dry out, are easily ignited by heat or friction and burn vigorously or may explode.

ncompatible Substances:

Incompatible with all combustibles and reducing agents, especially phosphorus, sultur-containing materials, powdered metals, ammonium compounds. Incompatible with acids. Hazardous Decomposition Products:

Residues of sodium chlorite, from dried-out solution, will give off oxygen on being heated strongly.

11. Toxicological Information

Skin Contact: irritating to the skin if not washed off promptly. Dermaititis is likely to occur from repeated or prolonged contact.
Skin Absorption: Not available

Eye Contact: Causes severe eye irritation. May cause permanent damage because of its corrosive properties. Inhalation: Spray or mist is irritating to the nose and throat.

Ingestion: Will irritate and may cause corrosion of the gastrointestinal tract.
May cause vorinfing, nausea, darthea, cramps and pain.
May danage blood cells, liver or kidney.
LD50: 1650 mg/kg (rat) for 10 wt% Soin.

LC50: Not available

Exposure Limits: Not available

Irritancy: Severe (corrosive)

Carcinogenicity: Does not appear in reference lists. Sensitization: Not reported as a human sensitizer.

Teratogenicity & Mutagenicity: Not teratogenic even at maternally toxic doses. Mutagenicity has been demonstrated in bacteria and mammalian cell cultures, but not in

Reproductive Toxicology: Shown to be toxic to mammalian fetuses only at doses toxic to the mother. In one study, sodium chlorite given in drinking water showed a small but statistically significant increase in the percentage of abnormal experiments involving whole animals.

12. Ecological Information

Ecological Information: This product is toxic to aquatic life. Do not discharge into lakes, streams, ponds, sewers

unless in accordance with the permitting authority.

Biodegradability: In soil, will degrade to sodium chloride but may form chlorine dioxide in contact with acidic soils. Chlorate is an intermediate product of decomposition; it will slowly degrade to chloride.

Aquatic Toxicity:

In water, sodium chlorite will eventually degrade to sodium chloride

13. Disposal Considerations

regulations.

Disposal Considerations :Disposal of all wastes must be done in accordance with municipal, provincial and

PROPER SHIPPING NAME: CHLORITE SOLUTION Transportation Information

UN NUMBER: 1908

CAS NUMBER: 7758-19-2 HAZMAT CLASS: Class 8 Corrosive PACKAGING CLASS: II

15. Regulatory Information

OSHA Hazard Communication Evaluation: Meets criteria for hazardous material, as defined by 29 CFR 1910.1200.

WHMIS Hazardous Class: D1B Toxic Material

C Oxidizing Material E Corrosive Material

Environmental:

All components of this product are either on the USA Toxic Substances Control Act (TSCA) inventory List the Canadian Domestic Substances List (NDSL), no exempt from all three lists.

Refer to Section 14.

16. Other Information Prepared By:

Keavys Corner

Sebring FL

Keavys Corner assumes no responsibility for injury to or death of the recipient of this material or third persons, or for

damage, howsoever, caused, and the user,

owner, ballee and their respective employees and agents assume all such risks if reasonable safety procedures are not adhered to. In addition, Kaavys Corner assumes no responsibility for injury to or death of the recipient of this material or third in addition. Kaavys Corner assumes no responsibility for injury to or death of the recipient of this material or third

persons, or for

any loss or damage to any property, or for any consequential damage resulting from any abnormal user or theft of the and the user, owner, bailee and their respective employees and agents assume all such risks even when caused by

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review the

information, data and recommendations in the specific context of the intended use.

ภาคผนวก 2ซ

หนังสือลงนามสัญญาซื้อน้ำ จากบริษัท จัดการและพัฒนาทรัพยากรน้ำภาค ตะวันออก จำกัด (มหาชน) (อีสท์ วอเตอร์)



ที่ EW/100/108/19

วันที่ 21 มีนาคม 2562

เรื่อง สนับสนุนการใช้น้ำสำหรับโครงการโรงไฟฟ้าปลวกแดง

เรียน กรรมการ

บริษัท กัลฟ์ พี่ดี จำกัด

อ้างถึง ลัญญาซื้อขายน้ำอุตสาหกรรมระหว่างบริษัท กัลฟ์ พีดี จำกัด และ บริษัท จัดการและพัฒนาทรัพยากร น้ำภาคตะวันออก จำกัด (มหาชน) ลงวันที่ 24 สิงหาคม 2561

ตามที่บริษัท กัลฟ์ พีดี จำกัด ได้ลงนามในสัญญาซื้อขายน้ำอุตสาหกรรมกับ บริษัท จัดการและพัฒนา ทรัพยากรน้ำภาคตะวันออก จำกัด (มหาชน) ("บริษัทฯ") เมื่อวันที่ 24 สิงหาคม 2561 โดยมีวัตถุประสงค์เพื่อนำ น้ำอุตสาหกรรมมาใช้ในการพัฒนาและดำเนินการโครงการโรงไฟฟ้าปลวกแดง ตั้งอยู่ที่สวนอุตสาหกรรมโรจนะ (ปลวกแดง) (เดิมชื่อสวนอุตสาหกรรมปลวกแดง) ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง รายละเอียดตามอ้างถึง

บริษัทฯ ใคร่ขอเรียนให้ทราบว่า บริษัทฯ ขอยืนยันความพร้อมที่จะเป็นผู้ให้บริการจัดสรรน้ำ อุตสาหกรรม ซึ่งมีคุณภาพเทียบเท่ามาตรฐานคุณภาพน้ำประปา สำหรับโครงการโรงไฟฟ้าปลวกแดง ตาม โควตาที่ได้จัดสรรให้ในปริมาณไม่เกิน 60,000 ลูกบาศก์เมตรต่อวัน ตลอดอายุโครงการ โดยได้สำรวจแล้วว่า สามารถวางท่อแยกจ่ายน้ำอุตสาหกรรมจากท่อส่งน้ำหลัก เพื่อนำน้ำอุตสาหกรรมมาใช้ในโครงการโรงไฟฟ้า ปลวกแดงได้

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(จิรายทธ ร่งศ์รีทอง)

กรรมการผู้อำนวยการใหญ่

บริษัท จัดการและพัฒนาทรัพยากรน้ำภาคตะวันออก จำกัด (มหาชน) อาคารอีสท์ วอเตอร์ เลขที่ 1 ชอยวิภาวดีรังสิต 5 ถนนวิภาวดีรังสิต แขวงจอมพล เขตจดุจักร กรุงเทพฯ 10900 โทรศัพท์ +66 2272 1600 โทรสาร +66 2272 1601-3 www.eastwater.com

ภาคผนวก 2ฌ

รายการคำนวณระบบปรับปรุงคุณภาพน้ำเบื้องต้น ภายหลังการเปลี่ยนแปลงรายละเอียดโครงการ

Water Pre-Treatment System

This system is common for all the four (4) power blocks.

The function of the water pre treatment plant is to treat the raw water from the raw water reservoir for further use as service water and fire water. The treated effluent water from the ultrafiltration system will be store in the service water tank and it will be used as feed to the demineralizer water plant. This filtered water in the service water storage tank will also be used for portable purpose.

Design Capacity of Water Pretreatment Sytem

Capacity of each UF unit

Quantity of Ultrafiltration System

44 m³/hr (Ultrafiltration Outlet) 3 Nos.

Total capacity of plant

3 x 44 m³/hr (Ultrafiltration Outlet)

Process Calculation Sheet

No.	Description	Formula	Unit	Amount	
A	Water Pre-treatment and Demineralized Water System				
-	Raw Water Storage Tank				
7.	DESIGN DATA				
	- UF Feed Pump Capacity	L.	m3/hr	104	
1.2	DESIGN CRITERIA				
	- Detention time	1.	min	15	
6.	RESULT OF CALCULATION				
	- Volume	F×t/60	m3	26	
4	DESIGN				
	- Volume of Raw Water Storage Tenk		m3	30	> 26
2	UF Unit				
2.1	DESIGN DATA				
	- Number of Trains	A	ПО.	3	
	- Number of Modules / Train	В	no.	10	
	- Total Number of Membrane Modules	A×B	pos.	30	

ใบอนุญาดประกอบวิวาอีพวิสาภรรมควบคุม ตามพระราชบัฐญีติวิสาภร พ.ศ. ๒๕๔๖ ๙๑ อ๋๖-คฺฟ นายขาญบุทธ ดันดีวิรมานแท้

กลัง สามัญวิศวกร เลยแบ็ยแ สส.42 วันอนุญาต 8 มี.ค. 2557 วันสันอายุ 3 มี.ค 25

รับสั้นอายุ 3 กี.ก 2552 and 52323 วันออกบัตร 18 ภี.ก. 2557 บักรแมกงานุ 8 ภี.ก. 2552

ภาคผนวก 2ญ

รายการคำนวณความเพียงพอของถังเก็บน้ำใช้ ภายหลังการเปลี่ยนแปลงรายละเอียดโครงการ

Calculation Data Sheet of Water Tanks

Name	Туре	Capacity	
Service Water / Fire Water Storage Tank	Butt welded cone roof tank	4250 m ³	

1) Service Water / Fire Water Storage Tank

Number:

One (1) per plant

Capacity:

2 hours F/F water supply plus (+) 1 day service water consumption minus

(-) 1 day plant cycle make-up

<Required F/F water >

1220 m3/h x 2 hours = 2440 m3 ----- (α)

<Service water consumption>

 $2074 \text{ m}3/\text{day} \times 1 \text{ day} = 2074 \text{ m}3------ (\beta)$

<Plant Cycle Make-up>

 $379 \text{ m}3 \times 1 \text{ day} = 379 \text{ m}3 ----- (x)$

<Required tank capacity >

 $(\alpha) + (\beta) - (x) : 2440 + 2074 - 379 = 4135 \text{ m}3 \implies 4250 \text{ m}^3$

ภาคผนวก 2ฎ

รายการคำนวณระบบระบายน้ำฝน และบ่อหน่วง น้ำฝนของโครงการ ภายหลังการเปลี่ยนแปลง รายละเอียดโครงการ

Storm Water Discharge calculation

Quantity of runoff (Qf)

The quantity of runoff is calculated by the following rational formula

Qf= $A \times I \times C/(3.6 \times 10^6)$ (m3/sec)

A: Drainage catchment area (m2)

I: rainfall intensity (mm/hr)

C: runoff coefficient

c for building roof & equipment foundation: 0.90

c for concrete or asphalt pavement: 0.80

c for gravel + concrete area: 0.80

c for green area: 0.15

c for non-pavement area: 0.10

c for embankment slope area: 0.44

Capacity of storm water pond (volume)

Capacity of storm water pond is calculated by the following formula

Volume = $A \times I \times 3$ hours (Ca-Cb)/1000

V: capacity of storm water pond (m3)

A: Drainage catchment area (m2)

I: rainfall intensity (mm/hr) = 100 mm/hr

Ca: runoff coefficient after development = 0.7

Cb: runoff coefficient before development = 0.3

Size of gutters

Size of gutters is calculated by the following formula

$$Q = A/n \times (R^{2/3} \times S^{1/2})$$

Q: flow capacity of gutter (m3/sec)

A: cross sectional area of flow (m2) = W × D

p: wetted perimeter (m) = W+2D

W: width of drainage line (m)

D: depth of drainage line (m)

R: Hydraulic radius (m) =A/p

S: Slope of gutter

n: manning roughness coefficient (0.012 for concrete gutter)

flow capacity of gutter is considered OK if it is 1.32 times of the runoff in its catchment area; i.e. safety factor 1.32.

GPD Project Calculation of Required Capacity of Storm Water Pond

STORM WATER RETENSION POND-1

	Storm Water Pond
Total Catchment area (Rais)	252.87
Total Catchment area (m2)	404,584
Runoff coefficient (Before Development)	0.3
Runoff coefficient (After Development)	0.7
Rainfall Intensity (mm/hr)	100.0
retention time (hr)	3
Capacity of storm water retention pond (m3)	48,550

Total Required Capacity

48,550 m3

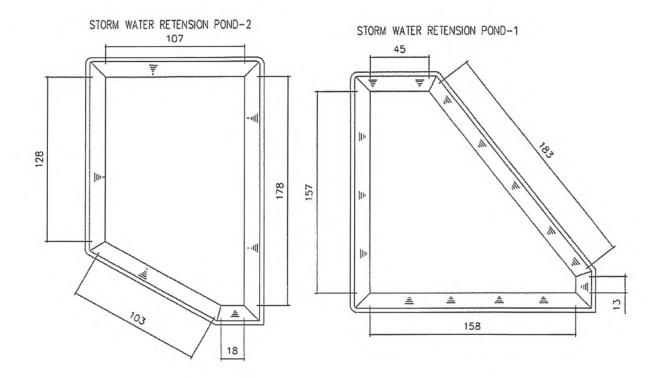
STORM WATER RETENSION POND-2

	Storm Water Pond
Total Catchment area (Rais)	239.44
Total Catchment area (m2)	383,098
Runoff coefficient (Before Development)	0.3
Runoff coefficient (After Development)	0.7
Rainfall Intensity (mm/hr)	100.0
retention time (hr)	3
Capacity of storm water retention pond (m3)	45,972

Total Required Capacity

45,972 m3

Storm Water Pond Capacity for GPD Project



Storm Water Pond				
Area A-1	=	(Area Calculation By AutoCad)	=	16,681.0 m ²
Volume A-1	=	16681X2.65	=	44,204.7 m ³
Volume Outer	=	1/2×2.65×7.95×(45+183+13+158+157)	=	5,856.8 m ³
Volume Corner	=	0.5×7.95×7.95×2.65×2.5	=	209.360 m ³
Storm Water Pond V-	-1 =	44204.65 + 5856.765+209.36	=	50,270.8 m ³
Area A-2	=	(Area Calculation By AutoCad)	=	16,897.0 m²
Volume A-2	=	16897X2.65	=	44,777.1 m ³
Volume Outer	=	1/2x2.65x7.95x(107+178+18+103+128)	=	5,625.0 m ³
Volume Corner	=	0.5×7.95×7.95×2.65×2.5	=	209.360 m ³
Storm Water Pond V-	-2 =	44777.05 + 5625.0225+209.36	=	50,611.4 m ³
Grand To	otal	100,882.2 is More than 99,797.0 m ³		

Calculation of storm water drainage lines of GPD Project

			0				-	Route	V						
Drainage lines		2-1	5-3	4-5	6-4	8-0	8-/	8-10	9-10	10-12	71-17	12-14	13-14	14-5	5-15
Upstream drainage line (1)		1		-13	3-4	1		9-9		8-10		10-12		12-14	4-5
Upstream drainage line (2)		1		2-3	1	1		7-8		9-10		11-12		13-14	14-5
Upstream drainage line (3)		'	1	1	1	1	1	1	1	1	1	1	1	I	-
Design conditions															
A : Runoff area (Roof)	(m2)														
A : Runoff area (Paving)	(m2)	13,267	30,638			24,429	23,555		22,820		24,183		18,399		
A : Runoff area (Grave + Paving)	(m2)														
A : Runoff area (Turf)	(m2)														
A : Runoff area (Non Paving)	(m2)			4.994											I
A : Runoff area (Slope Protection)	(m2)														I
A : Runoff area (Storm Water Pond)	(m2)								Ī					T	
c : Runoff coefficient (Roof)														T	
c : Runoff coefficient (Paving)		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	70
C. Rinoff coefficient (Grave + Daving)					13	5	3			5	2.0	5	5	3	0.0
C. Ripoff coefficient (Tiref)			Ī							T	Ī	Ī		1	T
C. Rinoff coefficient (Non Daving)		0.0	00	000	00	00	00	00	C	C	0	0	0	c	0
o Dunoff coefficient (Clore Destroyles)		2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
C. Nation Coefficient (Storm Mater Dead)			Ī			Ī		Ī			1	Ī		1	T
C. Narion Coemicient (Storm Water Pond)	,	1	1	1											
In: Kainwater intensity	(mm/hr)	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22	116.22
Flow Volume															
Q _{n-1} : flow volume of upstream area	(m3/s)			1.310	1.374			1.431		2.112		2.833		3.782	5,155
Q _n : flow volume from this runoff area	(m3/s)	0.300	0.692	0.048	0.000	0.552	0.532	0.000	0.516	0.000	0.546	0.303	0.416	0.000	0.000
E E															
Q : Lotal Flow volume with 32% safety factor =[○ 1 + [132% × ○ 1	(m3/s)	0.396	0.914	1.374	1.374	0.729	0.703	1.431	0.681	2.112	0.721	3,233	0.549	3.782	5.155
Shape of drain gutter															
W. width of drainage line	(m)	1.00	1.00	1.20	1.20	1.00	1.00	1.40	1.00	1.80	1.00	2.00	1.00	2.20	2.40
D: depth of drainage line	(m)	0.40	06.0	0.95	0.95	0.73	0.70	0.85	0.70	1.26	0.70	1.44	0.70	1.69	1.79
p: wetted perimeter = W +2D	(m)	1.80	2.80	3.10	3.10	2.46	2.40	3.10	2.40	4.31	2.40	4.89	2.40	5.58	5.98
A: cross sectional area of flow = W x D	(m2)	0.4000	0.9000	1.1400	1.1400	0.7287	0.7000	1.1900	0.7000	2.2629	0.7000	2.8864	0.7000	3,7141	4.2959
n: roughness coefficient of drainage line		0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
R: Hydraulic radius = A/p	(m)	0.2222	0.3214	0.3677	0.3677	0.2965	0.2917	0.3839	0.2917	0.5245	0.2917	0.5907	0.2917	0.6660	0.7184
S: Slope of gutter	(%)	0.11%	0.07%	0.08%	0.08%	0.08%	%80.0	0.08%	0.08%	%90.0	0.08%	0.07%	0.08%	%90.0	0.07%
Q: flow capacity of gutter $Q = A/n \times (R^{2/3} \times S^{1/2})$	(m3/s)	0.4056	0.9311	1.3792	1.3792	0.7638	0.7256	1,4815	0.7256	3.0042	0.7256	4.4803	0.7256	5.7820	7.5974
[Flow capacity of gutter]–[132% of required flow]	(m3/s)	0.0099	0.0172	0.0057	0.0057	0.0351	0.0230	0.0501	0.0449	0.8922	0.0043	1.2475	0.1768	2.0004	2.4423
If [Flow capacity of gutter]–[132% of required flow] $>$ 0 then OK If [Flow capacity of gutter]–[132% of required flow] $<$ 0 then not OK		X	ŏ	š	ŏ	ŏ	ŏ	ŏ	ŏ	, A	Ř	Ř	Ř	Š	ě
												-			_

Calculation of storm water drainage lines of GPD Project

Distream drainage line (1) Upstream drainage line (2) Upstream drainage line (3) Upstream drainage line (2) Upstream drainage line (2) Upstream drainage line (3) Distream drainage line (2) Distream drainage line (3) A : Runoff area (Roof) A : Runoff area (Roof) A : Runoff area (Snorm Water Pond) A : Runoff area (Snorm Water Pond) A : Runoff area (Slope Protection) C : Runoff coefficient (Roof Protection) C : Runoff coefficient (Snorm Water Pond) C : Runoff	Drainage lines Upstream drainage line (1) Upstream drainage line (2) Upstream drainage line (3) Upstream drainage line (3) Design conditions A: Runoff area (Roof) A: Runoff area (Paving) A: Runoff area (Grave + Paving) A: Runoff area (Slope Protection) A: Runoff area (Slope Protection)			22-23	23-24
d) (m2) (m2) (m2) (m2) (m2) (m2) (m2) (m	pstream drainage line (1) lpstream drainage line (2) lpstream drainage line (2) lesign conditions : Runoff area (Roof) : Runoff area (Paving) : Runoff area (Grave + Paving) : Runoff area (Turf) : Runoff area (Slope Protection)				22-23
(m2) (m2) (m2) (m2) (m2) (m2) (m2) (m2)	pstream drainage line (2) lostream drainage line (3) lesign conditions .: Runoff area (Roof) .: Runoff area (Paving) .: Runoff area (Grave + Paving) .: Runoff area (Turf) .: Runoff area (Slope Protection)				
d) (m2) (m2) (m2) (m2) (m2) (m2) (m2) (m	esign conditions : Runoff area (Roof) : Runoff area (Roof) : Runoff area (Grave + Paving) : Runoff area (Turf) : Runoff area (Turf) : Runoff area (Turf) : Runoff area (Slope Protection)				
d) (m2) (m2) (m2) (m2) (m2) (m2) (m2) (m	esign conditions : Runoff area (Roof) : Runoff area (Paving) : Runoff area (Grave + Paving) : Runoff area (Turf) : Runoff area (Non Paving) : Runoff area (Slope Protection)			1	1
(m2) (m2) (m2) (m2) (m2) (m2) (m2) (m2)	: Runoff area (Roof) : Runoff area (Paving) : Runoff area (Grave + Paving) : Runoff area (Turf) : Runoff area (Slope Protection)				
actor (m2) (m2) (m2) (m2) (m2) (m2) (m2) (m2)	: Runoff area (Nou) : Runoff area (Grave + Paving) : Runoff area (Grave + Paving) : Runoff area (Turf) : Runoff area (Non Paving) : Runoff area (Slope Protection)		(6-0)	T	
(m2)	. Runoff area (Grave + Paving) . Runoff area (Grave + Paving) . Runoff area (Turf) . Runoff area (Non Paving) . Runoff area (Slope Protection)		(0)		0,000
d) (m2) (m2) (m2) (m2) (m2) (m2) (m2) (m	: Kunoff area (urave + Paving) : Runoff area (Turf) : Runoff area (Non Paving) : Runoff area (Slope Protection)		(mz)		23,313
(m2) (m2) (14,733 (m2) (m2) (m2) (m2) (m2) (m2) (m3) (m3) (m3) (m3/s) (m	.: Kunoff area (Turf) .: Runoff area (Non Paving) .: Runoff area (Slope Protection)		(mZ)		
(m2) 14,733 (m2) (4,02)	.: Runoff area (Non Paving)		(m2)		
(m2) (m2) (m2) (m3) (m3/s) (m3	: Runoff area (Slope Protection)		(m2)	14,733	
actor (m2) 0.7 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.188 (m) 0.20 (m) 0.200 (m) 0.0120			(m2)		
actor (m3/s) 0.143 (m3/s) (m3/s) 0.143 (m3/s) 0.143 (m) 0.20 (m) 0.200 (m) 0.0120 (m) 0.0120 (m) 0.0120 (m) 0.0120 (m) 0.0120 (m) 0.1208 (m) 0.1208 (m) 0.1208 (m) 0.1208 (m) 0.208 (m) 0.1208	: Runoff area (Storm Water Pond)		(m2)		
actor (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.429 (m) 0.1429 (m) 0.168	: Runoff coefficient (Roof)				
actor (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m) 0.20 (m) 0.20 (m) 0.200 (m) 0.0129 (m) 0.0129 (m) 0.0129 (m) 0.20% (m) 0.0129 (m) 0.0153 (m3/s) 0.0153 (m3/s) 0.0153 (m3/s) 0.0153 (m3/s) 0.0153 (m3/s) 0.0153 (m3/s) 0.0153	· Dunoff coefficient (Downs)			100	0
actor (m3/s) 0.188 (m3/s) 0.188 (m3/s) 0.188 (m3/s) 0.188 (m3/s) 0.188 (m) 0.20 (m) 0.0120 (m3/s) 0.0037 1 1ed flow] (m3/s) 0.0153 (m3/s) 0.0153 (m3/s) 0.0153	. number coefficient (Favirig)			0.7	0.7
actor (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.429 (m) 0.129 (m) 0.129 (m) 0.20% (m) 0.1429 (m) 0.1429 (m) 0.129 (m) 0.129 (m) 0.129 (m) 0.20%	c : Runoff coefficient (Grave + Paving)				
actor (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m) 0.20 (m) 0.20 (m) 0.120 (m) 0.120 (m) 0.120 (m) 0.140 (m) 0.140 (m) 0.1420 (m)	: Runoff coefficient (Turf)				
actor (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.188 (m) 0.20 (m) 0.200 (m) 0.0120 (m) 0.0120 (m) 0.0120 (m) 0.1203 (m) 0.1203 (m) 0.2037 red flow] (m3/s) 0.2037	c : Runoff coefficient (Non Paving)			0.3	0.3
actor (m3/s) (116.22 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.188 (m) 1.00 (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.142 (m) 0.1429 (: Runoff coefficient (Slope Protection)				
actor (m3/s) 0.143 (m3/s) 0.143 (m3/s) 0.148 (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.429 (m) 0.129 (m) 0.129 (m) 0.129 (m) 0.20% (m) 0.129 (m) 0.20% (m) 0.129 (m) 0.20%	: Runoff coefficient (Storm Water Pond)				
setor (m3/s) 0.143 (m3/s) 0.148 (m3/s) 0.148 (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.429 (m)	: Rainwater intensity		(mm/hr)	116 22	116 22
actor (m3/s) 0.143 0. (m3/s) 0.188 0. (m3/s) 0.188 0. (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.0120 (m) 0.020% (m) 0.020% (m) 0.20% (m	Volume		(III /IIII)	77.0	77.01
actor (m3/s) 0.143 0. (m3/s) 0.188 0. (m) 1.00 (m) 0.20 (m) 0.200 (m) 0.020 (m) 0.020 (m) 0.020 (m) 1.40 (m) 0.020 (m) 1.40 (. flow volume of instrees area		(10.7)	Ī	0,00
actor (m3/s) 0.143 0. (m3/s) 0.188 0. (m) 1.00 (m) 0.20 (m) 1.40 (m) 0.200 (m) 0.1429 0.3 (m) 1.40 (m) 0.200 (m) 0.1429 0.3 (m) 0.14	n-1 . How volume of upsureally after		(m3/s)		0.188
(m3/s) 0.188 0. (m) 1.00 (m) 0.20 (m) 1.40 (m2) 0.2000 1.0 (m2) 0.0120 0.0 (m3/s) 0.1420 0.0 (m3/s) 0.20% 0.0 (m3/s) 0.20% 0.0 (m3/s) 0.20% 0.0	n: flow volume from this runoff area		(m3/s)	0.143	0.527
octor (m3/s) 0.188 0. (m) 1.00 (m) 0.20 (m) 1.40 (m2) 0.0120 (m2) 0.0120 0.00 (m3/s) 0.2037 1.1. red flow] (m3/s) 0.0153 0.2					
(m3/s) 0.188 0. (m) 1.00 (m) 0.20 (m) 1.40 (m) 0.120 (m2) 0.2000 1.0 (m3/s) 0.1429 0.3 (m3/s) 0.2037 1.1 red flow] (m3/s) 0.0153 0.2	Q : Total Flow volume with 32% safety factor				
(m) 1.00 (m) 0.20 (m) 1.40 (m2) 0.2000 1.0 (m2) 0.0120 0.0 (m3/s) 0.1429 0.3 (m3/s) 0.2037 1.11 red flow] (m3/s) 0.0153 0.2	[Q _{n-1}] + [132% × Q _n]		(m3/s)	0.188	0.884
(m) 1.00 (m) 0.20 (m) 1.40 (m2) 0.2000 1.0 (m2) 0.2000 1.0 (m3/s) 0.1429 0.3 (m3/s) 0.20%					
(m) 1.00 (20 (20 (20 (20 (20 (20 (20 (20 (20 (hape of drain gutter				
(m) 0.20 (m) 1.40 (m2) 0.2000 1.0 (m2) 0.2000 1.0 (m) 0.1429 0.3 (m) 0.2037 1.1 red flow] (m3/s) 0.0153 0.2	width of drainage line		(m)	1 00	1 00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	depth of drainage line		(m)	000	1.00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	wattad parimater = W +2D		(m)	1 40	800
$(m) \begin{tabular}{c c} & (m) & (1) & (2) & ($	orose sectional area of flow = M × D		(Carr)	00000	3.00
(m) 0.0123 0 (%) 0.20% (%) 0.20% 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	roughness coefficient of drainage line		(71117)	0.5000	00100
(%) 0.20% (%) 0.20% (m3/s) 0.2037 1 (m3/s) 0.0153 0	Hydraulic radius = A/r			0.0120	0.0120
(m3/s) 0.2037 1 (m3/s) 0.0153 0	Slope of gutter		(%)	0.1429	0.3333
(m3/s) 0.2037 (m3/s) 0.0153	12/3 2/3 1/2/3 1/2/3		(1)	20000	,000
(m3/s) 0.0153	flow capacity of gutter () = A/n × (R × × S)		(m3/s)	0.2037	1.1331
	low capacity of gutter]-[132% of required flow]		(m3/s)	0.0153	0.2494
	If [Flow capacity of gutter] _[132% of req	quired flow] < 0 then not OK		OK	N N
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Calculation of storm water drainage lines of GPD Project

Upstream drainage line (1) Upstream drainage line (2) Upstream drainage line (3) Upstream drainage line (2) Upstream drainage line (3) Upstream drainage line (2) Upstream drainage line (3) Upstream drainage line (4) Upstream drainage line (5) Upstream drai
(m2) (m2) (m2) (m2) (m2) (m2) (m2) (m2)
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tion) Pond) (mm/hr) (m3/s) a (m3/s) ty factor (m) (m) (m) (m) (m) (m) (m) (m)
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ty factor ty factor ty factor (m3/s) (m3/s) (m3/s) (m3/s) (m) (m) (m) (m) (m) (m) (m) (
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$\begin{array}{cccc} (m) & 0 \\ (m) & 0 \\ (3) & (8) \\ (4) & (8) \\ (4) & (1) & (2) \\ (4) & (1) & (2) \\ (4) & (1) & (2) \\ (4) & (1) & (2) \\ (4) & (1) & (2) \\ (4) & (2) & $
(m) 0. (%) 0. (%) 0. (m3/s) 0. (m3/s) 0.
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Calculation of storm water drainage lines of GPD Project

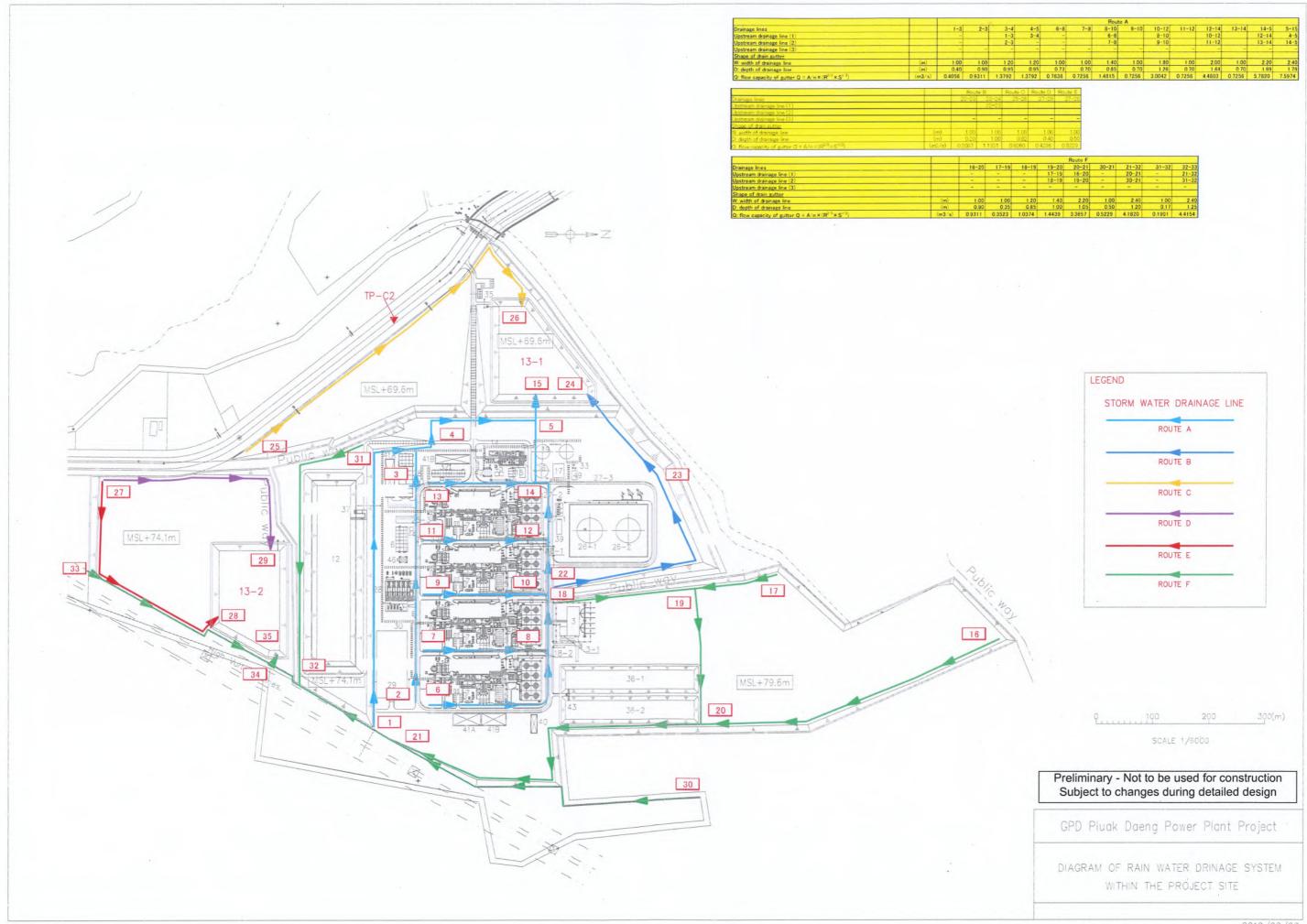
Upstream drainage line (1) Upstream drainage line (2)		
Upstream drainage line (3)		1
Design conditions		
A : Runoff area (Roof)	(m2)	
: Runoff area (Paving)	(m2)	
: Runoff area (Grave + Paving)	(m2)	
A : Runoff area (Turf)	(m2)	
: Runoff area (Non Paving)	(m2)	27.507
: Runoff area (Slope Protection)	(m2)	
: Runoff area (Storm Water Pond)	(m2)	
c : Runoff coefficient (Roof)	/	
c : Runoff coefficient (Paving)		0.7
c : Runoff coefficient (Grave + Paving)		
: Runoff coefficient (Turf)		
c : Runoff coefficient (Non Paving)		0.3
c : Runoff coefficient (Slone Protection)		2
: Runoff coefficient (Storm Water Pond)		
: : Rainwater intensity	(mm/hr)	116 22
Flow Volume	(111 /1111)	77.01
O . How volume of instream area	(-/6-)	
. ION VOIGILO OI UPOR CAILL ALCA	(m3/s)	
Q_n : flow volume from this runoff area	(m3/s)	0.266
$Q:$ Total Flow volume with 32% safety factor =[$Q_{n-1}]+[132\%\times Q_n]$	(m3/s)	0.352
Shape of drain gutter		
W: width of drainage line	(m)	1.00
D: depth of drainage line	(m)	0.40
b: wetted perimeter = W +2D	(m)	1 80
A. cross sectional area of flow = W × D	(m2)	00000
n. consumption and of designated line	(11115)	0.400
ungilliess coefficient of draffage life	,	0.0120
S. Cl f	(m)	0.2222
o: Slope of gutter	(8)	0.12%
Q: flow capacity of gutter $Q = A/n \times (R^{2/3} \times S^{1/2})$	(m3/s)	0.4236
Flow capacity of gutter]-[132% of required flow]	(m3/s)	0.0720
If [Flow capacity of gutter]–[132% of required flow] $>$ 0 then OK If [Flow capacity of gutter]–[132% of required flow] $<$ 0 then not OK		Š

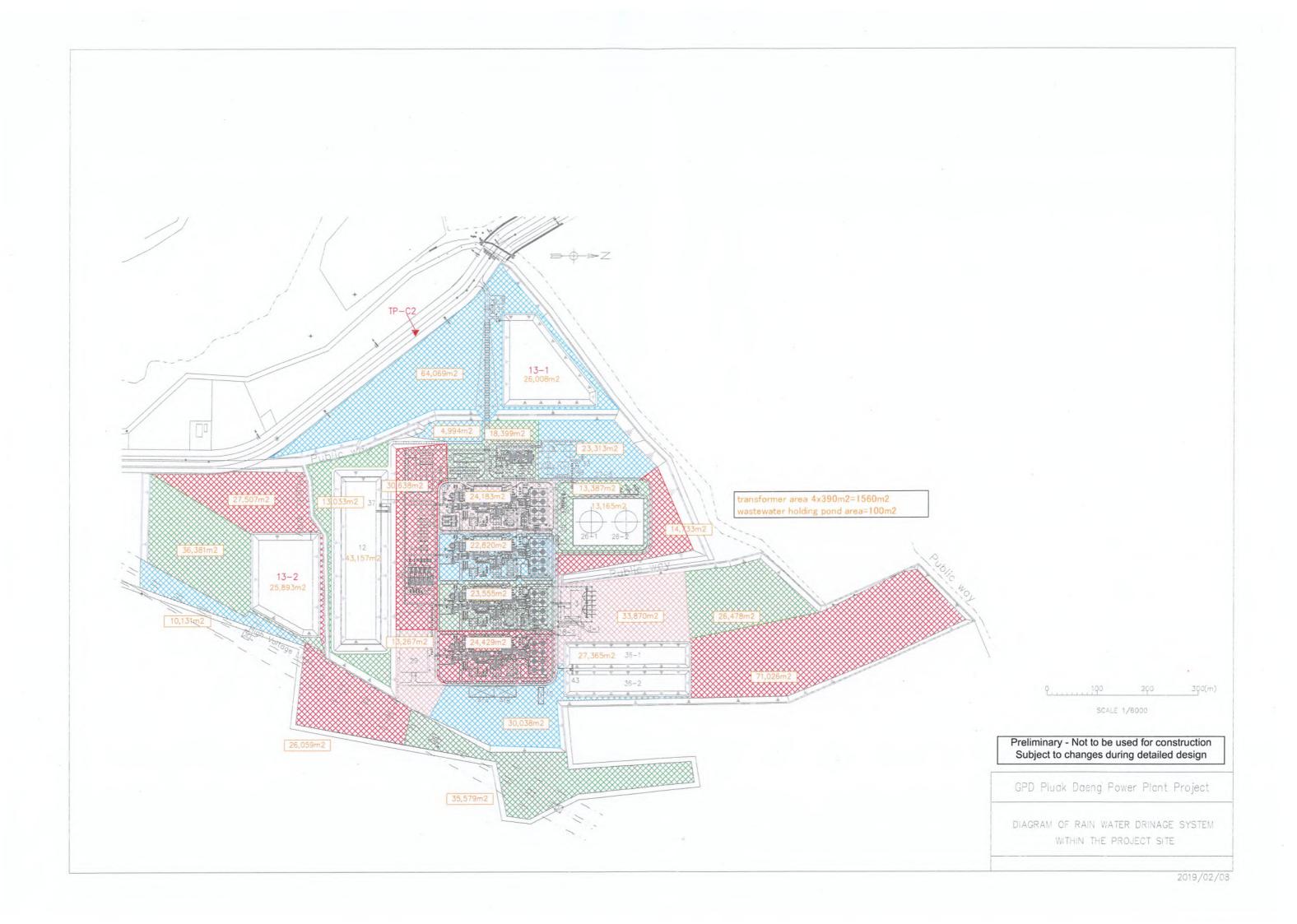
Calculation of storm water drainage lines of GPD Project

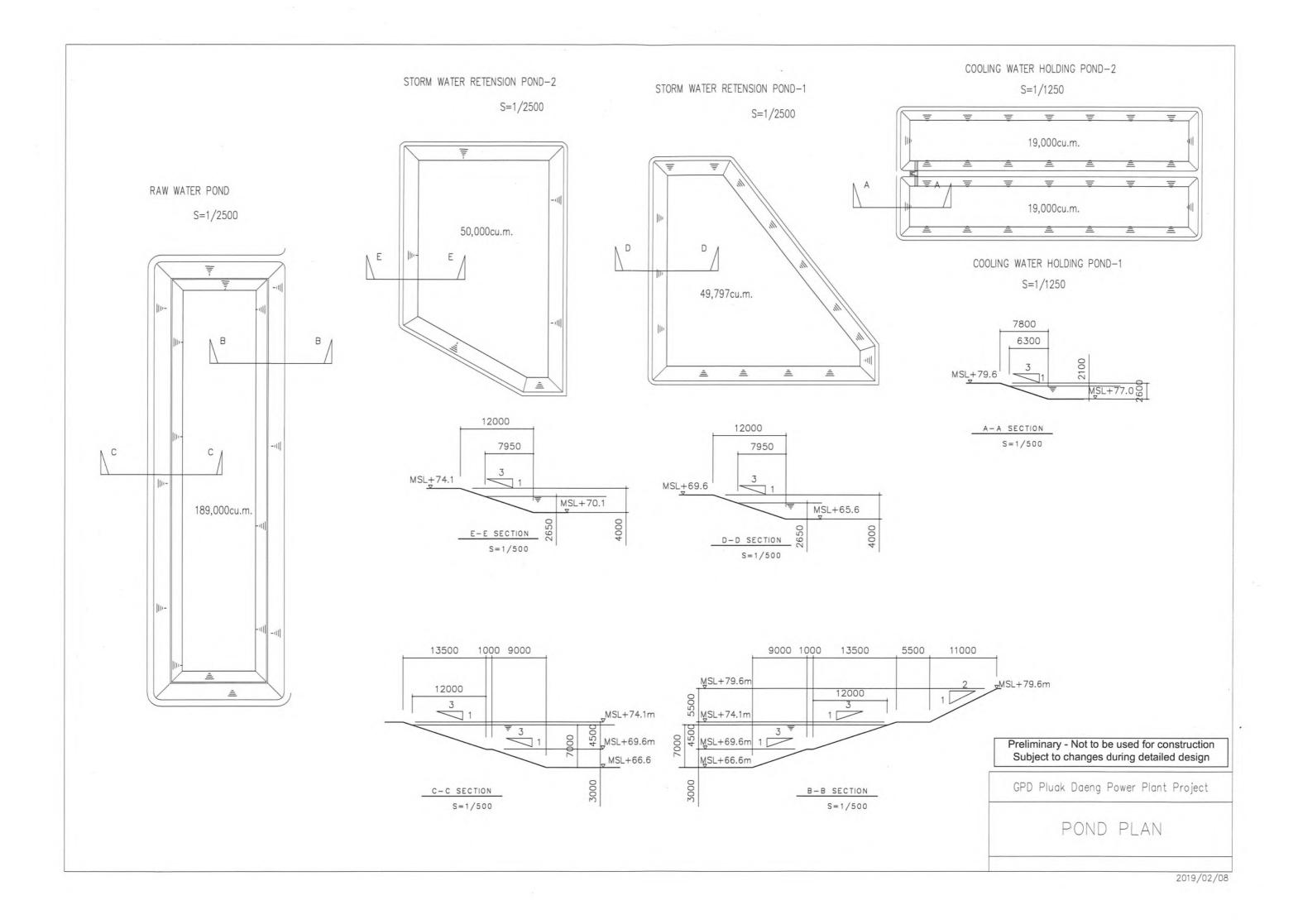
Route E	27–28		-		(m2)	(m2)	(m2)	(m2)	+	(mz) 36,381	(mZ)	(m2)		0.7			0.3			(mm/hr) 116.22	L	(m3/s)	(m3/s) 0.359	ļ		(m3/s) 0.465		(m) 1.00			0.6	0.0120	0	(%) 0.10%	(m3/s) 0.5229	\vdash
	Drainage lines	Upstream drainage line (1)	Upstream drainage line (3)	Design conditions	A : Runoff area (Roof)	A : Runoff area (Paving)	A - Runoff area (Grave + Paving)	A - Rinoff area (Tirf)	A . D. moff and (Man Daving)	A : Kunott area (Non Paving)	A: Kunott area (Slope Protection)	A: Runoff area (Storm Water Pond)	c : Runoff coefficient (Roof)	c : Runoff coefficient (Paving)	c : Runoff coefficient (Grave + Paving)	c : Runoff coefficient (Turf)	c : Runoff coefficient (Non Paving)	c : Runoff coefficient (Slope Protection)	c : Runoff coefficient (Storm Water Pond)	I _n : Rainwater intensity	Flow Volume	Q _{n-1} : flow volume of upstream area	Q.: flow volume from this runoff area		0 : Total Flow volume with 32% safety factor	=[Q _{n-1}] + [132% × Q _n]	Shape of drain gutter	W. width of drainage line	D: depth of drainage line	p: wetted perimeter = W +2D	A: cross sectional area of flow = W × D	n: roughness coefficient of drainage line	R: Hydraulic radius = A/p	S: Slope of gutter	Q: flow capacity of gutter $Q = A/n \times (R^{2/3} \times S^{1/2})$	[Flow capacity of gutter]-[132% of required flow]

Calculation of storm water drainage lines of GPD Project

Universified the Companies line (1) Companies (1972) Companies (Route F				
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	e lines		16-20		18-19	19-20	20-21	30-21	21-32	31-32	32-33
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	m drainage line (1)		1	1	1	17-19	16-20	1	20-21	1	21-32
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	m drainage line (2)		1	1	1	18-19	19-20	1	30-21	1	31-32
(m2) (m2) 33.870 30.038 (m2) (m2) (m2) (m2) (m2) (m2) (m2) (m2)	m drainage line (3)		1	1	1	1	1	1	-	1	1
$ (m2) \qquad (m2) \qquad (33870 \qquad 30038 \\ (m2) \qquad (m2) \qquad (1,026 \qquad 26,478 \qquad (1,027 \qquad 0.7 \qquad 0.7 \qquad 0.7 \\ (m2) \qquad (m2) \qquad (1,026 \qquad 26,478 \qquad (1,027 \qquad 0.7 \qquad 0.7 \qquad 0.7 \\ (m2) \qquad (m2) \qquad (1,026 \qquad 26,478 \qquad (1,027 \qquad 0.3 \qquad 0.3 \qquad 0.3 \\ (m3/s) \qquad (m3/s) \qquad (0.339 \qquad (1,02 \qquad 116.22 \qquad 116.22 \qquad 116.22 \\ (m3/s) \qquad (0.368 \qquad 0.256 \qquad 0.765 \qquad 0.000 \qquad 0.679 \\ (m3/s) \qquad (m3/s) \qquad (0.908 \qquad 0.339 \qquad 1,010 \qquad 1,349 \qquad 2.257 \\ (m) \qquad (m3/s) \qquad (0.909 \qquad 0.339 \qquad 1,010 \qquad 1,349 \qquad 2.257 \\ (m) \qquad (m3/s) \qquad (0.909 \qquad 0.350 \qquad 0.120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (m3/s) \qquad (0.9120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (m3/s) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (m3/s) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (m3/s) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad (0.0120 \qquad 0.0120 \qquad 0.0120 \\ (m) \qquad ($	conditions										
$ (m2) \\ (m2) \\ (m2) \\ (m2) \\ (m3) \\ (m3/s) \\ ($	off area (Roof)	(m2)									
$ (m2) \\ (m2) \\ (m2) \\ (m2) \\ (m2) \\ (m3/s) $ $ (m3/s) $ $ (m3/s) \\ (m3/s) $ $ (m$	off area (Paving)	(m2)			33.870		30.038				
$ (m2) \qquad (m2) \qquad (n3) \qquad$	off area (Grave + Paving)	(m2)									
$ (m2) \qquad (1,026 26,478 \qquad \qquad 5.5 \\ (m2) \qquad (1,026 26,478 \qquad \qquad 5.5 \\ (m2) \qquad (1,02) \qquad (0,7 0,7 0,7 0,7 \\ (1,02) \qquad (0,7 0,7 0,7 0,7 0,7 \\ (1,02) \qquad (1,02) \qquad (0,3 0,3 0,3 0,3 0,3 \\ (1,010 1,20) \qquad (1,010 1,349 2,153 \\ (1,010 1,010 1,02 1,010 1,010 \\ (1,010 1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,010 \\ (1,010 1,010 1,010 1,0110 \\ (1,010 1,010 1,010 1,0110 \\ (1,010 1,010 1,0110 1,0110 \\ (1,010 1,010 1,0110 \\ (1,010 1,0110 1,011$	off area (Turf)	(m2)									
(m2) (m2) (m2) (m3/s) (off area (Non Paving)	(m2)	71 026	╀				25 570	26.050	12022	
ctor	off area (Slone Protection)	(m2)	20,11	╀				0,0,00	50,03	0,000	
1,000 1,00	off area (Storm Water Dond)	(6 (2 (1))				Ī					
ctor (m3/s) 0.908 0.339 1.010 1.349 3.153 (m3/s) 0.9008 0.339 1.010 1.349 3.153 (m3/s) 0.9008 0.350 0.0120	En area (Storing Water Follo)	(7111)	-								
1,000 1,00	or coefficient (Root)										
ctor (m3/s) 0.908 0.350 1.010 1.349 2.257 (m3/s) 0.908 0.350 1.010 1.349 2.257 (m3/s) 0.908 0.350 1.010 1.349 3.153 (m) 0.900 0.350 0.0120 0.0	off coefficient (Paving)		0.		0.7	0.7	0.7	0.7	0.7	0.7	0.7
ctor $ (m3/s) = (m-3/s) $ (m3/s) $(m3/s) = (m-3/s) $ (m3/s) $(m3/s) = (m-3/s) $ (m3/s) $(m3/s) = (m-3/s) = (m-3/s) $ (m3/s) $(m3/s) = (m-3/s) = ($	off coefficient (Grave + Paving)										
ctor (m3/s)	off coefficient (Turf)										
(m3/s)	off coefficient (Non Paving)		0		0.3	0.3	0.3	0.3	0.3	0.3	0.3
1,349 2,257 1,040 1,04	off coefficient (Slope Protection)										2
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	off coefficient (Storm Water Pond)										
upstream area (m3/s)	water intensity	wh/mm)	L			116 22	116 22	116 22	118 22	116.00	116 22
this runoff area (m3/s) 0.688 0.256 0.765 0.000 0.679 0.0 (m3/s) 0.688 0.256 0.765 0.000 0.679 0.0 (m3/s) 0.688 0.256 0.765 0.000 0.679 0.0 (m3/s) 0.908 0.339 1.010 1.349 3.153 0.0 (m3/s) 0.908 0.339 1.010 1.349 3.153 0.0 (m3/s) 0.900 0.350 0.100 0.350 0.100 0.350 0.100 0.350 0.100 0.350 0.100 0.350 0.100 0.350 0.100 0.100 0.350 0.100 0.350 0.100 0.350 0.100 0.350 0.120 0.0120	lume		+			1	77.0	77.01	77.01	77.01	110.22
this runoff area (m3/s) 0.688 0.256 0.765 0.000 0.679 0. with 32% safety factor (m3/s) 0.908 0.339 1.010 1.349 3.153 0. with 32% safety factor (m3/s) 0.908 0.339 1.010 1.349 3.153 0. W +2D (m3/s) 0.900 0.350 0.35 0.85 1.00 1.05 0.310 0.310 0.310 0.310 0.320 0.310 0.310 0.320 0.310 0.320 0.3	ow volume of upstream area	(m3/s)				1 349	2 257		3,608		4 107
with 32% safety factor (m3/s) 0.688 0.256 0.765 0.000 0.679 0.0 with 32% safety factor (m3/s) 0.908 0.339 1.010 1.349 3.153 0.0 with 32% safety factor (m) 0.908 0.350 0.120 1.400 2.20 0.000 0	55	(6 /011)	+	1		0.0	7.77		2,000		4.107
with 32% safety factor (m3/s) 0.908 0.339 1.010 1.349 3.153 0. (m)	v volume from this runoff area	(m3/s)	+	4	0.765	0.000	629.0	0.345	0.252	0.126	0.000
of required flow] > 0 then DK of required flow] > 0 then DK of required flow] < 0 then DK of required flow of then DK of required flo	I Flow volume with 32% safety factor + [132% \times Q,,]	(m3/s)			1.010	1.349	3,153	0.455	3.941	0.167	4.107
(m) 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	f drain gutter										
of required flow] > 0 then OK (m) 0.30 0.35 0.85 1.00 1.05 (m) 2.80 1.70 2.90 3.40 4.30 (m2) 0.9000 0.3500 1.0200 1.4000 2.3100 (m3/s) 0.0120 0.0120 0.0120 0.0120 0.0120 (m3/s) 0.0231 0.3523 1.0374 1.4439 3.3657 0.5 (m3/s) 0.0231 0.0138 0.0271 0.0950 0.2128 0.0 of required flow] > 0 then OK OK OK OK OK OK OK OK O	of drainage line	(m)	1.00		1.20	1.40	2.20	1.00	2.40	1.00	2 40
of required flow] > 0 then DK capital and the DK capital and DK ca	n of drainage line	(m)	0.90			1.00	1.05	0.50	1.20	0.17	1.25
of required flow] > 0 then ook OK	d perimeter = W +2D	(m)	2.80			3.40	4.30	2.00	4.80	1.33	4.90
of required flow] > 0 then oot OK	sectional area of flow = $W \times D$	(m2)	0.9000	Н	1.0200	1.4000	2.3100	0.5000	2.8800	0.1666	3.0000
of required flow] > 0 then not OK (m) 0.3214 0.2059 0.3517 0.4118 0.5372 0 (m3/s) 0.07% 0.12% 0.06% 0.05% 0.07% 0.07% 0.0231 0.0352 1.0374 1.4439 3.3657 0 (m3/s) 0.0231 0.0138 0.0271 0.0950 0.2128 0 Of required flow] > 0 then OK OK OK OK OK OK	ness coefficient of drainage line		0.0120		0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
of required flow] > 0 then DK of required flow] < 0 then not OK	aulic radius = A/p	(m)	0.3214		0.3517	0.4118	0.5372	0.2500	0.6000	0.1250	0.6122
of required flow] < 0 then DK of of then DK of of then DK of of then DK of the DK of then DK of then DK of the DK of th	of gutter	(%)	0.079		%90'0	0.05%	0.07%	0.10%	%90.0	0.30%	%90.0
of required flow] < 0 then OK	capacity of gutter $Q = A/n \times (R^{2/3} \times S^{1/2})$	(m3/s)	_		1.0374	1.4439	3.3657	0.5229	4.1820	0.1901	4,4154
of required flow] > 0 then OK OK OK OK OK OK OK OK	apacity of gutter]-[132% of required flow]	(m3/s)	Н	Н	0.0271	0.0950	0.2128	0.0680	0.2412	0.0235	0.3079
	If [Flow capacity of gutter]-[132% of required flow] > If [Flow capacity of gutter]-[132% of required flow] < 0 th	then OK n not OK	, o	ě	οk	ŏ	×	ò	¥	Ą	Ą

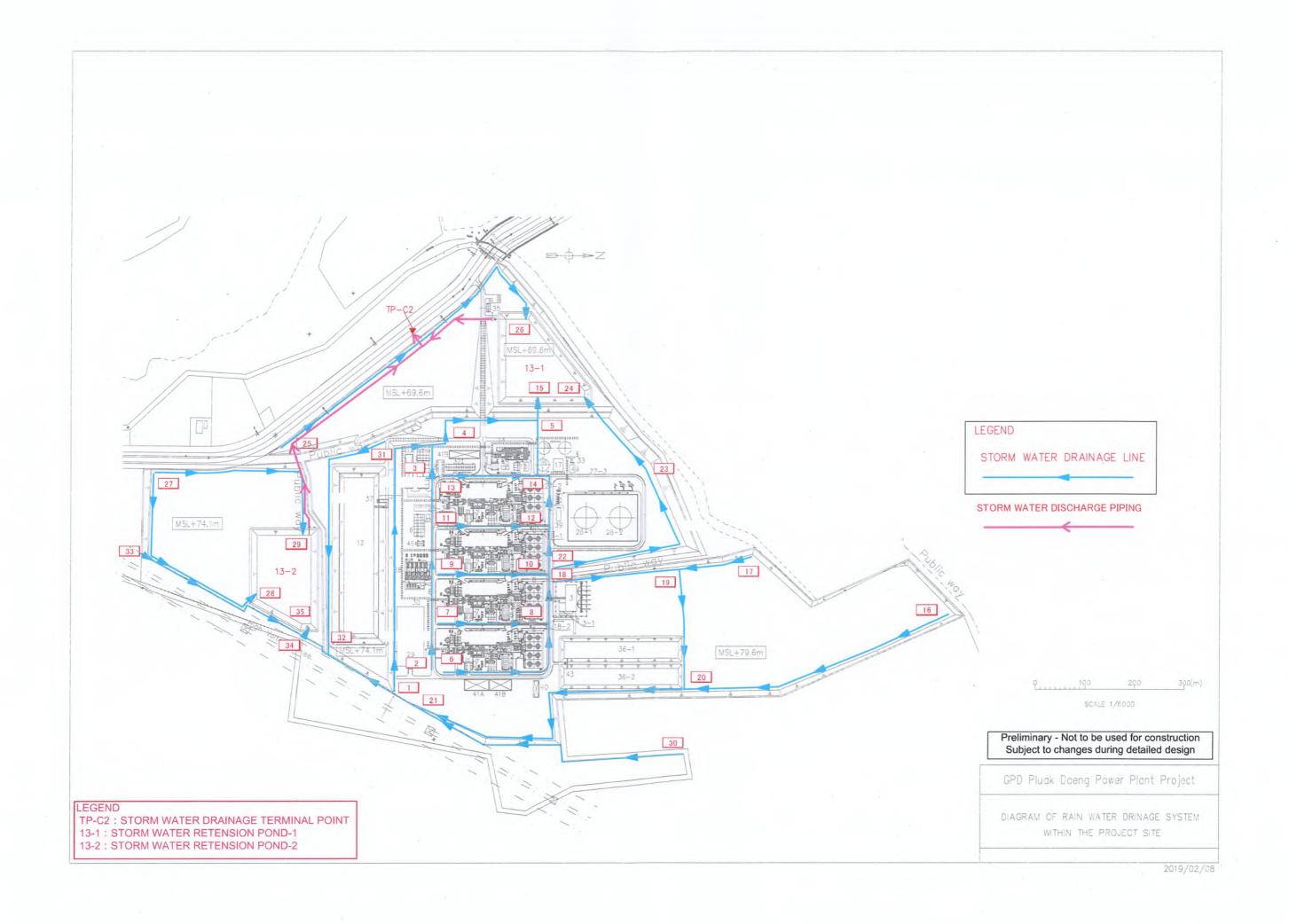


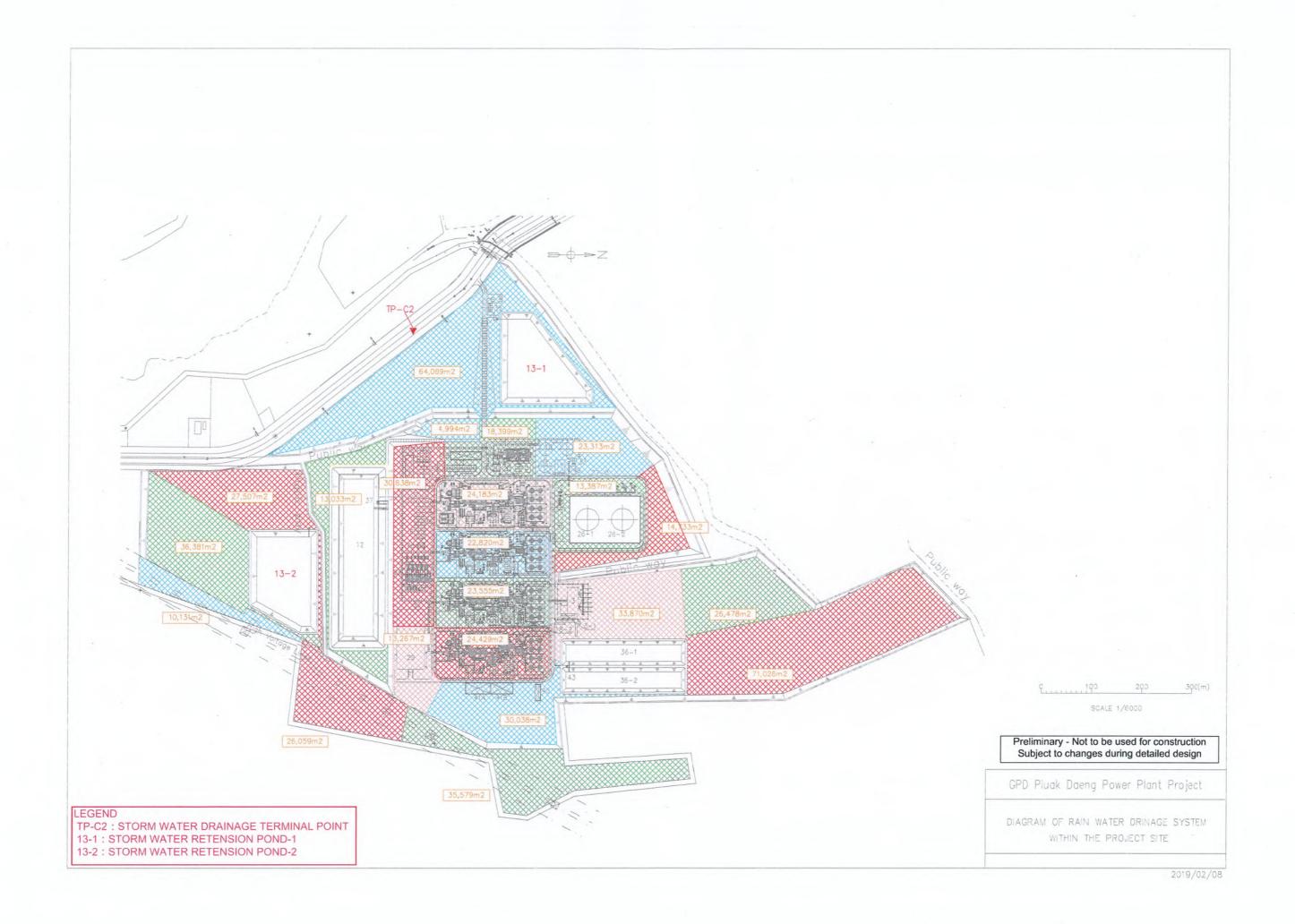


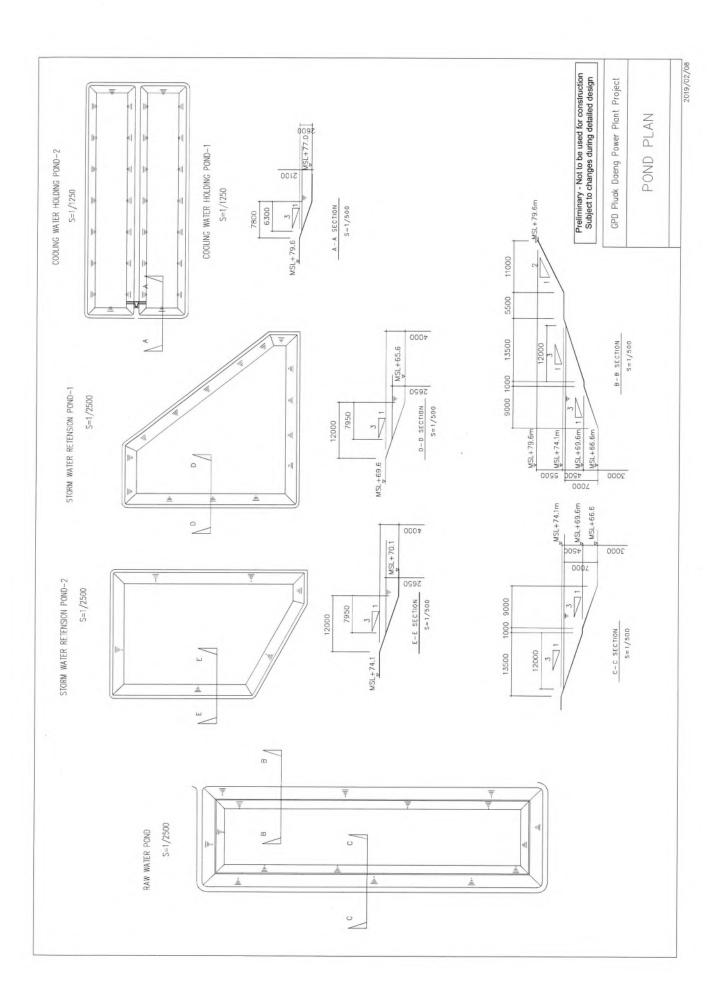


ภาคผนวก 2ฏ

รายการคำนวณอัตราการระบายน้ำฝนออกจากพื้นที่ โครงการ และเอกสารยืนยันความสามารถรองรับ การระบายน้ำฝนของรางระบายน้ำฝนของ สวนอุตสาหกรรมปลวกแดง ภายหลังการ เปลี่ยนแปลงรายละเอียดโครงการ







Storm water discharge from Pluak Daeng Power Plant to Rojana Industrial Park drainage system:

Storm water pond -1 and 2 catchment area is 492.31 rais or 787,696 sq.m.

Storm water discharge after project development will be the same as before project development, i.e. c = 0.3

Therefore; storm water discharge from Pluak Daeng Power Plant will be:

(787,696 sq.m.) x (100 mm/hr) x (1/1000 m/mm) x (0.3) x (1/3600 hr/sec)

= 6.564 cu.m./second or 23,631 cu.m./hr

Storm water discharge from pond -1 will be discharged into Rojana's u-ditch at STA 0+940 (P3 to P4) of Rojana's east gutter. Capacity of Rojana's u-ditch at STA 0+940 is 185,205 cu.m./hr, which is higher than (23,631 cu.m./hr) =>> OK.

Calculation of Rojana's u-ditch is on the following pages...

บริษัท สวนอุตสาหกรรมโรจนะ ระยอง 2 จำกัด

ROJANA INDUSTRIAL PARK RAYONG 2 CO., LTD.

2034/115 อาคารอิตัลไทย ทาวเวอร์ ถนนเพชรบุรีตัดใหม่ แขวงบางกะปี เขตห้วยขวาง กทม. 10310

หมายเลขโทรศัพท์ 02 716 1750-7 โทรสาร 02 716 1758-9

ที่ รย (2) 008/2559

25 กรกฎาคม 2559

เรียน กรรมการ

บริษัท กัลฟ์ พีดี จำกัด

เรื่อง การรองรับการระบายน้ำฝนจากพื้นที่โครงการโรงไฟฟ้าปลวกแดง

อ้างถึง หนังสือจากบริษัทกัลฟ์ พีดี จำกัด เลขที่ GPD O 0716/011 ลงวันที่ 14 กรกฎาคม 2559

สิ่งที่ส่งมาด้วย รายการคำนวณรางระบายน้ำฝน

ตามที่ บริษัท กัลฟ์ พีดี จำกัด มีแผนพัฒนาโครงการโรงไฟฟ้าปลวกแดง ("โครงการฯ") ซึ่งตั้งอยู่ในสวน อุตสาหกรรมโรจนะ ปลวกแดง ("สวนฯ") ของบริษัทสวนอุตสาหกรรมโรจนะ ระยอง 2 จำกัด ("บริษัทฯ") และได้สอบถาม ถึงความสามารถในการรองรับการระบายน้ำฝนของสวนฯ เพื่อรองรับการระบายน้ำฝนจากพื้นที่โครงการฯ ดังหนังสือที่อ้าง ถึงนั้น

บริษัทฯ ขอยืนยันว่ารางระบายน้ำฝนหน้าพื้นที่โครงการโรงไฟฟ้าปลวกแดงที่รองรับบริมาณน้ำฝนที่อัตราการ ระบายสูงสุด 15 ลูกบาศก์เมตรต่อวินาที มีความสามารถรองรับน้ำฝนที่ระบายออกจากโครงการได้อย่างเพียงพอ พร้อม กันนี้บริษัทฯ ได้แนบรายการคำนวณรางระบายน้ำฝนของโครงการ เพื่อยืนยันข้อมูลการรองรับการระบายน้ำฝนดังกล่าว

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(นายดิเรก วินิชบุตร)

ประธานเจ้าหน้าที่บริหาร

DRAINAGE CALCULATION SHEET OF

ROJANA INDUSTRIAL PARK, PLUAK-DANG, RAYONG

DRAINAGE CALCULATION OF CONCRETE U-DITCH

6-Mar-2013

This calculation use two equations as follows:

 $Q_R = CiA$

for RUNOFF

C = AVERAGE RUNOFF COEFFICIENT

0.79

i = INTENCITY OF RAIN FALL

= 110.0 mm/hr

A = CATHMENT AREA

 $Q_U = 1/n A R^{2/3} S^{1/2}$

for OPEN CHANNEL FLOW

n = ROUGHNESS COEFFICIENT (= 0.015 for concrete surface)

A = WATER SECTION AREA

R = WATER SECTION AREA / WETTED PARIMETER

S = SLOPE OF U-DITCH

ZONE 2											
33 NAME OF	ROAD	:	No. Road A	EAST St	a.0+520 - 0+	-940 m.		(from poir	nt #P2' to #	#P3')	
ELEVATION	ON OF THIS	CATHMENT A	REA (#1/2)			=	+ 77.36	m.			
STARTING	G ELEVATION	ON OF THIS R	DAC			=	+ 76.36	m.		Slope of F	
		OF THIS ROA				=	+ 76.36	m.	1:	0	0 %
	OF U-DITCI			TYPE	:						
STA.	LENGTH		RUNOFF, Q _R	n	S	Dep.	ELV.	W	Α	R	Q _U
	(m)	(m2)	(m3/hr)		(unitless)	(m)	(m)	(m.)	(m2)	-	(m3/hr)
0+520	0	0	0.00	0.015	0.00333	0.50	+ 75.86	2.50	1.25	0.357	8,718.77
0+620	100	146,095	12,695.68	0.015	0.00333	0.83	+ 75.53	2.50	2.08	0.500	18,185.39
0+720	200	292,190	25,391.35	0.015	0.00333	1.17	+ 75.19	2.50	2.92	0.603	28,860.07
0+820	300	438,286	38,087.03	0.015	0.00333	1.50	+ 74.86	2.50	3.75	0.682	40,252.63
0+920	400	584,381	50,782.70	0.015	0.00333	1.83	+ 74.53	2.50	4.58	0.743	52,109.80
0+940	420	613,600	53,321.84	0.015	0.00333	1.90	+ 74.46	2.50	4.75	0.754	54,522.98
34 NAME OF		: CATHMENT	No. Road A	EAST S	ta.0+940 - 1-	+082 m. =	+ 75.36	(from point m.	nt #P3' to	#P4)	
						=	+ 76.36			Slope of I	Road
		ON OF THIS R I OF THIS ROA				=	+ 70.86			26	3.85 %
DETAILS	OF U-DITC	H GUTTER		TYPE	:					-	
STA.	LENGTH	ACC. AREA	RUNOFF, Q _R	n	S	Dep.	ELV.	W	Α	R	Q _U

	STA.	LENGTH	ACC. AREA	RUNOFF, Q _R	n	S	Dep.	ELV.	W	Α	R	Q_{U}	ı
	017.11						-(-)		-/	~(m2)~		~(m3/hr)~	J.
ויי	***	(m)	(m2)	(m3/hr)	***	(unitiess)	(111)	* * (111) * *	(IIII)	Y(HIZ)Y	* * * *		٠.
	0+940	0	n	53.321.84	0.015	0.03846	1.90	+ 74.46	2.50	4.75	0.754	185,205.36	١
٠.	01340	0				0.03846	4 90	± 70.61	2.50	4 75	0.754	185,205.36	1
\sim	1+040	100	part of the same	90,021.04	0.010		-						-
	1+082	142	0	53,321.84	0.015	0.03846	1.90	+ 69.00	2.50	4.75	0.754	185,205.36	J

35 NAME OF ROAD :

From Gutter Road A-EAST to Road A-WEST
HMENT AREA

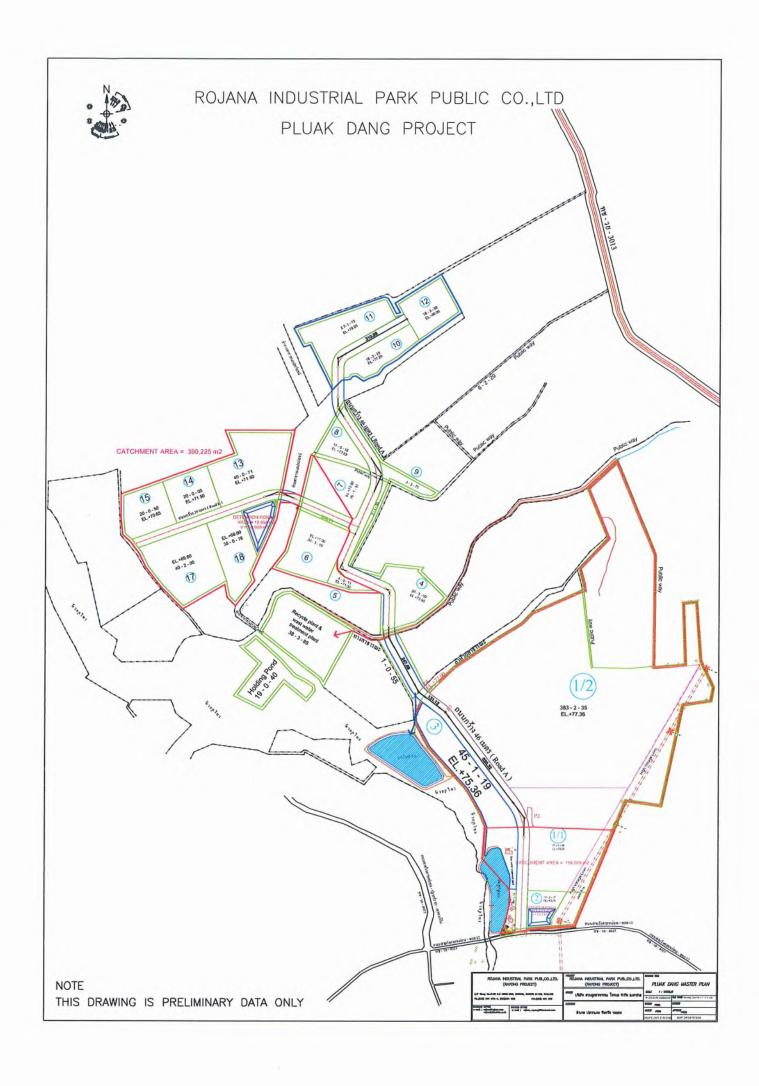
TYPE
ROX 6

ROAD'S ELEVATION OF THIS CATHMENT AREA

= + 76.36 m.

DETAILS	טר ט-טווט	GUITER		TIFE		DONOC	// CA PLAT			_	
STA.	LENGTH	ACC. AREA	RUNOFF, Q _R	n	S	Dep.	ELV.	W	Α	R	Qu
	(m)	(m2)	(m3/hr)		(unitless)	(m)	(m)	(m.)	(m2)	Bert	(m3/hr)
Road A	()		53.321.84	0.015	0.00400	1.50	+ 69.00	3.00	4.50	0.750	56,384.70
1+082	40		53,321.84	0.015	0.00400	1.50	+ 68.84	3.00	4.50	0.750	56,384.70

NAME OF			No. Road A	WEST S	ta.0+520 - 0	+940 m. =	+ 75.36	(from poi	nt #P2' to	#P3')	
		CATHMENT / ON OF THIS R				=	+ 76.36			Slope of I	Road
		OF THIS ROA				=	+ 76.36		1:		0 %
	OF U-DITCI			TYPE	:						
STA.	LENGTH		RUNOFF, Q _R	n	S	Dep.	ELV.	W	Α	R	Q _U
	(m)	(m2)	(m3/hr)		(unitless)	(m)	(m)	(m.)	(m2)		(m3/hr)
0+520	0	0	0.00	0.015	0.00125	0.50	+ 74.86	1.50	0.75	0.300	2,851.95
0+620	100	17,257	1,499.65	0.015	0.00125	0.63	+ 74.74	1.50	0.94	0.341	3,882.07
0+720	200	34,514	2,999.29	0.015	0.00125	0.75	+ 74.61	1.50	1.13	0.375	4,964.09
0+820	300	51,771	4,498.94	0.015	0.00125	0.88	+ 74.49	1.50	1.31	0.404	6,084.75
0+920	400	69,029	5,998.58	0.015	0.00125	1.00	+ 74.36	1.50	1.50	0.429	7,235.02
0+940	420	72,480	6,298.51	0.015	0.00125	1.03	+ 74.34	1.50	1.54	0.433	7,468.03
	ON OF THIS	: CATHMENT A ON OF THIS R		WEST S	ta.0+969 - 1	+082 m. = =	+ 75.36 + 76.36	m.	nt #P3' to	#P4) Slope of I	Road
		OF THIS ROA				=	+ 70.86	m.		26	3.85 %
	OF U-DITCI			TYPE							
STA.		ACC. AREA	RUNOFF, Q _R	n	S	Dep.	ELV.	W	Α	R	Q _U
J.A.	(m)	(m2)	(m3/hr)		(unitless)	(m)	(m)	(m.)	(m2)		(m3/hr)
0+940	0	0	6,298.51	0.015	0.03846	1.03	+ 75.34	1.50	1.54	0.433	41,425.1
1+040	100	0	6,298.51	0.015	0.03846	1.03	+ 71.49	1.50	1.54	0.433	41,425.
1+082	142	0	6,298.51	0.015	0.03846	1.03	+ 69.87	1.50	1.54	0.433	41,425.
	ON OF THIS	: CATHMENT / ON OF THIS G		of Road	A-Zone 2 &	Boxcurve = =	+ 76.36 + 70.86	m.		Slope of (Gutter
ENDING	ELEVATION	OF THIS GUT	TER			=	+ 70.00	m.	1:	233	0.43 %
	OF U-DITCI			TYPE							
			DUNOTE O		^	-	FIV			D D	Q _U
I SIA.	LENGIH	I ACC. AREA I	RUNOFF, Qp	n	S	Dep.	ELV.	l W	A	l K	W.
STA.		ACC. AREA	RUNOFF, Q_R	n	S (unitless)	Dep.	ELV.	(m.)		R	
	(m)	(m2)	(m3/hr)		(unitless)	(m)	(m)	(m.)	(m2)		(m3/hr
0+000	(m) 0	(m2) 0	(m3/hr) 59,620.35	0.015	(unitless) 0.00833	(m) 2.02	(m) + 68.84	(m.) 2.50	(m2) 5.05	0.772	(m3/hr 93,211.
0+000 0+100	(m) 0 100	(m2) 0 0	(m3/hr) 59,620.35 59,620.35	0.015 0.015	(unitless) 0.00833 0.00833	(m) 2.02 2.43	(m) + 68.84 + 68.01	(m.) 2.50 2.50	(m2) 5.05 6.06	0.772 0.825	(m3/hr 93,211. 116,860
0+000	(m) 0	(m2) 0	(m3/hr) 59,620.35	0.015	(unitless) 0.00833	(m) 2.02	(m) + 68.84	(m.) 2.50	(m2) 5.05	0.772	(m3/hr 93,211. 116,860 124,043
0+000 0+100 0+130 0+200 NAME OF	(m) 0 100 130 200	(m2) 0 0 0 0	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A	0.015 0.015 0.015 0.015	(unitless) 0.00833 0.00833 0.00833	(m) 2.02 2.43 2.55 2.83	(m) + 68.84 + 68.01 + 66.92 + 67.17	(m.) 2.50 2.50 2.50 2.50 2.50	(m2) 5.05 6.06 6.37	0.772 0.825 0.838 0.867	(m3/hr 93,211.4 116,860. 124,043.
0+000 0+100 0+130 0+200 NAME OF ELEVATION	(m) 0 100 130 200 FROAD ON OF THIS	(m2) 0 0 0 0 0	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A	0.015 0.015 0.015 0.015	(unitless) 0.00833 0.00833 0.00833 0.00833	(m) 2.02 2.43 2.55 2.83 +040 m.	(m) + 68.84 + 68.01 + 66.92 + 67.17	(m.) 2.50 2.50 2.50 2.50 2.50 (from point m.	(m2) 5.05 6.06 6.37 7.07	0.772 0.825 0.838 0.867	(m3/hr 93,211. 116,860 124,043 140,931
0+000 0+100 0+130 0+200 NAME OF ELEVATION	(m) 0 100 130 200 FROAD ON OF THIS	(m2) 0 0 0 0 0 0 CATHMENT /	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2)	0.015 0.015 0.015 0.015	(unitless) 0.00833 0.00833 0.00833 0.00833	(m) 2.02 2.43 2.55 2.83 +040 m. =	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36	(m.) 2.50 2.50 2.50 2.50 2.50 (from point m. m.	(m2) 5.05 6.06 6.37 7.07 nt #P2' to	0.772 0.825 0.838 0.867 #P1')	(m3/hr 93,211. 116,860 124,043 140,931
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION	(m2) 0 0 0 0 0 : CATHMENT AON OF THIS ROA	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2)	0.015 0.015 0.015 0.015	(unitless) 0.00833 0.00833 0.00833 0.00833	(m) 2.02 2.43 2.55 2.83 +040 m.	(m) + 68.84 + 68.01 + 66.92 + 67.17	(m.) 2.50 2.50 2.50 2.50 2.50 (from point m. m.	(m2) 5.05 6.06 6.37 7.07 nt #P2' to	0.772 0.825 0.838 0.867	(m3/hr 93,211. 116,860 124,043 140,931
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING DETAILS	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI	(m2) 0 0 0 0 0 : CATHMENT / ON OF THIS R I OF THIS ROA	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD	0.015 0.015 0.015 0.015 EAST S	(unitless) 0.00833 0.00833 0.00833 0.00833 aa.0+520 - 0	(m) 2.02 2.43 2.55 2.83 +040 m. = =	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20	(m.) 2.50 2.50 2.50 2.50 2.50 (from point m. m.	(m2) 5.05 6.06 6.37 7.07 nt #P2' to	0.772 0.825 0.838 0.867 #P1')	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 %
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH	(m2) 0 0 0 0 : CATHMENT / ON OF THIS ROA H GUTTER ACC. AREA	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD ND	0.015 0.015 0.015 0.015	(unitless) 0.00833 0.00833 0.00833 0.00833	(m) 2.02 2.43 2.55 2.83 +040 m. = =	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20	(m.) 2.50 2.50 2.50 2.50 (from point m. m. m.	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1:	0.772 0.825 0.838 0.867 #P1')	(m3/hr 93,211.4 116,860. 124,043. 140,931. Road 3.33 %
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING DETAILS STA.	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m)	(m2) 0 0 0 0 : CATHMENT / ON OF THIS ROA H GUTTER ACC. AREA (m2)	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD AD RUNOFF, Q _R (m3/hr)	0.015 0.015 0.015 0.015 EAST S	(unitless) 0.00833 0.00833 0.00833 0.00833 :a.0+520 - 0-	(m) 2.02 2.43 2.55 2.83 +040 m. = = = Dep. (m)	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m)	(m.) 2.50 2.50 2.50 2.50 (from point m. m. m. W (m.)	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1:	0.772 0.825 0.838 0.867 #P1') Slope of F	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 %
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING DETAILS STA.	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m) 0	(m2) 0 0 0 0 : CATHMENT / ON OF THIS ROA H GUTTER ACC. AREA (m2) 0	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD AD RUNOFF, Q _R (m3/hr) 0.00	0.015 0.015 0.015 0.015 EAST S	(unitless) 0.00833 0.00833 0.00833 0.00833 :a.0+520 - 0-	(m) 2.02 2.43 2.55 2.83 +040 m. = = = Dep. (m) 0.50	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m) + 75.86	(m.) 2.50 2.50 2.50 2.50 (from point m. m. m. m. m.	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1: A (m2) 0.75	0.772 0.825 0.838 0.867 #P1') Slope of F	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 % Q _U (m3/hr 14,727.
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING DETAILS STA. 0+520 0+420	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m) 0 100	(m2) 0 0 0 0 : CATHMENT AON OF THIS ROAH GUTTER ACC. AREA (m2) 0 29,667	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD AD RUNOFF, Q _R (m3/hr) 0.00 2,578.03	0.015 0.015 0.015 0.015 TYPE n 0.015	(unitless) 0.00833 0.00833 0.00833 0.00833 :a.0+520 - 0-	(m) 2.02 2.43 2.55 2.83 +040 m. = = Dep. (m) 0.50 0.50	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m) + 75.86 + 72.53	(m.) 2.50 2.50 2.50 2.50 (from point m. m. m. m. w. (m.) 1.50 1.50	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1: A (m2) 0.75 0.75	0.772 0.825 0.838 0.867 #P1') Slope of F 30 R	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 % Q _U (m3/hr 14,727.
0+000 0+100 0+130 0+200 NAME OF ELEVATIONS STARTIN ENDING DETAILS STA. 0+520 0+420 0+320	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m) 0 100 200	(m2) 0 0 0 0 0 : CATHMENT A ON OF THIS ROA H GUTTER ACC. AREA (m2) 0 29,667 59,333	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD AD RUNOFF, Q _R (m3/hr) 0.00 2,578.03 5,156.07	0.015 0.015 0.015 0.015 EAST S	(unitless) 0.00833 0.00833 0.00833 0.00833 :a.0+520 - 0- : S (unitless) 0.03333 0.03333 0.03333	(m) 2.02 2.43 2.55 2.83 +040 m. = = Dep. (m) 0.50 0.50	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m) + 75.86 + 72.53 + 69.19	(m.) 2.50 2.50 2.50 2.50 (from point m. m. m. m. W (m.) 1.50 1.50	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1: A (m2) 0.75 0.75	0.772 0.825 0.838 0.867 #P1') Slope of P 30 R 0.300 0.300 0.300	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 % Q _U (m3/hr 14,727. 14,727.
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING DETAILS STA. 0+520 0+420 0+320 0+220	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m) 0 100 200 300	(m2) 0 0 0 0 0 3 CATHMENT A ON OF THIS ROA H GUTTER ACC. AREA (m2) 0 29,667 59,333 89,000	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD AD RUNOFF, Q _R (m3/hr) 0.00 2,578.03 5,156.07 7,734.10	0.015 0.015 0.015 0.015 EAST S	(unitless) 0.00833 0.00833 0.00833 0.00833 :a.0+520 - 0- : S (unitless) 0.03333 0.03333 0.03333	(m) 2.02 2.43 2.55 2.83 +040 m. = = Dep. (m) 0.50 0.50 0.50	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m) + 75.86 + 72.53 + 69.19 + 65.86	(m.) 2.50 2.50 2.50 2.50 (from point m. m. m. M. (m.) 1.50 1.50 1.50	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1: A (m2) 0.75 0.75 0.75	0.772 0.825 0.838 0.867 #P1') Slope of I 30 R 0.300 0.300 0.300 0.300	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 % Q _U (m3/hr 14,727. 14,727. 14,727.
0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTIN ENDING DETAILS STA. 0+520 0+420 0+320 0+220 0+120	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m) 0 100 200 300 400	(m2) 0 0 0 0 0 3 5 5 6 6 6 6 6 7 7 8 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD ND RUNOFF, Q _R (m3/hr) 0.00 2,578.03 5,156.07 7,734.10 10,312.13	0.015 0.015 0.015 0.015 0.015 EAST S	(unitless) 0.00833 0.00833 0.00833 0.00833 :a.0+520 - 0- : S (unitless) 0.03333 0.03333 0.03333 0.03333	(m) 2.02 2.43 2.55 2.83 +040 m. = = Dep. (m) 0.50 0.50 0.50 0.50 0.50	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m) + 75.86 + 72.53 + 69.19 + 65.86 + 62.53	(m.) 2.50 2.50 2.50 2.50 2.50 (from point m. m. m. 1.50 1.50 1.50 1.50	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1: A (m2) 0.75 0.75 0.75 0.75	0.772 0.825 0.838 0.867 #P1') Slope of I 30 0.300 0.300 0.300 0.300 0.300	(m3/hr 93,211. 116,860 124,043 140,931 Road 3.33 9 Qu (m3/hr 14,727. 14,727. 14,727.
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0+000 0+100 0+130 0+200 NAME OF ELEVATION STARTINENDING DETAILS STA. 0+520 0+420 0+320 0+220 0+120 0+040 NAME OF ELEVATION STARTINENDING DETAILS	(m) 0 100 130 200 FROAD ON OF THIS G ELEVATION OF U-DITCI LENGTH (m) 0 100 200 300 400 480 FROAD ON OF THIS G ELEVATION OF U-DITCI CELEVATION OF U-DITCI OT U-DITCI OT U-DITCI OT U-DITCI	(m2) 0 0 0 0 0 0 0 0 SCATHMENT A ON OF THIS ROA H GUTTER ACC. AREA (m2) 0 29,667 59,333 89,000 118,667 142,400 : CCATHMENT A ON OF THIS ROA H GUTTER	(m3/hr) 59,620.35 59,620.35 59,620.35 59,620.35 No. Road A AREA (#2) OAD ND RUNOFF, Q _R (m3/hr) 0.00 2,578.03 5,156.07 7,734.10 10,312.13 12,374.56 No. Road A AREA OAD ND	0.015 0.015 0.015 0.015 0.015 EAST SI TYPE n 0.015 0.015 0.015 0.015 0.015 0.015	(unitless) 0.00833 0.00833 0.00833 0.00833 0.00833 ca.0+520 - 0-0 : S (unitless) 0.03333 0.03333 0.03333 0.03333 0.03333 :ta.0+520 - 0	(m) 2.02 2.43 2.55 2.83 +040 m. = = = Dep. (m) 0.50 0.50 0.50 0.50 0.50 +040 m. = = =	(m) + 68.84 + 68.01 + 66.92 + 67.17 + 72.28 + 76.36 + 60.20 ELV. (m) + 75.86 + 72.53 + 69.19 + 65.86 + 62.53 + 59.86 + 76.36 + 60.20	(m.) 2.50 2.50 2.50 2.50 2.50 (from point m. m. m. W (m.) 1.50 1.50 1.50 1.50 1.50 from point m. m. m.	(m2) 5.05 6.06 6.37 7.07 nt #P2' to 1: A (m2) 0.75 0.75 0.75 0.75 0.75 0.75 0.75 1.75 0.75 0.75 0.75 0.75 0.75	0.772 0.825 0.838 0.867 #P1') Slope of I 30 R 0.300 0.300 0.300 0.300 0.300 #P1') Slope of I 30	(m3/hr 93,211. 116,860. 124,043. 140,931. Road 3.33 % Qu (m3/hr 14,727. 14,727. 14,727. 14,727. 14,727.
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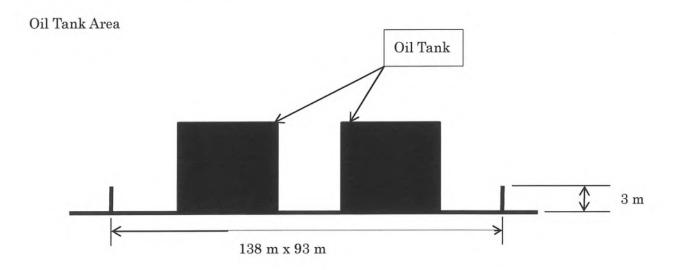


ภาคผนวก 2ฐ

รายการคำนวณความจุของคันกักเก็บน้ำฝน บริเวณที่อาจมีการปนเปื้อนน้ำมัน ภายหลังการ เปลี่ยนแปลงรายละเอียดโครงการ

Comment PC 17

Potential of holding oily storm water



Oil Tank Area $138m \times 93m = 12,834 \text{ m}2$

Rain Water Intensity with 15 minute time duration of 10 year return period = 116.22mm/h

Volume of storm water $12834 \text{ m2} \times 0.11622 \times 15/60 = 372.9 \text{ m3}$

Oil Dile Capacity 138 m x 93 m x 3 m = 38,502 m3

Tank volume in the Dike area $22.31^2 \times 3.14 \times 3 \times 2 = 9,377 \text{ m}$

Oily water Holding Capacity 38,502 - 9,377 = 29,125 m3 >> 372.9 m3

ภาคผนวก 2ฑ

รายการคำนวณขนาดถังเก็บน้ำดับเพลิงและอัตรา การสูบน้ำดับเพลิงของเครื่องสูบน้ำดับเพลิง ภายหลังการเปลี่ยนแปลงรายละเอียดโครงการ

Calculation Data Sheet of Required F/F Water (Fire Pump Capacity)

Item	Capacity	
Required Fire Water (F/F pump capacity)	1136 m ³ /h (5000GPM)	

1) Water Demand Calculation for Fuel Oil Tank - Tank Cooling

- Tank Diameter (d) : 44.62 m

- Tank Height (h) : 16.545 m

- Total Surface Area (one tank) : 3884 m²

- Density of Discharge : 2 (L/min)/m²

- Water Demand (one + half tank) : 11652 I/min ----- (α)

2) Water Demand Calculation for Fuel Oil Tank - Foam System

- Tank Diameter (d) : 44.62 m- Surface Area ($\pi \times r^2$) (A) : 1564 m^2

- Density of Discharge : 4.1 (L/min)/m² (According to NFPA 11)

- Foam / Water Demand (A x 4.1) : 6412 l/min

- Water Demand for Foam System : 6412 x 0.97 = 6220 I/min ----- (β)

3) Total water demand for Fuel Oil Tank - Tank Cooling + Foam System

- Complete 2 spray rings of tank on fire +

1 spray ring of adjacent tank (α) : 11652 l/min
- 1 no. outdoor water hydrant 1900 l/min : 1900 l/min

(Acc. to Oil Depot Regulation BE 2556 & NFPA 850)

- Foam System of Tank on fire operates (β) : 6220 I/min

- 3 nos. Foam hydrants (189 l/min each) : 567 l/min (According to NFPA 11)

20,339 l/min

 $20339 \text{ l/min} = 5374 \text{ GPM} = 1220 \text{ m}^3/\text{h}$

Nearest Available Pump Capacity to be selected: 5000 GPM = 1136 m³/h

INOTE

The above demand (5374 GPM) is 107.5% flow of (5000 GPM) pump rated capacity as permitted in NFPA 20.

Design Concept of the Fire Water Supply system

The fire water supply system consists of fire water tanks, fire water pumps and fire water ring main yard piping with corresponding sectional isolation valves. The fire water source will be fed from Service Water / Fire Water tank with effective storage to cater for more than 2 hours fire water supply to fire water pumps in accordance to NFPA 850 chapter-6.2.6 recommendation.

The fire pumps are sized based on the calculated largest water demand as described in Chapter-6.2.1 of NFPA 850 recommendation. Hence, the required amount of fire water and tank capacity is as below.

In accordance with Oil Depot Act 2556, Chapter 6, Clause 50, fire water storage capacity shall be able to cater the water demand as per Clause 49 of the Oil Depot Act 2556.

Clause 49 (1): water demand for foam solution as per clause 48 of Oil Depot Act 2556

-Clause 48 (1) foam solution 4.1 litre/min/m² x tank cross section area x 30 minutes

= $4.1 \, \text{litre/min/m}^2 \, \text{x} \, (= 1564 \, \text{m}^2) \, \text{x} \, 30 \, \text{mins}.$

= 192,372 litres

-Clause 48 (2) foam solution to fill the pipe (pipe diameter: DN 100 Length: 400 meters)

 $= \pi \times 0.1/2 \times 0.1/2 \times 400 = 3.142 \text{ m}^3 \text{ or } 3,142 \text{ litres}$

-Clause 48 (3) foam solution 189 litre/min/foam hydrant x 3 hydrants x 30 minutes

 $= 189 \times 3 \times 30 = 17,010$ litres

[Total foam solution = 192,372 + 3,142 + 17,010 = 212,524 litres]

Clause 49 (2): water for tank cooling 2 litre/min/m² x 120 minutes for

(a) Area of tank on fire

Roof: $\pi \times 44.62/2 \times 44.62/2 = 1.564 \text{ m}^2$

Wall: $\pi \times 44.62/2 \times 16.545 = 2,319 \text{ m}^2$

Total: $1,564 + 2,319 = 3,884 \text{ m}^2$

(b) Area of adjacent tank within radius (from tank shell) of the tank on fire [shell to shell distance = 24 meters].

Half of total surface area of adjacent tank: 1/2 x 3,884 = 1,942 m²

Total Area Required for Water Cooling

: $3,884 \text{ m}^2 + 1,942 \text{ m}^2 = 5,826 \text{ m}^2$

Total Water Required for Tank Cooling

 $2 \text{ l/min/m}^2 \times 120 \text{ mins.} \times 5,826 \text{ m}^2 = 1,398,240 \text{ litres}$

Clause 49 (3): water hydrant 1900 litre/min for 30 minutes

[Total water for hydrant = 1,900 litre/min x 30 mins. = 57,000 litres

Total water required as per Oil Depot Act 2556, Chapter 6, clause 50 = 212,524 + 1,398,240 + 57,000 = 1,667,764 litres = 1,667.764 say 1,668 m³

The fire water tank capacity required as per Oil Depot Act 2556 is 1,668 m3 which is <u>less than</u> the <u>calculated</u> fire water tank (dedicated volume) capacity of $2,440 \text{ m}^3$. \rightarrow OK

Calculation Data Sheet of Water Tanks

Name / Description	Туре	Capacity
Service Water / Fire Water Storage Tank	Butt welded cone roof tank	4250 m ³

4) Service Water / Fire Water Storage Tank

Number:

One (1) per plant

Capacity:

2 hours F/F water supply plus (+) 1 day service water consumption minus (-) 1

day plant cycle make-up..

<Required F/F water >

1220 m³/h x 2 hours = 2440 m³ ----- (
$$\alpha$$
)

<Service water consumption>

$$2074 \text{ m}^3/\text{day x } 1 \text{ day } = 2074 \text{ m}^3------(\beta)$$

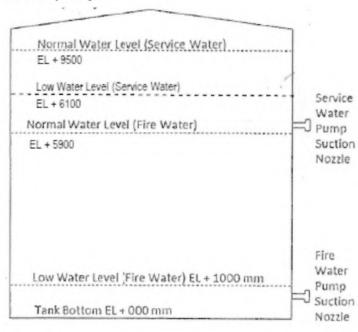
<Plant Cycle Make-up>

$$379 \text{ m}^3/\text{day x } 1 \text{ day} = 379 \text{ m}^3 ----- (x)$$

<Required tank capacity >

$$(\alpha) + (\beta) - (x) : 2440 + 2074 - 379 = 4135 \text{ m}^3 \implies 4250 \text{ m}^3$$

Tank Capacity:



Tank Diameter = 25.22 m

Tank cross sectional area = $\pi \times (25.22)^2 / 4 = 499.55 \text{ m}^2$

Fire Water Height: NWL(FW) - LWL(FW) = 5.9 m - 1.0 m = 4.9 m

Fire Water Capacity (volume): $499.55 \times 4.9 = 2,448 \text{ m}^3 > 2,440 \text{ m}^3 \rightarrow \text{OK}$

Service Water Height: NWL (SW) - LWL (SW) = 9.5 - 6.1 = 3.4 m

Service Water Capacity (volume): 499.55 x 3.4 = 1,698 m^3 > (β) − (x) = 1,695 m^3 → OK

Calculation Data Sheet of Foam Storage

Name / Description	Туре	Minimum Capacity
Foam Storage Tank	Horizontal Bladder Type	7013 litres

As per NFPA 11

Tank Dimensions

Inside Diameter:

44.62m

Calculation

Foam-Water Demand for Tank Internal Surface:

 $A = 1/4 \times \pi \times d^2$

 $= 1.564m^2$

 $Q_1 = 1,564m^2 \times 4.1 LPM/m^2$ (flow rate demand)

= 6,412LPM

Foam Demand:

Q_{F1} = 6,412LPM x 0.03 (3% foam compound) x 30 minutes

= 5,770 litres

 $Q_{F2} = 3,142$ litres x 0.03 (3% foam compound)

= 95 litres

Q_{F3} = 189 litre/min x 3nos. x 0.03 (3% foam compound) x 30 minutes

= 510 litres

 $Q_{FT} = (5,770 + 95 + 510) \times 1.1 (10\% \text{ margin})$

= 7,013 litres (1,853 gals.)

Selected Foam Concentrate Tank Capacity: 2,200 gals. (8,328L) ← OK

As per Clause 48 of Oil Depot Act 2556:

Clause 48 (1) foam solution 4.1 litre/min/m² x tank cross section area x 30 minutes. = $4.1 \text{ l/min/m} 2 \times 1564 \text{ m} 2 \times 30 = 192,372 \text{ litres}$

Clause 48 (2) foam solution to fill the pipe (diameter: 100 mm x length: 400 m) = π x 0.1/2 x 0.1/2 x 400 = 3,142 litres

Clause 48 (3) foam solution 189 litre/min/foam hydrant x 3 hydrants x 30 minutes. = 189 x 3 x 30 = 17,010 litres

[Total foam-water solution = 192,372 + 3,142 + 17,010 = 212,524 litres]

Foam Concentrate (3%) Quantity:

Required Foam Concentrate = 212,524 x 3% = 6,376 L < 8,328 L → OK

ภาคผนวก 3ก

ผลการตรวจวัดคุณภาพอากาศในบรรยายกาศ ของโครงการ



Environment Research & Technology- Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Nigamwongwan Road, Toongsongfrong, Lalesis, Bangkok 1021 0 Tel. 0-2954-7745-6 Fix 0-2954-7747 E-mail env@enviresearch.co.th www.enviresearch.co.th

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www.enviresearch.co.th

ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนยุดสาหกรรมปลวกแดง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง UTM (WGS84) 47P 0733564 E, 1432620 N TLT Consultants Company Limited บริเวณพื้นที่โครงการ Ambient Air Quality Sampling Source Project Location GPS. Coordinate Customer Name Sampling Point Project Name Address

February 7-9, 2019 : February 7, 2019 : AB152/2562 Analytical Date Received Date Analysis No. January 25 - February 1, 2019 U.S. EPA 40 CFR Part 50 Sampling Method Sampling Time Sampling Date

: Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) : February 11, 2019 Report Date Sample Condition Sampling By

Dorometer	Hall	Halt Mothed of Angleria				Result				
TOTO TOTO TO	OTT	method of Analysis		Jan 26-27, 1	9 Jan 27-28, 19	Jan 28-29, 19	Jan 29-30, 19	Jan 30-31, 1:	Jan 25:26, 19 Jan 26:27, 19 Jan 27:28, 19 Jan 28:29, 19 Jan 29:30, 19 Jan 30:31, 19 Jan 31:70b 1, 19	Standard1/
Total Suspended Particulate (TSP) 24 Hours Average	mg/m³	mg/m³ Hi-Volume, Gravimetric Method	0.129	0.104	0.129	0.136	0.153	0.124	0.129 0.104 0.129 0.136 0.153 0.124 0.091	0.330
Particulate Size Less Than 10 Micron (PM10) mg/m³ Hi-Volume, 24 Hours Average Gravimetric	mg/m³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.075	0.063	0.075 0.063 0.073 0.076 0.088 0.071	0.076	0.088	0.071	0.050 0.120	0.120
Remark: V Notification of National Environmental Board, No. 10, R.F. 2538 (1905), multished in the Board Concessment Constitution of National Section 110 Board 2011 do 110 Board 2011 do 110 Board 2011 do 110 Board 2011 do	anal Environ	amental Board, No. 10, B F 25	38 (1995) m	arblished in	the Boyol O.) toommont	Lought No. 1	10 Day 40	D does d Man	000000

[1995] and Notification No.24, IB. 2347 (2004), published in the Royal Government Gazette Ro. 112 Part 42D dutted May 25, IB. 23538 (1992) and Modification No.24, IB. 2347 (2004), published in the Royal Government Gazette No. 121 Special Part 104D dated September 22, IB. 2347 (2004), under the Enhancement and Conservation of National Environmental Quality Act IB. 2335 (1992).

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer

(Ms.Panicha Promchai) Laboratory Supervisor

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Address

โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแลง จังหวัดระยอง Project Location

Ambient Air Quality Sampling Source บริเวณซุมชนบ้านเหินสวรรค์ หมู่ที่ 2 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Sampling Point

UTM (WGS84) 47P 0733786 E, 1435335 N GPS. Coordinate

Analysis No. January 25 - February 1, 2019 Sampling Date

Analytical Date Received Date U.S. EPA 40 CFR Part 50 Sampling Method Sampling Time

Good

Sample Condition

February 7-9, 2019

February 7, 2019

AB153/2562

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) : February 11, 2019 Report Date Sampling By

Parameter	Thit	Ilnit Mothod of Anglusia				Result				
***************************************	1	medica of Allarysis	Jan 25-26, 19	Jan 26-27, 19	Jan 27-28, 19	Jan 28-29, 19	Jan 29-30, 19	Jen 30-31, 19	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-Peb 1, 19	Standard1/
Total Suspended Particulate (TSP) 24 Hours Average	mg/m³	mg/m³ Hi-Volume, Gravimetric Method	0.142	0.128	0.121	0.151	0.177	0.162	0.142 0.128 0.121 0.151 0.177 0.162 0.128	0.330
Particulate Size Less Than 10 Micron (PM10) mg/m³ Hi-Volume, 24 Hours Average Gravimetric	mg/m ³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.090	0.083	0.075	0.099	0.112	0.099	0.090 0.083 0.075 0.099 0.112 0.099 0.076	0.120

Romark: V Notification of National Environmental Board, No.10, R.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).

Laboratory Reviewer

(Ms.Natnicha Sermmatiwong)

(Ms.Panicha Promchai) Laboratory Supervisor

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F-RP-020 Rev. 02, August 23, 2018



Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Toongsonghong, Luksi, Bangkok 10210 Tel, 0-2954-7475-6 Fav 0-2954-7747 E-mail: envige enviresearch.co.lh

ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง TLT Consultants Company Limited Customer Name Project Name Address

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณวัดประสิทธาราม หมู่ที่ 7 ดำบลพนานิคม อำเภอนิคมพัฒนา จังหวัดระยอง Ambient Air Quality Sampling Source Sampling Point

: AB154/2562 Analysis No. UTM (WGS84) 47P 0731909 E, 1430361 N January 25 - February 1, 2019 GPS. Coordinate Sampling Date

: February 7-9, 2019 February 7, 2019 Analytical Date Received Date U.S. EPA 40 CFR Part 50 07:45 Good Sampling Method Sample Condition Sampling Time

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) : February 11, 2019 Report Date Sampling By

Total Suspended	Parameter	Halt	Mathed of Auction				Result				
Method elective, Method	T WI WHITE CO.	OWN	method of Analysis	Jan 25-26, 19	Jan 26-27, 19	Jun 27-28, 19	Jan 28-29, 19	Jan 29-30, 19	Jan 30-31, 19	Jan 31-Feb 1, 19	Standard1/
mg/m³ Hi-Volume, Gravimetric Method	Total Suspended Particulate (TSP) 24 Hours Average	mg/m³	Hi-Volume, Gravimetric Method	0.131	0.112	0.120	0.137	0.148	0.107	0.089	0.330
	Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.071	0.060	0.064	0.080	0.087	0.056	0.052	0.120

unternion on Nutronal Environmental Bonds, N.O., D. B.E.2528 (1995), published in the board 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 Quazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quartet B.E.2555 (1992).

(Ms.Panicha Promchai) Laboratory Supervisor

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Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Toongsonghong, Laksi, Bangkok 1021 0 Tel, 0-2954-7745-5 Fax 0-2954-7747 E-mail: envi@enviresearch.co.th www.enviresearch.co.th

ANALYSIS REPORT

Customer Name	••	TLT Consultants Company Limited			
Address	••	152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230	ing Kum, Bangkok 10230		
Project Name		โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง	เสาหกรรมปลวกแดง		
Project Location	••	ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง	SEUDS		
Sampling Source	••	Ambient Air Quality			
Sampling Point	••	บริเวณโรงเรียนบ้านมาบเตย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลากแดง จังหวัดระยอง	บลมาบยางพร อำเภอปล	กาแดง จ้	งหวัดระยอง
GPS. Coordinate	••	UTM (WGS84) 47P 0735509 E, 1433550 N	NO		
Sampling Date	••	January 25 - February 1, 2019	Analysis No.	AB15	AB155/2562
Sampling Time	••	06:50	Received Date	Febru	February 7, 2019
Sampling Method	••	U.S. EPA 40 CFR Part 50	Analytical Date	Febru	February 7-9, 2019
Sample Condition	••	Good	Report Date	Febru	February 11, 2019
Sampling By	••	Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)	f Environment Research	, Techno	logy Co., Ltd.)

	Standard1/	0.330	0.120
	Jan 28-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-Feb 1, 19	0.292 0.194 0.257 0.295 0.290 0.204 0.159	0.075
	Jan 30-31, 19	0.204	0.102
	Jan 29-30, 19	0.290	0.104
Result	Jan 28-29, 19	0.295	0.101 0.097 0.109 0.107 0.104 0.102
	Jan 27-28, 19	0.257	0.109
	Jnn 26-27, 19	0.194	0.097
	Jan 25-26, 19		0.101
Ilnit Mothod of Anglania	method of Analysis	mg/m³ Hi-Volume, Gravimetric Method	PM10 Size Selective, Hi-Volume, Gravimetric Method
IInite	A THE	mg/m³	mg/m³
Parameter		Total Suspended Particulate (TSP) 24 Hours Average	Particulate Size Less Than 10 Micron (PM10) 24 Hours Average

Remark: v. Weiferdines of Netioned Environmental Bornt, No. 10, 18, 2532 (1995), published in the Royal Covernment Guzette No. 112 Part 42D dated May 25, B.E.2538 (1995) and No. 25, B.E.2534 (1995), published in the Royal Covernment Guzette No. 12 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.Panicha Promchai) Laboratory Supervisor

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ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงใฟฟ้าปลวกแลงในพื้นที่สวนอุดสาหกรรมปลวกแดง TLT Consultants Company Limited Project Location Customer Name Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

บริเวณชุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Ambient Air Quality Sampling Source Sampling Point

February 7-9, 2019 February 7, 2019 AB156/2562 Received Date Analysis No. UTM (WGS84) 47P 0732008 E, 1432906 N January 25 - February 1, 2019 07:25 GPS. Coordinate Sampling Time Sampling Date

: February 11, 2019 Analytical Date Report Date U.S. EPA 40 CFR Part 50 Good Sampling Method Sample Condition

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)

Sampling By

0.330 Standard 0.120 Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-Feb 1, 19 0.138 0.065 0.148 0.089 0.100 0.186 Result 0.252 0.112 0.258 0.116 0.223 0.113 0.110 0.195 Method of Analysis Hi-Volume, Gravimetric Method Hi-Volume, Gravimetric Method PM10 Size Selective, mg/m3 mg/m3 Unit Than 10 Micron (PM10) 24 Hours Average 24 Hours Average Particulate Size Less Total Suspended Particulate (TSP) Parameter

Notification of National Environmental Beart, No. 10, 115, 2538 (1995), published in the Royal Government Grazette No. 112 Part 42D dated May 25, 18.E.3538 (1995) and Notification No. 24, 18.E.374 (2004), published in the Royal Government Grazette No. 121 Special Part 104D dated September 22, 18.E.3547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.3555 (1992).

(Ms.Panicha Promchai) BATT SALLAN DR. (Ms.Natnicha Sermmatiwong)

Laboratory Reviewer

Laboratory Supervisor

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F-RP-020 Rev. 02, August 23, 2018

ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name Address

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงให้ฟ้าปลวกแลงในพื้นที่สวนอุตสาหกรรมปลวกแดง

ตำบลมาบบางพร อำเภอปลวกแดง จังหวัดระยอง Project Location Project Name

Ambient Air Quality Measured Source

บริเวณพื้นที่โครงการ Measured Point UTM (WGS84) 47P 0733563 E, 1432617 N GPS. Coordinate

January 25 - February 1, 2019 Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured Instrument Measured By

February 15, 2019 : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number PA6WVAJ9 Report Date : ASC054-NOx-2562 Reported Number

						Result	Result (ppm)					
Interval Time	Ja	Jan 25-26, 19	19	Ja	Jan 26-27, 19	19	Je	Jan 27-28, 19	19	Ja	Jan 28-29, 19	19
	NO	NO2	NOx	NO	NO2	NOX	NO	NO ₂	NOx	NO	NO	NOX
07:00 - 08:00	0.0085	0.0132	0.0217	0.0050	0.0099	0.0149	0.0024	0.0061	0.0085	0.0152	0.0133	0.0285
08:00 - 00:80	0.0088	0.0164	0.0252	0.0085	0.0145	0.0230	0.0029	0.0095	0.0124		0.0191	0.0361
00:00 - 10:00	0.0087	0.0243	0.0330	0.0058	0.0232	0.0290	0.0024	0.0069	0.0093	0.0030	0.0131	0.0161
10:00 - 11:00	0.0028	0.0138	0.0166	0.0026	0.0105	0.0131	0.0020	-	-		0.0084	
11:00 - 12:00	0.0021	0.0053	0.0074	0.0022	0.0049	0.0071	0.0021	0.0027	-		0.0043	
12:00 - 13:00	0.0020	0.0034	0.0054	0.0019	0.0025	0.0044	0.0020	1	-		0.0035	_
13:00 - 14:00	0.0022	0.0039	0.0061	0.0019	0.0025	0.0044	0.0020	0.0021	0.0041	0.0020	0.0025	
14:00 - 15:00	0.0020	0.0032	0.0052	0.0018	0.0021	0.0039	0.0019	0.0021	0.0040	0.0018	0.0028	-
15:00 - 16:00	0.0021	0.0030	0.0051	0.0017	0.0020	0.0037	0.0024	0.0033	0.0057	0.0019	0.0032	-
16:00 - 17:00	0.0054	0.0068	0.0122	0.0020	0.0025	0.0045	0.0020	0.0027	0.0047		0.0041	
17:00 - 18:00	0.0022	0.0056	0.0078		0.0022 0.0033	0.0055	0.0020	0.0032	_		0.0055	
18:00 - 19:00	0.0017	0.0072	0.0089	0.0026	0.0062	0.0088	0.0023	-	_		0.0088	
19:00 - 20:00	0.0018	0.0077	0.0095	0.0026	0.0108	0.0134	0.0025	0.0107	0.0132	0.0026	0.0156	
20:00 - 21:00	0.0023	0.0127	0.0150	0.0020	0.0110	0.0130	0.0028		0.0165		0.0242	
21:00 - 22:00	0.0028	0.0143	0.0171	0.0025	0.0118	0.0143	0.0030	0.0154	0.0184	0.0026	0.0215	
22:00 - 23:00	0.0022	0.0107	0.0129	0.0024	0.0100	0.0124	0.0032	0.0122	0.0154	0.0024	0.0184	
23:00 - 24:00	0.0022	0.0104	0.0126	0.0023	0.0117	0.0140	0.0022	0.0124	0.0146	0.0023	0.0182	1
00:00 - 01:00	0.0030	0.0123	0.0153	0.0022	0.0093	0.0115	0.0022	0.0103	0.0125	0.0025	0.0170	
01:00 - 02:00	0.0026	0.0087	0.0113		0.0023 0.0136	0.0159	0.0025	0.0105	0.0130	0.0023	0.0164	0.0187
02:00 - 03:00	0.0023	0.0082	0.0105	0.0030	0.0151	0.0181	0.0024	0.0104	0.0128	0.0026	0.0159	0.0185
03:00 - 04:00	0.0025	0.0084	0.0109	0.0024	0.0156	0.0180	0.0028	0.0095	0.0123	0.0030	0.0200	0.0230
04:00 - 05:00	0.0028	0.0099	0.0127	0.0027	0.0134	0.0161	0.0025	0.0087	0.0112		_	0.0100
02:00 - 00:00	0.0029	0.0099	0.0128	0.0028	0.0118	0.0146	0.0024	0.0078	0.0102	0.0042	0.0150	0.0192
00:20 - 00:90	0.0031	0.0094	0.0125	0.0031	0.0092	0.0123	0.0024	0.0084			-	0.0171
24 Hours Average 0.0033 0.0095 0.0128 0.0029 0.0095 0.0124 0.0024 0.0075	0.0033	0.0095	0.0128	0.0029	0.0095	0.0124	0.0024	0.0075	0.0099	0.0037	0.0125 0.0162	0.01
1 Hour Maximum	0.0088 0.0243 0.0330 0.0085 0.0232 0.0290 0.0032 0.0154 0.0194 0.0170 0.020	0.0243	0.0330	0.0085	0.0232	0.0290	0.0032	0.0154	0.0100	00100	0 000	0

| Langur maximum | V. 1008 | V. 10245 | U. 1028 | V. 102

Month (Ms.Panicha Promchai) Laboratory Supervisor AMERICAN GILL (Ms.Supawan Suwannapa)

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Laboratory Reviewer

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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

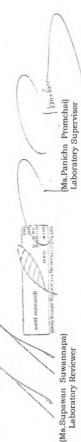
Environment Research & Technology Company Limited 25/113-114 Moo 6 Sui Chinalet 1, Nigamwengwan Road, Teongsonglung, Laksi, Bangkot 10210 Tel. 0-2954-7745-6 Fav 0-2954-7747 Fanall: envi@enviresearch.co.th

www.enviresearch.co.th

ANALYSIS REPORT

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงให้ห้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง ด้าบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง UTM (WGS84) 47P 0733563 E, 1432617 N TLT Consultants Company Limited January 25 - February 1, 2019 บริเวณพื้นที่โครงการ Ambient Air Quality Measured Source Project Location GPS. Coordinate Customer Name Measured Point Measured Date Project Name Measured By Address

	Standard1/																										
	19	NOx	0.0231	0.0368	0.0274	0.0163	0.0109	0.0082	0.0089	0.0080	0.0091	0.0101	0.0085	0.0077	0.0109	0.0188	0.0197	0.0187	0.0154	0.0130	0.0118	0.0137	0.0143	0.0222	0.0208	0.0191	
	Jan 31-Feb 1, 19	NO ₂	0.0167	0.0225	0.0209	0.0133	0.0087	0.0062	0.0069	0.0061	0.0073	0.0083	0.0067	090000	0.0089	0.0159	0.0161	0.0154	0.0125	0.0104	0.0092	0.0105	0.0108	0.0152	0.0136	0.0129	1
	Jan	NO	0.0064	0.0143	0.0065	0.0030	0.0022	0.0020	0.0020	0.0019	0.0018	0.0018	0.0018	0.0017	0.0020	0.0029	0.0036	0.0033	0.0029	0.0026	0.0026	0.0032	0.0035	0.0070	0.0072	0.0062	-
0	6	NOx	0.0266	0.0285	0.0247	0.0131	0.0118	0.0075	0.0068	0.0082	0.0086	0.0089	0.0088	0.0091	0.0079	0.0143	0.0214	0.0191	0.0167	0.0206	0.0166	0.0145	0.0141	0.0190	0.0183	0.0171	
Result (ppm)	Jan 30-31, 19	NO2	0.0200	0.0216	0.0204	0.0108	0.0097	0.0056	0.0049	0.0063	0.0065	0.0000	0.0000	0.0073	0.0061	0.0121	0.0183	0.0163	0.0140	0.0174	0.0137	0.0117	0.0112	0.0143	0.0142	0.0134	
R	JE	ON	0.0066	0.0069	0.0043	0.0023	0.0021	0.0019	0.0019	0.0019	0.0021	0.0019	0.0018	0.0018	0.0018	0.0022	0.0031	0.0028	0.0027	0.0032	0.0029	0.0028	0.0029	0.0047	0.0041	0.0037	00000
	6	NOX	0.0287	0.0314	0.0425	0.0115	0.0088	0.0061	0.0056	0.0048	0.0069	0.0087	0.0000	0.0094	0.0127	0.0162	0.0214	0.0153	0.0130	0.0116	0.0106	0.0135	0.0114	0.0117	0.0150	0.0168	00000
	Jan 29-30, 19	NO2	0.0194	0.0189	0.0239	0.0093	0.0068	0.0042	0.0037	0.0030	0.0049	0.0068	0.0072	0.0077	0.0109	0.0140	0.0190	0.0128	0.0109	9600.0	0.0085	0.0111	0.0091	0.0095	0.0128	0.0141	00100
	J.	NO	0.0093	0.0125	0.0186	0.0022	0.0020	0.0019	0.0019	0.0018	0.0020	0.0019	0.0018	0.0017	0.0018	0.0022	0.0024	0.0025	0.0021	0.0020	0.0021	0.0024	0.0023	0.0022	0.0022	0.0027	10000
	Interval Time		07:00 - 08:00	08:00 - 00:00	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00	04:00 - 02:00	02:00 - 06:00	00:20 - 00:90	Od House Assessed



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ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 TLT Consultants Company Limited Customer Name Address

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณพื้นที่โครงการ Ambient Air Quality Measured Source

Measured Point

UTM (WGS84) 47P 0733563 E, 1432617 N GPS. Coordinate

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) January 25 - February 1, 2019 Measured Date Measured By

: February 15, 2019 SO₂ UV-Fluorescence Analyzer Thermo Model 43C Serial Number 0335804022 Report Date : ASC054-SO₂-2562 Measured Instrument Reported Number

February 15, 2019

NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number PA6WVAJ9

Report Date

: ASC054-NOx-2562

Measured Instrument Reported Number

	Standard																									1010
	Jan 31-Feb 1, 19	0.0017	0.0018	0.0016	0.0014	0.0017	0.0018	0.0019	0.0018	0.0019	0.0019	0.0019	0.0017	0.0014	0.0013	0.0012	0.0012	0.0012	0.0010	0.0011	0.0010	0.0010	0.0013	0.0012	0.0010	21000
	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-Feb 1, 19	0.0021	0.0021	0.0020	0.0019	0.0021	0.0020	0.0019	0.0018	0.0019	0.0018	0.0018	0.0019	0.0019	0.0017	0.0015	0.0017	0.0015	0.0014	0.0013	0.0014	0.0013	0.0012	0.0013	0.0016	0.0017
1	Jan 29-30, 19	0.0019	0.0018	0.0018	0.0012	0.0012	0.0013	0.0013	0.0015	0.0015	0.0014	0.0014	0.0014	0.0013	0.0011	0.0014	0.0011	0.0011	0.0012	0.0011	0.0014	0.0013	0.0013	0.0015	0.0017	0.0014
Result SO ₂ (ppm)	Jan 28-29, 19	0.0013	0.0016	0.0012	0.0012	0.0011	0.0012	0.0011	0.0012	0.0012	0.0013	0.0014	0.0013	0.0013	0.0014	0.0013	0.0011	0.0012	0.0012	0.0011	0.0011	0.0015	0.0014	0.0015	0.0015	0.0013
Ke	Jan 27-28, 19	0.0010	0.0010	0.0000	0.0010	600000	0.0000	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012	0.0013	0.0011	0.0011	0.0014	0.0012	0.0010	0.0011	0.0011	0.0011	0.0010	0.0011	0.0011	0.0011
	Jan 26-27, 19	0.0015	0.0017	0.0017	0.0014	0.0012	0.0012	0.0011	0.0012	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0012	0.0012	0.0013	0.0014	0.0014	0.0015	0.0014	0.0013	0.0013
-	Jan 25-26, 19	0.0023	0.0023	0.0023	0.0019	0.0017	0.0016	0.0015	0.0014	0.0014	0.0015	0.0014	0.0017	0.0016	0.0014	0.0015	0.0013	0.0013	0.0013	0.0012	0.0013	0.0012	0.0016	0.0015	0.0015	0.0016
Interval Time	1	00:80 - 00:40	08:00 - 00:00	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00	04:00 - 02:00	02:00 - 00:50	00:20 - 00:90	24 Hours Average

1 Hour Maximum 0.0023 0.0017 0.0014 0.0016 0.0019 0.0021 0.0019 0.3021

Remark: 1 Notification of National Environmental Bourd, No.10, 1B.2.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, IB.2.5338 (1995), and Notification No.24, B.2.5342 (1904), published in the Royal Government Gazette No.12 Special Part 104U dated September 22, B.E.2547 (2004), Notification of National Environmental Denytonmental Denytonmental Denytonmental Denytonmental Denytonment of No.21, B.E.25548 (1992), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2548 (1995) and Notification of National Environmental Denyton No.21, B.E.25548 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 29D dated July 13, [2001], under the Enhancement and Conservation of National Environmental Quality Act. B.E.2554 (1992).



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Page 3/4

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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

Environment Research & Technology- Company Limited 25/113-114 Mos 6 Soi Chimdet 1, Nigamonogwan Road, Toongsongtong, Laksi, Bangkok 10210 Tel. 0-2954-7745-6 Fac 0-2954-7747 E-mail: envi@enviresearch.co.th www.enviresearch.co.th

ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงใฟฟ้าปลวกแลงในพื้นที่สวนอุตสาหกรรมปลวกแลง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง UTM (WGS84) 47P 0733563 E, 1432617 N TLT Consultants Company Limited บริเวณพื้นที่โครงการ Ambient Air Quality Measured Source Project Location GPS. Coordinate Customer Name Measured Point Project Name

reasured mediument		CO NUIK Analyzer Horiba M	CO NUIK Analyzer Horiba Model APMA-370 Serial Number JHG8PWA	8PWA8		
Reported Number	••	ASC054-CO-2562	Report Date	: Febru	ary 1	ebruary 15, 2019

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)

January 25 - February 1, 2019

Measured Date

Measured By

Measured Instrument	•	CO NUIR Analyzer Horio	. CO NOTA Analyzer Horiba Model APMA-3/0 Serial Number JHG8PWA8	JHGBPWA	8		
Reported Number	••	ASC054-CO-2562	Report Date		February 15, 201	15	201

						R	Result CO (ppm	o (ppn	1)						
Interval Time	Jan 25	Jan 25-26, 19	Jan 26	Jan 26-27, 19	Jan 27	Jan 27-28, 19		Jan 28-29, 19 Jan 29-30, 19	Jan 29	-30, 19		Jan 30-31, 19		Feb 1, 19	Jan 31-Feb 1, 19 Standard1/
	1 hr Avg	8 hr Avg	1 hr Avg	he Avg 8 he Avg 1 he Avg 8 he Avg	hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
07:00 - 08:00	0.8		0.7	0.7	0.4	0.7	9.0	9.0	6.0	0.7	8.0	0.7	0.7	9.0	
08:00 - 00:80	0.7		8.0	0.7	6.0	0.7	8.0	9.0	6.0	8.0	0.8	0.7	0.8	9.0	
00:00 - 00:60	0.7		8.0	0.7	0.4	9.0	0.5	9.0	1.0	0.8	0.7	0.7	0.7	0.7	
10:00 - 11:00	9.0	,	9.0	0.7	0.3	9.0	0.5	9.0	0.5	8.0	0.5	0.7	0.5	9.0	
11:00 - 12:00	0.5		9.0	0.7	0.3	0.5	0.4	0.5	0.5	0.8	0.5	0.7	0.5	9.0	
12:00 - 13:00	0.4		0.4	0.7	0.3	0.4	0.4	9.0	0.5	0.7	0.5	0.7	0.5	90	
13:00 - 14:00	0.4		0.4	9.0	0.4	4.0	0.4	0.5	0.4	0.7	0.5	9.0	0.5	9.0	
14:00 - 15:00	0.4	9.0	0.4	9.0	6.0	4.0	0.4	0.5	4.0	9.0	0.5	9.0	0.5	9.0	
15:00 - 16:00	0.4	0.5	0.4	9.0	0.4	4.0	0.4	0.5	0.4	9.0	0.5	9.0	0.5	9.0	
16:00 - 17:00	0.4	0.5	0.4	0.5	0.4	4.0	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.5	
17:00 - 18:00	0.4	0.4	6.4	0.5	4.0	4.0	9.0	0.5	0.4	0.4	0.5	0.5	0.5	0.5	
18:00 - 19:00	0.5	6.0	6.0	4.0	9.0	4.0	0.5	0.5	0.4	4.0	0.5	0.5	0.5	0.5	
19:00 - 20:00	0.5	0.4	0.5	6.4	0.5	6.0	9.0	0.5	0.5	4.0	0.5	0.5	0.4	0.5	
20:00 - 21:00	9.0	0.5	9.0	6.0	0.5	6.0	0.5	0.5	0.5	0.4	9.0	0.5	0.5	0.5	
21:00 - 22:00	0.7	0.5	0.7	0.5	0.5	0.4	0.5	0.5	9.0	0.5	9.0	0.5	0.5	0.5	
22:00 - 23:00	9.0	0.5	9.0	0.5	9.0	0.5	0.5	0.5	9.0	0.5	9.0	0.5	0.5	0.5	
23:00 - 24:00	9.0	0.5	9.0	0.5	9.0	0.5	0.5	0.5	9.0	0.5	9.0	0.5	0.5	0.5	
00:00 - 01:00	0.7	9.0	9.0	9.0	0.5	0.5	9.0	0.5	9.0	0.5	9.0	9.0	0.4	0.5	
01:00 - 02:00	0.7	9.0	0.7	9.0	9.0	0.5	9.0	0.5	9.0	9.0	9.0	9.0	0.4	0.5	
02:00 - 03:00	0.7	9.0	8.0	9.0	9.0	9.0	9.0	9.0	0.7	9.0	9.0	9.0	0.3	9.0	
03:00 - 04:00	0.7	0.7	8.0	0.7	9.0	9.0	0.7	9.0	0.7	9.0	9.0	9.0	0.3	0.4	
04:00 - 05:00	0.7	0.7	8.0	0.7	9.0	9.0	0.7	9.0	0.7	9.0	9.0	9.0	0.4	0.4	
02:00 - 00:00	0.7	0.7	0.7	0.7	9.0	9.0	8.0	9.0	0.7	0.7	9.0	9.0	0.4	0.4	
00:20 - 00:90	0.7	0.7	9.0	0.7	9.0	9.0	8.0	0.7	0.7	0.7	9.0	9.0	0.4	0.4	
24 Hours Average	9.0		9.0		0.5		9.0		9.0		9.0		0.5		
1 Hour Maximum	0.8		8.0		9.0		8.0		1.0	,	0.8		0.8		30
8 Hours Maximum		0.7		0.7	,	0.7		0.7		8.0		0.7		0.7	0

Remark: "Wolfficetion of National Environmental Board, No. 10, 18.2338 (1992), putched in the Royal Government Conservation of National Environmental Quality Act B.E.2335 (1992), under the Enhancement and Conservation of National Environmental Quality Act B.E.2335 (1992), under the Enhancement and Conservation of National Environmental Quality Act B.E.2335 (1992).



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F-RP-004 Rev. 01, July 1, 2017

ANALYSIS REPORT

: TLT Consultants Company Limited	: 152 Nuan Chan Road, Nuan Chan, Bueng Kum,
Customer Name	Address

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาทกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

Ambient Air Quality Measured Source

บริเวณชุมชนบ้านเนินสวรรค์ หมู่ที่ 2 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0733786 E, 1435336 N January 25 - February 1, 2019 GPS. Coordinate Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

: February 15, 2019 : NOx Chemiluminescence Analyzer API Model 200A Serial Number 068 Report Date : ASC055-NOx-2562 Measured Instrument Reported Number

						Result	Result (ppm)					
Interval Time	Ja	Jan 25-26, 19	19	Ja	Jan 26-27, 19	19	Ja	Jan 27-28, 19	19	Ja	Jan 28-29, 19	19
	NO	NO2	NOx	ON	NO2	NOX	ON	NO2	NOx	NO	NO2	NOX
07:00 - 08:00	0.0125	0.0165	0.0290	0.0128	0.0202	0.0330	0.0021	0.0064	0.0085	0.0024	0.0088	10
00:60 - 00:80	0.0121	0.0193	0.0314	0.0130	0.0284	0.0414	0.0029		0.0134	0.0034	0.0148	+
00:00 - 00:60	0.0123	0.0269	0.0392	0.0105	0.0263	0.0368	0.0027	0.0071	0.0098	0.0028	0.0146	_
10:00 - 11:00	0.0024	0.0162	0.0186	0.0023	0.0091	0.0114	0.0021	0.0046	0.0067	0.0021	0.0128	_
11:00 - 12:00	0.0020	0.0086	0.0106	0.0021	0.0056	0.0077	0.0020	0.0039	0.0059	0.0019	0.0078	+
12:00 - 13:00	0.0022	0.0050	0.0072	0.0020	0.0041	0.0061	0.0030	0.0031	0.0061	0.0018	0.0048	_
13:00 - 14:00	0.0019	0.0044	0.0063	0.0019	0.0030	0.0049	0.0021	0.0031	0.0052	0.0020	0.0042	_
14:00 - 15:00	0.0020	0.0056	0.0076	0.0020	0.0028	0.0048	0.0020	0.0035	0.0055	0.0020	0.0041	1
15:00 - 16:00	0.0020	0.0047	0.0067	0.0018	0.0032	0.0050	0.0021	0.0033	0.0054	0.0021	0.0034	
16:00 - 17:00	0.0023	0.0062	0.0085	0.0017	0.0028	0.0045	0.0019	0.0030	0.0049	0.0020	0.0039	-
17:00 - 18:00	0.0021	0.0086	0.0107	0.0018	0.0034	0.0052	0.0021	0.0032	0.0053	0.0018	0.0044	-
18:00 - 19:00	0.0030	0.0172	0.0202	0.0105	0.0110	0.0215	0.0018		0.0049	0.0022	0.0045	-
19:00 - 20:00	0.0036	0.0215	0.0251	0.0022	0.0075	0.0097	0.0019	0.0038	0.0057	0.0023	0.0049	-
20:00 - 21:00	0.0031	0.0259	0.0290	0.0058	0.0221	0.0279	0.0019	0.0052	0.0071	0.0050	0.0094	0.0144
21:00 - 22:00	0.0026	0.0198	0.0224	0.0057	0.0246	0.0303	0.0080	0.0157	0.0237	0.0091	0.0153	0.0244
22:00 - 23:00	0.0035	0.0225	0.0260	0.0036	0.0282	0.0318	0.0076	0.0246	0.0322	0.0106	0.0130	0.0236
23:00 - 24:00	0.0038	0.0210	0.0248	0.0049	0.0237	0.0286	0.0038	0.0179	0.0217	0.0085	0.0215	0.0300
00:00 - 01:00	0.0033	0.0198	0.0231	0.0032	0.0166	0.0198	0.0050	0.0185	0.0235	0.0056	0.0286	0.0342
01:00 - 02:00	0.0030	0.0148	0.0178	0.0084	0.0232	0.0316	0.0119	0.0158	0.0277	0.0029	0.0238	0.0267
02:00 - 03:00	0.0026	0.0110	0.0136	0.0078	0.0217	0.0295	0.0036	0.0122	0.0158	0.0049	0.0183	0.0232
03:00 - 04:00	0.0029	0.0173	0.0202	0.0059	0.0169	0.0228	0.0030	9600.0	0.0126	0.0050	0.0208	0.0258
04:00 - 05:00	0.0027	0.0153	0.0180	0.0042	0.0181	0.0223	0.0032	0.0095	0.0127	0.0055	0.0148	0.0203
05:00 - 06:00	0.0038	0.0167	0.0205	0.0024	0.0115	0.0139	0.0032	0.0095	0.0127	0.0048	0.0208	0.0256
06:00 - 07:00	0.0041	0.0144	0.0185	0.0021	0.0067		0.0025	0.0088 0.0025 0.0083 0.0108	0.0108	0.0064	0.0204	0.0268
24 Hours Average 0.0040 0.0150 0.0190 0.0049 0.0142	0.0040	0.0150	0.0190	0.0049	0.0142	0.0191	0.0034	0.0034 0.0086 0.0120 0.0040 0.0125 0.0165	0.0120	0.0040	0.0125	0.01
1 Hour Maximum 0.0125 0.0269 0.0392 0.0130 0.0284 0.0414 0.0110 0.0246 0.026 0.026	0.0125	0.0269	0.0392	0.0130	0.0284	0.0414	0110	0 0046	0 0300	00100	2000	0

| 1 Hour Maximum | 0.0225 | 0.02269 | 0.02392 | 0.0130 | 0.00284 | 0.0414 | 0.0119 | 0.0246 | 0.0322 | 0.0106 | 0.0266 | 0.0362 |
| Remark : V Rodification of Nutsianal Environmental Based, No. 10, R. 2358 (1995), published in the Royal Covernment Guzette Ro. 112 Part 42D dated May 25, R.B. 2358 (1996), published in the Royal Covernment Guzette No. 124 Special Part 5810 dated May 24, R.B. 2358 (1996), published in the Royal Covernment Guzette No. 124 Special Part 5810 dated May 14, R.B. 2358 (1907) and Kuffindium No. 28, R.B. 2359 (1909), published in the Royal Covernment Guzette No. 124 Special Part 5810 dated May 14, R.B. 2352 (1909), under the Salabaran Covernment Covernment and Conservation of National Environmental Quality Act Be. 2353 (1992).



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Page 1/4

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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

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www.enviresearch.co.th

ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงให้ฟ้าปลวกแลงในพื้นที่สวนถุดสาทกรรมปลวกแลง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง TLT Consultants Company Limited Project Location Customer Name Project Name Address

บริเวณชุมชนบ้านเนินสวรรค์ หมู่ที่ 2 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง UTM (WGS84) 47P 0733786 E, 1435336 N Ambient Air Quality Measured Source GPS. Coordinate Measured Point

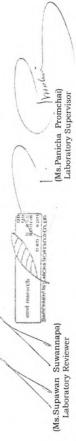
Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) January 25 - February 1, 2019 Measured Date Measured By

NOx Chemiluminescence Analyzer API Model 200A Serial Number 068 Report Date ASC055-NOx-2562 Measured Instrument Reported Number

: February 15, 2019

	Standard1/																											NO2 50.17
	19	NOX	0.0188	0.0295	0.0348	0.0271	0.0181	0.0125	0.0088	0.0148	0.0175	0.0178	0.0224	0.0193	0.0280	0.0274	0.0225	0.0187	0.0151	0.0135	0.0102	0.0109	0.0115	0.0101	0.0116	0.0239	0.0185	0.0348
	Jan 31-Feb 1, 19	NO2	0.0114	0.0158	0.0245	0.0203	0.0140	0.0094	090000	0.0122	0.0148	0.0151	0.0188	0.0148	0.0196	0.0202	0.0173	0.0152	0.0125	0.0096	0.0076	0.0070	0.0072	0.0066	0.0073	0.0169	0.0135	0.0245
	Jan	NO	0.0074	0.0137	0.0103	0.0068	0.0041	0.0031	0.0028	0.0026	0.0027	0.0027	0.0036	0.0045	0.0084	0.0072	0.0052	0.0035	0.0026	0.0039	0.0026	0.0039	0.0043	0.0035	0.0043	0.0000	0.0050	0.0137
	6	NOx	0.0374	0.0371	0.0330	0.0316	0.0244	0.0157	0.0083	0.0084	0.0161	0.0186	0.0193	0.0182	0.0215	0.0229	0.0289	0.0346	0.0283	0.0195	0.0198	0.0156	0.0117	0.0126	0.0141	0.0168	0.0215	0.0374
Result (ppm)	Jan 30-31, 19	NO2	0.0276	0.0280	0.0281	0.0268	0.0210	0.0135	0.0063	0.0055	0.0126	0.0144	0.0162	0.0150	0.0183	0.0187	0.0211	0.0293	0.0252	0.0159	0.0166	0.0124	060000	0.0093	0.0102	0.0113	0.0172	0.0293
K	JE	NO	0.0098	0.0091	0.0049	0.0048	0.0034	0.0022	0.0020	0.0029	0.0035	0.0042	0.0031	0.0032	0.0032	0.0042	0.0078	0.0053	0.0031	0.0036	0.0032	0.0032	0.0027	0.0033	0.0039	0.0055	0.0043	0.0098
-	6	NOX	0.0335	0.0339	0.0294	0.0317	0.0102	0.0089	0.0098	0.0112	0.0122	0.0172	0.0176	0.0252	0.0288	0.0251	0.0270	0.0295	0.0227	0.0199	0.0243	0.0206	0.0148	0.0182	0.0213	0.0337	0.0219	0.0339
	Jan 29-30, 19	NO2	0.0216	0.0203	0.0235	0.0253	0.0072	0.0061	0.0068	0.0086	9600.0	0.0145	0.0148	0.0208	0.0254	0.0213	0.0221	0.0262	0.0199	0.0171	0.0202	0.0178	0.0122	0.0146	0.0180	0.0272	0.0175	0.0272
	Je	NO	0.0119	0.0136	0.0059	0.0064	0.0030	0.0028	0.0030	0.0026	0.0026	0.0027	0.0028	0.0044	0.0034	0.0038	0.0049	0.0033	0.0028	0.0028	0.0041	0.0028	0.0026	0.0036	0.0033	0.0065	0.0044	0.0136
	Interval Time		07:00 - 08:00	08:00 - 00:00	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00	04:00 - 05:00	05:00 - 06:00	00:20 - 00:90	24 Hours Average	1 Hour Maximum

⁹ Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 55, B.E.2538 (1995), Indification No.33, B.E.25520 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Natification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.136 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).



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ANALYSIS REPORT

TLT Consultants Company Limited Customer Name Address

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุดสาหกรรมปลวกแดง Project Location Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Ambient Air Quality Measured Source บริเวณชุมชนบ้านเนินสวรรค์ หมู่ที่ 2 ตำบลมาบยางทร ยำเกอปลวกแดง จังหวัดระยอง GPS. Coordinate Measured Point

UTM (WGS84) 47P 0733786 E, 1435336 N

January 25 - February 1, 2019 Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

: February 15, 2019 SO₂ UV-Fluorescence Analyzer Thermo Model 43C Serial Number 60772-328/2 Report Date : ASC055-SO,-2562 Measured Instrument Reported Number

	Standard																									0.121/	2010
	Jan 31-Feb 1, 19	0.0011	0.0011	0.0010	0.0013	0.0012	0.0013	0.0012	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	20000
	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-7eb 1.19	0.0013	0.0013	0.0015	0.0015	0.0016	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	20000
1)	Jan 29-30, 19	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0017	0.0015	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	2000
Result SO ₂ (ppm)	Jan 28-29, 19	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0000
Re	Jan 27-28, 19	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	01000
	Jan 26-27, 19	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
	Jan 25-26, 19	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	0.0012	0.0011	0.0012	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013
Interval Time		00:80 - 00:40	08:00 - 06:00	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00	04:00 - 05:00	02:00 - 06:00	00:20 - 00:90	24 Hours Average	1 Hour Maximum

0.0017 0.0016 0.0013 0.302/ 0.0012 0.0013 I Hour Maximum

Remark: "/ Notification of National Environmental Board, No.10, I.B. 2338 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B. E. 2538 (1995), and Notification No.24, B. E. 2549 (2004), published in the Royal Government Gazette No.112 Special Part 104D dated September 22, B. E. 2547 (2004), under the Enhancement and Conservation of National Pervironmental David Published in the Royal Government Gazette No.112 Special Part 2004 (2004), No.116 (2004), No.118 (2004), No.18 (2004), N



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ANALYSIS REPORT

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โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบบางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณวัตประสิทธาราม หมู่ที่ 7 ตำบลพนานิคม อำเภอนิคมพัฒนา จังหวัดระยอง Ambient Air Quality Measured Source Measured Point

UTM (WGS84) 47P 0731909 E, 1430359 N GPS. Coordinate

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) January 25 - February 1, 2019 Measured Date Measured By

NOx Chemiluminescence Analyzer API Model 200AU Serlal Number 92 Measured Instrument

: February 15, 2019 Report Date : ASC056-NOx-2562 Reported Number

Interval Time							R	esult C	Result CO (ppm)	-						
1 1 1 1 2 2 2 3 4 4 4 4 4 4 4 4 4	ral Time	Jan 2	5-26, 19	Jan 26	5-27, 19	Jan 27	-28, 19	Jan 28	-29, 19	Jan 29		Jan 30	-31, 19		Feb 1, 19	Standard
0.9 - 0.8 0.8 0.4 0.7 0.6 0.6 1.0 0.8 0.8 0.7 0.6 0.6 0.6 0.6 0.7 0.8 0.8 0.7 0.6 0.6 0.7 0.8 0.8 0.7 0.6 0.6 0.9 0.8 0.8 0.8 0.4 0.7 0.6 0.6 0.9 0.8 0.9 0.8 0.9 0.9 0.8 0.9		1 hr Av	g 8 hr Avg	I hr Ave	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
0.9 1.0 0.8 0.5 0.6 0.6 0.9 0.8 1.0 0.8 0.8 0.1 0.6 0.5 0.6 0.5 0.6 0.7 0.8 0.8 0.8 0.8 0.3 0.6 0.5 0.6 0.7 0.8 0.8 0.8 0.8 0.3 0.6 0.5 0.6 0.7 0.8 0.8 0.8 0.9 0.8 0.3 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.5 0.8 0.8 0.8 0.8 0.8 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.9 0.9 0.9 0.9 0.9	00:80 - 0	6.0	-	8.0	8.0	9.0	0.7	9.0	9.0	1.0	8.0	8.0	0.8	0.7	9.0	
0.8 - 0.8 0.8 0.4 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.8 0.3 0.6 0.5 0.8 0.3 0.6 0.5 0.8 0.5 0.8 0.3 0.4 0.6 0.5 0.8 0.5 0.8 0.3 0.6 0.5 0.8 0.5 0.8 0.5 0.8 0.5 0.8 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.6 0.7 0.7 0.6 0.6 0.7 0.7 0.7 0.6 0.8 0.7 0.6 0.8 0.6 0.7 0.7 </td <td>00:60 -</td> <td>6.0</td> <td>,</td> <td>1.0</td> <td>8.0</td> <td>0.5</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>6.0</td> <td>8.0</td> <td>1.0</td> <td>0.8</td> <td>8.0</td> <td>0.7</td> <td></td>	00:60 -	6.0	,	1.0	8.0	0.5	9.0	9.0	9.0	6.0	8.0	1.0	0.8	8.0	0.7	
0.6 0.6 0.8 0.3 0.5 0.5 0.6 0.6 0.8 0.3 0.6 0.6 0.8 0.6 0.8 0.6 0.8 0.6 0.8 0.6 0.8 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.7 0.4 0.4 0.5 0.5 0.8 0.5 0.8 0.5 0.8 0.6 0.6 0.6 0.7 0.4 0.5 0.5 0.7 0.5 0.7 0.5 0.6 0.7 0.6 0.4 0.4 0.5 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.6 0.6 0.7 0.6 0.8 0.5 0.5 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.7 0.7	0-10:00	0.8		8.0	0.8	6.0	9.0	0.5	9.0	0.7	0.8	8.0	0.8	0.5	90	
0.5 0.6 0.8 0.3 0.4 0.4 0.5 0.5 0.8 0.5 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6	0-11:00	9.0	,	9.0	0.8	0.3	0.5	0.5	9.0	0.5	0.8	9.0	0.8	0.4	900	
0.4 0.4 0.7 0.4 0.4 0.4 0.5 0.5 0.7 0.5 0.7 0.5 0.6	- 12:00	0.5		9.0	8.0	0.3	0.4	0.4	0.5	0.5	0.8	0.5	0.8	0.5	90	
0.5 - 0.4 0.7 0.4 0.5 0.5 0.5 0.7 0.5 0.7 0.5 0.6 0.6 0.6 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.6 0.7 0.6	- 13:00	0.4		0.4	0.7	0.4	0.4	0.4	0.5	0.5	0.7	0.5	0.7	0.5	90	
0.5 0.6 0.4 0.6 0.5 0.5 0.5 0.6 0.6 0.7 0.5 0.6 <td>- 14:00</td> <td>0.5</td> <td></td> <td>4.0</td> <td>0.7</td> <td>4.0</td> <td>0.4</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.7</td> <td>0.5</td> <td>0.7</td> <td>0.5</td> <td>90</td> <td></td>	- 14:00	0.5		4.0	0.7	4.0	0.4	0.5	0.5	0.5	0.7	0.5	0.7	0.5	90	
0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 <td>- 15:00</td> <td>0.5</td> <td>9.0</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>9.0</td> <td>9.0</td> <td>0.7</td> <td>0.5</td> <td>90</td> <td></td>	- 15:00	0.5	9.0	0.4	9.0	0.5	9.0	0.5	0.5	0.5	9.0	9.0	0.7	0.5	90	
0.5 0.6 0.5 0.6 0.5 0.7 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.7 0.6 0.7 0.6 <td>- 16:00</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.4</td> <td>0.4</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>9.0</td> <td>0.5</td> <td></td>	- 16:00	0.5	9.0	0.5	9.0	0.4	0.4	0.5	0.5	0.5	9.0	0.5	9.0	9.0	0.5	
05 0.5 0.4 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.7 0.6 0.8 0.6 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	- 17:00	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5	9.0	9.0	9.0	0.5	
0.7 0.5 0.5 0.5 0.4 0.4 0.6 0.5 0.6 0.5 0.7 0.6 0.5 0.7 0.7 0.6 0.7 0.6 0.7 0.6	- 18:00	0.5	0.5	0.4	0.5	0.4	0.4	9.0	0.5	0.5	0.5	0.5	0.5	9.0	0.5	
0.7 0.5 0.5 0.5 0.4 0.6 0.5 0.6 <td>- 19:00</td> <td>0.7</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.4</td> <td>4.0</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.7</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td></td>	- 19:00	0.7	0.5	0.5	0.5	0.4	4.0	9.0	0.5	9.0	0.5	0.7	9.0	0.5	0.5	
0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 <td>- 20:00</td> <td>0.7</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>4.0</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td></td>	- 20:00	0.7	0.5	0.5	0.5	0.5	4.0	9.0	0.5	9.0	0.5	9.0	9.0	9.0	9.0	
0.7 0.6 0.8 0.5 0.7 0.6 0.8 0.6 0.8 0.6 0.6 0.8 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.8 0.7 0.6 0.7 0.8 0.7 0.6 <td>-21:00</td> <td>0.7</td> <td>9.0</td> <td>0.7</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.7</td> <td>9.0</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td></td>	-21:00	0.7	9.0	0.7	0.5	9.0	0.5	0.7	9.0	0.7	9.0	9.0	9.0	9.0	9.0	
0.8 0.6 0.8 0.6 0.7 0.5 0.8 0.6 0.7 0.6 0.6 0.8 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.8 0.7 0.6 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.8 0.8 0.8 <td>- 22:00</td> <td>0.7</td> <td>9.0</td> <td>0.8</td> <td>0.5</td> <td>8.0</td> <td>0.5</td> <td>0.7</td> <td>9.0</td> <td>0.8</td> <td>9.0</td> <td>0.8</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td></td>	- 22:00	0.7	9.0	0.8	0.5	8.0	0.5	0.7	9.0	0.8	9.0	0.8	9.0	0.5	9.0	
0.9 0.7 0.8 0.6 0.8 0.7 0.7 0.6 0.8 0.7 0.6 0.8 0.7 0.6 0.6 0.7 0.6 0.7 0.7 0.8 0.7 0.8 0.7 0.6 0.7 0.7 0.6 0.7 0.7 0.6 0.7 0.7 0.6 0.7 0.7 0.6 0.7 0.6 0.7 0.8 0.8 0.7 0.8 0.6 0.6 0.7 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.4 0.8 0.4 <td>- 23:00</td> <td>0.8</td> <td>9.0</td> <td>8.0</td> <td>9.0</td> <td>0.7</td> <td>0.5</td> <td>8.0</td> <td>9.0</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td></td>	- 23:00	0.8	9.0	8.0	9.0	0.7	0.5	8.0	9.0	0.7	9.0	9.0	9.0	0.5	9.0	
0.8 0.7 0.8 0.7 0.6 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 <td>- 24:00</td> <td>6.0</td> <td>0.7</td> <td>8.0</td> <td>9.0</td> <td>0.7</td> <td>9.0</td> <td>8.0</td> <td>0.7</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>0.4</td> <td>0.5</td> <td></td>	- 24:00	6.0	0.7	8.0	9.0	0.7	9.0	8.0	0.7	0.7	9.0	9.0	9.0	0.4	0.5	
0.7 0.8 0.9 0.7 0.6 0.7 0.7 0.8 0.7 0.7 0.8 0.7 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.6 0.7 0.8 0.7 0.8 0.6 0.7 0.8 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 <td>- 01:00</td> <td>0.8</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>9.0</td> <td>0.7</td> <td>0.7</td> <td>8.0</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>0.4</td> <td>0.5</td> <td></td>	- 01:00	0.8	0.7	0.7	0.7	0.7	9.0	0.7	0.7	8.0	0.7	9.0	9.0	0.4	0.5	
0.8 0.8 0.9 0.8 0.6 0.7 0.7 0.7 0.7 0.9 0.7 0.6 0.7 0.7 0.8 0.7 0.8 0.6 0.7 0.8 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 <td>- 02:00</td> <td>0.7</td> <td>8.0</td> <td>6.0</td> <td>0.7</td> <td>0.7</td> <td>9.0</td> <td>0.7</td> <td>0.7</td> <td>8.0</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>0.4</td> <td>0.5</td> <td></td>	- 02:00	0.7	8.0	6.0	0.7	0.7	9.0	0.7	0.7	8.0	0.7	9.0	9.0	0.4	0.5	
0.8 0.8 0.8 0.8 0.6 0.7 0.9 0.8 0.7 0.8 0.7 0.8 0.6 0.7 0.9 0.8 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.7 0.8 0.6 0.9 0.3 0.4 0.8 0.8 0.5 0.7 0.8 0.8 0.8 0.8 0.8 0.8 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.8 0.8 0.8 0.8 0.7 0.6 0.8 0.4 0.7 0.6 0.8 0.7 0.6 0.8 0.7 0.6 0.8 0.8 0.7 0.6 0.8 0.8 0.7 0.6 0.8 0.8 0.7 0.7 0.8 0.8 0.7 0.8	- 03:00	0.8	0.8	6.0	8.0	9.0	0.7	0.7	0.7	0.8	0.7	9.0	9.0	0.3	0.5	
0.7 0.8 0.7 0.8 0.8 0.8 0.7 0.8 0.6 0.7 0.8 0.8 0.7 0.8 0.8 0.7 0.9 0.8 0.8 0.6 0.7 0.8 0.8 0.8 0.6 0.7 0.8 0.8 0.8 0.6 0.3 0.4 0.7 0.8 0.8 0.8 0.8 0.8 0.7 0.6 0.8 0.4 0.7 0.6 0.6 0.6 0.8 0.8 0.7 0.6 0.8 0.7 0.9 0.9 0.9 0.9 0.9 0.0 0.8 0.8 0.8 0.8 0.8	- 04:00	0.8	8.0	8.0	8.0	9.0	0.7	6.0	8.0	0.7	8.0	9.0	9.0	0.3	0.4	
0.7 0.8 0.5 0.8 0.6 0.7 0.8 0.8 0.8 0.8 0.6 0.6 0.3 0.4 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.9 0.4 0.9 0.4 0.7 0.6 0.6 0.6 0.6 0.6 0.7 0.6 0.6 0.7 0.6 0.8 0.7 0.9 1.0 0.8 0.9 1.0 0.8	- 05:00	0.7	8.0	0.7	8.0	9.0	0.7	8.0	8.0	0.7	8.0	9.0	9.0	0.3	0.4	
0.8 0.8 0.4 0.7 0.6 0.6 0.8 0.8 0.8 0.8 0.7 0.6 0.8 0.4 0.7 - 0.6 - 0.6 - 0.7 - 0.6 - 0.7 0.9 - 1.0 - 0.8 - 0.8 - 0.8	- 00:90	0.7	8.0	0.5	8.0	9.0	0.7	8.0	8.0	8.0	8.0	9.0	9.0	0.3	0.4	
0.7 - 0.6 - 0.5 - 0.6 - 0.7 - 0.6 - 0.5 - 0.5 - 0.6 - 0.5 - 0.8 - 0.9 - 1.0 - 1.0 - 0.8 -	- 07:00	8.0	8.0	0.4	0.7	9.0	9.0	8.0	8.0	8.0	8.0	0.7	9.0	0.8	0.4	
0.9 - 1.0 - 0.8 - 0.9 - 1.0 - 1.0 - 0.8 -	s Average	0.7		9.0		0.5		9.0		0.7		9.0		0.5		
	Maximum	6.0		1.0		8.0		6.0		1.0		1.0		8.0		30

0.0171 0.0198 0.0215 0.0222 0.0261 0.0291

0.0196

Jan 28-29, 19

Jan 27-28, 19

Result (ppm)

Jan 26-27, 19

Jan 25-26, 19

Interval Time

: February 15, 2019

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)

CO NDIR Analyzer Horiba Model APMA-360CE Serial Number 576876075

Report Date

ASC055-CO-2562

Measured Instrument Reported Number

บริเวณถุมชนบ้านเนินสวรรค์ หมู่ที่ 2 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

UTM (WGS84) 47P 0733786 E, 1435336 N

January 25 - February 1, 2019

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนถูดสาหกรรมปลวกแดง

TLT Consultants Company Limited

Customer Name

Project Name

ดำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Ambient Air Quality

Measured Source Project Location

Measured Point

GPS. Coordinate

Measured Date

Measured By

ANALYSIS REPORT

ON

0.0092 0.0143 0 0.0051 0.0151 0 0.0045 0.0170 0 0.0043 0.0124 0 0.0040 0.0111 0 0.0045 0.0103 0

0.0049 0.0107 0.0040 0.0092 0.0024 0.0069 0.0023 0.0076 0.0052 0.0141 0.0061 0.0150

NO

NO

0.0280

0.0276

0.0107

0.0143

8 Hours Maximum - | 0.8 - | 0.8 - | 0.7 - | 0.7 | | 0.7 | | 0.8 | | 0.8 | | 0.8 | | 0.8 | | 0.7 | 9 | 9 |

anaki v. Vebilication of National Favironmental Board, No. 10, B. E. 258 (1993), published in the Robal Government Granette No. 112 Part 42D dated May 25, B.E.2538 (1993), under the Enhancement and Conservation of Phaliconal Evaryonemental Gynality Act B.E.235 (1992).

MINE (Ms.Panicha Promchai) Laboratory Supervisor (Ms.Supawan Suwannapa) Laboratory Reviewer

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F-RP-004 Rev. 01, July 1, 2017

June Royal (1972), published in the Royal Government Gazette No.112 Part 42D dated May 25, IR-2358 (1974) and the Royal Government Gazette No.124 Special Part 185D dated May 14, B.E.2550 (2007) and floyal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the rial Quality Act B.E.2535 (1992). | NO. Remark : V Notification of National Environmental Board, No. 10, B.E.2538 (1995), published in the Royal Government (Deceller 1995), Notification No.2B, B.E.2528 (1907), published in the Royal Government Guestle No. 12, Notification No.33, B.E.252 (2009), published in the Royal Government Guestle No. 128, Enhancement and Conservation of National Environmental Quality Act. B.E.253 (1992). 0.0070 1 Hour Maximum 0.0121 0.0065 0.0077 0.0098 0.0121 0.0101 0.0102 24 Hours Average 12:00 – 13:00 14:00 – 13:00 14:00 – 15:00 15:00 – 16:00 17:00 – 18:00 18:00 – 19:00 20:00 – 21:00 22:00 – 23:00 23:00 – 23:00 00:00 – 01:00 01:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 02:00 – 02:00 03:00 – 03:00 04:00 – 05:00 06:00 - 07:00

0.0200

(Ms.Panicha Promchai) Laboratory Supervisor AND AND HE AND HE ROPHY SON CO. US enyl research (Ms.Supawan Suwannapa)

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Laboratory Reviewer



Environment Research & Technology- Company Limited 25/113-114 Mote 6 Soi Chinaket 1, Ngaunwongwan Road, Teongsonghong, Laksi, Bangkok 10210 Tel. 0-2954-7745-6 Jan 0-2254-774 Famil: cuvi@ enviresearch.co.th

www.enviresearch.co.th

ANALYSIS REPORT

บริเวณวัดประสิทธาราม หมู่ที่ 7 ตำบลพนานิคม อำเภอนิคมพัฒนา จังหวัดระยอง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง TLT Consultants Company Limited Ambient Air Quality Project Location Measured Source Customer Name Measured Point Project Name Address

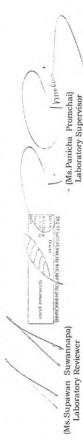
UTM (WGS84) 47P 0731909 E, 1430359 N January 25 - February 1, 2019 GPS. Coordinate Measured Date

February 15, 2019 Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) NOx Chemiluminescence Analyzer API Model 200AU Serial Number 92 .. Report Date ASC056-NOx-2562 Measured Instrument Reported Number Measured By

				4	Result (ppm)	1)				
Interval Time	ר	Jan 29-30, 19	61	Į,	Jan 30-31, 19	61	Jan	Jan 31-Feb 1, 19	19	Standard1/
	NO	NO ₂	NOx	NO	NO2	NOx	NO	NO2	NOx	
00:60 - 00:80	0.0064	0.0105	0.0169	0.0074	0.0105	0.0179	0.0069	0.0089	0.0158	
00:01 - 00:60	0.0051	9600'0	0.0147	0.0045	9600.0	0.0141	0.0072	0.0101	0.0173	
10:00 - 11:00	0.0035	0.0095	0.0130	0.0033	0.0095	0.0128	0.0046	0.0099	0.0145	
1:00 - 12:00	0.0029	0.0105	0.0134	0.0033	0.0105	0.0138	0.0038	0.0000	0.0128	
2:00 - 13:00	0.0041	0.0087	0.0128	0.0033	0.0087	0.0120	0.0028	0.0087	0.0115	
3:00 - 14:00	0.0041	0.0207	0.0248	0.0031	0.0207	0.0238	0.0027	0.0082	0.0109	
4:00 - 15:00	0.0032	0.0161	0.0193	0.0046	0.0161	0.0207	0.0025	0.0082	0.0107	
5:00 - 16:00	0.0024	0.0137	0.0161	0.0041	0.0139	0.0180	0.0027	0.0096	0.0123	
6:00 - 17:00	0.0022	0.0131	0.0153	0.0032	0.0131	0.0163	0.0022	0.0073	0.0095	
17:00 - 18:00	0.0021	0.0143	0.0164	0.0032	0.0143	0.0175	0.0021	0.0054	0.0075	
8:00 - 19:00	0.0022	0.0180	0.0202	0.0030	0.0180	0.0210	0.0023	0.0055	0.0078	
19:00 - 20:00	0.0026	0.0206	0.0232	0.0038	0.0206	0.0244	0.0030	0.0064	0.0094	
20:00 - 21:00	0.0030	0.0184	0.0214	0.0063	0.0184	0.0247	0.0043	0.0081	0.0124	
21:00 - 22:00	0.0029	0.0065	0.0094	0.0055	0.0065	0.0120	0.0049	0.0079	0.0128	
22:00 - 23:00	0.0029	0.0000	0.0099	0.0031	0.0070	0.0101	0.0049	0.0079	0.0128	
23:00 - 24:00	0.0028	0.0073	0.0101	0.0037	0.0073	0.0110	0.0052	0.0079	0.0131	
00:00 - 01:00	0.0035	0.0065	0.0100	0.0044	0.0065	0.0109	0.0059	0.0078	0.0137	
01:00 - 02:00	0.0033	0.0055	0.0088	0.0045	0.0055	0.0100	0.0073	0.0084	0.0157	
02:00 - 03:00	0.0034	0.0055	0.0089	0.0047	0.0055	0.0102	0.0057	0.0075	0.0132	
03:00 - 04:00	0.0031	0.0086	0.0117	0.0043	0.0086	0.0129	0.0056	0.0069	0.0125	
04:00 - 05:00	0.0035	9600.0	0.0131	0.0052	9600.0	0.0148	0.0064	0.0064	0.0128	
05:00 - 06:00	0.0043	0.0082	0.0125	0.0054	0.0082	0.0136	0.0058	0.0060	0.0118	
00:20 - 00:90	0.0046	0.0082	0.0128	0.0057	0.0067	0.0124	0.0081	0.0126	0.0207	
07:00 - 08:00	0.0054	0.0098	0.0152	0.0061	0.0086	0.0147	0.0069	0.0125	0.0194	
24 Hours Average	0.0035	0.0111	0.0146	0.0044	0.0110	0.0154	0.0047	0.0082	0.0129	
1 Hour Maximum	0.0064	0.0207	0.0248	0.0074	0.0207	0.0247	0.0081	0.0106		WO. CO 17

L HOUW MARINUM D. 0.0064 # 0.02048 | 0.02048 | 0.02074 | 0.02077 | 0.02047 | 0.02047 | 0.0081 | 0.0126 | 0.02207 | NO₂ 50.17 |

Remark : V. Nolification of National Environmental Board, No. 10, IE. 2538 (1993), published in the Royal Government Greatte No. 119 Part 420 Index May 25, IE. 2538 No. 10. IE. 2532 (2007), published in the Royal Government Greatte No. 124 Special Part 510 Attack May 41, IE. 2536 (2007) and No. 124 Special Part 510 Attack May 41, IE. 2536 (2007) and Environment Greatte No. 124 Special Part 510 Attack May 41, IE. 2536 (2007), and Environmental Greatte No. 125 Special Part 510 Attack May 41, IE. 2536 (2009), under the Enhancement and Commercial of Notional Environmental Quality Act IE. 2535 (1993), under the



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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1. Ngamwongwan Road, Toongsonghong, Laksi, Banghol 10210 Tel, 0-2954-7745-6 #ng 0-2954-7747 Fmail: envi@ enviresearch.co.th

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TLT Consultants Company Limited Customer Name Address

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

โครงการโรงใฟฟ้าปลวกแคงในพื้นที่สวนอุตสาหกรรมปลวกแคง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location Project Name

Ambient Air Quality Measured Source

บริเวณวัดประสิทธาราม หมู่ที่ 7 ตำบลพหานิคม อำเภอนิคมพัฒหา จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0731909 E, 1430359 N GPS. Coordinate

January 25 - February 1, 2019 Measured Date Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

SO₂ UV-Fluorescence Analyzer Horiba Model APSA-370 Serial Number X7L602W6 Report Date : ASC056-SO₂-2562 Measured Instrument Reported Number

: February 15, 2019

uit SO2 (ppm)	(midd) Eog amean	resuit SO2 (ppm)	Result SO2 (ppm)
nn 28-29, 19 Jan	Jan 27-28, 19 Jan 28-29, 19 Jan	Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 10 km 31 m-1 m Standard
3 2	Jan 27-28. 19 Jan	Jan 26-27, 19 Jan 27-28, 19 Jan	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan

Remark: 1 / Notification of National Environmental Bonet, No. 10, B.E. 2538 [1995], published in the Royal Government Grater to Rel. 12 Part 42D dated May 25, B.E. 2538 (1995), published in the Royal Government Grater to May 25, B.E. 2538 (1995), published in the Royal Government Grater to Rehancement and Conservation of National Environmental Date, No. 12, B.E. 2538 (1992), published in the Royal Covernment Grater to Rehancement Bonet, No. 12, B.E. 2538 (1995), published in the Royal Covernment Grater to Rel. 2538 (1995) and Notification of National Environmental Bonet, No. 12, B.E. 2538 (1995), published in the Royal Government Grater to No. 118 2 Special Part 27D dated July 13, B.E. 2538 (1995), and Notification No. 21, B.E. 2544 (2001), published in the Royal Government Grater to No. 18 Special Part 37D dated July 13, [2001], under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992). 0.0015 0.0013 0.0012 0.0012 0.0013 0.0013 0.0013 1 Hour Maximum



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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1. Nigamwongwan Road, Toongsongtongt, Lakis, Empitok 1021 O Tel. 0-2954-7745-6 Fax 0-2954-7744 Famil: envi@enviresearch.co.th

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ANALYSIS REPORT

บริเวณวัดประสิทธาราม หมู่ที่ 7 ตำบลพนานิคม อำเภอนิคมพัฒนา จังหวัดระยอง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สานอุตสาหกรรมปลวกแดง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง UTM (WGS84) 47P 0731909 E, 1430359 N TLT Consultants Company Limited January 25 - February 1, 2019 Ambient Air Quality Measured Source Project Location GPS. Coordinate Customer Name Measured Point Measured Date Project Name

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

February 15, 2019 .. CO NDIR Analyzer Thermo Model 48C Serial Number 0415406564 Report Date : ASC056-CO-2562 Measured Instrument Reported Number

		Re	Kesuit CO (ppm)	(ppm)	-					
Jan 25-26, 19 Jan 3	Jan 26-27, 19 Jan 2	Jan 27-28, 19	Jan 28-29, 19		Jan 29-30, 19		Jan 30-31, 19		Jan 31-Feb 1, 19 Standard1/	Standard
r Avg 1 hr Av	ht Avg 8 hr Avg 1 hr Avg 8 hr Avg 8 hr Avg 8 hr Avg 1 hr Avg	g 8 hr Avg	hr Avg 8 1	I BAN II	hr Avg 8	hr Avg 1	hr Avg 8 h	Avg 1 hr	r Avg 8 hr Avg	
- 0.8	0.7 0.5	9.0	9.0	9.0	8.0	0.7	0.5	0.5	0.5 0.4	
- 0.8	0.7 0.5	9.0	0.5	9.0	0.7	8.0	0.5	0.5 0	0.5 0.4	
9.0	0.7 0.5	9.0	0.5	0.5	0.5	0.7		-	-	
- 0.5	0.7 0.5	9.0	6.4	0.5	0.4	0.7	0.3	-	-	
- 0.4	0.7 0.4	0.5	0.5	0.4	0.3	9.0	0.3	0.4 0		
- 0.4	0.6 0.4	0.5	0.3	0.5	0.4	9.0	0.5 0	0.4 0	0.3 0.4	
-		0.5	0.3	0.5	0.4	0.5	0.4 0	0.4 0	-	
-	-	0.4		6.0	0.4	0.5	0.3 0	0.4 0	0.6 0.4	
-	0.5 0.3	0.4	0.3	0.4	0.4	0.4	0.4 0	0.4 0	0.3 0.4	
0.4 0.4	0.4 0.3	4.0	0.4	0.4	0.5	0.4	0.5 0	0.4 0	0.4 0.4	
	0.4 0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.4 0	-	
+	0.5 0.4	0.4	0.4	4.0	9.0	0.4	0.4 0	0.4 0	0.3 0.4	
+		0.4	4.0	9.4	6.0	0.5	0.3	0.4	0.4 0.4	
+	0.5 0.5	0.4	0.4	0.4	0.5	0.5	0.3 0	0.4 0	0.3 0.4	
+	-	0.4	-	0.4	0.5	0.5	0.3	0.4 0	0.3 0.4	
1	0.5 0.6	0.4	0.5	0.4	0.5	0.5	0.4 0	0.4 0	0.3 0.3	
-	-	0.5	0.5	0.5	0.5	0.5	0.4 0	0.4 0	0.3 0.3	
-	0.6 0.7	0.5	9.0	0.5	0.5	0.5	0.4 0	0.4 0	0.4 0.3	
0.0	0.0 0.7	9.0	9.0	0.5	0.5	0.5	0.4 0	0.4 0	0.3 0.3	
-	0.6 0.7	9.0	0.8	0.5	9.0	0.5	0.4 0	0.4 0	0.3 0.3	
	0.6 0.5	9.0	0.8	9.0	9.0	0.5	0.4 0	0.4 0	0.3 0.3	
-	0.7 0.5	9.0	0.8	9.0	0.5	0.5	0.4 0	0.4 0	0.3 0.3	
0.7 0.5	0.7 0.5	9.0	0.8	0.7	9.0	0.5	0.4 0	0.4 0	0.4 0.3	
9.0 7.0	0.7 0.5	9.0	0.7	0.7	0.5	0.5	0.5 0	0.4 0	0.7 0.4	
9.0	- 0.5		0.5	,	0.5		0.4	0	0.4	
8.0 -	1		8 0		0		L	4	1	30
- 2.0	- 0.7		2:0		0.0		0.0			200

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ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 TLT Consultants Company Limited Customer Name Address

โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนถุดสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

Ambient Air Quality Measured Source

บริเวณโรงเรียนบ้านมาบเตย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระย อง Measured Point

UTM (WGS84) 47P 0735507 E, 1433551 N GPS. Coordinate

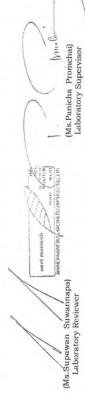
January 25 - February 1, 2019 Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number YCPL4HTM Measured Instrument Measured By

: February 15, 2019 Report Date : ASC057-NOx-2562 Reported Number

						Kesul	Result (ppm)					
Interval Time	J.	Jan 25-26, 19	19	Ja	Jan 26-27, 19	19	Ja	Jan 27-28, 19	19	Ja	Jan 28-29, 19	19
	NO	NO2	NOX	ON	NO2	NOX	NO	NO	NOX	NO	NO	NOw
07:00 - 08:00	0.0158	0.0212	0.0370	0.0128	0.0237	0.0365	0.0152	0.0191	0.0343	0.0166	0 0300	0.0466
08:00 - 06:00	0.0179	0.0261	0.0440	0.0138	0.0205	0.0343	0.0171	0.0208	-	0.0167	0.0360	0.0527
00:00 - 10:00	0.0141	0.0347	0.0488	0.0175	0.0274	0.0449	0.0121	0.0184	0.0305	0.0183	0.0278	0.0461
10:00 - 11:00	0.0113	0.0275	0.0388	0.0144	0.0243	0.0387	0,0092	0.0157	-	-	0.0210	0.0004
11:00 - 12:00	0.0089	0.0208	0.0297	0.0107	0.0236	0.0343	0.0069	0.0140	0.0209	0.0070	0.0167	0.0037
12:00 - 13:00	0.0066	0.0146	0.0212	0.0100	0.0252	0.0352	0.0059	0.0126		0.0065	0.0160	0.0225
13:00 - 14:00	0.0044	0.0108	_	0.0067	0.0166	0.0233	0.0066	0.0125	0.0191	0.0057	0.0152	0.0209
14:00 - 15:00	0.0047	0.0109	_	0.0065	0.0166	0.0231	0.0055	0.0122	0.0177	0.0045	0.0153	0.0198
15:00 - 16:00	0.0040	0.0086		0.0068	0.0166	0.0234	0.0069	0.0149	0.0218	0.0040	0.0142	0.0182
16:00 - 17:00	0.0039	0.0107	0.0146	0.0065	0.0138	0.0203	0.0070	0.0167	0.0237	0.0045	0.0179	0.0224
17:00 - 18:00	0.0025	0.0066	0.0091	0.0054	0.0146	0.0200	0.0061	0.0169	0.0230	0.0076	0.0232	0.0308
18:00 - 19:00	0.0029	0.0161	0.0190	0.0067	0.0172	0.0239	0.0062	0.0160	0.0222	0.0125	0.0344	0.0469
19:00 - 20:00	0.0027	0.0114	0.0141	0.0025	0.0080	0.0105	0.0133	0.0272	0.0405	0.0111	0.0319	0.0430
20:00 - 21:00	0.0022	0.0160	0.0182	0.0026	0.0112	0.0138	0.0075	0.0253	0.0328	0.0026	0.0147	0.0173
21:00 - 22:00	0.0031	0.0267	0.0298	0.0027	0.0193	0.0220	0.0097	0.0279	0.0376	0.0065	0.0231	0.0296
22:00 - 23:00	0.0032	0.0212	0.0244	0.0027	0.0102	0.0129	0.0118	0.0287	0.0405	0.0137	0.0375	0.0512
23:00 - 24:00	0.0070	0.0257	0.0327	0.0042	0.0119	0.0161	0.0036	0.0179	0.0215	0.0034	0.0232	0.0266
00:00 - 01:00	0.0024	0.0144	0.0168	0.0110	_		0.0054	0.0225	0.0279	0.0044	0.0212	0.0256
01:00 - 02:00	0.0040	0.0210	0.0250	0.0072			0.0080	0.0227	0.0307	0.0037	0.0252	0.0289
02:00 - 03:00	0.0042	0.0165	0.0207	0.0061	0.0289	0.0350	0.0027	0.0144	0.0171	0.0040	0.0304	0.0344
03:00 - 04:00	0.0037	0.0196	0.0233	0.0097	0.0261	0.0358	0.0038	0.0150	0.0188	0.0055	0.0289	0.0344
04:00 - 05:00	0.0032	0.0192	0.0224	0.0040	0.0155	0.0195	0.0033	0.0114	0.0147	0.0088	0.0323	0.0411
02:00 - 00:50	0.0037	0.0191	0.0228	0.0052	0.0116	0.0168	0.0040	0.0116	0.0156		0.0280	0.0333
00:20 - 00:90	0.0229	0.0223	0.0452	0.0078	0.0132	0.0210	0.0085	0.0176	0.0261	0.0155	ř.	0.0460
24 Hours Average	0.0066	0.0184	0.0250 0.0076 0.0189 0.0265 0.0078 0.0180 0.0258 0.0082	0.0076	0.0189	0.0265	0.0078	0.0180	0.0258	0.0082	0.0248	0.0330
1 Hour Maximum 0.0229 0.0347 0.0488 0.0175 0.0295 0.0449 0.0171 0.0297 0.0498 0.0175	0.0229	0.0347	0.0488	0.0175	0.0295	0.0449	0.0171	0.0287	0.0405	0.0183	0.007	0 0 0

| Remark: | 10,00405 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 | 10,00705 |



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ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โดรงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง ตำบลมาบยางพร ยำเภอปลวกแดง จังหวัดระยอง TLT Consultants Company Limited Project Location Customer Name Project Name Address

บริเวณโรงเรียนบ้านมาบเตย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระย อง Ambient Air Quality Measured Source Measured Point

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) UTM (WGS84) 47P 0735507 E, 1433551 N January 25 - February 1, 2019 GPS. Coordinate Measured Date Measured By

NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number YCPL4HTM Report Date : ASC057-NOx-2562 Measured Instrument Reported Number

: February 15, 2019

Jan 31-Feb 1, 19 Standard"	Т	0.0263	2000	0.0290	0.0290	0.0290 0.0314 0.0167	0.0290 0.0314 0.0167 0.0233	0.0290 0.0314 0.0167 0.0191	0.0290 0.0314 0.0167 0.0233 0.0191	0.0290 0.0314 0.0167 0.0191 0.0191 0.0255	0.0290 0.0314 0.0167 0.0233 0.0191 0.0255 0.0320	0.0290 0.0167 0.0167 0.0153 0.0255 0.0225 0.0225 0.0330	0.0290 0.0314 0.0167 0.0191 0.0235 0.0222 0.0330 0.0236	0.0290 0.0314 0.0167 0.0233 0.0191 0.0252 0.0330 0.0336 0.0138	0.0290 0.0314 0.0167 0.0233 0.0225 0.0222 0.0330 0.0330 0.0138	0.0290 0.0314 0.0167 0.0191 0.0225 0.0226 0.0128 0.0134 0.0133	0.0290 0.0314 0.0167 0.0233 0.0255 0.0222 0.0336 0.0158 0.0158 0.01034 0.0103	0.0290 0.0314 0.0167 0.0233 0.0191 0.0222 0.0330 0.0138 0.0138 0.0138 0.0138 0.0138	0.0290 0.0314 0.0167 0.0191 0.0225 0.0225 0.0330 0.0138 0.01034 0.01034 0.01034 0.01084	0.0290 0.0314 0.0167 0.0233 0.0255 0.0222 0.0336 0.0158 0.0158 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103	0.0220 0.0231 0.01314 0.0133 0.0233 0.0222 0.0222 0.0330 0.0158 0.0158 0.0158 0.01034 0.01034 0.01034 0.0085 0.0085	0.0290 0.0314 0.0167 0.0191 0.0233 0.0225 0.0330 0.0138 0.0138 0.0138 0.0138 0.01084 0.0084 0.00882 0.00882 0.00883 0.00877 0.0087	0.0290 0.0314 0.0167 0.0233 0.0222 0.0222 0.0336 0.0158 0.0103 0.01034 0.01034 0.01034 0.0082 0.0082 0.0083 0.0083 0.0083 0.0083	0.0220 0.0314 0.01677 0.0233 0.0191 0.0222 0.0236 0.0158 0.0158 0.01034 0.01034 0.01034 0.0085 0.0085 0.0087 0.0087 0.0087	0.0290 0.0314 0.0167 0.0233 0.0191 0.0225 0.0330 0.0138 0.0138 0.0138 0.0138 0.0138 0.0084 0.0082 0.0087 0.0087 0.0087 0.0087 0.0087 0.0096	0.0290 0.0314 0.0167 0.0233 0.0222 0.0222 0.0336 0.0158 0.0103 0.01034 0.01034 0.01034 0.0082 0.0082 0.0083 0.0087 0.0083
NO ₂ NO _K			1	+		F																				
10 NO ₂	+		-			057 0.0110			+++																	
				0.0134	0.0057		0.0061	-	+																	
NOx 0.0426 0.0516 0.0511	0.0426	0.0516	0.0511		0.0223	0.0127	THE RESERVE TO SERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON	0.0179	0.0206	0.0206	0.0206 0.0087 0.0076	0.0179 0.0206 0.0087 0.0076 0.0096	0.0179 0.0206 0.0087 0.0076 0.0096	0.0179 0.0206 0.0087 0.0076 0.0145 0.0148	0.0179 0.0206 0.0087 0.0076 0.0145 0.0128 0.0128	0.0179 0.0206 0.0087 0.0076 0.0145 0.0128 0.0196 0.0196	0.0179 0.0206 0.0087 0.0076 0.0145 0.0128 0.0196 0.0124	0.0179 0.0206 0.0087 0.0076 0.0128 0.0128 0.0121 0.0124 0.0124	0.0179 0.0206 0.0087 0.0076 0.0145 0.0128 0.0196 0.0141 0.0175	0.0179 0.0206 0.0087 0.0076 0.0145 0.0128 0.0124 0.0124 0.0175	0.0179 0.0206 0.0076 0.0076 0.0128 0.0128 0.0191 0.0124 0.0124 0.0175 0.0175	0.0179 0.0206 0.0076 0.0076 0.0145 0.0128 0.0128 0.0124 0.0124 0.0175 0.0084 0.0175	0.0179 0.0087 0.0087 0.0076 0.0145 0.0128 0.0124 0.0124 0.0084 0.0097 0.0097 0.0095	0.0179 0.0206 0.0087 0.0076 0.0128 0.0124 0.0124 0.0124 0.0127 0.0107 0.0107 0.0109	0.0179 0.0206 0.0206 0.00076 0.00076 0.00096 0.0196 0.01196 0.01197 0.01175 0.01077 0.00097	0.0179 0.0026 0.0087 0.0148 0.0118 0.0118 0.0119 0.0107 0.0084 0.0084 0.0087 0.0097 0.0097 0.0097 0.0093 0.0103 0.0113
0.0287 0.0356 0.0344	0.0287	0.0356	0.0344		0.0161	0.0094	0.0135		0.0154	0.0054	0.0154 0.0063 0.0052	0.0154 0.0063 0.0052 0.0072	0.0063 0.0052 0.0072 0.0119	0.0154 0.0063 0.0052 0.0072 0.0119 0.0106	0.0154 0.0063 0.0052 0.0072 0.0119 0.0106	0.0154 0.0063 0.0072 0.0119 0.0106 0.0120	0.0154 0.0063 0.0072 0.0119 0.0160 0.0120 0.0120	0.0154 0.0063 0.0052 0.0072 0.0119 0.0106 0.0120 0.0120 0.0103	0.0154 0.0063 0.0052 0.0119 0.0106 0.0120 0.0103 0.0103 0.0106 0.0103	0.0154 0.0063 0.0052 0.0072 0.0119 0.0160 0.0120 0.0103 0.0103 0.01046	0.0154 0.0063 0.0072 0.0109 0.0106 0.0120 0.0103 0.0066 0.0086 0.0086	0.0154 0.0053 0.0052 0.00172 0.0119 0.0160 0.0103 0.0103 0.0103 0.01046 0.0146 0.0076	0.0154 0.0063 0.0072 0.0072 0.0119 0.0110 0.0120 0.0103 0.0103 0.01086 0.0086 0.0076	0.0154 0.0053 0.0072 0.0072 0.0119 0.0110 0.0120 0.0103 0.01046 0.0103 0.0076 0.0076	0.0154 0.0053 0.0072 0.0072 0.0119 0.01160 0.0160 0.0166 0.0146 0.0066 0.0076 0.0086	0.0054 0.0052 0.0052 0.0072 0.0106 0.0106 0.0106 0.0103 0.0103 0.0076 0.0075 0.0075 0.0075
0.0139 0.0160 0.0167 0.0062			-	F		0.0033	0.0044	03000		H	-															
NOx 0.0449 0.0502 0.0480	0.0449	0.0502	0.0480		0.0445	0.0370	0.0321	0.0219	The same of the sa	0.0104	0.0099	0.0104	0.0104 0.0099 0.0181	0.0104 0.0099 0.0181 0.0144	0.0104 0.0099 0.0181 0.0144 0.0165	0.0104 0.0099 0.0181 0.0144 0.0203 0.0221	0.0104 0.0099 0.0181 0.0144 0.0203 0.0221 0.0123									
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		07:00 - 08:00	08:00 - 06:00	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00		13:00 - 14:00	13:00 – 14:00 14:00 – 15:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 16:00 – 17:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 16:00 – 17:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 16:00 – 17:00 17:00 – 18:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 17:00 – 18:00 17:00 – 18:00 18:00 – 19:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 17:00 – 18:00 18:00 – 19:00 19:00 – 20:00 20:00 – 21:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 17:00 – 18:00 18:00 – 19:00 19:00 – 20:00 20:00 – 21:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 16:00 – 17:00 17:00 – 18:00 18:00 – 19:00 19:00 – 20:00 21:00 – 22:00 22:00 – 23:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 16:00 – 17:00 17:00 – 18:00 18:00 – 19:00 19:00 – 21:00 21:00 – 22:00 22:00 – 23:00 23:00 – 23:00 23:00 – 23:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 15:00 – 17:00 17:00 – 18:00 18:00 – 20:00 20:00 – 21:00 22:00 – 23:00 23:00 – 23:00 23:00 – 23:00	13:00 - 14:00 14:00 - 15:00 15:00 - 17:00 17:00 - 18:00 17:00 - 18:00 19:00 - 20:00 20:00 - 21:00 21:00 - 23:00 22:00 - 23:00 23:00 - 23:00 00:00 - 01:00 01:00 - 01:00	13:00 - 14:00 15:00 - 15:00 16:00 - 17:00 - 18:00 17:00 - 18:00 19:00 - 22:00 22:00 - 23:00 23:00 - 24:00 00:00 - 01:00 00:00 - 01:00 00:00 - 01:00	13:00 – 14:00 15:00 – 15:00 16:00 – 17:00 17:00 – 19:00 19:00 – 22:00 22:00 – 23:00 22:00 – 24:00 01:00 – 02:00 01:00 – 02:00 01:00 – 02:00 02:00 – 02:00 02:00 – 02:00	13:00 - 14:00 - 14:00 - 14:00 - 14:00 - 15:00 14:00 - 15:00 16:00 - 17:00 17:00 - 18:00 19:00 - 22:00 - 23:00 22:00 - 23:00 23:00	13:00 - 14:00 14:00 - 15:00 16:00 - 17:00 18:00 - 19:00 19:00 - 22:00 20:00 - 23:00 22:00 - 23:00 23:00 - 23:00	13:00 – 14:00 14:00 – 15:00 15:00 – 16:00 16:00 – 17:00 17:00 – 18:00 19:00 – 20:00 20:00 – 21:00 22:00 – 23:00 23:00 – 24:00 00:00 – 01:00 01:00 – 02:00 03:00 – 03:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00 03:00 – 04:00

Notification of National Environmental Board, No.10. BE 2538 (1995), published in the Royal Government Owner No.11. Put 420 Med 1882 (1995), published in the Royal Government Owner No.31. BE 25359 (1907), published in the Royal Government Owner No.31. BE 25359 (2007), published in the Royal Government Owner No.31. BE 25352 (2009), published in the Royal Government Owner No.31. Be 25352 (2009), published in the Royal Government Owner No.31. Be 25352 (2009), published in the Royal Government Owner No.31. Be 25352 (2009), published in the Royal Government Owner No.31. Be 25353 (1992), under the Royal Covernment Owner No.31. Be 25353 (1992), under the Royal Covernment Owner No.31. Be 25353 (1992), the Royal Covernment Owner No.31. Be 25353 (1992), under the Royal Covernment Owner No.31. Be 25353 (1992), the Royal C Remark:



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F-RP-004 Rev. 01, July 1, 2017

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงให้ห้าปลวกแดงในพื้นที่สวนอุดสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

Ambient Air Quality Measured Source บริเวณโรงเรียนบ้านมาบเตย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระย อง UTM (WGS84) 47P 0735507 E, 1433551 N GPS. Coordinate Measured Point

January 25 - February 1, 2019 Measured Date

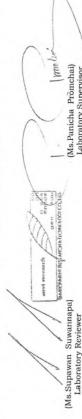
Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

SO₂ UV-Fluorescence Analyzer Thermo Model 43i Serial Number CM14430005 Measured Instrument

: February 15, 2019 Report Date : ASC057-SO₃-2562 Reported Number

Interval Time			2	Result SO ₂ (ppm)	m)			
	Jan 25-26, 19	Jan 26-27, 19	Jan 27-28, 19	Jan 28-29, 19	Jan 29-30, 19	Jan 30-31, 19	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-Peh 1. 19	Standard
07:00 - 08:00	0.0016	0.0019	0.0007	0.0012	0.0027	0.0023	0.0017	
08:00 - 00:80	0.0017	0.0023	0.0010	0.0019	0.0029	0.0025	0.0023	
00:01 - 00:60	0.0017	0.0023	0.0008	0.0013	0.0020	0.0019	0.0026	
0:00 - 11:00	0.0016	0.0013	0.0009	0.0011	0.0014	0.0021	0.0016	
1:00 - 12:00	0.0013	0.0012	0.0008	0.0012	0.0013	0.0022	0.0022	
2:00 - 13:00	0.0011	0.0010	0.0009	0.0012	0.0015	0.0023	0.0024	
3:00 - 14:00	0.0011	0.0011	0.0009	0.0012	0.0015	0.0022	0.0027	
4:00 - 15:00	0.0012	0.0010	0.0010	0.0012	0.0016	0.0020	0.0025	
5:00 - 16:00	0.0011	0.0011	0.0010	0.0014	0.0019	0.0019	0.0028	
16:00 - 17:00	0.0011	0.0011	0.0012	0.0014	0.0017	0.0020	0.0023	
7:00 - 18:00	0.0012	0.0012	0.0012	0.0014	0.0013	0.0022	0.0025	
8:00 - 19:00	0.0015	0.0010	0.0012	0.0017	0.0013	0.0023	0.0023	
19:00 - 20:00	0.0013	0.0011	0.0013	0.0017	0.0013	0.0021	0.0020	
20:00 - 21:00	0.0013	0.0010	0.0014	0.0011	0.0012	0.0019	0.0015	
21:00 - 22:00	0.0012	0.0011	0.0012	0.0011	0.0013	0.0018	0.0014	
22:00 - 23:00	0.0014	0.0011	0.0028	0.0014	0.0014	0.0018	0.0013	
23:00 - 24:00	0.0013	0.0000	0.0012	0.0012	0.0012	0.0018	0.0011	
00:00 - 00:00	600000	0.0013	0.0012	0.0010	0.0013	0.0016	0.0010	
01:00 - 02:00	0.0012	0.0020	0.0015	0.0011	0.0013	0.0016	0.0010	
02:00 - 03:00	0.0010	0.0015	0.0013	0.0023	0.0013	0.0017	0.0011	
03:00 - 04:00	0.0016	0.0014	0.0012	0.0024	0.0011	0.0016	0.0010	
04:00 - 05:00	0.0018	0.0012	0.0011	0.0024	0.0014	0.0015	0.0010	
02:00 - 00:50	0.0017	0.0000	0.0010	0.0026	0.0018	0.0018	0.0012	
00:20 - 00:90	0.0015	0.0008	0.0011	0.0030	0.0026	0.0018	0.0013	
24 Hours Average	0.0014	0.0013	0.0012	0.0016	0.0016	0.0020	0.0018	0.121/
1 Hour Maximum	0.0018	0.0023	0.0028	0 0030	00000	10000	00000	

| LHOUR Maximum | 0.0018 | U.0025 | U.0026 | U.0020 | U.0



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Laboratory Supervisor



Environment Research & Technology- Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Toongsongtong, Laksi, Emaglok 10210 Tel. 0-2954-7745-6 Fax 0-2954-7747 E-mail: cnvi@envirosearch.co.th

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ENVIRONMENT RESEARCH & TECHNOLOGY CO. LTD

Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Teongsonghong, Laksi, Bangkok 10210 Tel. 0-2954-7745-6 Env 202954-7747 E-mail tenvigo-enviroscarch.co.th

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name Address

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนถุดสาทกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัตระยอง Project Location

Ambient Air Quality Measured Source

บริเวณชุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0732007 E, 1432903 N GPS. Coordinate

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

January 25 - February 1, 2019

Measured Date

NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number XPWS7U3L Measured Instrument

February 15, 2019 .. Report Date ASC058-NOx-2562 Reported Number

Jan 28-29, 19

Jan 27-28, 19

Result (ppm)

Jan 26-27, 19

Jan 25-26, 19

Interval Time

: February 15, 2019

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)

CO NDIR Analyzer Horiba Model APMA-370 Serial Number WNTLD9N8

Report Date

ASC057-CO-2562

Measured Instrument Reported Number

บริเวณโรงเรียนบ้านมาบเดย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระย อง

UTM (WGS84) 47P 0735507 E, 1433551 N

January 25 - February 1, 2019

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาทกรรมปลวกแดง

TLT Consultants Company Limited

Customer Name

Project Name

Address

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Ambient Air Quality

Measured Source Project Location

Measured Point

GPS. Coordinate

Measured Date

Measured By

ANALYSIS REPORT

ON

0.0030 0.0071

0.0106

0.0049 0.0252

0.0057

0.0156 0.0180 0.0265

0.0035 0.0047 0.0051 0.0085 0.0129 0.0299

0.0082 0.0154 0.0436 0.0462 0.0462

0.0261 0.0210 0.0187 0.0105

0.0120 0.0133 0.0108 0.0041

0.0356

0.0432 0.0211 0.0137 0.0346 0.0412

0.0175 0.0176 0.0018 0.0098 0.0045 0.0058 0.0177

0.0151 0.0210 0.0092 0.0176 0.0263

0.0060 0.0187 0.0045 0.0170 0.0149

0.0084 0.0070 0.0154 0
0.0132 0.0087 0.0219 0
0.0105 0.0254 0.0450 0
0.0083 0.0177 0.0260 0
0.0054 0.0116 0.0170 0
0.0035 0.0165 0.0170 0
0.0036 0.0160 0.0236 0
0.0036 0.0160 0.0236 0
0.0076 0.0160 0.0236 0
0.0086 0.0163 0.0236 0

12:00

10:00

- 00:00 - 00:00 - 00:00

Jun 35-26, 19 Jun 26-27, 19 Jun 27-28, 19 Jun 37-29, 19 Jun 39-30, 19 Jun 30-31, 19 Jun 30-31, 19 Jun 31-30, 1, 19 Jun 30-31, 19 Jun 3							4	tesult (Result CO (ppm)	u)						
1 the Ang 8 the Ang 1 the Ang 8 the Ang 1 the 1 the	Interval Time	Jan 25	5-26, 19	Jan 26	5-27, 19	Jan 27.	28, 19	Jan 28	8-29, 19	Jan 29	-30, 19	Jan 30	91, 19	Jan 31-	Feb 1, 19	Standard1/
0.9 - 0.8 0.7 0.4 0.6 0.6 0.8 0.7 0.8 0.7 0.6 0.8 0.7 0.8 0.6 0.8 0.7 0.8 0.6 0.8 0.7 0.8 0.6 0.8 0.9 0.8 0.9 0.8 0.3 0.5 0.6 0.8 0.8 0.9 0.8 0.3 0.4 0.6 0.8 0.8 0.3 0.4 0.7 0.8 0.6 0.6 0.8 0.8 0.3 0.4 0.7 0.8 0.9 0.8 0.3 0.4 0.7 0.8 0.5 0.6 0.6 0.8 0.9 0.8 0.3 0.4 0.6 0.6 0.8 0.7 0.8 0.6 0.6 0.8 0.7 0.8 0.6 0.6 0.8 0.7 0.8 0.6 0.6 0.8 0.7 0.9 0.8 0.6 0.6 0.8 0.7 0.9 0.6 0.6 0.8 0.7		1 hr Avg	g br Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
1.1 - 1.1 0.8 0.5 0.6 0.8 0.6 1.2 0.8 1.0 0.7 0.8 0.6 0.3 - 0.6 0.8 0.4 0.6 0.6 0.8 0.7 0.4 0.6 0.6 0.8 0.7 0.4 0.6 0.8 0.7 0.4 0.6 0.8 0.3 0.5 0.6 0.8 0.7 0.4 0.7 0.8 0.7 0.4 0.6 0.8 0.7 0.4 0.7 0.8 0.7 0.7 0.8 0.6 0.8 0.7 0.8 0.7 0.7 0.6 0.6 0.8 0.7 0.8 0.6 0.6 0.8 0.7 0.7 0.7 0.6 0.6 0.8 0.7 0.7 0.7 0.6 0.8 0.7 0.7 0.7 0.6 0.8 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	7:00 - 08:00	6.0		8.0	0.7	4.0	9.0	9.0	9.0	8.0	0.7	8.0	0.7	0.7	9.0	
0.9 0.9 0.8 0.4 0.6 0.6 0.6 0.8 0.8 0.7 0.6 0.6 0.8 0.7 0.8 0.3 0.4 0.6 0.6 0.8 0.7 0.8 0.3 0.4 0.4 0.5 0.8 0.5 0.7 0.5 0.4 0.6 0.6 0.8 0.7 0.5 0.4 0.6 0.6 0.8 0.7 0.5 0.4 0.7 0.4 0.6 0.6 0.8 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.7 0.5 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.7 0.7 0.5 0.6 0.6 0.7 0.7 0.6 0.6 0.6 0.7 0.7 0.6 0.6 0.6 0.7 0.7 0.6 0.6 0.6 0.7 0.7 0.7 0.6 0.6 0.6 0.7 0.7 0.7 0.6	8:00 - 09:00	1.1	,	1.1	8.0	0.5	9.0	8.0	9.0	1.2	0.8	1.0	0.7	0.8	90	
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0.5 - 0.6 0.8 0.3 0.4 0.5 0.5 0.8 0.5 0.7 0.5 0.6 0.6 0.8 0.3 0.4 0.4 0.5 0.5 0.8 0.5 0.7 0.5 0.6 0.6 0.4 0.7 0.4 0.7 0.8 0.5 0.7 0.5 0.6 0.6 0.4 0.4 0.5 0.4 0.7 0.4 0.7 0.8 0.5 0.4 0.7 0.6 0.4 0.5 0.4 0.7 0.4 0.7 0.7 0.5 0.6 0.7 0.7 0.5 0.6 0.7 0.7 0.5 0.6 0.7 0.5 0.6 0.7 0.7 0.5 0.6 0.7 0.6 0.5 0.6 0.7 0.7 0.5 0.6 0.7 0.6 0.5 0.6 0.7 0.6 0.5 0.6 0.7 0.7 0.7 0.6 0.8 0.6 0.7 0.7 0.8	0:00 - 11:00	0.7		9.0	8.0	0.3	0.5	0.5	9.0	9.0	0.8	0.5	0.7	0.4	9.0	
0.4 0.4 0.7 0.3 0.4 0.4 0.5 0.5 0.8 0.5 0.7 0.6	1:00 - 12:00	0.5		9.0	8.0	0.3	0.4	0.4	0.5	0.5	0.8	0.5	0.7	0.5	0.6	
0.4 0.4 0.7 0.4 0.7 0.4 0.4 0.4 0.5 0.4 0.7 0.6 0.4 0.5 0.4 0.7 0.6 0.6 0.4 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.6 <td>2:00 - 13:00</td> <td>0.4</td> <td></td> <td>0.4</td> <td>0.7</td> <td>0.3</td> <td>0.4</td> <td>0.4</td> <td>0.5</td> <td>0.5</td> <td>0.8</td> <td>0.5</td> <td>0.7</td> <td>0.5</td> <td>0.6</td> <td></td>	2:00 - 13:00	0.4		0.4	0.7	0.3	0.4	0.4	0.5	0.5	0.8	0.5	0.7	0.5	0.6	
0.4 0.7 0.4 0.7 0.4 0.7 0.4 0.4 0.5 0.4 0.7 0.4 0.6 0.4 0.5 0.4 0.6 0.7 0.4 0.5 0.4 0.6 0.7 0.4 0.6 0.6 0.4 0.6 0.7 0.4 0.6 0.6 0.7 0.7 0.7 0.6 0.6 0.6 0.7 0.7 0.6 0.6 0.6 0.6 0.7 0.7 0.6 0.6 0.7 0.7 0.7 0.7 0.6 <td>3:00 - 14:00</td> <td>0.4</td> <td></td> <td>0.4</td> <td>0.7</td> <td>6.0</td> <td>0.4</td> <td>0.4</td> <td>0.5</td> <td>0.4</td> <td>0.7</td> <td>0.5</td> <td>0.7</td> <td>0.5</td> <td>9.0</td> <td></td>	3:00 - 14:00	0.4		0.4	0.7	6.0	0.4	0.4	0.5	0.4	0.7	0.5	0.7	0.5	9.0	
0.4 0.6 0.4 0.6 0.4 0.6 <td>1:00 - 15:00</td> <td>0.4</td> <td>0.7</td> <td>0.4</td> <td>0.7</td> <td>6.0</td> <td>0.4</td> <td>0.4</td> <td>0.5</td> <td>9.0</td> <td>0.7</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td></td>	1:00 - 15:00	0.4	0.7	0.4	0.7	6.0	0.4	0.4	0.5	9.0	0.7	0.4	9.0	0.5	9.0	
0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.7 0.6 0.5 0.7 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.5 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.4 0.4 0.6 0.5 0.4 0.4 0.4 0.6 0.5 0.4 0.4 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.6 0.5 0.4 0.7 0.6 0.6 0.5 0.4 0.4 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 <td>5:00 - 16:00</td> <td>0.4</td> <td>9.0</td> <td>0.4</td> <td>9.0</td> <td>4.0</td> <td>6.4</td> <td>0.5</td> <td>0.5</td> <td>6.0</td> <td>9.0</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td></td>	5:00 - 16:00	0.4	9.0	0.4	9.0	4.0	6.4	0.5	0.5	6.0	9.0	0.4	9.0	0.5	9.0	
04 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.6 0.5 0.4 0.4 0.4 0.5 0.4 0.6 0.5 0.4 0.4 0.4 0.6 0.5 0.4 0.6 0.5 0.4 0.6 0.5 0.4 0.6 0.5 0.4 0.6 0.5 0.4 0.6 0.5 0.4 0.6 0.5 0.6 0.5 0.4 0.6 0.5 0.6 0.5 0.4 0.6 0.5 0.4 0.6 0.5 0.7 0.6 0.5 0.5 0.5 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6	5:00 - 17:00	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	
0.5 0.4 0.4 0.5 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.4 0.4 0.6 0.5 0.6 0.4 0.6 0.5 0.6 <td>7:00 - 18:00</td> <td>0.4</td> <td>0.5</td> <td>0.4</td> <td>0.5</td> <td>9.0</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>0.4</td> <td>0.5</td> <td>6.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td></td>	7:00 - 18:00	0.4	0.5	0.4	0.5	9.0	0.4	9.0	0.5	0.4	0.5	6.0	0.5	0.5	0.5	
0.5 0.4 0.4 0.4 0.5 0.4 0.6 0.5 0.5 0.5 0.4 0.6 0.5 0.7 0.4 0.5 0.5 0.4 0.6 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.5 0.4 0.5 0.5 0.5 0.5 0.4 0.5 0.5 0.5 0.4 0.5 0.5 0.5 0.4 0.5 0.5 0.5 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	3:00 - 19:00	0.5	0.4	4.0	0.4	0.5	0.4	9.0	0.5	0.4	0.4	0.4	0.4	0.4	0.5	
0.6 0.5 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 <td>1:00 - 20:00</td> <td>0.5</td> <td>0.4</td> <td>0.4</td> <td>0.4</td> <td>0.5</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>0.4</td> <td>0.5</td> <td></td>	1:00 - 20:00	0.5	0.4	0.4	0.4	0.5	0.4	9.0	0.5	0.5	0.4	9.0	0.5	0.4	0.5	
0,7 0,5 0,6 0,4 0,6 0,5 0,6 <td>1:00 - 21:00</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.4</td> <td>0.5</td> <td>0.4</td> <td>0.4</td> <td>0.5</td> <td>0.5</td> <td>0.4</td> <td>0.5</td> <td>0.5</td> <td>4.0</td> <td>0.5</td> <td></td>	1:00 - 21:00	9.0	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.5	4.0	0.5	
0.7 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.5 0.6 0.7 0.6 0.7 0.6 0.6 0.5 0.6 0.5 0.6 <td>1:00 - 22:00</td> <td>0.7</td> <td>0.5</td> <td>9.0</td> <td>0.4</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.4</td> <td>0.5</td> <td></td>	1:00 - 22:00	0.7	0.5	9.0	0.4	9.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	
0.7 0.6 0.6 0.5 0.5 0.5 0.5 0.5 0.6 0.5 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 <td>3:00 - 23:00</td> <td>0.7</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.3</td> <td>0.4</td> <td></td>	3:00 - 23:00	0.7	0.5	9.0	0.5	9.0	0.5	9.0	0.5	9.0	0.5	0.5	0.5	0.3	0.4	
0.7 0.6 0.7 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.7 0.7 0.7 0.7 0.7 0.7 0.6 0.8 0.7 0.6 0.6 0.6 0.6 0.6 0.6 0.6 <td>3:00 - 24:00</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.4</td> <td>0.4</td> <td></td>	3:00 - 24:00	0.7	9.0	9.0	0.5	0.5	0.5	0.5	0.5	9.0	0.5	9.0	0.5	0.4	0.4	
0.7 0.6 0.7 0.6 0.6 0.6 0.6 0.7 0.6 0.6 0.6 0.7 0.7 0.6 0.3 <td>00:10 - 00:00</td> <td>0.7</td> <td>9.0</td> <td>0.7</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td>0.3</td> <td>0.4</td> <td></td>	00:10 - 00:00	0.7	9.0	0.7	0.5	9.0	0.5	0.5	0.5	9.0	0.5	0.5	0.5	0.3	0.4	
0.7 0.7 0.8 0.6 0.6 0.7 0.6 0.3 <td>:00 - 02:00</td> <td>0.7</td> <td>9.0</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>0.5</td> <td>0.7</td> <td>9.0</td> <td>0.5</td> <td>0.5</td> <td>0.3</td> <td>0.4</td> <td></td>	:00 - 02:00	0.7	9.0	0.7	9.0	9.0	9.0	9.0	0.5	0.7	9.0	0.5	0.5	0.3	0.4	
0.7 0.7 0.8 0.7 0.5 0.6 0.7 0.6 <td>3:00 - 03:00</td> <td>0.7</td> <td>0.7</td> <td>8.0</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>0.7</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>9.0</td> <td>0.5</td> <td>0.3</td> <td>0.4</td> <td></td>	3:00 - 03:00	0.7	0.7	8.0	9.0	9.0	9.0	0.7	9.0	9.0	9.0	9.0	0.5	0.3	0.4	
0.7 0.7 0.6 0.6 0.7 0.5 0.6 0.8 0.6 0.6 0.6 0.5 0.5 0.3 0.3 0.3 0.3 0.7 0.7 0.7 0.5 0.7 0.5 0.5 0.5 0.5 0.3 0.3 0.3 0.3 0.8 0.7 0.7 0.7 0.4 0.6 0.5 0.5 0.5 0.8 0.7 0.8 0.7 0.6 0.6 0.6 0.6 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.8 0.7 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	3:00 - 04:00	0.7	0.7	8.0	0.7	0.5	9.0	0.7	9.0	9.0	9.0	0.5	0.5	0.3	0.3	
0.7 0.7 0.5 0.5 0.7 0.5 0.6 0.8 0.7 0.7 0.6 0.6 0.5 0.3 0.3 0.3 0.8 0.7 0.4 0.6 0.6 0.5 0.5 0.3 0.3 0.3 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6	:00 - 02:00	0.7	0.7	9.0	0.7	0.5	9.0	8.0	9.0	9.0	9.0	0.5	0.5	0.3	0.3	
0.8 0.7 0.4 0.6 0.5 0.5 0.8 0.7 0.8 0.7 0.6 0.6 0.6 0.4 0.3 0.6 0.6 0.7 0.8 0.7 0.8 0.7 0.8 0.8 0.7 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	00:90 - 00:9	0.7	0.7	0.5	0.7	0.5	9.0	8.0	0.7	0.7	9.0	9.0	0.5	0.3	0.3	
0.6 . 0.6 . 0.5 . 0.6 . 0.6 . 0.6 . 0.7 . 0.4 . 1.1 . 1.1 . 0.6 . 0.8 . 1.2 . 1.0 . 0.8	00:20 - 00:	0.8	0.7	4.0	9.0	0.5	0.5	0.8	0.7	8.0	0.7	9.0	9.0	0.4	0.3	
1.1 - 1.1 - 0.6 - 0.8 - 1.2 - 1.0 - 0.8 -	ours Average	9.0		9.0		0.5		9.0		9.0		0.5		0.4		
	1 Hour Maximum	1.1		1.1		9.0		8.0		1.2		1.0		0.8		30

8 Hours Maximum - 0.7 - 0.8 - 0.6 - 0.7 - 0.6 - 0.7 - 0.8 - 0.6 - 0.7 - 0.8 - 0.6 - 0.7 - 0.8 - 0.6 - 0.7 - 0.8 - 0.6 - 0.6 - 0.6 - 0.7 - 0.8 - 0.6 -

(Ms.Panicha Promchai) Laboratory Supervisor SAMPLY HANDEN DET (Ms.Supawan Suwannapa) Reviewer Laboratory

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F-RP-004 Rev. 01, July 1, 2017

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0.0120 0.0108 0.0116 0.0119

0.0124

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0.0079 0.0075 0.0043 0.0027

0.0139 0.0286 0.0522 0.0416 0.0244 0.0173 0.0130 0.0097

0.0170 0.0300 0.0069 0.0175 0.0042 0.0131 0.0031 0.0099 0.0028 0.0069

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(Ms.Panicha Promchai) Laboratory Supervisor 0 20 0 MARK BAMBAR RE avi 1 (Ms.Supawan Suwannapa) Laboratory Reviewer

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TLT Consultants Company Limited Customer Name Address โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

GPS. Coordinate Measured Point

บริเวณซุมชนด้านทิศตรวันตกของโครงการ หมู่ที่ 5 ตำบลมาบบางพร อำเภอปลากแดง จังหวัดระยอง

UTM (WGS84) 47P 0732007 E, 1432903 N

January 25 - February 1, 2019

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงใฟฟ้าปลวกแลงในพื้นที่สวนลุตสาหกรรมปลวกแลง

TLT Consultants Company Limited

Customer Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Ambient Air Quality

Measured Source Project Location

Project Name

Address

GPS. Coordinate

Measured Date

Measured By

Measured Point

ANALYSIS REPORT

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number XPWS7U3L

January 25 - February 1, 2019 Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

: SO₂ UV-Fluorescence Analyzer Thermo Model 43i Serial Number CM14430004

: February 15, 2019 Report Date : ASC058-SO,-2562 Reported Number

: February 15, 2019

Report Date

ASC058-NOx-2562

Measured Instrument Reported Number

	Standard1/																											MO ON
	19	NOx	0.0102	0.0228	0.0330	0.0261	0.0201	0.0166	0.0148	0.0156	0.0193	0.0171	0.0084	0.0070	0.0095	0.0100	0.0132	0.0149	0.0138	0.0129	0.0156	0.0237	0.0263	0.0255	0.0181	0.0215	0.0173	00000
	Jan 31-Feb 1, 19	NO2	0.0038	0.0050	0.0153	0.0169	0.0149	0.0125	0.0113	0.0122	0.0155	0.0141	0.0062	0.0048	0.0067	0.0073	0.0086	0.0080	0.0080	0.0080	0.0068	0.0054	0.0040	0.0042	0.0045	0.0032	0.0086	
	Jan	NO	0.0064	0.0178	0.0177	0.0092	0.0052	0.0041	0.0035	0.0034	0.0038	0.0030	0.0022	0.0022	0.0028	0.0027	0.0046	0.0069	0.0058	0.0049	0.0088	0.0183	0.0223	0.0213	0.0136	0.0183	0.0087	0.0223 0.0169
	6	NOx	0.0148	0.0167	0.0335	0.0196	0.0251	0.0094	0.0079	0.0094	0.0084	0.0106	9600.0	9600.0	0.0093	0.0120	0.0147	0.0137	0.0108	0.0087	0.0088	0.0074	0.0074	0.0076	0.0077	0.0085	0.0121	0.0335
Result (ppm)	Jan 30-31, 19	NO2	060000	0.0095	0.0237	0.0139	0.0100	0.0064	0.0052	0.0067	0.0058	0.0079	0.0071	0.0073	0.0069	0.0093	0.0122	0.0110	0.0078	0.0057	0.0056	0.0042	0.0033	0.0039	0.0039	0.0037	0.0083	0.0237
K	Ja	NO	0.0058	0.0072	0.0098	0.0057	0.0061	0.0030	0.0027	0.0027	0.0026	0.0027	0.0025	0.0023	0.0024	0.0027	0.0025	0.0027	0.000.0	0.000.0	0.0032	0.0032	0.0041	0.0037	0.0038	0.0048	0.0038	860000
	6	NOX	0.0125	0.0144	0.0314	0.0302	0.0220	0.0196	0.0146	0.0162	0.0129	0.0120	0.0115	0.0113	0.0088	0.0122	0.0133	0.0097	0.0088	0.0000	0.0100	0.0113	0.0111	0.0098	0.0120	0.0162	0.0142	0.0314
-	Jan 29-30, 19	NO2	0.0034	0.0060	0.0200	0.0204	0.0160	0.0145	0.0107	0.0119	0.0098	0.0093	0.0089	0.0088	0.0064	0.0096	0.0106	0.000.0	0.0059	0.0059	0.0066	0.0078	0.0075	0.0063	0.0082	0.0094	9600.0	0.0204
	Ja	NO	0.0091	0.0084	0.0114	0.0098	0.0060	0.0051	0.0039	0.0043	0.0031	0.0027	0.0026	0.0025	0.0024	0.0026	0.0027	0.0027	0.0029	0.0031	0.0034	0.0035	0.0036	0.0035	0.0038	0.0068	0.0046	0.0114
	Interval Time		00:80 - 00:20	08:00 - 00:80	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00	04:00 - 05:00	02:00 - 00:00	00:20 - 00:90	24 Hours Average	1 Hour Maximum

Machinam 0.0114 0.0204 0.0314 0.0321 0.0331 0.0337 0.0337 0.0335 0.00359 0.0335 0.0337 nark:

(Ms.Panicha Promchai) Laboratory Supervisor (Ms.Supawan Suwannapa) Laboratory Reviewer

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ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

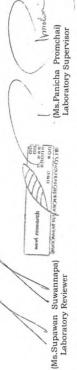
Ambient Air Quality Measured Source บริเวณชุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

UTM (WGS84) 47P 0732007 E, 1432903 N

Measured Instrument

	Standard																									1101.0
	Jan 31-Feb 1, 19	0.0011	0.0012	0.0015	0.0014	0.0012	0.0011	0.0012	0.0011	0.0011	0.0020	0.0011	0.0010	0.0010	0.0009	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0010	0.0010	0.0011	0 0011
	Jan 30-31, 19	0.0017	0.0017	0.0019	0.0016	0.0015	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011	01000
1)	Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, 19 Jan 28-29, 19 Jan 29-30, 19 Jan 30-31, 19 Jan 31-7eb 1.19	0.0016	0.0016	0.0017	0.0015	0.0013	0.0013	0.0012	0.0011	0.0011	0.0012	0.0012	0.0011	0.0010	0.0010	0.0011	0.0011	0.0015	0.0020	0.0019	0.0018	0.0018	0.0019	0.0017	0.0017	0.0014
Result SO2 (ppm)	Jan 28-29, 19	0.0012	0.0014	0.0014	0.0013	0.0013	0.0012	0.0011	0.0011	0.0013	0.0012	0.0012	0.0012	0.0011	0.0010	0.0011	0.0010	0.0011	0.0013	0.0012	0.0014	0.0014	0.0015	0.0016	0.0016	0.000
IK	Jan 27-28, 19	0.0013	0.0012	0.0016	0.0017	0.0015	0.0015	0.0011	0.0013	0.0015	0.0013	0.0013	0.0012	0.0010	0.0010	0.0010	0.0010	0.0011	0.0011	0.0010	0.0011	0.0013	0.0014	0.0014	0.0014	0.0013
	Jan 26-27, 19	0.0015	0.0016	0.0017	0.0015	0.0013	0.0013	0.0012	0.0013	0.0014	0.0013	0.0015	0.0012	0.0011	0.0010	0.0000	0.0010	0.0011	0.0010	0.0011	0.0013	0.0015	0.0016	0.0017	0.0015	0.0013
	Jan 25-26, 19	0.0016	0.0016	0.0017	0.0018	0.0019	0.0017	0.0015	0.0015	0.0015	0.0016	0.0015	0.0014	0.0013	0.0012	0.0011	0.0012	0.0012	0.0012	0.0011	0.0011	0.0011	0.0012	0.0014	0.0014	0.0014
Interval Time		07:00 - 08:00	08:00 - 00:80	00:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00	04:00 - 05:00	02:00 - 00:50	06:00 - 07:00	24 Hours Average

Remark: 1 Notification of National Environmental Board, No. 10, 11. E.253.8 (1995), published in the Royal Government Gazette No. 11.2 Part 42D dated May 55, R.E.253.8 (1995) and Notification No. 24, E.25547 (2004), published in the Royal Government Guzette No. 12. Special Part 104D dated September 22, B.E.253.8 (1994), and Notification No. 24, E.25548 (1994), and Conservation of National Environmental Board, No. 12, R.E.2558 (1992), published in the Royal Government Gazette No. 11.2 Special Part 22D dated July 13, B.E.2538 (1992), published in the Royal Government Gazette No. 11.2 Special Part 22D dated July 13, B.E.2538 (1992), published in the Royal Government Gazette No. 11.2 Special Part 32D dated July 13, B.E.2534 (2001), under the Enhancement and Conservation of National Environmental Quantity Res. 118, Special Part 33D dated July 130, B.E.2534 (2001), under the Enhancement and Conservation of National Environmental Quality Act R.E.2535 (1992).



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www.enviresearch.eo.th

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาทกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณพื้นที่โครงการ Measured Point

UTM (WGS84) 47P 0733565 E, 1432618 N GPS. Coordinate

บริเวณชุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

UTM (WGS84) 47P 0732007 E, 1432903 N

GPS. Coordinate

Measured Date

Measured By

Measured Point

January 25 - February 1, 2019

Jan 25-26, 19 Jan 26-27, 19 Jan 27-28, hr Avg 8 hr Avg 1 hr Avg 8 hr Avg 1 hr Avg 8 hr

Interval Time

Measured Instrument Reported Number

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

TLT Consultants Company Limited

Customer Name

ANALYSIS REPORT

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Project Location Measured Source

Project Name

Ambient Air Quality

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)

January 25 - February 1, 2019 Measured Date Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

Jan 31-Feb 1, 19

ESE SE SE Calm Calm Calm

WDC046/2562 Reported Number

ñ		L	+	+	-	÷				-	-	_			_	-	-				_									
-31, 19	WD	z	Calm	MIII	NA	WOO	SSE	SSE	SE	SSE	SSW	SSW	SW	WSW	NE	SW	Calm	SW	Calm	SSW	Calm	Calm	100	Camin						
Jan 30-31, 19	WS	0.4	<0.4	2	00	0.0	3 -	3.1	2.7	3.1	2.2	2.7	2.7	1.8	4.0	0.4	<0.4	0.4	40.4	40.4	<0.4	<0.4	200							
30, 19	WD	MM	Calm	Wew	NNE	NNE	NE	MM	SSE	SSE	SW	SW	SW	SW	NO DE	Calm	Calm	Z	Calm	SSE	MM	Calm	Colm	Comm						
Jan 29-30, 19	WS	0.4	<0.4	00	2.0	2.0	2.2	2.2	2.7	1.8	3.6	3.6	3.1	1.8	4.0	40.4	<0.4	6.0	40.4	0.4	0.4	×0.4	V 0>							
61,6	WD	Calm	MNN	NNE	NNE	NNE	NNE	NE	z	NNN	NE	NE	NNE	NE	NNW	NNN	Calm	Calm	MM	NW	Calm	MM	Calm							
Jan 28-29, 19	WS	<0.4	0.4	2.2	3.6	4.0	4.5	4.5	3.6	3.6	2.7	2.2	1.8	8.1	0.4	0.4			4.0	+	<0.4	6.0	H	+						
+	WD	z	MNN	NNE	NNE	NE	NE	ENE	3	ENE	ENE	NE	NE	S S	NE	S	SW	MM	Calm	MM	Calm	z	Z							
Jan 27-28, 19	WS	1.8	H	-	-	+	4.9	4.9	6.4			3.1	3.1	6.0	40	0.4	4.0	1	40.4	+		H	6.0			meters.				
+	WD	Calm	H	H		H	H	ENE			ESE	1	9	+	1	-	H	+	MNN	+	8	WNW	ESE	-		3. Height of wind vane and anemometer above ground 10 meters.				
707	+	<0.4 C	0.4 N	H	-	-	H	3.6 E		-	-	3.6	2.7	8.1	-	H	H	+	4.00	-		0.4 W	0.4 F	-		ter above				
+	+	Calm	Calm	H	H	H	H	ENE	-	+	-	+	+	Calm	+	-		+	Calm	-	Calm	Calm	Calm		n u	anemome				
22-52	+	<0.4 Ca	<0.4 Ca	<0.4 C	-	1				+	+	+	+	40.4	-	-	+	40.4 C	+	+	<0.4 Cg	<0.4 Cg	<0.4 Ca	= Wind Speed (m/s)	" Wind Direction	vane and				
	3	×	v		-	-	-		-	-	+	1	+	t	+			+	+	H			-	- Win	- Win	ht of wind				
_	1	0	0				10	0	9	임	9	9	0	5 6	0	0	0:	0.0	3.0	0.4	5:0	0:9	7:0	NS/	0	100				
Time Date Ja	Time	07:00 - 08:00	08:00 - 06:00	09:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	20.00 - 20.00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	00:00 - 01:00	02:00 - 02:00	03:00 - 04:00	04:00 - 05:00	05:00 - 06:00	06:00 - 07:00	Remark: 1. WS	2. WD	3. He				
Date	Time	02:00 - 08:00	00:00 - 00:00			11:00 - 12:	12:00 - 13:	13:00 - 14	14:00 - 15	15:00 – 16	16:00 - 17	17:00 - 18	18:00 – 19	20:00 = 20	21:00 – 22	22:00 - 23	23:00 - 2	0-00:00	01:00	03:00 - 0	04:00 - 0	05:00 - 0	0-00:90	Remark: 1. V	2. W	3, Hc			Ι.	
Time Date		07:00 - 08:00	00:00 - 00:00		Standard1/																						20			
Time Date		00:00 - 08:00	08:00 - 09:00		Standard1/		0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5 0.5			
Time Date		00:00 - 08:00	08:00 - 08:00		Standard1/		0.5 0.6	0.5 0.6	0.0 0.0	0.0 0.0	0.4		0.4 0.5	0.4 0.5		0.5 0.4		0.00	0.5 0.5	0.4 0.5	0.5 0.5	0.5 0.5	0.5	0.5 0.5	0.4 0.5		.6 0.5 0.5	.6 0.5 0.5	0.5	
Time Date	: February 15, 2019	07:00 - 08:00	00:00 - 00:00		Standard1/		0.5 0.5 0.6	0.5 0.5 0.6	0.5 0.6 0.6	0.0 0.0 0.0	0.4 0.4 0.6	0.4 0.6	0.4 0.4 0.5	0.4 0.4 0.5	0.4 0.5 0.5	0.4 0.5 0.4	0.4 0.4 0.4	0.4 0 5 0.4	0.4 0.5 0.5	0.5 0.4 0.5	0.5 0.5 0.5	0.5 0.5 0.5	0.5 0.4 0.5	0.5 0.5 0.5	0.5 0.4 0.5	0.5 0.5 0.5	0.6 0.5	0.6 0.5	- 0.5	
Time Date		02:00 - 08:00	00:60 - 00:80		Standard1/		0.5 0.5 0.5 0.6	0.6 0.5 0.5 0.6	0.0 0.5 0.6 0.6	0.0 0.0 0.0	0.4 0.4 0.6	0.0 0.4 0.6	0.3 0.4 0.4 0.5	0.3 0.4 0.4 0.5	0.5 0.5	0.4 0.4 0.5 0.4	0.4	0.0 0.0 0.0 0.0 0.0	0.5 0.4 0.5 0.5	0.5 0.5 0.4 0.5	0.5 0.5 0.5	0.5 0.5 0.5 0.5	0.5 0.5 0.4 0.5	0.5 0.5 0.5 0.5	0.5 0.5 0.4 0.5	0.5 0.5	0.5	0.5	- 0.5	
. Eabrigay 45 2040	: February 15, 2019	07:00 - 08:00			Standard1/		0.5 0.5 0.5 0.6	0.6 0.6 0.5 0.5 0.6	0.0 0.5 0.6 0.6	0.0 0.3 0.3 0.0	0.4 0.4 0.6	0.0 0.4 0.4 0.6	0.5 0.3 0.4 0.4 0.5	0.5 0.3 0.4 0.4 0.5	0.5 0.4 0.4 0.5 0.5	0.5 0.4 0.4 0.5 0.4	0.5 0.4 0.4 0.4	0.5 0.5 0.4 0.5 0.4	0.5 0.5 0.4 0.5 0.5	0.6 0.5 0.5 0.4 0.5	0.6 0.5 0.5 0.5 0.5	0.7 0.5 0.5 0.5 0.5	0.7 0.5 0.5 0.4 0.5	0.7 0.5 0.5 0.5 0.5	0.7 0.5 0.5 0.4 0.5	0.7 0.5 0.5 0.5	0.8 0.6 0.5	0.7 0.6 0.5	- 0.5	
. Eabrigay 45 2040	: February 15, 2019	07:00 - 08:00			Standard1/		0.6 0.6 0.5 0.5 0.6	0.0 0.0 0.0 0.5 0.5 0.6	0.0 0.0 0.5 0.6 0.6	0.0 0.0 0.3 0.3 0.0	0.0 0.0 0.4 0.4 0.6	0.3 0.0 0.3 0.4 0.6	0.4 0.5 0.3 0.4 0.4 0.5	0.5 0.5 0.3 0.4 0.4 0.5	0.5 0.4 0.4 0.5 0.5	0.4 0.5 0.4 0.4 0.5 0.4	0.5 0.5 0.4 0.4	0.7 0.5 0.4 0.5 0.4	0.6 0.5 0.5 0.4 0.5 0.5	0.8 0.6 0.5 0.5 0.4 0.5	0.8 0.6 0.5 0.5 0.5	0.7 0.7 0.5 0.5 0.5 0.5	0.5 0.7 0.5 0.5 0.4 0.5	0.6 0.7 0.5 0.5 0.5 0.5	0.5 0.7 0.5 0.5 0.4 0.5	0.6 0.7 0.5 0.5 0.5	0.6 0.8 0.6 0.5	0.5 0.7 0.6 0.5	. 0.5 . 0.5 .	
Time Date	: February 15, 2019	07:00 - 08:00	08:00 - 09:00		Standard1/		0.7 0.7 0.6 0.6 0.5 0.5 0.5 0.6	0.8 0.7 0.6 0.6 0.5 0.5 0.6	0.0 0.7 0.5 0.6 0.5 0.6 0.6	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.4 0.4 0.6	0.5 0.6 0.4 0.6 0.3 0.4 0.4	0.5 0.6 0.4 0.5 0.3 0.4 0.5	0.6 0.6 0.5 0.5 0.3 0.4 0.4 0.5	0.6 0.6 0.5 0.5 0.4 0.4 0.5 0.5	0.5 0.6 0.4 0.5 0.4 0.4 0.5 0.4	0.0 0.6 0.5 0.5 0.5 0.4 0.4 0.4	0.5 0.6 0.7 0.5 0.5 0.4 0.5 0.4	0.5 0.6 0.6 0.5 0.5 0.4 0.5 0.5	0.7 0.6 0.8 0.6 0.5 0.5 0.4 0.5	0.5 0.6 0.8 0.6 0.5 0.5 0.5 0.5	0.6 0.6 0.7 0.7 0.5 0.5 0.5 0.5	0.5 0.6 0.5 0.7 0.5 0.4 0.5	0.5 0.6 0.7 0.5 0.5 0.5 0.5	0.5 0.5 0.5 0.7 0.5 0.5 0.4 0.5	0.6 0.6 0.3 0.6 0.7 0.5 0.5 0.5	0.6 0.6 0.3 0.6 0.8 0.6 0.5	0.7 0.6 0.3 0.5 0.7 0.6 0.5	. 0.5 . 0.5 .	
. Eabrigay 45 2040	: February 15, 2019	07:00 - 08:00			Standard1/		0.6 0.7 0.7 0.6 0.6 0.5 0.5 0.5 0.6	0.7 0.8 0.7 0.6 0.6 0.5 0.5 0.6	0.7 0.9 0.7 0.3 0.6 0.6 0.5 0.6 0.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.4 0.4 0.6	0.5 0.5 0.6 0.0 0.0 0.4 0.4 0.6	0.5 0.5 0.6 0.4 0.5 0.3 0.4 0.5	0.5 0.6 0.6 0.5 0.3 0.4 0.4 0.5	0.5 0.6 0.6 0.5 0.5 0.4 0.4 0.5 0.5	0.4 0.5 0.6 0.4 0.5 0.4 0.4 0.5 0.4	0.5 0.0 0.6 0.5 0.5 0.5 0.4 0.4 0.4	0.5 0.5 0.6 0.7 0.5 0.4 0.5 0.4	0.5 0.5 0.6 0.6 0.5 0.5 0.4 0.5 0.5	0.5 0.7 0.6 0.8 0.6 0.5 0.5 0.4 0.5	0.5 0.5 0.6 0.8 0.6 0.5 0.5 0.5 0.5	0.6 0.6 0.7 0.7 0.5 0.5 0.5	0.6 0.5 0.6 0.5 0.7 0.5 0.4 0.5	0.6 0.5 0.6 0.6 0.7 0.5 0.5 0.5 0.5	0.6 0.5 0.5 0.5 0.7 0.5 0.5 0.4 0.5	0.6 0.6 0.6 0.3 0.6 0.7 0.5 0.5 0.5	0.7 0.6 0.8 0.8 0.6 0.8 0.6 0.5	0.7 0.7 0.6 0.3 0.5 0.7 0.6 0.5	. 0.6 . 0.5 . 0.5 . 0.5	
Remort Date . Eshmont 15 2040	Keport Date : February 15, 2019	07:00 - 08:00			Standard1/		0.6 0.6 0.7 0.7 0.6 0.6 0.5 0.5 0.5 0.6	0.0 0.7 0.8 0.7 0.6 0.6 0.5 0.5 0.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.4 0.6 0.7 0.7 0.6 0.4 0.4 0.6	0.4 0.5 0.5 0.4 0.5 0.0 0.0 0.4 0.4 0.0	0.5 0.5 0.5 0.6 0.4 0.5 0.3 0.4 0.5	0.4 0.5 0.6 0.6 0.5 0.3 0.4 0.4 0.5	0.4 0.5 0.6 0.6 0.5 0.5 0.4 0.4 0.5 0.5	0.5 0.4 0.5 0.6 0.4 0.5 0.4 0.4 0.5 0.4	0.7 0.5 0.6 0.6 0.5 0.5 0.4 0.4 0.4	0.4 0.5 0.5 0.6 0.7 0.5 0.5 0.4 0.5 0.4	0.4 0.5 0.5 0.6 0.6 0.5 0.7 0.4 0.5 0.5	0.7 0.5 0.7 0.6 0.8 0.6 0.5 0.5 0.4 0.5	0.6 0.5 0.5 0.6 0.8 0.6 0.5 0.5 0.5 0.5	0.5 0.6 0.6 0.7 0.7 0.5 0.5 0.5 0.5	0.6 0.6 0.5 0.6 0.5 0.7 0.5 0.4 0.5	0.7 0.6 0.5 0.6 0.6 0.7 0.5 0.5 0.5 0.5	0.7 0.6 0.5 0.5 0.5 0.7 0.5 0.7 0.5	0.7 0.6 0.6 0.6 0.3 0.6 0.7 0.5 0.5 0.5	0.9 0.7 0.6 0.6 0.3 0.6 0.8 0.6 0.5	0.6 0.7 0.7 0.6 0.3 0.5 0.7 0.6 0.5	0.6 . 0.6 . 0.5 . 0.5 . 0.6	
. Eabrigay 45 2040	Keport Date : February 15, 2019	07:00 - 08:00			Standard1/	E B ht Avg I ht Avg B ht Avg I ht Avg B ht Avg I ht Avg B ht Avg	0.5 0.6 0.6 0.7 0.7 0.6 0.6 0.5 0.5 0.5 0.6	0.7 0.8 0.7 0.6 0.6 0.5 0.5 0.6		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.7 0.4 0.5 0.5 0.7 0.3 0.4 0.0 0.0	0.6 0.5 0.5 0.6 0.4 0.5 0.3 0.4 0.5	0.4 0.5 0.6 0.6 0.5 0.3 0.4 0.4 0.5	0.6 0.4 0.5 0.6 0.6 0.5 0.5 0.4 0.4 0.5 0.5	0.5 0.5 0.5 0.4 0.5 0.6 0.4 0.5 0.4 0.4 0.5 0.4	0.5 0.0 0.6 0.5 0.5 0.5 0.4 0.4 0.4	0.5 0.4 0.5 0.5 0.6 0.7 0.3 0.4 0.5 0.4	0.5 0.5 0.6 0.6 0.5 0.5 0.4 0.5 0.5	0.5 0.7 0.5 0.7 0.6 0.8 0.6 0.5 0.5 0.4 0.5	0.5 0.6 0.5 0.5 0.6 0.8 0.6 0.5 0.5 0.5 0.5	0.5 0.5 0.6 0.6 0.6 0.7 0.7 0.5 0.5 0.5	0.5 0.6 0.6 0.5 0.6 0.5 0.7 0.5 0.4 0.5	0.5 0.7 0.6 0.5 0.6 0.6 0.7 0.5 0.5 0.5 0.5	0.5 0.7 0.6 0.5 0.5 0.5 0.7 0.5 0.5 0.4 0.5	0.6 0.7 0.6 0.6 0.6 0.3 0.6 0.7 0.5 0.5 0.5	0.7 0.6 0.8 0.8 0.6 0.8 0.6 0.5	0.7 0.7 0.6 0.3 0.5 0.7 0.6 0.5	. 0.6 . 0.5 . 0.5 . 0.5	

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onmental Board, No.10, B.E.2538 (1995), published in the Royal Government Guzette No.112 Part 42D duted May 25, B.E.2538 ent and Conservation of National Environmental Quality Act B.E.2535 (1992).

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(Ms.Supawan Suwannapa) Laboratory Reviewer

Yure Co

(Ms.Panicha Promchai) Laboratory Supervisor

ANCHATECHNICOVOTALD

SAMEONAGAT IN SE

(Ms.Supawan Suwannapa)

Laboratory Reviewer

(Ms.Panicha Promchai) Laboratory Supervisor

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ANALYSIS REPORT

TLT Consultants Company Limited Customer Name Address

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

UTM (WGS84) 47P 0733565 E, 1432618 N บริเวณพื้นที่โครงการ GPS. Coordinate Measured Point

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) January 25 - February 1, 2019 Measured Date Measured By

WDC046/2562 Reported Number

Wind Disaction		Percentage	Percentage frequency of wind in each speed and direction	i in each speed an	d direction	
ma pricedion	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	>4.1	Total
N	2.38095	1.78571	0.59524	0.59524	0.00000	5.35714
NNE	0.00000	0.59524	2.97619	1.78571	0.59524	5.95238
NE	1.78571	0.59524	1.78571	4.16667	2,38095	10.71428
ENE	0.59524	0.00000	2.38095	3.57143	0.59524	7.14286
Ð	0.00000	0.59524	0.59524	0.59524	0.59524	2.38096
ESE	2.38095	0.00000	0.00000	0.59524	0.00000	2.97619
SE	1.78571	0.59524	0.59524	0.00000	0.00000	2.97619
SSE	0.59524	0.59524	1.19048	1.78571	0.00000	4.16667
s	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
SSW	1.78571	0.59524	1.19048	1.19048	0.00000	4.76191
SW	2.38095	0.59524	1.19048	1.78571	0.00000	5.95238
wsw	0.59524	0.59524	0.00000	0.00000	0.00000	1.19048
W	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
WNW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
NW	4.76190	1.19048	1.19048	0.00000	0.00000	7.14286
NNW	4.76190	0.00000	0.00000	0.59524	0.00000	5.35714
Calm			30 05037	5037		

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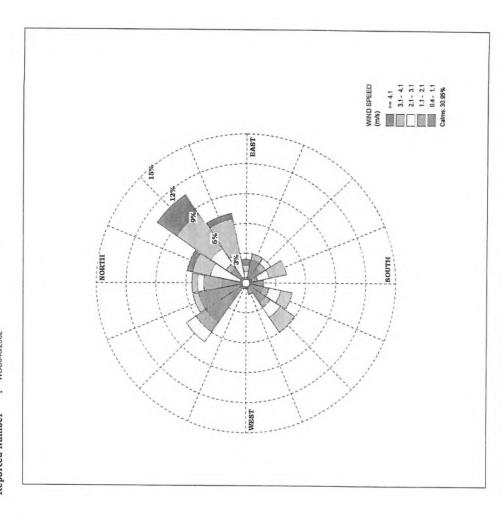
โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง

บริเวณพื้นที่โครงการ Measured Point

Project Name

January 25 - February 1, 2019 Measured Date

WDC046/2562 Reported Number



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Page 3/3

F-RP-007 Rev. 01, July 1, 2017

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Environment Research & Technology-Company Limited 28/113-114 Mne o Sof Chimbert I. Nygamongwan Koad. Tempeonghong, Lakei, Bangkok 102 10 Tel. 0-2964-7745-6 Fax 0-2954-7747 E-mail: envi@enviresearch.co.th

www.envirescarch.co.th

ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 TLT Consultants Company Limited Customer Name Address

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนถุดสาหกรรมปลวกแดง Project Name

ดำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location บริเวณภูมชนบ้านเห็นสวรรค์ หมู่ที่ 2 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0733789 E, 1435334 N GPS. Coordinate

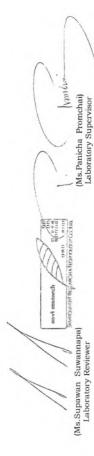
January 25 - February 1, 2019 **Measured Date** Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.)

: WDC047/2562 Reported Number

Measured By

WS WD WS WS WD WS WS WS WS WS WS WS WS WS Column CO-4 Calm	Date		Jan 25-26, 19	Jan 26	Jan 26-27, 19	Jan 27	Jan 27-28, 19	Jan 28	Jan 28-29, 19	Jan 29	Jan 29-30, 19	Jan 30	Jan 30-31, 19	Jan 31-	Jan 31-Feb 1, 19
Colim Cold Calim Cold Cali	Vime	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
Cold Calm Cold Cold Calm Cold	07:00 - 08:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	¢0.4	Calm	<0.4	Calm	40°	Calm
Cold Calm O.4 N 2.2 N 3.1 N 3.6 N 0.0 Calm Cold Calm Col	08:00 - 00:80	<0.4	Calm	<0.4	Calm	0.4	NNW	¢0.4	Calm	<0.4	Calm	<0.4	Calm	40.4	Calm
1.04 Calm 1.3 N 3.6 N 3.1 N 1.8 N 0.4 SSW CO.4 1.18 NE 3.1 N 4.5 N 4.0 N 1.3 N 0.4 SSW CO.4 2.2 ENE 3.1 N 4.5 N 4.0 N 1.3 N 0.9 ENE 0.9 2.2 ENE 2.2 N 2.7 N 3.1 NW 0.9 WSW 0.4 ENE 0.9 1.3 ENE 2.2 N 2.7 N 2.2 N 0.4 WSW 0.4 ENE 0.9 1.3 ENE 2.2 N 2.7 N 2.2 N 0.4 WSW 0.4 ENE 0.9 1.3 SSW 0.4 Calm 0.4	00:00 - 10:00	<0.4	Calm	0.4	Z	2.2	z	2.2	z	6.0	z	<0.4	Calm	<0.4	Calm
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2.7 ENE 3.1 N 4.5 N 4.0 N 1.3 N 0.9 ENB 0.9 2.2 ENB 2.2 N 2.1 N 3.1 N 3.6 N 1.3 N 0.9 ENB 0.9 1.2 ENB 2.2 N 2.7 N 2.7 N 0.9 ENB 0.9 1.3 ENB 2.2 N 2.7 N 2.2 N 0.9 ENB 0.9 1.3 ENB 2.2 N 2.2 N 0.9 ENB 0.9 0.9 1.3 SSW 1.3 ENB 3.7 N 1.2 N 0.4 ESB 0.9 0.9 1.3 SSW 1.3 SSW 0.9 SSW 1.3 SSW 0.9 0.9 1.3 SSW 1.3 N 0.4 Calm 0.0 Calm 0.0 N 0.0 N		1.8	NE	3.1	Z	4.5	z	4.0	z	2.2	Z	0.4	SSW	0.4	Z
2.2 E 3.1 N 3.1 N 3.6 N 1.3 N 0.9 END 0.9 N 0.0 END 0.9 END 0.9 <t< td=""><td>12:00 - 13:00</td><td></td><td>ENE</td><td>3.1</td><td>Z</td><td>4.5</td><td>z</td><td>4.0</td><td>z</td><td>1.3</td><td>z</td><td>6.0</td><td>ENE</td><td>6.0</td><td>MNN</td></t<>	12:00 - 13:00		ENE	3.1	Z	4.5	z	4.0	z	1.3	z	6.0	ENE	6.0	MNN
2.2 EMB 2.2 N 3.1 NWW 0.9 WSW 0.4 ESF 1.3 1.8 NB 2.2 N 2.7 N 1.2 N 0.4 SS 0.9 SSE 0.9 1.8 SW 1.3 N 2.7 N 1.2 N 3.1 SSE 0.9 SSE 0.9 1.8 SW 1.3 N 2.2 N 2.2 SW 1.3 SSE 1.3 N 1.3 N 1.3 SSE 1.3 SSE 1.3 N 1.3 N 1.3 SSE 1.3 N 1.3 SSE 1.3 N 1.3 SSE 1.3 N 1.3 SSE 1.3 N 1.3 SSE 1.3	13:00 - 14:00	2.2	9	3.1	Z	3.1	Z	3.6	z	1.3	z	6.0	ENE	6.0	NNN
1.8 NE 2.2	14:00 - 15:00	2.2	ENE	2.2	z	2.7	Z	3.1	MNM	6.0	WSW	0.4	ESE	1.3	NW
1.3 SSW 6.04 Calm 6.04 Cal	15:00 - 16:00	1.8	NE	2.2	z	2.7	z	2.2	Z	0.4	S	6.0	SSE	6.0	W
1.8 SW 1.8 NE 3.1 N 2.2 N 3.6 SSW 1.8 S 2.2 3.2	16:00 - 17:00	1.3	ESE	2.2	z	2.7	Z	1.8	Z	2.2	SW	1.3	S	1.3	SSE
3.1 SW 1.3 ENE 2.2 N 0.9 N 1.8 SSW 1.3 W 1.3 1.1.3 SSW co.4 Calm 0.4 Calm 0.4 Calm co.4 Ca	17:00 - 18:00	1.8	SW	1.8	NE	3.1	Z	2.2	z	3.6	SSW	1.8	s	2.2	S
1.3 SSW «0.4 Calm 0.4 Calm «0.4 Calm «0.4 Calm »0.4 SS 0.4 WSW «0.4 Calm «0.4 Calm »0.4 Calm »0.	18:00 - 19:00	3.1	SW	1.3	ENE	2.2	z	6.0	z	1.8	SSW	1.3	×	1.3	S
e.0.4 Calm c.0.4 Calm <t< td=""><td>19:00 - 20:00</td><td>1.3</td><td>SSW</td><td><0.4</td><td>Calm</td><td>6.0</td><td>Z</td><td><0.4</td><td>Calm</td><td>0.4</td><td>so</td><td>0.4</td><td>WSW</td><td><0.4</td><td>Calm</td></t<>	19:00 - 20:00	1.3	SSW	<0.4	Calm	6.0	Z	<0.4	Calm	0.4	so	0.4	WSW	<0.4	Calm
e0,4 Calm e0,4 calm <th< td=""><td>20:00 - 21:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td>¢0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></th<>	20:00 - 21:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	¢0.4	Calm	<0.4	Calm	<0.4	Calm
e.0.4 Calm e.0.4 Calm <t< td=""><td>21:00 - 22:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td>¢0.4</td><td>Calm</td><td>+0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></t<>	21:00 - 22:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	¢0.4	Calm	+0.4	Calm	<0.4	Calm	<0.4	Calm
e0.4 Calm e0.4 Calm c0.4 Calm <th< td=""><td>22:00 - 23:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></th<>	22:00 - 23:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
4.0.4 Calm 6.0.4 Calm <t< td=""><td>23:00 - 24:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></t<>	23:00 - 24:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
c0.4 Calm c0.4 Calm <th< td=""><td>00:10 - 00:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></th<>	00:10 - 00:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
60.4 Calm 60.4 Calm <th< td=""><td>01:00 - 02:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></th<>	01:00 - 02:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
40.4 Calm 60.4 Calm <th< td=""><td>02:00 - 03:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td>+0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></th<>	02:00 - 03:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	+0.4	Calm	<0.4	Calm	<0.4	Calm
c.0.4 Calm c.0.4 Calm <t< td=""><td>03:00 - 04:00</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td>¢0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></t<>	03:00 - 04:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	¢0.4	Calm	<0.4	Calm
<0.4 Calm <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <0.4 <th< td=""><td>04:00 - 05:00</td><td>4°0°</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td><td><0.4</td><td>Calm</td></th<>	04:00 - 05:00	4°0°	Calm	<0.4	Calm										
<0.4 Calm 0.4 N <0.4 Calm <0.4 Ca	02:00 - 00:50	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
	00:20 - 00:90	<0.4	Calm	0.4	z	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	40.4	Calm

neter above ground 10 meters. Remark: 1. WS ~ Wind Speed (m/s)
2. WD = Wind Direction
3. Height of wind wane and anem



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F-RP-007 Rev. 01, July 1, 2017

ANALYSIS REPORT

Limited
Company
Consultants
H
H
Name
omer
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CO.

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location บริเวณชุมชนบ้านเนินสวรรค์ หมู่ที่ 2 ดำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0733789 E, 1435334 N GPS. Coordinate

January 25 - February 1, 2019 Measured Date Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.,) Measured By

: WDC047/2562 Reported Number

Wind Discotion		Percentage	Percentage frequency of wind in each speed and direction	I in each speed an	d direction	
will buccion	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	>4.1	Total
Z	3.57143	2.97619	7.14286	5.95238	1.19048	20.83334
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	0.00000	1.78571	0.00000	0.00000	0.00000	1.78571
ENE	1.19048	0.59524	1.19048	0.00000	0.00000	2.97620
ы	0.00000	0.00000	0.59524	0.00000	0.00000	0.59524
ESE	0.59524	0.59524	0.00000	0.00000	0.00000	1.19048
SE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SSE	0.59524	0.59524	0.00000	0.00000	0.00000	1.19048
S	1.19048	1.78571	0.59524	0.00000	0.00000	3.57143
SSW	1.19048	1.19048	0.00000	0.59524	0.00000	2.97620
SW	0.00000	0.59524	0.59524	0.59524	0.00000	1.78572
WSW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
м	0.59524	0.59524	0.00000	0.00000	0.00000	1,19048
WNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NW	0.00000	0.59524	0.00000	0.00000	0.00000	0.59524
NNW	1.78571	0.00000	0.00000	0.59524	0.00000	2.38095
Calm			57.73805	1805		

Environment Research & Technology, Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Toongsonghong, Laksi, Bangkok 1021 O Tel. 0-2954-77456- fish 0-2954-7747 Email envi@envirosearch.co.th www.envirosearch.co.th

ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngsamwongwan Road, Toongsonghong, Laksi, Bangkok 1021.0 Tel, 0-2954-7745-6 Far 0-2954-7747 Fanali envigo envirosearch.co.th www.envirosearch.co.th

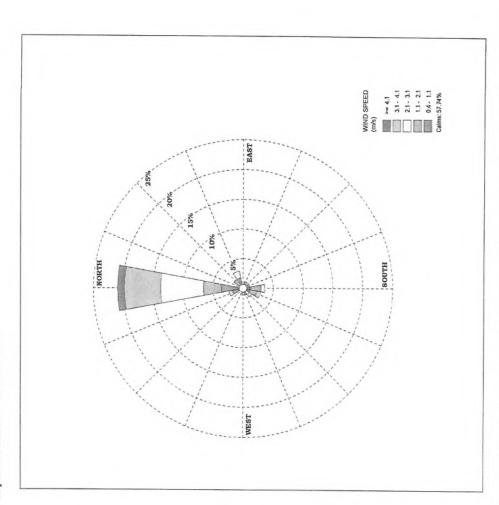
ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name บริเวณชุมชนบ้านเนินสวรรค์ หมู่ที่ 2 ตำบลมาบยางพร อำเภอปลากแดง จังหวัดระยอง Measured Point

January 25 - February 1, 2019 Measured Date

WDC047/2562 Reported Number



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ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณวัดประสิทธาราม หมู่ที่ 7 ตำบลพนานิคม อำเภอนิคมพัฒนา จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0731869 E, 1430345 N GPS. Coordinate

January 25 - February 1, 2019 Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

: WDC048/2562 Reported Number

Date	Jan 25-26, 19	-26, 19	Jan 26	Jan 26-27, 19	Jan 27	Jan 27-28, 19	Jan 28	Jan 28-29, 19	Jan 29	Jan 29-30, 19	Jan 30	Jan 30-31, 19	Jan 31-	Jan 31-Feb 1, 19
- 1	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	×0.4	Calm
-	<0.4	Calm	<0.4	Calm	0.4	MNN	0.4	ENE	<0.4	Calm	0.4	SE	<0.4	Calm
-	0.4	Ð	0.4	ENE	6.0	E	0.4	NNE	0.4	NNE	0.4	SW	0.4	Z
-	6.0	SSE	6.0	ENE	6.0	B	6.0	z	0.4	NNE	6.0	s	0.4	NNE
-	6.0	Ε	6.0	ESE	6.0	ENE	6.0	z	6.0	SSE	6.0	S	0.4	NE
-	6.0	SSE	6.0	ENE	6.0	SE	6.0	NNN	6.0	S	0.4	S	0.4	NE
-	6.0	SSE	0.4	ESE	6.0	ESE	0.4	z	6.0	SW	6.0	SSW	0.4	NNE
-	0.4	NNN	6.0	SE	0.4	ESE	0.4	ENE	6.0	W	0.4	SSW	0.4	MS
-	6.0	SSW	0.4	Ξ	0.4	(3)	<0.4	Calm	9.0	M	<0.4	Calm	0.4	SW
-	9.0	SW	<0.4	Calm	+0.4	Calm	<0.4	Calm	0.4	W	<0.4	Calm	0.4	M
	<0.4	Calm	<0.4	Calm	<0.4	Calm	9.0	SSE	<0.4	Calm	<0.4	Calm	40.4	Calm
	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	+0.4	Calm	<0.4	Calm	40.4	Calm
-	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	+0.4	Calm	<0.4	Calm
-	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
-	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
-	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	40.4	Calm
	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
-	<0.4	Calm	×0.4	Calm	<0.4	Calm								
-	¢0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
-	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
-	40.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
-	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
_	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	40°	Calm	<0.4	Calm	<0.4	Calm

meter above ground 10 meters Remark: 1. WS = Wind Speed (m/s)
2. WD = Wind Direction
3. Height of wind wane and anen





Environment Research & Technology- Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Toongsonghong, Lafesi, Bangkok 1021 O Tel, 0-2954-77456- Far 0-2954-7747 E-mail environement.co.th

Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1. Ngamwongwan Road, Toongsonghong, Lafest, Bangkok 1021 O Tel, 0-2954-7745-5 fav 0-2954-7747 Fandi envigo-enviresearch.co.th www.enviresearch.co.th

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงให้ฟ้าปลวกแลงในพื้นที่สวนอุตสาหกรรมปลวกแลง

Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location บริเวณวัดประสิทธาราม หมู่ที่ 7 ตำบลพหานิคม อำเภอนิคมพัฒนา จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0731869 E, 1430345 N GPS. Coordinate

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd., January 25 - February 1, 2019 Measured Date Measured By

WDC048/2562 Reported Number

Wind Direction		Percentage	Percentage frequency of wind in each speed and direction	I in each speed an	d direction	
The Particular	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	>4.1	Total
z	2.38095	0.00000	0.00000	0.00000	0.00000	2,38095
NNE	2.97619	0.00000	0.00000	0.00000	0.00000	2.97619
NE	1.19048	0.00000	0.00000	0.00000	0.00000	1,19048
ENE	3.57143	0.00000	0.00000	0.00000	0.00000	3.57143
E	3.57143	0.0000	0.00000	0.00000	0.00000	3.57143
ESE	2.38095	0.00000	0.00000	0.00000	0.00000	2.38095
SE	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
SSE	2.97619	0.00000	0.00000	0.00000	0.00000	2.97619
S	2.38095	0.00000	0.00000	0.00000	0.00000	2,38095
SSW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
SW	2.97619	0.00000	0.00000	0.00000	0.00000	2.97619
WSW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
W	2.38095	0.00000	0.00000	0.00000	0.00000	2.38095
WNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
Calm			67.85716	5716		

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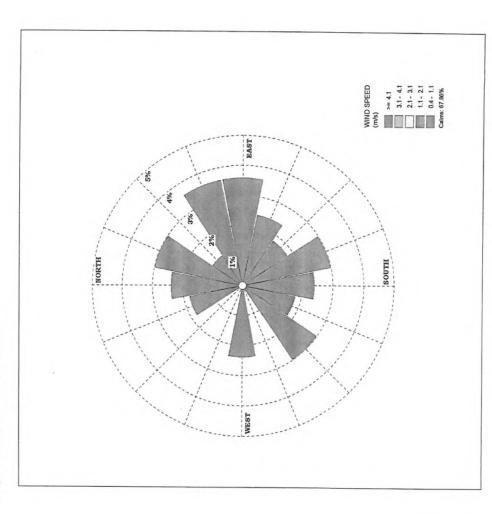
ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอูดสาหกรรมปลวกแดง Project Name บริเวณวัดประสิทธาราม หมู่ที่ 7 ตำบลพนานิคม อำเภอนิคมพัฒนา จังหวัดระยอง Measured Point

January 25 - February 1, 2019 Measured Date

WDC048/2562 Reported Number



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F-RP-007 Rev. 01, July 1, 2017



Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1, Ngauweongwan Road, Teongsongloung, Laksi, Bangkott 1021 O Tel, 0-2954-7745-6 Ftw. 0-2954-7747 Envirosearch.co.th www.-envirosearch.co.th

ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

Environment Research & Technology-Company Limited 25/113-114 Mos 6 Sio Chimalet I, Ngawongwan Road, Toungsonghong, Lateis, Bangkok 10210 Tel. 0-2954-7745-6 Enx 0-2954-7747 E-mail: envi@enviresearch.co.th

ANALYSIS REPORT

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 TLT Consultants Company Limited Customer Name Address

โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

บริเวณโรงเรียนบ้านมาบเตย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลากแดง จังหวัดระยอง ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location Measured Point

UTM (WGS84) 47P 0735508 E, 1433546 N GPS. Coordinate

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

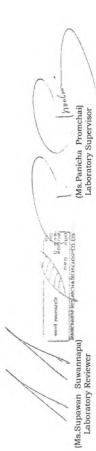
January 25 - February 1, 2019

Measured Date

WDC049/2562 Reported Number

Date		Jan 25-26, 19	Jan 26	Jan 26-27, 19	Jan 27	Jan 27-28, 19	Jan 28	Jan 28-29, 19	Jan 29	Jan 29-30, 19	Jan 30	Jan 30-31, 19	Jan 31-Feb 1, 1	Feb 1, 19
Time	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
07:00 - 08:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	MNN	+0.4	Calm	<0.4	Calm	<0.4	Calm
08:00 - 06:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	+0.4	Calm	4°0×	Calm	<0.4	Calm
00:01 - 00:60	<0.4	Calm	¢.0>	Calm	6.0	NNE	6.0	z	<0.4	Calm	<0.4	Calm	<0.4	Calm
10:00 - 11:00	0.4	ENE	6.0	z	1.3	NNE	1.3	z	9.0	z	9.0	SSW	<0.4	Calm
11:00 - 12:00	1.3	NE	1.3	NE	1.8	NNE	1.8	NNE	6.0	ENE	6.0	S	<0.4	Calm
12:00 - 13:00	1.8	ENE	1.8	NNE	1.8	NNE	1.8	NNE	6.0	NE	6.0	ENE	6.0	MNN
13:00 - 14:00	1.8	ENE	1.3	NNE	1.8	NE	2.2	z	6.0	ENE	6.0	ENE	1.3	MM
14:00 - 15:00	1.8	ENE	1.3	z	1.8	ENE	1.8	z	6.0	S	1.3	SE	1.8	MM
15:00 - 16:00	1.8	ENE	1.3	NE	1.3	NE	1.8	WW	1.3	SE	1.8	SE	1.3	WNW
16:00 - 17:00	6.0	ENE	1.3	ENE	6.0	NNE	1.3	z	1.3	×	1.8	S	1.8	S
17:00 - 18:00	6.0	SE	6.0	ENE	6.0	z	6.0	z	1.8	SW	1.8	S	2.7	SSW
18:00 - 19:00	1.3	SW	6.0	ENE	0.4	NE	0.4	NNN	1.3	SW	1.3	S	1.3	SSW
19:00 - 20:00	1.3	SSW	0.4	E	<0.4	Calm	<0.4	Calm	6.0	SSW	0.4	SE	6.0	SSW
20:00 - 21:00	0.4	SSW	0.4	SSW	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
21:00 - 22:00	-	Calm	0.4	SW	<0.4	Calm	<0.4	Calm	<0.4	Calm	40.4	Calm	<0.4	Calm
22:00 - 23:00	-	Calm	<0.4	Calm										
23:00 - 24:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
00:00 - 01:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
01:00 - 02:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	4·0×	Calm	40°	Calm
02:00 - 03:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
03:00 - 04:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	4°0°	Calm
04:00 - 05:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
05:00 - 06:00	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	+0.4	Calm
06:00 - 07:00	<0.4	Calm	<0.4	Calm	0.4	NW	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm

Remark : 1. WS = Wind Speed (m/s) = Wind Speed 3. Wh = Wind Direction 3. Height of wind votne and attenmenter above ground 10 meters.



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ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาทกรรมปลวกแดง

Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณโรงเรียนบ้านมาบเตย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลากแดง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0735508 E, 1433546 N GPS. Coordinate

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

January 25 - February 1, 2019

Measured Date

: WDC049/2562 Reported Number

Wind Dissetion		Percentage	Percentage frequency of wind in each speed and direction	in each speed an	d direction	
wind Direction	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	>4.1	Total
N	2.97619	2,38095	0.59524	0.00000	0.00000	5.95238
NNE	1.19048	4.16667	0.00000	0.00000	0.00000	5.35715
NE	1.19048	2.97619	0.00000	0.00000	0.00000	4.16667
ENE	4.76190	3.57143	0.00000	0.00000	0.00000	8.33333
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	1.19048	1.78571	0.00000	0.00000	0.00000	2.97619
SSE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S	1.19048	2.38095	0.00000	0.00000	0.00000	3,57143
SSW	2.97619	1.19048	0.59524	0.00000	0.00000	4.76191
SW	0.59524	1.78571	0.00000	0.00000	0.00000	2.38095
wsw	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
W	0.00000	0.59524	0.00000	0.00000	0.00000	0.59524
WNW	0.00000	0.59524	0.00000	0.00000	0.00000	0.59524
NW	0.59524	1.78571	0.00000	0.00000	0.00000	2.38095
NNW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
Calm			56.54761	4761		

Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket 1. Ngamwengwan Road, Teongsongbong, Lakis, Bangkok 10210 Tel, 0-2954-7745-6 Fav 0-2954-7747 E-mail envige-enviresearch.co.th

ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD

Environment Research & Technology Company Limited 25/113-114 Moo Soi Chinaket 1, Ngamwongwan Rond, Toongsomplong, Lakis, Bangkok 1022 to Tel. 0-2954-7745-6 Fax 0-2954-7747 E-mail: envi@enviresearch.co.dh

www.enviresearch.co.th

ANALYSIS REPORT

TLT Consultants Company Limited Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 Address

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location บริเวณสุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0732005 E, 1432903 N GPS. Coordinate

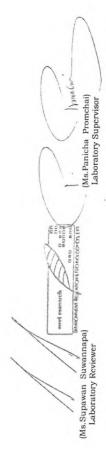
January 25 - February 1, 2019 Measured Date

Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

WDC050/2562 Reported Number

Jan 30-31, 19 Jan 31-Feb 1, 19 NE <0.4 <0.4 <0.4 6.0.4 4.00 4.00 4.00 4.00 4.00 <0.4 Calm Calm Calm Calm Calm Calm Calm Calm ESE 4 6 6 6 4 <0.4 <0.4 WNW SW SW Calm Calm Calm Jan 29-30, 19 NNE NNE <0.4 Jan 28-29, 19 NNE NE NE NE NE NE NE NE NE N 40.4 Jan 27-28, 19 ENE ENE NE ENE ESE ESE ESE NE NE Calm NNE NE ENE NE NNE ESE E E ESE Calm Jan 25-26, 19 ESE ESE ENE ESE ENE ESE ESE Calm Calm SE SW SW 40.4 Date 13:00 - 08:00 00:00 23:00 04:00 15:00 21:00 22:00 01:00 02:00 00:9 17:00 8:00 9:00 - 00:20 22:00 – 23:00 – 00:00 – 02:00 - 0 03:00 - 0 04:00 - 0 12:00 – 13:00 – 15:00 – 15:00 – 17:00 – 17:00 – 18:00 – 19:00 – 20:00 – 10:00

ster above ground 10 meters



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ANALYSIS REPORT

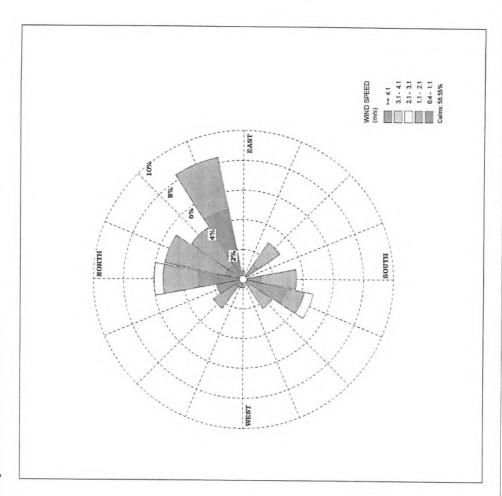
TLT Consultants Company Limited Customer Name

โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนถุดสาหกรรมปลวกแดง Project Name

บริเวณโรงเรียนบ้านมาบเดย หมู่ที่ 1 ตำบลมาบยางพร อำเภอปลากแดง จังหวัดระยอง Measured Point

January 25 - Fobruary 1, 2019 Measured Date

WDC049/2562 Reported Number



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ANALYSIS REPORT

TLT Consultants Company Limited Customer Name Address

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง

Project Name

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง Project Location

บริเวณสุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเภอปลากแคง จังหวัดระยอง Measured Point

UTM (WGS84) 47P 0732005 E, 1432903 N GPS. Coordinate

January 25 - February 1, 2019 Measured Date Mr.Apiwat Chamnanweeh (Personnel of Environment Research & Technology Co., Ltd.) Measured By

WDC050/2562 Reported Number

Wind Discotion		Percentage	Percentage frequency of wind in each speed and direction	in each speed an	d direction	
ma parection	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	>4.1	Total
z	0.59524	0.00000	1.19048	0.00000	0.00000	1.78572
NNE	1.19048	1.78571	1.78571	1.19048	0.00000	5.95238
NE	1.19048	1.78571	3.57143	3.57143	0.00000	10.11905
ENE	1.19048	0.00000	1.19048	2.97619	0.00000	5.35715
9	0.00000	0.00000	1.78571	0.00000	0.00000	1.78571
ESE	6.54762	0.00000	1.19048	1.19048	0.00000	8.92858
SE	0.00000	0.59524	1.19048	0.00000	0.00000	1.78572
SSE	0.00000	1.19048	0.00000	0.00000	0.00000	1.19048
S	4.76190	1.78571	0.00000	0.00000	0.00000	6.54761
SSW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SW	1.19048	2.38095	1.78571	0.00000	0.00000	5.35714
WSW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
W	0.00000	0.59524	0.59524	0.00000	0.00000	1.19048
WNW	0.00000	1.19048	0.00000	0.00000	0.00000	1.19048
NW	0.00000	1.19048	0.00000	0.00000	0.00000	1.19048
NNW	0.00000	0.00000	0.59524	0.00000	0.00000	0.59524
Calm			46.4'	46.42954		

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ANALYSIS REPORT

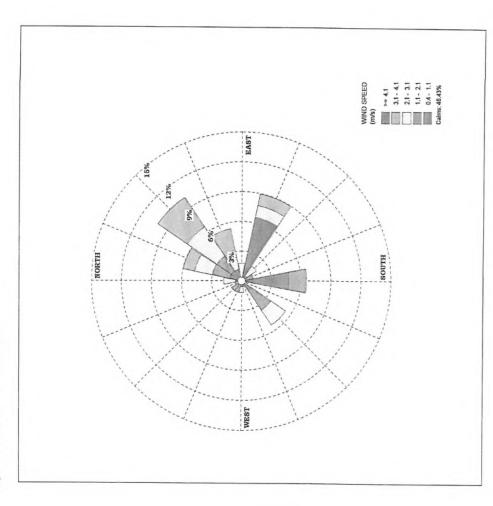
TLT Consultants Company Limited Customer Name

บริเวณชุมชนด้านทิศตะวันตกของโครงการ หมู่ที่ 5 ตำบลมาบยางพร อำเกอปลวกแดง จังหวัดระยอง โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง Project Name

January 25 - February 1, 2019 Measured Date

Measured Point

WDC050/2562 Reported Number



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ภาคผนวก 3ข

ผลการตรวจวัดระดับเสียงของโครงการ



Environment Research & Technology Campany Limited 25/113~114 Moo 6 Soi Chimster I., Ngamwongwan Kand. Toongsonghang, Lishis, Bangkot 10210 Tel. 0-2944-7745-6 Fav. 0-2944-7747 Ed. 0-2944-7746-6 Fav. 0-2944-7747

ANALYSIS REPORT

Customer Name TLT Consultants Company Limited

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Project Location Project Name ตำบลมาบบางพร อำเภอปลวกและ จังหวัดระยอง โครงการโรงไฟฟ้าปลวกแคงในพื้นที่สวนอุตสาหกรรมปลวกแคง

Measured Source Ambient Noise

Measured Point บริเวณพื้นที่โดรงการ

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

Measured Date

Measured By

March 13, 2019

Measured Instrument Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Reported Number : NCC133/2562

Interval Time	Noise L	Noise Level For	Interval Time	Noise L	Noise Level For	Interval Time	Noise Level For	loise Level For	Interest Time	Noise L	Noise Level For
	Leq	L90		Leq	L90	-	Leq	L90		Leg L90	190
07:00-07:05	62.0	46.3	10:00-10:05	56.8	44.7	13:00-13:05	52.9	42.9	16:00-16:05	60.I	46.7
07:05-07:10	64.7	46.7	10:05-10:10	67.0	41.7	13:05-13:10	58,3	43.1	16:05-16:10	55.6	45.6
07:10-07:15	63.6	49.0	10:10-10:15	62.3	43.2	13:10-13:15	55.0	45.1	16:10-16:15	57.5	44.9
07:15-07:20	63.1	50.1	10:15-10:20	59.9	48.1	13:15-13:20	50.8	41.3	16:15-16:20	55.7	46.2
07:20-07:25	62.4	46.7	10:20-10:25	63.1	48.7	13:20-13:25	53.0	44.3	16:20-16:25	61.5	46.4
07:25-07:30	63.5	48.3	10:25-10:30	55.5	46.6	13:25-13:30	53.3	44.0	16:25-16:30	60.9	47.1
07:30-07:35	64.8	48.5	10:30-10:35	56.3	43.5	13:30-13:35	58.1	43.8	16:30-16:35	62.3	46.3
07:35-07:40	64.2	49.1	10:35-10:40	50.8	43.6	13:35-13:40	62.5	45,9	16:35-16:40	62.9	47.6
07:40-07:45	63.7	48.0	10:40-10:45	56.9	42.9	13:40-13:45	50.9	42.6	16:40-16:45	56.4	48.
07:45-07:50	61.8	47.0	10:45-10:50	62.2	42.0	13:45-13:50	55,9	44.6	16:45-16:50	59.2	48.5
07:50-07:55	61.3	44.8	10:50-10:55	57.0	41.3	13:50-13:55	54.9	44.8	16:50-16:55	60.7	47.9
07:55-08:00	60.4	45.2	10:55-11:00	55.9	40.9	13:55-14:00	59.0	45.3	16:55-17:00	63.4	48.6
08:00-08:05	60.1	43.9	11:00-11:05	54.6	41.3	14:00-14:05	57.9	47.0	17:00-17:05	61.4	49.6
08:05-08:10	61.3	45.7	11:05-11:10	51.3	40.8	14:05-14:10	60.0	47.1	17:05-17:10	61.4	48.5
08:10-08:15	67.6	46.4	11:10-11:15	49.3	39.5	14:10-14:15	55.4	45.6	17:10-17:15	65.0	49.2
08:15-08:20	62.0	49.8	11:15-11:20	53.0	42.0	14:15-14:20	53.5	45.6	17:15-17:20	63.1	48.0
08:20-08:25	59.7	46.9	11:20-11:25	54.4	44.8	14:20-14:25	55.1	43.6	17:20-17:25	63.7	50.8
08:25-08:30	58.7	48.0	11:25-11:30	56.9	44.5	14:25-14:30	50,6	45.6	17:25-17:30	63.8	50.8
08:30-08:35	56.7	53.6	11:30-11:35	57.5	43.3	14:30-14:35	52.2	45.3	17:30-17:35	62.3	51.2
08:35-08:40	61.6	50.5	11:35-11:40	54.2	44.7	14:35-14:40	53.7	44.8	17:35-17:40	61.0	52.3
08:40-08:45	61.2	48.5	11:40-11:45	55.3	44.6	14:40-14:45	54.6	45.7	17:40-17:45	62.4	51.2
08:45-08:50	57.6	48.1	11:45-11:50	50.1	42.1	14:45-14:50	55.5	44.0	17:45-17:50	61.3	53.5
08:50-08:55	57.4	47.3	11:50-11:55	51.2	42.5	14:50-14:55	57.0	45.9	17:50-17:55	60.4	51.3
08:55-09:00	63.3	48.1	11:55-12:00	50.0	44.9	14:55-15:00	54.7	45.7	17:55-18:00	59.8	48.0
09:00-09:05	58.6	50.0	12:00-12:05	53.6	44.9	15:00-15:05	55.9	44.4	18:00-18:05	62.0	47.3
09:05-09:10	60.4	51.9	12:05-12:10	59.3	46,3	15:05-15:10	57.0	44.0	18:05-18:10	61.9	47.4
09:10-09:15	68.0	52.1	12:10-12:15	55,5	42.6	15:10-15:15	57.1	45.0	18:10-18:15	61.4	49.8
09:15-09:20	64.5	52.3	12:15-12:20	55.3	41.4	15:15-15:20	55.1	46.7	18:15-18:20	62.7	50.3
09:20-09:25	60.5	54.3	12:20-12:25	51.3	40.9	15:20-15:25	59,4	47.2	18:20-18:25	58.7	47.7
09:25-09:30	64.3	56.4	12:25-12:30	54.1	42.5	15:25-15:30	55.7	45.2	18:25-18:30	60.4	48.4
09:30-09:35	62.0	56.4	12:30-12:35	58.6	42.6	15:30-15:35	59.7	45.5	18:30-18:35	56.9	49.1
09:35-09:40	66.2	60.9	12:35-12:40	53.8	42.6	15:35-15:40	57.5	47.0	18:35-18:40	58.5	50.0
09:40-09:45	66.4	62.3	12:40-12:45	54.1	42.2	15:40-15:45	53.0	44.7	18:40-18:45	61.5	49.6
09:45-09:50	69,1	63.7	12:45-12:50	51.6	41.5	15:45-15:50	58.6	46.1	18:45-18:50	59.2	50.3
09:50-09:55	67.9	60.6	12:50-12:55	57.3	41.3	15:50-15:55	61.4	46.8	18:50-18:55	60.2	51.0
09:55-10:00	63.3	52.3	12:55-13:00	57.8	40.2	15:55-16:00	55.8	46.5	18:55-19:00	62.0	51.0

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F-RP-011 Rev. 02, July 1, 2017



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Toengsonghong, Laksi, Bangkot 10210
Tel. 0-2954-7747-6-fax 0-2954-7747
E-mail: envi@enviresearch.co.th

ANALYSIS REPORT

Project Name Customer Name TLT Consultants Company Limited โดรงการโรงใฟฟ้าปลวกแคงในพื้นที่สวนอุคสาหกรรมปลวกแคง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Project Location สำบลมาบยางพร อำเภอปลากแลง จังหวัดระยอง

Measured Point Measured Source บริเวณพื้นที่โครงการ Ambient Noise

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

Measured By Measured Date Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.) March 13-14, 2019

Measured Instrument : Integrating Sound Level Meier Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

	Noise L	Noise Level For		Noise Level For	evel For		Noise Level For	vel For		Noise L	Noise Level For
Interval Time	5 minut	5 minutes, dB(A)	Interval Time	5 minutes, dB(A)	cs, dB(A)	Interval Time	5 minutes, dB(A)	:s, dB(A)	Interval Time	5 minutes, dB(A)	es, dB(A
	Leq	D67		Leq	T90		Leq	190		Leq	L90
19:00-19:05	57.3	48.6	22:00-22:05	48.0	43.1	01:00-01:05	39.3	35.6	04:00-04:05	41.8	35.8
19:05-19:10	60.5	49.6	22:05-22:10	50.0	43.4	01:05-01:10	40.7	34,4	04:05-04:10	36.4	33.4
19:10-19:15	62.1	48.2	22:10-22:15	58.1	43.8	01:10-01:15	46.0	35.2	04:10-04:15	50.3	34.9
19:15-19:20	67.3	48.4	22:15-22:20	59.2	42.8	01:15-01:20	40.6	37.3	04:15-04:20	39.0	34.4
19:20-19:25	61.0	48.9	22:20-22:25	63.6	43.8	01:20-01:25	42.8	36.6	04:20-04:25	47.6	36.0
19:25-19:30	61.0	48.6	22:25-22:30	46.2	40.7	01:25-01:30	47.6	38.1	04:25-04:30	48.6	37.3
19:30-19:35	60.2	47.3	22:30-22:35	43.7	38.7	01:30-01:35	44.7	37.5	04:30-04:35	40,3	35.8
19:35-19:40	62.4	47.1	22:35-22:40	52.4	37.7	01:35-01:40	37.9	33.7	04:35-04:40	39.7	36.3
19:40-19:45	59.5	47.4	22:40-22:45	51.7	39.7	01:40-01:45	45.3	36.4	04:40-04:45	39.8	36.5
19:45-19:50	57.7	45.7	22:45-22:50	55.0	39.6	01:45-01:50	49.6	35.4	04:45-04:50	41.0	37,8
19:50-19:55	57.0	46.5	22:50-22:55	52.4	37.7	01:50-01:55	46.3	36.8	04:50-04:55	49.7	39.0
19:55-20:00	54.2	46.7	22:55-23:00	51.0	38.7	01:55-02:00	40.8	36.8	04:55-05:00	48.1	38.6
20:00-20:05	54.2	46.5	23:00-23:05	48.3	37.4	02:00-02:05	44.5	36.3	05:00-05:05	40.8	37.8
20:05-20:10	54.3	45.3	23:05-23:10	44.5	38.2	02:05-02:10	45,4	36.7	05:05-05:10	57.1	37.7
20:10-20:15	58.8	46.8	23:10-23:15	50.6	38.8	02:10-02:15	38.5	34.8	05:10-05:15	45.0	38.2
20:15-20:20	60.3	49.2	23:15-23:20	47.4	38.2	02:15-02:20	38.8	34.2	05:15-05:20	47.6	40.1
20:20-20:25	58.7	47.1	23:20-23:25	39.9	36.7	02:20-02:25	40.1	35.4	05:20-05:25	49.4	41.8
20:25-20:30	62.9	47.0	23:25-23:30	55.8	37.6	02:25-02:30	41.6	32.4	05:25-05:30	52.4	41.9
20:30-20:35	57.6	46.1	23:30-23:35	54.0	37.0	02:30-02:35	35.7	31.8	05:30-05:35	55.6	40.1
20:35-20:40	59.8	46.3	23:35-23:40	46.9	37.9	02:35-02:40	43.9	36.2	05:35-05:40	44.1	39.3
20:40-20:45	58.3	45.5	23:40-23:45	41.4	37.4	02:40-02:45	36.2	32.5	05:40-05:45	53.3	40.0
20:45-20:50	53.3	45.7	23:45-23:50	51.1	39.8	02:45-02:50	41.8	34.7	05:45-05:50	56.7	41.9
20:50-20:55	59.1	48.0	23:50-23:55	45.6	38.2	02:50-02:55	44.8	33.6	05:50-05:55	53.1	42.2
20:55-21:00	52.4	41.6	23:55-24:00	48.8	37.8	02:55-03:00	36.9	32.2	05:55-06:00	57.0	42.9
21:00-21:05	51.1	41.8	00:00-00:05	48.4	34.8	03:00-03:05	38.3	34.2	06:00-06:05	56.2	42.8
21:05-21:10	54.1	42.9	00:05-00:10	45.5	37.1	03:05-03:10	44.5	34.5	06:05-06:10	61.1	44.0
21:10-21:15	56.9	42.2	00:10-00:15	40.7	36.9	03:10-03:15	49.2	34.8	06:10-06:15	67.0	45.0
21:15-21:20	51.2	43.3	00:15-00:20	45.8	34.5	03:15-03:20	39.8	34.0	06:15-06:20	62.5	46.5
21:20-21:25	53.4	43.2	00:20-00:25	49.4	37.8	03:20-03:25	45.4	32.5	06:20-06:25	57.0	45.1
21:25-21:30	54.5	43.6	00:25-00:30	49.6	37.2	03:25-03:30	36.7	33.4	06:25-06:30	58.2	43.9
21:30-21:35	52.9	44.6	00:30-00:35	37.7	34.0	03:30-03:35	48.4	35.1	06:30-06:35	62.5	45.9
21:35-21:40	56.5	43.9	00:35-00:40	40.4	36.3	03:35-03:40	44.6	34.0	06:35-06:40	57.8	45.6
21:40-21:45	53.8	42.1	00:40-00:45	46.3	34.2	03:40-03:45	36.7	33.8	06:40-06:45	64.1	47.5
21:45-21:50	51.5	42.0	00:45-00:50	46.2	36,3	03:45-03:50	37.7	33.2	06:45-06:50	61.0	47.6
21:50-21:55	51.1	43.5	00:50-00:55	41.8	37.8	03:50-03:55	35.8	32.2	06:50-06:55	62.3	48.2
21:55-22:00	53.8	45.3	00:55-01:00	39.8	36.3	03:55-04:00	38.4	32.9	06:55-07:00	61.7	45.9



Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinsket I, Ngamwongwan Road, Toongsonghong, Laksi, Bangkok 10210 Tel. 0-2994-7745-6 Jax 0-2994-7747 E-mall : envi@enviresearch.co.th

ANALYSIS REPORT

Customer Name TLT Consultants Company Limited

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Project Name โครงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง

Project Location ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Measured Source Measured Point Ambient Noise

บริเวณพื้นที่โครงการ

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

March 14, 2019

Measured By Measured Date

Mr. Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number NCC133/2562

07:00-07:05 63.1
07:05-07:10 62.6
07:10-07:15 63.7
07:15-07:20 62.9
07:20-07:25 64.1
07:20-07:25 64.1
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43.4 1315-13:25
43.4 1315-13:25
42.4 13.25-13:30
41.4 13.30-13:35
41.4 13.30-13:35
41.4 13.30-13:35
41.4 13.35-13:30
41.4 13.35-13:30
41.5 13.40-13:55
43.4 13.55-14:30
41.5 14.00-14:25
43.4 14.15-14:20
43.2 14.25-14:20
43.2 14.25-14:20
43.2 14.25-14:20
43.2 14.25-14:20
43.2 14.35-14:40
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45.5 14.40-14:45
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46.6 15:10-15:15
47.4 15:05-15:05
47.5 15:00-15:05
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48.6 15:10-15:15 Noise Level For 5 minutes, dB(A) Leq L90 41.0 16.05-16.10
41.0 16.05-16.10
42.4 16.10-16.115
42.9 16.115-16.20
45.1 16.20-16.25
43.0 16.35-16.40
43.0 16.35-16.40
43.0 16.35-16.40
43.0 16.55-16.50
45.0 16.55-17.00
45.1 17.00-17.05
45.1 17.00-17.05
45.1 17.00-17.25
46.4 17.45-17.30
47.5 17.25-17.30
48.6 17.35-17.40
48.6 17.35-17.40
48.6 17.35-17.40
48.7 17.35-17.40
48.8 17.35-18.90
58.1 18.00-18.95
58.1 18.00-18.95
58.1 18.20-18.25
58.1 18.30-18.35
58.5 18.30-18.35
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58.6 18.45-18.50
58.6 18.45-18.50 Interval Time Noise Level For 5 minutes, dB(A) 149 (1) 58.2 59.0 65.7 49.3 58.7 49.6 59.7 59.8 59.7 50.8 59.7 50.8 50.1 62.2 48.0 60.2 48.7 62.5 48.6 60.2 48.6 60.2 48.6 60.2 48.6 60.2 48.7 60.8 59.7 49.6 61.9 47.6 62.8 50.1 60.2 48.7 62.8 61.9 47.2 62.8 48.5 59.9 48.1 59.3 48.5 59.3 48.5 59.3 48.5 59.3 48.5 59.3 48.2 50.1 60.6 48.8 64.2 50.1 60.6 48.8 64.2 50.1 60.6 48.8 59.3 48.5 59.9 47.1 58.1 40.8 59.9 47.0 58.1 40.8 59.9 47.0 58.1 40.8 59.9 47.0 58.1 40.8 59.9 46.9 60.9 47.0 58.9 46.9 60.9 46.9 60.9 46.9

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F-RP-011 Rev. 02, July 1, 2017



Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket I, Ngamwongwan Road. Toongsonghong, Luksi, Bangkok 10210 Tel. 0-2954-7745-6 Fax 0-2954-7747 E-mail: envi@enviresearch.co.th

ANALYSIS REPORT

TLT Consultants Company Limited

Customer Name

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Project Name โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุดสาหกรรมปลวกแดง

Project Location จำบลมาบบางพร อำนายปลากแลง จังหวัดระยอง

Measured Source Ambient Noise

บริเวณพื้นที่โครงการ

Measured Point

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

Measured Date March 14-15, 2019

Measured By Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number NCC133/2562

Sminutes, dB A Interval Time Sminutes, dB A Interval Time Leq L90 L9		Noise Level For	evel For		Noise L	Noise Level For		Noise Level For	evel For		Noise L	Noise Level For
Leg L90 Leg L90 Leg Log Leg Log Leg Leg Leg Log Leg Leg Log Leg Log Leg Log Leg Log Leg Log Log Log Log A3.5 20.40.0-0.49.5 47.4 48.7 25.5 A3.5 20.40.0-0.49.5 48.7 48.7 48.6 22.10.0-22.15 61.1 43.1 01:10-01:15 49.8 35.9 04:10-04:15 36.8 58.8 48.6 22:20-22.23 51.7 49.9 01:30-01:20 49.8 36.8 04:20-04:25 36.5 56.0 48.6 22:20-22.23 51.7 49.9 01:30-01:35 38.3 39.6 04:20-04:35 39.1 39.6 04:20-04:35 39.2 40.0 01:35-01:35 39.1 39.6 04:20-04:35 39.2 01:30-01:35 39.1 39.6 04:35-04:40 31.8 39.0 01:35-01:35 39.1 39.4 02:30-04:35 39.1 39.4 02:30-04:35 39.1	Interval Time	5 minut	cs, dB(A)	Interval Time	5 minut	es, dB(A)	Interval Time	5 minut	os, dB(A)	Interval Time	5 minut	cs, dB(A)
61.9 47.8 22:00-22:05 52.1 42.1 01:00-01:05 40.9 34.0 04:00-04:05 47.4 59.0 48.7 22:05-22:10 61.7 41.9 01:05-01:10 40.8 35.9 04:05-04:10 48.7 58.9 46.5 22:10-22:15 61.0 43.1 01:10-01:15 38.5 35.9 04:15-04:20 48.7 61.2 48.4 22:20-22:23 48.3 39.9 01:25-01:30 47.9 35.0 04:25-04:30 32.1 61.2 48.4 22:25-22:30 48.3 39.9 01:35-01:30 47.9 35.0 04:25-04:30 32.1 56.0 43.5 22:40-22:45 49.8 41.2 01:30-01:45 38.3 33.4 04:40-04:45 46.7 55.5 43.2 22:40-22:45 43.9 41.2 01:30-01:45 39.1 33.4 04:40-04:45 44.7 56.0 43.1 22:45-22:30 43.1 02:00-02:15 39.1 33.8 01:50-04:55 41.6 </th <th></th> <th>Leq</th> <th>190</th> <th></th> <th>Leq</th> <th>190</th> <th></th> <th>Leq</th> <th>190</th> <th></th> <th>Lec</th> <th>L90</th>		Leq	190		Leq	190		Leq	190		Lec	L90
550 478 22,05-22:10 577 419 01:05-01:10 40.8 35.9 04:05-04:10 48.7 589 48.0 22:10-22:20 54.1 43.2 01:15-01:20 49.4 35.9 04:15-04:20 48.7 66.2 48.4 22:20-22:28 47.9 40.4 01:20-01:25 49.8 36.8 04:20-04:25 36.5 66.2 48.4 22:20-22:28 47.9 40.12-01:35 35.3 32.6 04:30-04:35 39.1 56.0 43.3 22:35-22:45 49.8 41.2 01:35-01:45 38.3 39.4 04:45-04:50 39.7 55.5 43.2 22:45-22:50 43.5 39.1 01:35-01:45 38.3 34.0 04:45-04:50 39.7 55.5 43.2 22:45-22:50 43.5 39.1 01:35-01:45 38.3 34.0 04:45-04:50 39.7 55.5 43.2 22:45-22:50 43.1 40.7 01:35-01:45 38.3 34.0 04:45-04:50 39.7	19:00-19:05	61.9	47.8	22:00-22:05	52.1	42.1	01:00-01:05	40.9	34.0	04:00-04:05	47.4	36.1
586 48.0 22:10-22:15 6.10 43.1 01:10-01:15 38.5 38.2 04:10-04:15 36.8 58.9 46.5 22:15-52:20 47.9 40.4 01:10-01:25 49.4 36.8 04:10-04:15 36.8 66.2 48.4 22:20-22:23 47.9 40.4 01:20-01:35 35.3 36.8 04:20-04:25 36.8 61.7 48.4 22:20-22:35 51.7 39.2 01:30-01:35 35.3 32.0 04:30-04:35 39.2 60.6 45.9 22:40-22:46 49.8 41.2 01:30-01:35 38.3 34.0 04:30-04:35 39.1 55.7 43.9 22:40-22:45 43.4 40.7 01:40-01:45 39.1 32.8 04:50-04:55 41.0 56.0 41.7 23:05-23:10 42.1 49.7 01:50-02:05 39.1 33.8 05:00-05:15 52.8 56.7 47.9 23:05-23:10 43.1 39.7 02:00-02:05 39.1 33.8 05:00-05:15 <td>19:05-19:10</td> <td>59.0</td> <td>47.8</td> <td>22:05-22:10</td> <td>57.7</td> <td>41.9</td> <td>01:05-01:10</td> <td>40.8</td> <td>35.9</td> <td>04:05-04:10</td> <td>48.7</td> <td>35.7</td>	19:05-19:10	59.0	47.8	22:05-22:10	57.7	41.9	01:05-01:10	40.8	35.9	04:05-04:10	48.7	35.7
58.9 46.5 22215-22226 54.1 43.2 01:15-01:20 49.4 35.8 04:15-04-20 48.7 61.7 48.4 22:30-22:30 48.3 39.9 01:35-01:30 47.9 35.0 04:25-04:30 32.1 61.7 48.4 22:30-22:32 48.3 39.9 01:35-01:30 47.9 35.0 04:25-04:30 32.1 61.7 48.4 22:30-22:32 48.5 39.2 01:35-01:40 50.3 33.6 04:35-04:35 51.8 60.6 45.9 22:40-22:44 49.8 41.2 01:40-01:45 38.3 33.4 04:40-04:45 46.7 55.6 43.2 22:45-22:30 43.1 01:40-01:45 39.1 33.4 04:40-04:45 46.7 55.7 43.9 22:45-22:30 43.1 01:35-01:55 39.1 33.2 02:50-05:00 44.6 56.9 47.7 23:05-23:10 47.1 02:00-02:15 39.1 33.2 05:50-05:05 58.2 56.0	19:10-19:15	59.6	48.0	22:10-22:15	61.0	43.1	01:10-01:15	38.5	35.2	04:10-04:15	36.8	34.7
62.2 48.6 222-0-22:25 47.9 40.4 01:20-01:25 49.8 36.8 04:20-04:25 36.5 61.7 48.4 22:30-22:35 51.7 39.9 01:30-01:35 35.3 32.6 04:30-04:35 39.2 56.0 43.3 22:30-22:34 43.6 40:30-04:35 38.3 33.4 04:40-04:45 46.7 55.5 43.2 22:45-22:50 43.5 39.1 01:45-01:50 51.8 34.0 04:45-04:50 46.7 55.5 43.2 22:45-22:50 43.5 39.1 01:45-01:50 39.1 33.2 04:50-04:55 41.0 66.3 44.7 23:05-23:0 45.6 41.1 02:00-02:0 41.3 33.9 04:50-05:05 59.5 56.9 41.1 23:05-23:0 45.0 41.4 02:10-02:0 39.7 37.0 33.8 05:00-05:0 51.9 60.2 48.5 23:15-23:20 47.0 41.2 20:15-02:0 38.7 39.7 39.7 <	19:15-19:20	58.9	46.5	22:15-22:20	54.1	43.2	01:15-01:20	49.4	35.9	04:15-04:20	48.7	34.8
61.2 48.4 22:25-22:30 48.3 39.9 01:35-01:30 47.9 35.0 04:25-04:30 52.1 66.0 43.4 22:35-22:40 52.6 40.9 01:35-01:40 50.3 34.6 04:35-04:40 51.8 66.0 45.9 22:40-22:44 49.8 41.2 01:49-01:50 51.8 34.0 04:45-04:53 44.7 55.5 43.9 22:45-22:56 45.1 40.7 01:35-02:50 51.8 34.0 04:45-04:50 39.7 66.3 44.7 22:45-22:56 45.1 40.7 01:35-02:05 39.1 32.8 04:50-04:55 41.0 66.2 47.7 22:35-23:10 48.6 41.1 20:20-02:05 39.1 33.8 05:50-05:10 52.8 56.7 47.9 23:10-23:15 52.0 41.4 20:10-02:15 37.7 34.3 05:50-05:05 59.2 60.2 47.7 23:05-23:10 43.1 39.7 02:20-02:23 37.7 34.1 05:20-05:05 </td <td>19:20-19:25</td> <td>62.4</td> <td>46.6</td> <td>22:20-22:25</td> <td>47.9</td> <td>40.4</td> <td>01:20-01:25</td> <td>49.8</td> <td>36.8</td> <td>04:20-04:25</td> <td>36.5</td> <td>33.9</td>	19:20-19:25	62.4	46.6	22:20-22:25	47.9	40.4	01:20-01:25	49.8	36.8	04:20-04:25	36.5	33.9
61.7 45.4 22:30-22:35 51.7 39.2 01:30-01:35 35.3 32.6 04:30-04:35 39.2 56.0 43.3 22:45-22:45 49.8 41.2 01:40-01:45 38.3 33.4 04:40-04:45 46.7 55.5 43.2 22:45-22:50 43.5 39.1 01:45-01:50 51.8 34.0 04:40-04:45 46.7 55.7 43.2 22:45-22:50 43.5 39.1 01:45-01:50 39.1 33.8 04:50-00:50 41.0 63.3 46.7 22:35-23:00 42.0 38.9 01:35-02:00 41.3 33.9 04:55-05:00 44.0 56.0 44.1 23:00-23:16 52.0 41.1 02:00-02:05 39.1 33.8 05:00-05:05 59.5 56.0 44.1 23:00-23:35 50.5 47.0 41.2 02:15-02:20 42.6 33.8 05:10-05:05 59.8 56.0 48.6 23:35-23:30 47.0 41.2 20:15-02:20 38.7 39.7	19:25-19:30	61.2	48.4	22:25-22:30	48.3	39.9	01:25-01:30	47.9	35.0	04:25-04:30	52.1	37.5
56.0 43.3 22:35-22:40 52.6 40.9 01:35-01:40 50.3 34.0 04:35-04:40 51.8 56.6 48.5 22:45-22:50 43.5 39.1 01:45-01:50 51.8 34.0 04:45-04:55 46.7 55.5 43.2 22:45-22:50 43.5 39.1 01:45-01:50 51.8 34.0 04:45-04:50 39.7 55.7 43.9 22:45-22:55 45.1 40.7 01:50-01:55 39.1 33.8 04:50-04:55 41.0 66.3 44.1 23:05-23:00 42.0 38.9 01:55-02:00 41.3 33.9 05:50-05:00 49.6 56.9 41.1 23:05-23:01 58.1 39.7 02:05-02:05 39.1 33.8 05:05-05:00 51.9 60.2 48.5 23:15-23:20 47.0 41.2 20:15-02:20 38.7 39.1 05:25-05:20 51.9 60.2 48.5 23:35-23:30 48.7 37.9 92:250-02:20 38.7 34.0 05:25-05:20<	19:30-19:35	61.7	45.4	22:30-22:35	51.7	39.2	01:30-01:35	35.3	32.6	04:30-04:35	39.2	35.2
60.6 45.9 22240-2234 49.8 41.2 01:40-01:45 38.3 33.4 04:40-04:45 46.7 55.5 43.2 22:45-22:55 43.1 40.7 01:35-01:55 39.1 32.8 04:45-04:50 39.7 55.7 43.9 22:55-23:05 48.1 40.7 01:35-02:05 39.1 33.8 04:50-04:55 41.9 56.9 44.1 23:05-23:10 53.1 39.7 02:05-02:00 39.1 33.8 05:00-05:05 50.5 60.2 47.7 23:05-23:10 53.1 39.7 02:10-02:15 37.7 34.3 05:00-05:05 58.2 60.2 48.6 23:35-23:30 48.7 37.9 02:20-02:20 42.6 33.8 05:20-05:25 58.2 60.2 48.6 23:35-23:30 48.7 37.9 02:20-02:25 37.3 34.0 05:20-05:25 58.2 60.2 48.6 23:35-23:30 41.4 36.6 02:35-02:33 38.7 39.7 34.9	19:35-19:40	56.0	43,3	22:35-22:40	52.6	40.9	01:35-01:40	50.3	34.6	04:35-04:40	51.8	35.2
55.5 43.2 22:45-22:50 43.5 39.1 01:45-01:50 51.8 34.0 04:45-04:50 39.7 55.7 43.9 22:50-22:55 45.1 32.9 01:50-04:55 31.1 33.9 04:50-04:55 41.0 63.3 46.7 22:55-23:00 42.0 38.9 01:50-02:00 41.3 33.9 04:55-05:00 44.6 56.9 44.1 23:00-23:15 52.0 41.4 02:10-02:15 42.5 33.4 05:00-05:05 59.5 60.2 48.5 23:15-23:20 47.0 41.2 02:15-02:20 42.6 33.8 05:15-05:20 51.9 60.2 48.5 23:15-23:20 47.0 41.2 02:15-02:20 42.6 33.8 05:15-05:20 51.9 60.2 48.5 23:15-23:30 48.7 39.9 02:20-02:35 37.3 34.0 05:30-05:35 45.2 57.4 49.9 23:40-32:44 41.2 36.6 02:30-02:35 34.1 05:30-05:35 45.2 </td <td>19:40-19:45</td> <td>60.6</td> <td>45.9</td> <td>22:40-22:45</td> <td>49.8</td> <td>41.2</td> <td>01:40-01:45</td> <td>38.3</td> <td>33.4</td> <td>04:40-04:45</td> <td>46.7</td> <td>37.5</td>	19:40-19:45	60.6	45.9	22:40-22:45	49.8	41.2	01:40-01:45	38.3	33.4	04:40-04:45	46.7	37.5
55.7 43.9 22:56-22:55 45.1 40.7 01:50-01:55 39.1 32.8 04:50-04:55 41.0 63.3 46.7 22:55-23:00 42.0 38.9 01:55-02:00 44.6 556.9 41.1 23:00-23:10 52.8 39.7 33.3 93:50-05:50 50.5 35.7 34.3 05:05-05:10 58.2 50.6 48.6 23:12-23:20 47.0 41.2 02:15-02:20 32.3 38.7 34.0 05:30-05:25 53.3 50:15-05:20 52.3 50.2 40.2 32.7 34.1 05:30-05:25 53.3 50:15-05:20 53.3 50:15-05:20 53.3 50:15-05:20 53.3 50:15-05:20 53.3 50:15-05:20 53.3 50:15-05:20 53.3 50:10-05:34 48.2	19:45-19:50	55.5	43.2	22:45-22:50	43.5	39.1	01:45-01:50	51.8	34.0	04:45-04:50	39.7	37.0
63.3 46.7 22:55-23:09 42.0 38.9 01:55-02:00 41.3 33.9 04:55-05:00 44.6 56.9 47.7 23:05-23:10 54.6 41.1 02:00-02:05 39.1 33.8 05:00-05:05 50.5 60.2 47.7 23:05-23:10 53.1 39.7 02:05-02:10 37.7 34.3 05:05-05:10 52.8 50.2 47.9 23:10-23:15 52.0 41.4 02:10-02:15 40.5 33.7 05:10-05:20 51.9 60.2 48.6 23:10-23:25 57.2 39.9 02:20-02:25 37.3 34.0 05:30-05:35 54.2 60.6 48.6 23:20-23:25 57.2 39.9 02:20-02:35 37.7 34.1 05:30-05:35 54.2 57.4 46.2 23:35-23:40 41.4 36.6 02:35-02:30 38.7 32.1 05:30-05:35 56.7 57.4 46.2 23:35-23:34 41.5 36.7 02:30-02:55 36.3 31.4 05:30-05:55 </td <td>19:50-19:55</td> <td>55.7</td> <td>43.9</td> <td>22:50-22:55</td> <td>45.1</td> <td>40.7</td> <td>01:50-01:55</td> <td>39.1</td> <td>32.8</td> <td>04:50-04:55</td> <td>41.0</td> <td>38.0</td>	19:50-19:55	55.7	43.9	22:50-22:55	45.1	40.7	01:50-01:55	39.1	32.8	04:50-04:55	41.0	38.0
56.9 44.1 23:00-23:05 48.6 41.1 02:00-02:05 39.1 33.8 05:00-05:05 50.5 66.02 47.7 23:05-23:15 52.0 41.4 02:10-02:15 40.5 35.7 05:05-05:10 52.8 59.7 47.9 23:10-23:15 52.0 41.2 02:10-02:15 42.6 33.8 05:15-05:20 51.9 60.2 48.5 23:12-23:20 47.0 41.2 02:15-02:20 42.6 33.8 05:15-05:20 51.9 60.2 48.5 23:12-23:20 47.0 39.9 02:20-02:35 37.3 34.0 05:30-05:30 54.2 61.9 47.0 23:30-23:35 50.5 38.2 02:30-02:35 39.7 34.1 05:30-05:35 45.2 57.4 49.9 23:40-33:45 48.2 36.7 02:30-02:35 34.3 05:35-05:40 48.3 57.1 46.4 23:45-23:50 41.5 38.6 02:35-02:50 38.9 34.9 05:45-05:50 56.1<	19:55-20:00	63.3	46.7	22:55-23:00	42.0	38.9	01:55-02:00	41.3	33.9	04:55-05:00	44,6	39.1
660.2 47.7 2305-23:10 53.1 39.7 0205-02:10 37.7 34.3 0505-05:10 52.8 59.7 47.9 23.15-23:15 52.0 41.4 02:10-02:15 40.5 35.7 05:10-05:10 58.2 60.2 48.5 23:15-23:20 47.0 41.2 02:15-02:20 42.6 33.8 05:15-05:20 51.9 60.6 48.6 23:20-23:25 57.2 39.9 02:20-02:30 38.7 32.9 02:30-02:35 57.3 34.0 05:25-05:30 54.2 61.9 47.0 23:30-23:35 50.5 38.2 02:30-02:35 39.7 34.1 05:30-05:35 45.2 57.4 46.2 23:35-23:40 41.4 36.6 02:35-02:30 38.9 34.9 05:40-05:45 56.7 57.6 45.4 23:45-23:30 41.5 38.6 02:35-02:30 38.9 34.9 05:45-05:50 56.7 57.6 45.4 23:45-23:30 41.5 38.6 02:45-02:50 <td>20:00-20:05</td> <td>56.9</td> <td>44.1</td> <td>23:00-23:05</td> <td>48.6</td> <td>41.1</td> <td>02:00-02:05</td> <td>39.1</td> <td>33.8</td> <td>05:00-05:05</td> <td>50.5</td> <td>37.9</td>	20:00-20:05	56.9	44.1	23:00-23:05	48.6	41.1	02:00-02:05	39.1	33.8	05:00-05:05	50.5	37.9
59.7 47.9 23.10-23.15 52.0 41.4 02.10-02.15 40.5 35.7 05.10-05.15 58.2 60.0 48.6 23.10-23.25 57.2 39.9 02.20-02.25 37.3 34.0 05.15-05.20 51.9 60.6 48.6 23.20-23.25 57.2 39.9 02.20-02.25 37.3 34.0 05.30-05.25 53.3 62.8 48.6 23.20-23.25 48.7 37.9 02.20-02.25 38.7 32.9 05.25-05.30 54.2 61.9 47.0 23.30-23.35 50.5 38.2 02.30-02.35 35.6 33.0 05.32-05.35 45.2 57.4 46.2 23.35-23.34 41.4 36.6 02.33-02.40 35.5 34.3 05.50-05.35 45.2 57.7 44.4 23.45-23.25 41.5 38.6 02.24-02.25 34.9 39.4 05.53-05.05 52.9 56.0 44.3 23.55-24.05 54.8 38.6 02.25-02.55 47.3 34.4 05.50-05.55 </td <td>20:05-20:10</td> <td>60.2</td> <td>47.7</td> <td>23:05-23:10</td> <td>53.1</td> <td>39.7</td> <td>02:05-02:10</td> <td>37.7</td> <td>34.3</td> <td>05:05-05:10</td> <td>52.8</td> <td>39.0</td>	20:05-20:10	60.2	47.7	23:05-23:10	53.1	39.7	02:05-02:10	37.7	34.3	05:05-05:10	52.8	39.0
60.2 48.5 23.15-23.20 47.0 41.2 02.15-02.20 42.6 33.8 05.15-05.20 51.9 60.6 48.6 23.20-23.25 57.2 37.9 02.20-02.25 37.3 34.0 05.20-05.25 53.3 62.8 48.6 23.22-23.30 48.7 37.9 02.20-02.35 37.7 32.9 05.25-05.30 54.2 51.9 47.0 23.30-23.35 50.5 38.2 02.30-02.35 39.7 34.1 05.30-05.35 45.2 57.4 49.2 23.35-23.40 41.4 36.6 02.33-02.45 36.5 33.0 05.35-05.40 48.3 57.4 49.2 23.45-23.50 41.5 38.6 02.35-02.45 36.5 33.0 05.35-05.45 56.1 57.4 49.2 23.45-23.50 41.5 38.6 02.45-02.45 36.5 33.0 05.35-05.50 56.1 57.4 49.2 23.45-23.50 41.5 38.6 02.45-02.45 36.5 34.3 05.40-05.45 56.1 56.1 56.1 43.4 23.45-23.50 41.5 38.6 02.45-02.50 38.9 34.9 05.45-05.50 56.1 56.1 56.0 43.9 00.00-00.05 44.5 38.5 02.55-03.00 49.4 33.2 05.50-05.05 57.3 55.0 43.4 00.05-00.05 48.5 38.4 03.00-03.05 38.6 34.1 05.00-05.05 57.3 58.3 44.0 00.10-00.15 47.2 34.4 03.00-03.05 38.9 34.1 05.00-05.05 57.3 58.3 44.0 00.15-00.20 51.4 34.9 03.15-03.20 33.8 06.15-06.20 52.3 55.5 44.8 00.20-00.25 41.9 37.5 03.20-03.35 35.9 33.8 06.15-06.20 52.3 55.2 42.8 00.20-00.35 41.9 37.5 03.20-03.35 43.9 03.3 06.20-06.25 52.2 52.1 43.6 00.20-00.35 41.9 37.5 03.20-03.35 37.6 33.3 06.30-06.35 59.2 52.1 43.6 00.20-00.35 41.4 36.3 03.20-03.35 37.6 34.3 06.30-06.35 59.2 52.1 43.6 00.23-00.35 41.1 36.3 03.20-03.35 37.6 34.3 06.30-06.35 59.2 52.1 43.6 00.35-00.05 41.4 36.3 03.30-03.35 37.6 34.3 06.30-06.35 59.2 52.1 43.6 00.35-00.50 44.1 36.3 03.30-03.35 37.6 34.3 06.30-06.35 59.2 52.1 43.6 00.35-00.55 41.9 32.7 03.30-03.35 37.6 34.3 06.30-06.35 59.2 52.1 43.6 00.35-00.55 36.1 38.0 03.35-03.55 36.5 38.0 03.50-00.55 41.9 36.3 03.40-03.45 48.6 38.3 06.40-06.45 58.4 58.6 58.6 58.6 58.6 58.6 58.6 58.6 58.6	20:10-20:15	59.7	47.9	23:10-23:15	52.0	41.4	02:10-02:15	40.5	35.7	05:10-05:15	58.2	41.6
60.6 48.6 23:20-23:25 57.2 39.9 02:20-02:25 37.3 34.0 05:26-05:25 53.3 66.2 48.6 23:25-23:30 48.7 37.9 02:25-02:30 38.7 32.9 05:25-05:30 54.2 66.2 47.0 23:30-23:35 50.5 38.2 02:30-02:35 39.7 34.1 05:30-05:35 45.2 57.4 46.2 23:35-23:35 50.5 38.2 02:30-02:35 39.7 34.1 05:30-05:35 45.2 57.4 46.2 23:35-23:45 44.2 36.6 02:35-02:45 36.5 34.3 05:35-05:40 48.3 57.4 49.9 23:40-23:45 48.2 36.6 02:35-02:45 36.5 34.3 05:35-05:40 56.7 57.6 44.4 23:45-23:50 41.5 38.6 02:35-02:50 38.9 34.9 05:45-05:50 56.7 57.6 44.3 23:50-23:55 44.8 38.5 02:45-02:50 38.9 34.9 05:45-05:50 56.7 56.0 43.9 00:00-00:05 44.5 38.6 02:45-02:50 38.9 34.9 05:45-05:50 52.9 51.0 43.1 23:55-24:00 44.5 38.4 03:00-03:05 38.6 34.1 06:00-06:05 57.3 56.0 43.9 00:00-00:05 44.5 38.4 03:00-33:05 38.6 34.1 06:00-06:05 57.3 58.1 40.0 00:15-00:20 44.5 37.4 03:00-33:05 38.3 33.2 06:00-06:15 57.3 58.3 44.0 00:15-00:20 54.5 37.4 03:00-33:05 36.3 33.2 06:10-06:15 53.4 55.5 42.8 00:20-00:025 41.9 37.5 03:15-03:20 33.8 06:15-06:20 52.3 55.5 42.8 00:20-00:035 41.9 37.5 03:15-03:20 33.8 06:15-06:20 52.3 55.5 42.8 00:20-00:035 41.9 37.5 03:30-03:35 43.9 33.8 06:15-06:20 52.3 55.2 42.8 00:30-00:35 41.9 37.5 03:30-03:35 43.9 33.8 06:15-06:20 52.3 55.2 42.8 00:30-00:35 41.9 37.5 03:30-03:35 43.9 33.8 06:35-06:30 58.4 55.5 42.8 00:30-00:35 41.9 37.5 03:30-03:35 43.9 33.8 06:35-06:30 58.4 55.5 42.8 00:35-00:35 44.1 33.3 03:20-03:35 43.9 33.8 06:35-06:30 58.4 55.5 42.8 00:35-00:35 44.1 33.3 03:30-03:35 43.9 33.8 06:35-06:35 59.2 55.2 42.8 00:35-00:35 44.1 33.3 03:30-03:35 43.9 33.8 06:35-06:35 59.2 55.2 42.8 00:35-00:35 44.1 33.3 03:30-03:35 43.9 33.8 06:35-06:35 59.2 55.2 42.8 00:35-00:35 44.1 33.3 03:30-03:35 43.9 33.8 06:35-06:35 59.2 55.2 42.8 00:35-00:35 44.1 33.0 03:35-03:35 43.9 33.8 06:35-06:35 59.2 55.2 42.8 00:35-00:35 44.1 33.0 03:35-03:35 43.9 33.8 06:35-06:35 59.2 55.2 42.8 00:35-00:35 44.1 33.0 03:35-03:35 43.9 33.8 06:35-06:35 59.2 55.5 42.8 00:35-00:35 44.1 33.0 03:35-03:35 43.9 33.8 06:35-06:35 59.2 55.5 42.8 00:35-00:35 43.7 33.0 03:35-03:35 36.1 34.9 06:45-06:55	20:15-20:20	60.2	48.5	23:15-23:20	47.0	41.2	02:15-02:20	42.6	33.8	05:15-05:20	51.9	39.8
62.8 48.6 23.25-23.30 48.7 37.9 02.25-02.30 38.7 32.9 05.25-05.30 54.2 61.9 47.0 23.30-23.53 50.5 38.2 02.30-02.35 39.7 34.1 05.30-05.35 45.2 57.4 46.2 23.35-23.40 41.4 36.6 02.35-02.40 35.6 33.0 05.35-05.40 48.3 57.4 49.9 23.40-23.45 48.2 36.7 02.40-02.45 36.5 34.3 05.40-05.45 56.7 67.4 49.9 23.40-23.45 48.2 36.7 02.40-02.45 36.5 34.3 05.40-05.45 56.7 67.4 49.9 23.40-23.45 48.2 36.7 02.40-02.45 36.5 34.3 05.40-05.45 56.7 67.4 49.9 23.40-23.45 48.2 36.7 02.40-02.45 36.5 34.3 05.40-05.45 56.7 67.4 49.9 23.40-23.45 48.2 36.7 02.40-02.45 36.5 34.9 05.40-05.55 52.9 64.1 23.55-24.00 44.5 38.6 02.40-02.55 47.3 34.4 05.50-05.55 52.9 54.5 38.4 03.00-03.00 41.5 38.4 03.00-03.00 49.4 33.2 05.50-05.05 57.3 53.5 44.0 00.10-00.15 47.2 35.4 03.00-03.01 44.3 33.8 06.15-06.10 59.2 58.3 44.0 00.15-00.25 41.9 34.9 03.15-03.20 35.9 33.8 06.15-06.20 62.3 55.5 44.8 00.20-00.25 41.9 34.9 03.15-03.20 35.9 33.8 06.15-06.20 62.3 55.5 44.8 00.20-00.25 41.9 34.9 03.15-03.20 35.9 33.8 06.15-06.20 62.3 55.2 42.8 00.20-00.25 41.9 34.9 03.15-03.20 47.5 34.2 06.25-06.30 58.4 55.2 42.8 00.30-00.45 44.1 36.3 03.20-03.35 37.6 34.2 06.35-06.40 58.9 55.9 44.0 00.45-00.45 44.1 36.3 03.30-03.35 37.6 34.2 06.35-06.40 58.9 55.9 44.0 00.45-00.45 44.1 36.3 03.30-03.35 37.6 38.3 06.40-06.45 58.6 58.8 43.9 00.45-00.45 44.1 36.3 03.45-03.25 59.2 59.2 59.2 59.2 59.2 59.2 59.2 5	20:20-20:25	60.6	48.6	23:20-23:25	57.2	39.9	02:20-02:25	37.3	34.0	05:20-05:25	53.3	39.4
61.9 47.0 23:30-23:35 50.5 38.2 02:30-02:35 39.7 34.1 05:30-05:35 45.2 57.4 49.2 23:35-23:40 41.4 36.6 02:35-02:40 35.6 33.0 05:35-05:40 48.3 57.4 49.2 23:45-23:50 41.5 38.6 02:35-02:45 36.5 34.3 05:30-05:45 56.7 57.6 45.4 23:45-23:50 41.5 38.6 02:45-02:45 38.9 34.9 05:45-05:55 56.1 60.8 43.2 23:45-23:50 41.5 38.6 02:45-02:55 47.3 34.4 05:50-05:55 56.1 56.1 56.0 43.2 23:45-23:50 44.5 38.5 02:45-03:55 47.3 34.4 05:50-05:55 57.3 55.0 43.4 00:05-00:05 48.5 38.4 03:05-03:05 38.6 34.1 06:00-06:05 57.3 56.0 43.9 00:00-00:05 48.5 38.4 03:00-03:05 38.6 34.1 06:00-06:05 57.3 53.5 44.0 00:10-00:15 47.2 34.4 03:00-03:05 38.6 34.1 06:05-06:15 57.3 58.3 44.0 00:15-00:20 51.4 34.9 03:15-03:20 33.8 06:15-06:15 52.2 52.1 43.6 00:25-00:20 41.4 36.3 03:20-03:25 43.9 33.8 06:15-06:20 62.3 55.2 42.8 00:20-00:25 41.9 37.5 03:15-03:20 33.8 06:15-06:20 62.3 55.2 42.8 00:30-00:35 39.1 32.7 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 43.6 00:23-00:35 39.1 32.7 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 43.6 00:23-00:35 39.1 32.7 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.4 36.3 03:30-03:35 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.5 38.0 03:30-03:5 37.6 34.3 06:30-06:35 59.2 52.1 42.8 00:30-00:45 41.6 38.0 03:30-03:5 36.1 34.9 06:45-06:55 63.2 58.1 42.8 00:50-00:55 43.7 35.6 03:50-03:55 36.6 38.8 59.2 59.2 59.2 59.2 59.2 59.2 59.2 59.2	20:25-20:30	62.8	48.6	23:25-23:30	48.7	37.9	02:25-02:30	38.7	32.9	05:25-05:30	54.2	41.4
57.4 46.2 23:35-23:40 41.4 36.6 02:35-02:40 33.6 33.0 05:35-05:40 48.3 57.7 49.9 23:40-23:45 48.2 36.7 02:40-02:45 36.5 34.9 05:45-05:05 56.7 57.6 44.4 23:45-23:30 41.5 38.6 02:45-02:50 38.9 34.9 05:45-05:05 56.7 57.6 44.3 23:50-23:55 44.8 38.5 02:45-02:50 38.9 34.9 05:45-05:05 52.9 51.9 43.1 23:55-24:00 54.5 38.0 02:55-03:00 49.4 33.2 05:55-06:00 54.5 56.0 43.9 00:00-00:05 48.5 38.4 03:00-03:05 38.6 34.1 06:00-06:05 57.3 58.1 43.4 00:05-00:015 48.5 37.4 03:05-03:05 38.6 34.1 06:00-06:05 57.3 58.3 44.0 00:15-00:25 51.4 34.9 03:15-03:20 33.9 33.8 06:15-06:20<	20:30-20:35	61.9	47.0	23:30-23:35	50.5	38.2	02:30-02:35	39.7	34.1	05:30-05:35	45.2	41.4
57.4 49.9 23:40-23:45 48.2 36.7 02:40-02:50 36.5 34.3 05:40-05:45 56.7 57.6 45.4 23:45-23:50 41.5 38.6 02:45-02:50 38.9 34.9 05:45-05:55 52.1 57.6 43.1 23:55-24:00 44.8 38.5 02:25-03:00 49.4 33.2 05:50-05:05 54.5 56.0 43.1 23:55-24:00 54.5 36.0 02:55-03:00 49.4 33.2 05:55-06:00 54.5 56.0 43.1 23:55-24:00 54.5 38.4 03:00-03:05 38.3 34.1 05:50-06:00 54.5 55.0 43.0 00:00-00:05 48.5 38.4 03:00-03:05 38.3 34.1 05:00-06:05 57.3 53.5 43.4 00:01-00:15 47.2 35.4 03:10-03:15 36.3 33.2 06:10-06:15 63.4 55.5 44.0 00:15-00:15 47.2 35.4 03:10-03:15 36.3 33.2 06:15-06:20 </td <td>20:35-20:40</td> <td>57.4</td> <td>46.2</td> <td>23:35-23:40</td> <td>41.4</td> <td>36.6</td> <td>02:35-02:40</td> <td>35.6</td> <td>33.0</td> <td>05:35-05:40</td> <td>48,3</td> <td>41.0</td>	20:35-20:40	57.4	46.2	23:35-23:40	41.4	36.6	02:35-02:40	35.6	33.0	05:35-05:40	48,3	41.0
57.6 45.4 23:45-23:50 41.5 38.6 02:45-02:50 38.9 34.9 05:45-05:50 56.1 60.8 44.3 23:50-23:55 44.8 38.5 02:45-02:55 47.3 34.4 05:50-05:55 52.9 51.9 43.1 23:55-24:00 54.5 36.0 02:55-03:00 49.4 33.2 05:55-06:00 54.5 56.0 43.9 00:00-00:05 48.5 38.4 03:00-03:05 38.6 34.1 06:00-06:05 57.3 53.5 43.4 00:00-00:10 46.5 37.4 03:00-03:10 44.3 33.2 06:05-06:10 59.2 58.3 44.0 00:10-00:15 47.2 37.4 03:05-03:10 44.3 33.2 06:10-06:15 62.3 55.9 44.0 00:15-00:20 51.4 34.9 03:15-03:20 33.8 06:15-06:20 62.3 55.1 43.6 00:20-00:25 41.9 37.5 03:20-03:35 37.6 34.3 06:25-06:20 62.3 </td <td>20:40-20:45</td> <td>57.4</td> <td>49.9</td> <td>23:40-23:45</td> <td>48.2</td> <td>36.7</td> <td>02:40-02:45</td> <td>36.5</td> <td>34,3</td> <td>05:40-05:45</td> <td>56.7</td> <td>39.4</td>	20:40-20:45	57.4	49.9	23:40-23:45	48.2	36.7	02:40-02:45	36.5	34,3	05:40-05:45	56.7	39.4
60.8 44.3 23.50-23.55 44.8 38.5 02.50-02.55 47.3 34.4 05.50-05.55 52.9 51.9 43.1 23.55-24.00 54.5 30.0 02.55-03.00 49.4 33.2 05.55-05.00 54.5 56.0 43.1 23.55-24.00 54.5 38.4 03.00-03.05 38.6 34.1 05.05-06.10 57.3 53.5 43.4 00.00-00.015 44.5 37.4 03.00-03.05 38.6 33.8 06.05-06.10 59.2 58.3 44.0 00.15-00.20 51.4 34.9 03.15-03.15 35.9 33.8 06.10-06.15 53.4 55.5 42.8 00.20-00.25 41.9 37.5 03.15-03.20 33.9 06.10-06.15 63.4 55.5 42.8 00.20-00.25 41.9 37.5 03.20-03.25 43.9 33.8 06.15-06.20 62.3 55.2 42.8 00.30-00.35 41.4 36.1 32.7 03.30-03.35 37.6 34.3 06.35-06.30<	20:45-20:50	57.6	45.4	23:45-23:50	41.5	38.6	02:45-02:50	38.9	34.9	05:45-05:50	56.1	40.3
51.9 43.1 23:55-24:00 54.5 38.0 02:25-03:00 49.4 33.2 05:55-06:00 56.0 43.9 00:00-00:05 48.5 38.4 03:00-03:05 38.6 31.1 06:00-06:08 53.5 43.4 00:05-00:10 46.5 37.4 03:05-03:10 44.3 33.8 06:05-06:10 58.3 44.0 00:10-00:15 47.2 35.4 03:10-03:15 36.3 33.2 06:10-06:15 55.9 44.0 00:15-06:20 51.4 34.9 03:15-03:20 35.9 33.8 06:15-06:20 55.5 42.8 00:25-00:25 41.4 34.9 03:15-03:25 33.9 33.4 06:25-06:30 55.1 43.6 00:25-00:25 41.4 36.3 03:25-03:30 47.5 34.2 06:25-06:30 55.2 42.8 00:35-00:30 41.4 36.3 03:25-03:30 47.5 34.3 06:35-06:30 55.2 42.8 00:35-00:40 44.6 38.0 03	20:50-20:55	60.8	44.3	23:50-23:55	44.8	38.5	02:50-02:55	47.3	34.4	05:50-05:55	52.9	42.1
56.0 43.9 00:00-00:05 48.5 38.4 03:00-03:05 38.6 34.1 06:00-06:05 53.5 43.4 00:05-00:10 46.5 37.4 03:05-03:10 44.3 33.8 06:05-06:10 58.3 44.0 00:10-00:15 47.2 35.4 03:10-03:15 36.3 33.2 06:10-06:18 55.5 44.0 00:15-00:20 51.4 34.9 03:15-03:25 35.9 33.4 06:25-06:20 55.5 44.6 00:20-00:25 41.9 37.5 03:20-03:25 43.9 33.4 06:20-06:28 52.1 43.6 00:20-00:25 41.9 37.5 03:20-03:25 43.9 33.4 06:25-06:20 52.1 43.6 00:30-00:35 36.1 32.7 03:30-03:35 37.6 34.2 06:35-06:40 52.2 42.8 00:30-00:35 36.1 32.7 03:30-03:35 37.6 38.3 06:40-06:45 52.8 42.8 00:30-00:35 41.8 34.3 03	20:55-21:00	51.9	43.1	23:55-24:00	54.5	36.0	02:55-03:00	49.4	33.2	05:55-06:00	54.5	42.8
53.5 43.4 00:05-00:10 46.5 37.4 03:05-03:10 43.3 33.8 06:05-06:10 58.3 44.0 00:10:00:15 47.2 35.4 03:10-03:15 36.3 33.8 06:15-06:20 55.5 42.8 00:30-00:25 51.4 34.9 03:15-02:20 33.9 33.4 06:20-06:28 52.1 43.6 00:20-00:25 41.9 37.5 03:20-03:25 43.9 33.4 06:20-06:28 52.1 43.6 00:20-00:23 41.4 36.3 03:25-03:30 47.5 34.2 06:25-06:30 55.2 42.8 00:30-00:35 36.1 32.7 03:30-03:35 37.6 34.3 06:30-06:35 55.2 42.8 00:35-00:40 44.6 38.0 03:35-03:40 41.2 35.1 06:30-06:35 57.9 42.0 00:45-00:50 41.8 34.3 03:45-03:50 50.1 34.9 06:45-06:50 58.4 43.9 00:50-00:55 41.8 34.3 03	21:00-21:05	56.0	43.9	00:00-00:05	48.5	38.4	03:00-03:05	38.6	34.1	06:00-06:05	57.3	43.2
58.3 44.0 00:10-00:15 47.2 35.4 03:10-03:15 36.3 33.2 06:10-06:15 55.9 44.0 00:15-00:20 51.4 34.9 03:15-03:20 35.9 33.8 06:15-06:20 55.5 42.8 00:20-00:25 41.9 37.5 03:20-03:25 43.9 33.4 06:25-06:30 52.1 43.6 00:25-00:30 41.4 36.3 03:25-03:30 47.5 34.2 06:25-06:30 55.2 42.8 00:30-00:35 36.1 32.7 03:30-03:35 37.6 34.3 06:35-06:30 52.8 42.8 00:35-00:40 44.6 38.0 03:30-03:45 35.1 06:35-06:45 57.9 42.0 00:40-00:45 42.1 36.3 03:40-03:45 48.6 38.3 06:40-06:45 58.4 43.9 00:45-00:50 41.8 34.3 03:45-03:50 36.8 34.9 06:45-06:50 58.4 42.8 00:35-01:00 43.7 35.1 03:55-07:00	21:05-21:10	53.5	43.4	00:05-00:10	46.5	37.4	03:05-03:10	44.3	33.8	06:05-06:10	59.2	43.5
55.9 44.0 00:15-00:20 51.4 34.9 03:15-03:20 35.9 33.8 06:15-06:20 55.5 42.8 00:20-00:25 41.9 37.5 03:20-03:25 43.9 33.4 06:20-06:28 55.1 43.6 00:20-00:30 41.4 36.3 03:25-03:30 47.5 34.2 06:25-06:30 55.2 42.8 00:30-00:33 36.1 32.7 03:30-03:35 37.6 34.3 06:30-06:35 55.2 42.8 00:35-00:40 44.6 32.7 03:30-03:35 37.6 34.3 06:30-06:35 52.8 42.8 00:35-00:40 42.1 36.3 03:30-03:35 37.6 38.3 06:40-06:45 58.8 43.9 00:45-00:50 41.8 34.3 03:45-03:50 50.1 34.9 06:40-06:50 58.8 43.9 00:50-06:55 43.7 35.6 03:50-03:50 36.6 34.8 06:50-06:50 58.4 43.9 00:55-07:00 43.7 35.6 03	21:10-21:15	58.3	44.0	00:10-00:15	47.2	35.4	03:10-03:15	36.3	33.2	06:10-06:15	63.4	44.9
55.5 42.8 (00;30×00;25 41.9 37.5 (03;20×03;25 43.9 33.4 (06;20×06;28 52.1 43.6 (00;25×00;30 41.4 36.3 03;25×03;30 47.5 34.2 06;25×06;30 55.2 42.8 (00;35×00;40 44.6 38.0 03;35×03;40 41.2 35.1 06;35×06;40 57.9 42.0 (00;35×00;40 42.1 36.3 03;35×39;40 41.2 38.3 06;40×06;48 58.8 43.9 00;45×00;50 41.8 34.3 03;45×03;50 50.1 34.9 06;45×06;50 58.4 44.6 00;50×00;50 41.8 34.3 03;45×03;50 50.1 34.8 06;55×07;06;50 58.5 42.8 00;55×00;00 43.7 35.6 03;55×00;00 37.3 35.7 05;55×07;00	21:15-21:20	55.9	44.0	00:15-00:20	51,4	34.9	03:15-03:20	35.9	33.8	06:15-06:20	62.3	45.2
52.1 43.6 00:25-00:30 41.4 30.3 03:25-03:30 47.5 34.2 06:25-06:30 55.2 42.8 00:33-00:35 36.1 32.7 03:30-03:35 37.6 33.2 06:35-06:30 52.8 42.8 00:35-00:40 44.6 38.0 03:35-03:40 41.2 35.1 06:35-06:30 57.9 42.0 00:40-00:45 42.1 36.3 03:40-03:45 48.6 38.3 06:40-06:45 58.8 43.9 00:45-06:50 41.8 34.3 03:45-03:50 50.1 34.9 06:45-06:50 58.4 44.6 00:55-01:00 43.7 35.1 03:55-07:00 37.3 35.7 06:55-07:05 58.5 42.8 00:55-01:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00	21:20-21:25	55.5	42.8	00:20-00:25	41.9	37.5	03:20-03:25	43.9	33.4	06:20-06:25	61.2	46.1
55.2 42.8 00:30-00:35 36.1 32.7 03:30-03:35 37.6 34.3 06:30-06:38 52.8 42.8 00:35-00:40 44.6 38.0 03:35-03:40 41.2 35.1 06:35-06:40 57.9 42.0 00:40-00:45 42.1 36.3 03:40-03:45 48.6 38.3 06:40-06:45 58.8 43.9 00:45-00:50 41.8 34.3 03:45-03:50 50.1 34.9 06:45-06:50 58.8 43.9 00:55-07:00 43.7 35.6 03:50-03:50 36.6 34.8 06:50-06:50 58.4 44.6 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 59.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00	21:25-21:30	52.1	43.6	00:25-00:30	41.4	36.3	03:25-03:30	47.5	34.2	06:25-06:30	58.4	45.7
52.8 42.8 00:35-00:40 44.6 38.0 03:35-03:40 41.2 35.1 06:35-06:40 57.9 42.0 00:40-00:45 42.1 36.3 03:40-00:35 48.6 38.3 06:40-06:45 58.8 43.9 00:45-00:50 41.8 34.3 03:45-03:50 50.1 34.9 06:45-06:50 58.4 44.6 00:50-00:55 43.7 35.6 03:50-03:55 36.6 34.8 06:50-06:55 50.5 42.8 00:55-01:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00	21:30-21:35	55.2	42.8	00:30-00:35	36.1	32.7	03:30-03:35	37.6	34,3	06:30-06:35	59.2	45.9
57.9 42.0 00:40-00:45 42.1 36.3 03:40-03:45 48.6 38.3 06:40-06:45 58.8 43.9 00:45-06:50 41.8 34.3 03:40-03:55 36.6 34.9 06:45-06:50 58.4 44.6 00:50-00:55 43.7 35.6 03:50-03:55 36.6 34.8 06:50-06:50-06:55 59.5 42.8 00:55-01:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 59.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00	21:35-21:40	52.8	42.8	00:35-00:40	44.6	38.0	03:35-03:40	41.2	35.1	06:35-06:40	58.9	47.1
58.8 43.9 00:45-06:50 41.8 34.3 03:45-03:50 50.1 34.9 06:45-06:50 58.4 44.6 00:50-06:55 43.7 35.6 03:50-03:55 36.6 34.8 06:50-06:55 50.5 42.8 00:55-01:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:55-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:50-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:50-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:50-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:50-07:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00 50.5 42.8 00:50-07:00 43.7 35.1 03:55-04:00 43.7 35.1 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 03:50 43.0 0	21:40-21:45	57.9	42.0	00:40-00:45	42.1	36.3	03:40-03:45	48.6	38.3	06:40-06:45	58.6	46.2
58.4 44.6 00:50-00:55 43.7 35.6 03:50-03:55 36.6 34.8 06:50-06:55 50.5 42.8 00:55-01:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00	21:45-21:50	58.8	43.9	00:45-00:50	41.8	34.3	03:45-03:50	50.1	34.9	06:45-06:50	63.2	47.4
50.5 42.8 00:55-01:00 43.7 35.1 03:55-04:00 37.3 35.7 06:55-07:00	21:50-21:55	58.4	44.6	00:50-00:55	43.7	35.6	03:50-03:55	36.6	34.8	06:50-06:55	63.8	48.7
	21:55-22:00	50.5	42.8	00:55-01:00	43.7	35.1	03:55-04:00	37.3	35.7	06:55-07:00	63.0	46.8



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ANALYSIS REPORT

Customer Name TLT Consultants Company Limited 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

GPS. Coordinate **Measured Point** Measured Source Project Location Project Name บริเวณพื้นที่โครงการ UTM (WGS84) 47P 0733603 E, 1432601 N Ambient Noise ต้านลมานยางพร อำเภอปลวกแดง จังหวัดระยอง โครงการโรงไฟฟ้าปลวกแลงในพื้นที่สวนอุตสาหกรรมปลวกแลง

Measured By Measured Date Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

Total distribution	Noise L	Noise Level For	A	Noise Level For	evel For		Noise Level For	vel For	1 70	Noise Level For	vel F
THE CAPE A STREET	Leq	Leq L90	THE THE		Leq L90	IIII III III III III III III III III I	Leq L90	190	THE THE THE	Leq L90	190
07:00-07:05	64.3	46.6	10:00-10:05	54.5	43.0	13:00-13:05	58.1	45.0	16:00-16:05	58.5	45.1
07:05-07:10	62.9	46.1	10:05-10:10	51.2	44.1	13:05-13:10	60.0	43.7	16:05-16:10	57.6	44.6
07:10-07:15	62.8	45.2	10:10-10:15	51.4	44.1	13:10-13:15	57.5	44.3	16:10-16:15	57.9	43.2
07:15-07:20	63.5	45.1	10:15-10:20	61.2	44.0	13:15-13:20	51.8	44.7	16:15-16:20	59.2	45.6
07:20-07:25	63.7	45.4	10:20-10:25	58.6	45.6	13:20-13:25	53.8	46.3	16:20-16:25	58.8	45.0
07:25-07:30	63.8	45.9	10:25-10:30	49.0	43.6	13:25-13:30	56.6	44.2	16:25-16:30	62.7	46.3
07:30-07:35	65.0	45,4	10:30-10:35	53.1	43.6	13:30-13:35	54.5	43.8	16:30-16:35	57.8	44.8
07:35-07:40	62.3	45.6	10:35-10:40	56.9	44.2	13:35-13:40	58,2	46.1	16:35-16:40	60.0	4
07:40-07:45	64.0	44.5	10:40-10:45	54.0	44.0	13:40-13:45	57.8	46.1	16:40-16:45	59.8	44.7
07:45-07:50	61.8	43.4	10:45-10:50	60.4	43.9	13:45-13:50	56.1	44.9	16:45-16:50	60.0	4
07:50-07:55	58.5	41.0	10:50-10:55	61.7	42.1	13:50-13:55	56.1	42.9	16:50-16:55	60.9	47.7
07:55-08:00	60.6	40.9	10:55-11:00	58.1	42.8	13:55-14:00	56.5	45.6	16:55-17:00	57.4	4
08:00-08:05	61.7	42.3	11:00-11:05	58.2	43.2	14:00-14:05	61.0	44.9	17:00-17:05	58.1	46.2
08:05-08:10	62.1	42.4	11:05-11:10	55.9	41.8	14:05-14:10	61.0	44.1	17:05-17:10	59.4	47.1
08:10-08:15	67.0	43.6	11:10-11:15	52.0	42.2	14:10-14:15	53.9	46.5	17:10-17:15	63.1	50.2
08:15-08:20	61.2	45.2	11:15-11:20	53.9	43.3	14:15-14:20	62.6	46.0	17:15-17:20	63.7	51.1
08:20-08:25	60.8	44.7	11:20-11:25	43.9	39.9	14:20-14:25	55.8	44.7	17:20-17:25	65.9	49.6
08:25-08:30	61.0	44.0	11:25-11:30	56.0	40.6	14:25-14:30	58.6	45.8	17:25 17:30	62.0	48.4
08:30-08:35	60.2	43.3	11:30-11:35	54.0	42.5	14:30-14:35	54.1	44.7	17:30-17:35	62.5	50.4
08:35-08:40	59.1	43.3	11:35-11:40	58.6	39.8	14:35-14:40	51.1	40.2	17:35-17:40	62.4	49.8
08:40-08:45	62.9	48.1	11:40-11:45	49.5	40.2	14:40-14:45	55.1	41.2	17:40-17:45	65.2	53.6
08:45-08:50	66.9	48.8	11:45-11:50	56.8	45.8	14:45-14:50	58,5	44.4	17:45-17:50	65.5	59.0
08:50-08:55	61.6	47.9	11:50-11:55	58.2	46.4	14:50-14:55	52,3	42.3	17:50-17:55	63.2	50.9
08:55-09:00	55.4	47.3	11:55-12:00	52.3	46.9	14:55-15:00	56.1	43.6	17:55-18:00	62.4	47
09:00-09:05	66.8	47.8	12:00-12:05	60.5	48.7	15:00-15:05	61.1	45.7	18:00-18:05	62.4	50.5
09:05-09:10	59.2	43.4	12:05-12:10	55.3	48.7	15:05-15:10	56.5	44.0	18:05-18:10	61.3	51.1
09:10-09:15	58.2	45.1	12:10-12:15	57.1	41.8	15:10-15:15	54.6	44.4	18:10-18:15	63.2	51.1
09:15-09:20	52.2	42.9	12:15-12:20	57.7	44.4	15:15-15:20	57.3	44.3	18:15-18:20	62.2	50.2
09:20-09:25	59.9	45.8	12:20-12:25	58.7	43.3	15:20 15:25	57.5	43.1	18:20-18:25	61.1	50.2
09:25-09:30	60.6	40.3	12:25-12:30	57.7	42.8	15:25-15:30	54.9	45.5	18:25-18:30	62.7	52.2
09:30-09:35	55.5	46.3	12:30-12:35	57.5	43,1	15:30-15:35	57.0	44.9	18:30-18:35	61.6	49
09:35-09:40	54.8	44.2	12:35-12:40	54.4	42.3	15:35-15:40	60.2	45.9	18:35-18:40	60.2	49.9
09:40-09:45	57.3	45.9	12:40-12:45	56.0	42.1	15:40-15:45	52.4	43.7	18:40-18:45	68.0	49.8
09:45-09:50	53.9	42.9	12:45-12:50	56.4	41.7	15:45-15:50	58.4	44.6	18:45-18:50	57.9	4
09:50-09:55	59.2	44.3	12:50-12:55	58.3	46.0	15:50-15:55	56.6	45.1	18:50-18:55	63.8	46.9
09:55-10:00	53.7	43.8	12:55-13:00	55.5	43.7	15:55-16:00	65.0	46.0	18:55-19:00	58.4	47.4

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F-RP-011 Rev. 02, July 1, 2017



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ANALYSIS REPORT

Customer Name : TLT Consultants Company Limited

Project Name โครงการโรงใฟฟ้าปลวกแลงในพื้นที่สวนอุสสาหกรรมปลวกแลง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Project Location ตำบลมาบยางพร อำเภอปลวกแตง จังหวัดระยอง

Measured Source Ambient Noise

Measured Point บริเวณสั้นที่โครงการ

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

Measured Date March 15-16, 2019

Measured By

Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430 : Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Reported Number : NCC133/2562

Interval Time	Noise Level For 5 minutes, dB(A)	Noise Level For 5 minutes, dB(A)	Interval Time	Noise Level For 5 minutes, dB(A)	evel For	Interval Time	Noise Level For 5 minutes, dB(A)	es. dB(A)	Interval Time	Noise Level For	Noise Level For
	Leq	L90		Leg	190		Leg	1.90	Street or store or store or	Leg	190
19:00-19:05	61.8	47.6	22:00-22:05	57.1	41.6	01:00-01:05	37.6	34.9	04:00-04:05	56.2	36.2
19:05-19:10	58.2	46.4	22:05-22:10	53.7	41.7	01:05-01:10	42.0	36.9	04:05-04:10	36,5	33.0
19:10-19:15	60.2	47.2	22:10-22:15	47.3	40.5	01:10-01:15	50.4	35.8	04:10-04:15	54.9	35.2
19:15-19:20	63.8	46.1	22:15-22:20	52.7	41.3	01:15-01:20	48.7	34.6	04:15-04:20	49.6	34.1
19:20-19:25	60.5	44.1	22:20-22:25	57.3	41.8	01:20-01:25	37.4	34.0	04:20-04:25	48.2	32.4
19:25-19:30	61.6	43.7	22:25-22:30	56.3	39.1	01:25-01:30	44.5	35.8	04:25-04:30	34.5	30.6
19:30-19:35	61.4	45.4	22:30-22:35	53.7	39.9	01:30-01:35	36.7	34.4	04:30-04:35	40.5	31.7
19:35-19:40	67.2	47.9	22:35-22:40	55.1	41.6	01:35-01:40	38.7	34.4	04:35-04:40	49.9	34.8
19:40-19:45	59.4	46.8	22:40-22:45	51.0	42.6	01:40-01:45	42.2	37.4	04:40-04:45	53.1	34.8
19:45-19:50	56.7	45.0	22:45 22:50	56.8	39.4	01:45-01:50	49.7	37.8	04:45-04:50	51.7	31.3
19:50-19:55	59.9	45.2	22:50-22:55	54.6	38.1	01:50-01:55	38.5	35.2	04:50-04:55	38.8	33.3
19:55-20:00	58.5	43.6	22:55-23:00	48.5	39.6	01:55-02:00	38,4	34.9	04:55-05:00	42.1	32.2
20:00-20:05	58.5	45.6	23:00-23:05	47.6	37.5	02:00-02:05	40.7	34.4	05:00-05:05	51.4	33.7
20:05-20:10	57.8	46.4	23:05-23:10	40.2	36.6	02:05-02:10	47.2	32.3	05:05-05:10	36.0	32.8
20:10-20:15	58.9	47.0	23:10-23:15	46.5	36.8	02:10-02:15	34.8	33,3	05:10-05:15	55.9	33.0
20:15-20:20	55.9	45.1	23:15-23:20	49.5	36.9	02:15-02:20	38.8	34.4	05:15-05:20	52.0	36.4
20:20-20:25	62.9	47.1	23:20-23:25	54.0	36.9	02:20-02:25	33.9	31.3	05:20-05:25	51.6	37.2
20:25-20:30	60.5	46.9	23:25-23:30	43.9	35.6	02:25-02:30	49,9	31.3	05:25-05:30	57.2	37.5
20:30-20:35	55.7	44.6	23:30-23:35	53.0	37.0	02:30-02:35	49.2	34,0	05:30-05:35	39.3	36.2
20:35-20:40	53.5	43.2	23:35-23:40	54.6	36.1	02:35-02:40	37.2	34.1	05:35-05:40	54.1	37.9
20:40-20:45	59.2	46.0	23:40-23:45	46.0	36.7	02:40-02:45	40.4	36.8	05:40-05:45	48.2	38.2
20:45-20:50	55.5	44.2	23:45-23:50	44.5	37.9	02:45-02:50	38.7	36.3	05:45-05:50	53.3	38.1
20:50-20:55	60.2	44.0	23:50-23:55	50.1	39.3	02:50-02:55	42.1	36.3	05:50-05:55	54.4	37.3
20:55-21:00	53.6	43.0	23:55-24:00	50.3	36.3	02:5503:00	47.9	35.2	05:55-06:00	48,9	39.8
21:00-21:05	58.8	43.1	00:00-00:05	50.3	35.9	03:00-03:05	44.9	37.4	06:00-06:05	55.6	38.8
21:05-21:10	55.9	42.9	00:05-00:10	40.1	37.0	03:05-03:10	36.5	35.4	06:05-06:10	65.1	40.5
21:10-21:15	50.7	42.1	00:10-00:15	50.3	35.7	03:10-03:15	37.2	35.3	06:10-06:15	56.3	39.8
21:15-21:20	57.5	42.2	00:15-00:20	52.7	35.3	03:15-03:20	37.6	35.2	06:15-06:20	60.0	39,4
21:20-21:25	53.9	41.9	00:20-00:25	37.7	35.6	03:20-03:25	39.6	37.3	06:20-06:25	59.3	39.7
21:25-21:30	57.5	43.9	00:25-00:30	53.3	35.9	03:25-03:30	49.0	35.6	06:25-06:30	52.9	40.9
21:30-21:35	55.1	43.6	00:30-00:35	37.7	35.2	03:30-03:35	49.2	36.0	06:30-06:35	55.6	42.9
21:35-21:40	56.1	44.2	00:35-00:40	39.2	36.8	03:35-03:40	47.6	34.1	06:35-06:40	60.8	43.3
21:40-21:45	58.2	41.7	00:40-00:45	37.9	35.9	03:40-03:45	45.6	34.2	06:40-06:45	60.1	44.0
21:45-21:50	54.9	41.5	00:45-00:50	45.4	36.5	03:45-03:50	46.8	33.4	06:45-06:50	60.8	42.5
21:50-21:55	53.0	42.8	00:50-00:55	39.0	35.8	03:50-03:55		35.5	06:50-06:55	58.8	42.8
	-	000	00-55 01-00	540	33.9	03:55-04:00	53.2	34.7	06:55-07:00	66.6	44.5



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ANALYSIS REPORT

Project Name Address Customer Name โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุดสาหกรรมปลวกแดง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230 TLT Consultants Company Limited

Measured Point Measured Date GPS. Coordinate

Project Location Measured Source

ตำบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Ambient Noise

บริเวณพื้นที่โครงการ

: UTM (WGS84) 47P 0733603 E, 1432601 N March 16, 2019

Measured By Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

Interval Time	Noise Level For 5 minutes, dB[A]	evel For	Interval Time	Noise L	Noise Level For 5 minutes, dB(A)	Interval Time	Noise L	Noise Level For 5 minutes, dB(A)	Interval Time	Noise L	Noise Level For 5 minutes, dB(A)
	Leq	L90		Leq	190		Leg	L90		Leq	L90
07:00-07:05	60.2	43.4	10:00-10:05	62.4	53.5	13:00-13:05	57.1	39.8	16:00-16:05	57.1	45.6
07:05-07:10	61.5	45.2	10:05-10:10	60.0	49.1	13:05-13:10	53.0	39.5	16:05-16:10	58.9	46.5
07:10-07:15	62.9	45.2	10:10-10:15	59.6	48.2	13:10-13:15	56.1	37.7	16:10-16:15	58.6	46.6
07:15-07:20	62.8	44.1	10:15-10:20	57.5	47.3	13:15-13:20	58.0	40.9	16:15-16:20	58.1	45,4
07:20-07:25	62,2	43.6	10:20-10:25	53,9	45,5	13:20-13:25	56.3	39.1	16:20-16:25	57.6	46.6
07:25-07:30	64.8	47.8	10:25-10:30	58.1	45.5	13:25-13:30	56.3	41.3	16:25-16:30	60.0	47.3
07:30-07:35	65.6	45.6	10:30-10:35	52.9	45.7	13:30-13:35	60.3	38.1	16:30-16:35	58.5	47.6
07:35-07:40	64.4	46.7	10:35-10:40	55.5	45.1	13:35-13:40	55.8	39.0	16:35-16:40	56.8	50.3
07:40-07:45	61.4	44.9	10:40-10:45	60.4	46.4	13:40-13:45	58.9	41.5	16:40-16:45	58.6	50.8
07:45-07:50	55.6	44.5	10:45-10:50	56.9	45.1	13:45-13:50	59.2	42.6	16:45-16:50	61.0	51.2
07:50-07:55	62.8	47.8	10:50-10:55	57.6	45.8	13:50-13:55	53.6	43.3	16:50-16:55	58.1	49.9
07:55-08:00	61.2	49.0	10:55-11:00	60.9	46.1	13:55-14:00	53.3	42.9	16:55-17:00	58.4	48.0
08:00-08:05	59.5	49.4	11:00-11:05	57.4	46.2	14:00-14:05	52.9	42.0	17:00-17:05	58.6	47.7
08:05-08:10	61,4	52.2	11:05-11:10	59.1	46.2	14:05-14:10	54.3	42.4	17:05-17:10	66.9	51.6
08:10-08:15	62.8	51.1	11:10-11:15	54.6	45.1	14:10-14:15	60.8	42.2	17:10-17:15	62.6	48.7
08:15-08:20	63.6	50.9	11:15-11:20	56.3	44.1	14:15-14:20	51.8	43.1	17:15-17:20	59.8	49.1
08:20-08:25	62.5	48.8	11:20-11:25	60.6	44.0	14:20-14:25	50.4	44.5	17:20-17:25	62.7	50.1
08:25-08:30	60.7	47.9	11:25-11:30	61.1	44.1	14:25-14:30	55.2	43.9	17:25-17:30	61.3	47.8
08:30-08:35	61.9	52.2	11:3011:35	61.7	44.1	14:30-14:35	55.6	41.4	17:30-17:35	62.0	47.6
08:35-08:40	60.5	51.3	11:35-11:40	59.5	45.2	14:35-14:40	62.6	42.7	17:35-17:40	61.3	49.3
08:40-08:45	64.1	51.1	11:40-11:45	57.3	43.8	14:40-14:45	54.8	43.5	17:40-17:45	62.3	47.9
08:45-08:50	57.7	49.0	11:45-11:50	56.0	42.6	14:45-14:50	55.2	43.2	17:45-17:50	61.3	50.9
08:50-08:55	58.7	45.3	11:50-11:55	59.0	40.9	14:50-14:55	55.8	43.0	17:50-17:55	62.8	53.6
08:55-09:00	60.3	45.4	11:55-12:00	55.2	42.5	14:55-15:00	56.6	42.3	17:55-18:00	65.3	53.3
09:00-09:05	58.9	46.9	12:00-12:05	51.0	40.3	15:00-15:05	56.5	45.3	18:00-18:05	59.0	51.4
09:05-09:10	59.2	45.5	12:05-12:10	54.9	40.6	15:05-15:10	52.3	42.6	18:05-18:10	63.9	51.8
09:10-09:15	60.7	46.0	12:10-12:15	56.2	42.9	15:10-15:15	63.5	43.3	18:10-18:15	63.1	51.7
09:15-09:20	61.7	46.1	12:15-12:20	57.1	41.8	15:15-15:20	52.2	44.1	18:15-18:20	58.5	50.8
09:20-09:25	61.9	47.9	12:20-12:25	59.2	43.3	15:20-15:25	51.6	43.1	18:20-18:25	61.0	51.0
09:25-09:30	60.7	47.5	12:25-12:30	55,8	42,4	15:25-15:30	61.1	42.4	18:25-18:30	61.0	50.6
09:30-09:35	64.2	56.8	12:30-12:35	56.0	43.5	15:30-15:35		45.2	18:30-18:35	58.5	50.8
09:35-09:40	61.6	44.3	12:35-12:40	57.9	41.4	15:35-15:40	54.0	42.7	18:35-18:40	59.2	50.1
09:40-09:45	54.6	41.9	12:40-12:45	57.0	43.3	15;40-15:45	-	43.0	18:40-18:45	59.1	49.9
09:45-09:50	61.4	47.3	12:45-12:50	52.4	38.1	15:45-15:50	59.6	43.2	18:45-18:50	63.0	50.7
09:50-09:55	52.8	47.9	12:50-12:55	53.9	38.7	15:50-15:55	55,6	44.6	18:50-18:55	66.1	51.7
09:55-10:00	55.0	48.3	12:55-13:00	60.3	39.8	15:55-16:00	60.4	44.9	18:55-19:00	60.0	52.6

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F-RP-011 Rev. 02, July 1, 2017



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ANALYSIS REPORT

Project Name Address Customer Name : TLT Consultants Company Limited โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Project Location Ambient Noise คำบลมาบบางหร อำเภอปลากแลง จังหวัดระยอง

Measured Source

Measured Point บริเวณพื้นที่โครงการ

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

Measured Date

March 16-17, 2019

Measured By Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

Measured Instrument

Interval Time	Noise L	Noise Level For 5 minutes, dB(A)	Interval Time	Noise Level For 5 minutes, dB(A)	es. dB(A)	Interval Time	Noise Level For 5 minutes, dB(A)	es. dB(A)	Interval Time	Noise Level For 5 minutes, dB(A	evel For
	Leq	190		Leg	190		Leq	190		Leq	D67
19:00-19:05	58.0	51.6	22:00-22:05	56.8	43.6	01:00-01:05	45.5	36.0	04:00-04:05	45.1	36.0
19:05-19:10	59,4	50.5	22:05-22:10	53.4	43.3	01:05-01:10	44.1	36.8	04:05-04:10	39.9	36.3
19:10-19:15	57.4	51.8	22:10-22:15	52.8	43.8	01:10-01:15	45.3	39.5	04:10-04:15	37.6	35.8
19:15-19:20	60.2	48.0	22:15-22:20	52.7	42.6	01:15-01:20	45.6	35.6	04:15-04:20	47.0	37.0
19:20-19:25	58.3	47.3	22:20-22:25	51.4	40.2	01:20-01:25	40.5	35.9	04:20-04:25	38.3	36.7
19:25-19:30	62.2	48.6	22:25-22:30	51.3	39.0	01:25-01:30	43.6	35.0	04:25-04:30	39.6	37.6
19:30-19:35	62.0	49.8	22:30-22:35	55.6	41.3	01:30-01:35	38,5	34.6	04:30-04:35	45.6	36.7
19:35-19:40	58.5	49.0	22:35-22:40	52.2	39.5	01:35-01:40	40.9	36.0	04:35-04:40	38.3	36.1
19:40-19:45	60.8	49.4	22:40-22:45	44.6	37.7	01:40-01:45	48.1	34.8	04:40-04:45	37.7	36,4
19:45-19:50	56.8	49.5	22:45-22:50	52.6	37.2	01:45-01:50	36.9	34.8	04:45-04:50	48.9	37.0
19:50-19:55	58.4	49.7	22:50-22:55	52.7	38.4	01:50-01:55	38.0	36.1	04:50-04:55	39.8	36.7
19:55-20:00	56.4	49.7	22:55-23:00	45.0	39.7	01:55-02:00	46.7	36.3	04:55-05:00	41.9	37.8
20:00-20:05	54.9	47.6	23:00-23:05	56.3	39.7	02:00-02:05	41.8	40.6	05:00-05:05	41.1	36.5
20:05-20:10	62.5	49.4	23:05-23:10	56.7	39.4	02:05-02:10	40.9	39.8	05:05-05:10	39.6	37.5
20:10-20:15	56.3	47.1	23:10-23:15	53.6	38.0	02:10-02:15	41.9	40.5	05:10-05:15	49.4	38.6
20:15-20:20	56.3	47.1	23:15-23:20	43.6	38.7	02:15-02:20	41.8	40.5	05:15-05:20	51.4	38.1
20:20-20:25	58.9	48.5	23:20-23:25	51.3	39.5	02:20-02:25	40.9	39.7	05:20-05:25	50.4	38.4
20:25-20:30	61.1	48.2	23:25-23:30	52.0	38.3	02:25-02:30	43.7	38.8	05:25-05:30	42.1	37.8
20:30-20:35	58.4	49.9	23:30-23:35	57.8	40.0	02:30-02:35	41.9	38.1	05:30-05:35	51.4	39.2
20:35-20:40	62.1	49.9	23:35-23:40	55.1	39.4	02:35-02:40	40.3	36.7	05:35-05:40	52.0	39.2
20:40-20:45	58.7	49.7	23:40-23:45	51.4	37.9	02:40-02:45	40.6	37.3	05:40-05:45	48.7	38.4
20:45-20:50	58.1	49.1	23:45-23:50	48,4	39.4	02:45-02:50	41.5	37.8	05:45-05:50	41.8	37.7
20:50-20:55	55.3	46.0	23:50-23:55	50.5	38.4	02:50-02:55	40.4	39.0	05:50-05:55	52.6	38.8
20:55-21:00	58.0	51.8	23:55-24:00	46.6	37.0	02:55-03:00	40.5	38.5	05:55-06:00	47.5	39.5
21:00-21:05	58.3	51.8	00:00-00:05	49.6	37.4	03:00-03:05	53.7	34.3	06:00-06:05	53.5	42.0
21:05-21:10	58.6	51.5	00:05-00:10	50.5	37.8	03:05-03:10	39.5	35.6	06:05-06:10	50.8	41.9
21:10-21:15	59.5	53.1	00:10-00:15	51.0	38.8	03:10-03:15	39.3	35.6	06:10-06:15	51.2	41.7
21:15-21:20	56.3	51.1	00:15-00:20	49.9	38.5	03:15-03:20	37.8	34.3	06:15-06:20	53.1	42.3
21:20-21:25	58.5	50.3	00:20-00:25	57.5	39.7	03:20-03:25	39.3	34.9	06:20-06:25	49.2	43.8
21:25-21:30	56.5	53.2	00:25-00:30	50.8	37.5	03:25-03:30	53.6	38.7	06:25-06:30	57.2	43.9
21:30-21:35	56.3	46,6	00:30-00:35	44.7	38.7	03:30-03:35	43.7	38.4	06:30-06:35	57.8	44.3
21:35-21:40	54.2	48.8	00:35-00:40	40.9	37.1	03:35-03:40	52.6	36.0	06:35-06:40	59.2	46.2
21:40-21:45	58.3	49.9	00:40-00:45	50.3	35.5	03:40-03:45	41.7	34.7	06:40-06:45	57.6	44.4
21:45-21:50	51.6	42.6	00:45-00:50	43.8	36.1	03:45-03:50	47.6	37.0	06:45-06:50	60.7	44.9
21:50-21:55	54.6	40.3	00:50-00:55	42.1	36.8	03:50-03:55	40.9	35.4	06:50-06:55	59.3	44.1
21:55-22:00	55.0	50.7	00:55-01:00	40.7	35.6	03:55-04:00	46.5	36.4	06:55-07:00	58.8	45.1



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ANALYSIS REPORT

Project Location Project Name Customer Name : TLT Consultants Company Limited ทำบลมาบยางพร อำเภอปลวกแต่ง จังหวัดระยอง โครงการโรงไฟฟ้าปลวกแลงในพื้นที่สวนอุตสาหกรรมปลวกแลง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Measured Source

Ambient Noise

Measured Date GPS. Coordinate Measured Point

บริเวณพื้นที่โครงการ March 17, 2019

UTM (WGS84) 47P 0733603 E, 1432601 N

Measured By

Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

Interval Time	Noise L S minut	Noise Level For 5 minutes, dB(A)	Interval Time	Noise Level For 5 minutes, dB(A)	Noise Level For minutes, dB(A)	Interval Time	Noise Level For 5 minutes, dB(A)	evel For	Interval Time	Noise Level For	vel For
	Leq	L90		Leq	L90		Leg	L90		Leq	L90
07:00-07:05	57.0	43.2	10:00-10:05	60.7	44.3	13:00-13:05	58.7	41.1	16:00-16:05	57.3	46.2
07:05-07:10	58.9	44.6	10:05-10:10	60.2	44.2	13:05-13:10	58.5	41.0	16:05-16:10	57.2	46.6
07:10-07:15	61.3	44.4	10:10-10:15	66.0	45.4	13:10-13:15	56.5	40.8	16:10-16:15	56.4	47.5
07:15-07:20	60.9	45.7	10:15-10:20	60.2	46.9	13:15-13:20	62.3	42.8	16:15-16:20	54.9	46.2
07:20-07:25	61.1	44.9	10:20-10:25	63.4	44.6	13:20-13:25	61.0	42.4	16:20-16:25	60.9	47.0
07:25-07:30	63.8	44.5	10:25-10:30	61.5	45.2	13:25-13:30	53.4	43.5	16:25-16:30	58.6	47.9
07:30-07:35	60.2	44.3	10:30-10:35	56.7	43.6	13:30-13:35	61.9	46.5	16:30-16:35	63.4	48.5
07:35-07:40	60.1	43.2	10:35-10:40	59.0	44.0	13:35-13:40	61.3	47.6	16:35-16:40	64.8	51.8
07:40-07:45	59.5	42.1	10:40-10:45	60.3	45.1	13:40-13:45	53.9	45.4	16:40-16:45	62.4	54.6
07:45-07:50	59.2	43.8	10:45-10:50	57.9	42.7	13:45-13:50	60.4	45.1	16:45-16:50	61.6	50.3
07:50-07:55	58.3	42.6	10:50-10:55	59.6	43.0	13:50-13:55	61.5	47.0	16:50-16:55	62.8	51.7
07:55-08:00	59.4	42.4	10:55-11:00	60.2	44.6	13:55-14:00	56.0	44.4	16:55-17:00	59.6	50.5
08:00-08:05	57.8	43.2	11:00-11:05	55.5	41.8	14:00-14:05	58,0	44.0	17:00-17:05	61.5	51.0
08:05-08:10	60.9	45.9	11:05-11:10	56.5	41.5	14:05-14:10	58.2	43.6	17:05-17:10	61.8	50.7
08:10-08:15	60.9	46.0	11:10-11:15	65.5	43.6	14:10-14:15	56.1	43.2	17:10-17:15	59.7	50.5
08:15-08:20	63.8	46.2	11:15-11:20	57.4	43.6	14:15-14:20	58.1	45.5	17:15-17:20	62.2	49.8
08:20-08:25	60.5	43.9	11:20-11:25	61.2	42,4	14:20-14:25	57.2	44.2	17:20-17:25	62.1	50.9
08:25-08:30	62.7	45.8	11:25-11:30	59.8	42.5	14:25-14:30	57.4	43.9	17:25-17:30	61.0	49.6
08:30-08:35	59.8	43.0	11:30-11:35	59.7	42.4	14:30-14:35	55.2	44.7	17:30-17:35	60.6	50.6
08:35-08:40	64.5	54.1	11:35-11:40	60.2	44.2	14:35-14:40	53.2	43.4	17:35-17:40	57.2	49.1
08:40-08:45	62.3	60.0	11:40-11:45	55.6	42.7	14:40-14:45	57.2	44.1	17:40-17:45	60.0	50.7
08:45-08:50	62.2	52.4	11:45-11:50	56.1	43.4	14:45-14:50	50.8	42.9	17:45-17:50	60.2	51.0
08:50-08:55	59.2	46.1	11:50-11:55	57.0	41.9	14:50-14:55	62.4	45.1	17:50-17:55	59.5	50.7
08:55-09:00	61.9	48.9	11:55-12:00	56.9	43.9	14:55-15:00	59.7	44.4	17:55-18:00	58.7	50.9
09:00-09:05	65.4	53.8	12:00-12:05	63.2	44.8	15:00-15:05	57.6	45.9	18:00-18:05	57.9	50.8
09:05-09:10	58.0	47.8	12:05-12:10	54.8	44.4	15:05-15:10	61.6	43.3	18:05-18:10	60.9	52.0
09:10-09:15	57.2	46.2	12:10-12:15	59.8	41.0	15:10-15:15	55,4	44.7	18:10-18:15	60.4	47.2
09:15-09:20	65.4	47.9	12:15-12:20	60.2	42.7	15:15-15:20	57.3	45.9	18:15-18:20	58.0	51.1
09:20-09:25	58.0	46.8	12:20-12:25	59.6	42.4	15:20-15:25	58.8	46.2	18:20-18:25	59.9	47.2
09:25-09:30	61.0	47.1	12:25-12:30	53.6	41.3	15:25-15:30	55.0	45.7	18:25-18:30	57.4	47.5
09:30-09:35	60.3	45.0	12:30-12:35	60.1	41.6	15:30-15:35	55.1	45.2	18:30-18:35	63.3	49.8
09:35-09:40	61.5	45.5	12:35-12:40	62.5	41.1	15:35-15:40	59.4	47.2	18:35-18:40	60.5	48.5
09:40-09:45	62.1	43.7	12:40-12:45	61.0	41.9	15:40-15:45	65.5	47.1	18:4018:45	59.6	49.8
09:45-09:50	59.8	42.1	12:45-12:50	61.0	40.7	15:45-15:50	59.3	47.6	18:45-18:50	63.0	50.4
09:50-09:55	58.7	44.8	12:50-12:55	55.6	41.0	15:50-15:55	57.7	47.5	18:50-18:55	63.7	48.8
09:55-10:00	58.8	44.3	12:55-13:00	60.0	43,0	15:55-16:00	58.9	48.1	18:55-19:00	59.9	49.9

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F-RP-011 Rev. 02, July 1, 2017



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ANALYSIS REPORT

: TLT Consultants Company Limited

152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Address Customer Name

Project Name โครงการโรงไฟฟ้าปลวกแลงในชิ้นที่สวนอุตสาหกรรมปลวกแลง

Project Location ด้าบลมาบยางพร อำเภอปลวกแดง จังหวัดระยอง

Measured Source Ambient Noise

Measured Point ระบรเวณหน้นที่เจรงการ

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

Measured Date

March 17-18, 2019

Reported Number NCC133/2562

Measured Instrument Measured By

: Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Interval Time	5 minut	5 minutes, dB(A)	Interval Time	5 minutes, dB(A)	es, dB(A)	Interval Time	5 minutes, dB(A)	s, dB(A)	Interval Time	5 minutes, dB/A	es, dB(A)
	Leq	190		Leg	L90		Leq	L90		Leg	L90
19:00-19:05	57.3	48.4	22:00-22:05	49.9	45.0	20:10-01:05	52.1	35.6	04:00-04:05	40.9	35.3
19:05-19:10	58.7	47.2	22:05-22:10	58.2	44.7	01:05-01:10	39.7	35.1	04:05-04:10	44.8	36.3
19:10-19:15	60.7	48.2	22:10-22:15	54.1	42.7	01:10-01:15	41.0	35.5	04:10-04:15	48.4	34.7
19:15-19:20	57.9	46,4	22:15-22:20	54.3	43.3	01:15-01:20	41.7	36.7	04:15-04:20	38.1	34.6
19:20-19:25	59.6	47.5	22:20-22:25	54.1	42.1	01:20-01:25	47.4	36.1	04:20-04:25	45.0	34.8
19:25-19:30	61.2	48.7	22:25-22:30	59,4	41.9	01:25-01:30	37.0	33.4	04:25-04:30	41.0	34.8
19:30-19:35	55.6	47.6	22:30-22:35	52.0	43.1	01:30-01:35	49.8	33.7	04:30-04:35	54.2	37.3
19:35-19:40	62.2	48.4	22:35-22:40	57.5	42.9	01:35-01:40	35.8	34.1	04:35-04:40	37.7	34.7
19:40-19:45	57.9	46.9	22:40-22:45	44.5	39.6	01:40-01:45	38.0	34.1	04:40-04:45	47.0	35.5
19:45-19:50	59.7	46.9	22:45-22:50	57.8	41.5	01:45-01:50	39.0	35.2	04:45-04:50	53.4	35.9
19:50-19:55	59.3	48.2	22:50-22:55	55.6	41.6	01:50-01:55	46.4	33.2	04:50-04:55	41.3	37.4
19:55-20:00	55.0	47.3	22:55-23:00	48.7	38.6	01:55-02:00	41.2	34.3	04:55-05:00	47.3	33,4
20:00-20:05	56.9	46.3	23:00-23:05	49.0	39.1	02:00-02:05	40.6	35.2	05:00-05:05	38.0	34.7
20:05-20:10	58.8	48.1	23:05-23:10	41.0	37.6	02:05-02:10	44.5	38.0	05:05-05:10	41.4	37.8
20:10-20:15	56.4	46.5	23:10-23:15	42.4	38.6	02:10-02:15	42.6	36.5	05:10-05:15	46.8	37.1
20:15-20:20	58.3	46.7	23:15-23:20	52.8	40.4	02:15-02:20	41.0	36.2	05:15-05:20	54.4	38.6
20:20-20:25	56.0	47.8	23:20-23:25	54.0	41.6	02:20-02:25	41.0	34.6	05:20-05:25	51.1	38.2
20:25-20:30	56.0	46.4	23:25-23:30	45.9	39.8	02:25-02:30	37.7	35.7	05:25-05:30	44.8	39.4
20:30-20:35	58.2	46.7	23:30-23:35	48.1	40.0	02:30-02:35	38.9	36.4	05:30-05:35	49.5	38.7
20:35-20:40	57.3	47.1	23:35-23:40	39.4	38.1	02:35-02:40	38.3	35.5	05:35-05:40	45.3	39.3
20:40-20:45	56.1	46.7	23:40-23:45	49.1	38.1	02:40-02:45	39.9	36.0	05:40-05:45	49,4	39.8
20:45-20:50	55.2	46.8	23:45-23:50	43.8	38.2	02:45-02:50	35.5	33.6	05:45-05:50	44.8	40.4
20:50-20:55	52.1	46.2	23:50-23:55	50.6	40.1	02:50-02:55	45.9	34.5	05:50-05:55	54.5	41,4
20:55-21:00	54.3	46.1	23:55-24:00	42.3	38.1	02:55-03:00	37.3	34.7	05:55-06:00	53.5	42.5
21:00-21:05	54.3	45.1	00:00-00:05	42.7	39.2	03:00-03:05	35.7	33.1	06:00-06:05	55.2	42.4
21:05-21:10	51.9	44.4	00:05-00:10	47.6	38.3	03:05-03:10	38.0	32.5	06:05-06:10	58.8	42.2
21:10-21:15	54.1	43.2	00:10-00:15	54,3	39,8	03:10-03:15	52.5	33.3	06:10-06:15	58.0	42.8
21:15-21:20	54.0	45.7	00:15-00:20	41.0	37.3	03:15-03:20	35.5	33.1	06:15-06:20	58.4	44.9
21:20-21:25	53.6	47.7	00:20-00:25	44.6	38.5	03:20-03:25	44.9	34.0	06:20-06:25	61.1	44.1
21:25-21:30	53.3	46.7	00:25-00:30	50.6	37.8	03:25-03:30	35.6	33.5	06:25-06:30	55.6	43.8
21:30-21:35	54.9	44.2	00:30-00:35	50.5	38.7	03:30-03:35	35.3	33.7	06:30-06:35	60.2	44.3
21:35-21:40	55.8	45.1	00:35-00:40	46.3	38.9	03:35-03:40	37.5	35.1	06:35-06:40	56.4	44.9
21:40-21:45	60.1	48.3	00:40-00:45	44.7	39.5	03:40-03:45	43.6	36.8	06:40-06:45	59.4	44.2
21:45-21:50	59.3	45.8	00:45-00:50	43.3	37.8	03:45-03:50	40.4	37.3	06:45-06:50	62.0	45.6
21:50-21:55	57,2	47.6	00:50-00:55	41.6	36.5	03:50-03:55	37.7	35.3	06:50-06:55	66.7	44.6
21:55-22:00	54,4	45.0	00:55-01:00	52.5	37.3	03:55-04:00	37.4	34.7	06:55-07:00	60.8	45.8
	and a second sec	discount of the second	Annual representation of the last of the l	*							



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ANALYSIS REPORT

Customer Name Project Name โครงการโรงใฟฟ้าปลวกแตงในพื้นที่สวนอุตสาหกรรมปลวกแดง TLT Consultants Company Limited 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

GPS. Coordinate Measured Date

Measured By

Measured Point

Project Location

คำบลมาบยางพร อำนายปลากแต่ง จังหวัดระยอง

Measured Source

UTM (WGS84) 47P 0733603 E, 1432601 N

บริเวณพื้นที่โครงการ Ambient Noise

March 18, 2019

Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

Interval Time	Noise L 5 minut Leq	Noise Level For 5 minutes, dB(A) Leq L90	Interval Time	Noise L 5 minut Leq	Noise Level For minutes, dB(A) Leq L90	Interval Time	Noise Level For 5 minutes, dB(A) Leq L90	evel For es, dB(A) L90	Interv	Interval Time	Noise Level For 5 minutes, dB(A)
07:00-07:05	64.8	48.7	10:00-10:05	61.2	45,3	13:00-13:05	58.9	44,4	_	16:00-16:05	+
07:05-07:10	63.8	47.5	10:05-10:10	49.9	41.0	13:05-13:10	58.2	42.5	1	16:05-16:10	-
07:10-07:15	62.8	47.7	10:10-10:15	52.1	40.0	13:10-13:15	57.1	42.8	-	16:10-16:15	
07:15-07:20	63.4	48.7	10:15-10:20	57.8	41.8	13:15-13:20	58.1	44.3	-	16:15-16:20	
07:20-07:25	61.5	45.9	10:20-10:25	58.9	41.8	13:20-13:25	57.2	45.8	-	16:20-16:25	
07:25-07:30	64.6	48.8	10:25-10:30	58.1	43.6	13:25-13:30	58.3	45.0	-	16:25-16:30	16:25-16:30 55.4
07:30-07:35	65.3	47.6	10:30-10:35	52.8	42.2	13:30-13:35	55.4	46.3		16:30-16:35	
07:35-07:40	66.4	46.5	10:35-10:40	56.8	43.9	13:35-13:40	54.5	45,9		-	-
07:40-07:45	63.3	46.0	10:40-10:45	51.5	42.8	13:40-13:45	55.4	46,3			16:40-16:45
07:45-07:50	62.1	43.4	10:45-10:50	55.2	42.4	13:45-13:50	58.3	44.1			16:45-16:50
07:50-07:55	60.5	44.3	10:50-10:55	51.5	42.2	13:50-13:55	56.2	46.0	0		
07:55-08:00	62.4	45.8	10:55-11:00	59.4	42.9	13:55-14:00	58,4	43.5	Ċ		16:55-17:00
08:00-08:05	66.4	42.6	11:00-11:05	66.2	44.0	14:00-14:05	56.7	43.0	0		17:00-17:05
08:05-08:10	65.1	45.5	11:05-11:10	66.6	42.8	14:05-14:10	57.0	44.6	.6	_	17:05-17:10
08:10-08:15	65.5	46.8	11:10-11:15	58.2	44.1	14:10-14:15	59.1	46.9	9		17:10-17:15
08:15-08:20	60.1	49.4	11:15-11:20	54.7	43.0	14:15-14:20	60.7	46.0	0	_	_
08:20-08:25	61.6	54.8	11:20-11:25	57.4	44.2	14:20-14:25	58.2	46.3	3		17:20-17:25
08:25-08:30	70.2	55.8	11:25-11:30	63.6	44.5	14:25-14:30	55.4	43.7	7		17:25-17:30
08:30-08:35	70.8	67.2	11:30-11:35	58.7	44.3	14:30-14:35	60.3	44.6	\$	6 17:30-17:35	17:30-17:35
08:35-08:40	62.2	55.0	11:35-11:40	57.5	43.0	14:35-14:40	56.6	44.8	90	-	17:35-17:40
08:40-08:45	69.3	64.1	11:40-11:45	59.2	44.1	14:40-14:45	56.1	44.9	9		17:40-17:45
08:45-08:50	64.7	50.2	11:45-11:50	55.1	45.1	14:45-14:50	60.6	47.9	9	9 17:45-17:50	
08:50-08:55	60.3	45.9	11:50-11:55	57.1	44.9	14:50-14:55	56.1	45.3	3	.3 17:50-17:55	17:50-17:55
08:55-09:00	60.2	43.8	11:55-12:00	54.7	43.9	14:55-15:00	56.6	46.0	o	.0 17:55-18:00	17:55-18:00
09:00-09:05	52.5	41.5	12:00-12:05	60.0	45.1	15:00-15:05	59.6	45.2	io		18:00-18:05
09:05-09:10	69.6	45.5	12:05-12:10	65.8	48.0	15:05-15:10	53,4	44.5	Ċī	.5 18:05-18:10	
09:10-09:15	70.3	55.5	12:10-12:15	59.3	44.5	15:10-15:15	56.8	43.7	7	-	18:10-18:15
09:15-09:20	70.6	54.7	12:15-12:20	58.3	45.6	15:15-15:20	54.8	44.9	9	9 18:15-18:20	18:15-18:20
09:20-09:25	69.7	43.9	12:20-12:25	58.4	45.7	15:20-15:25	57.1	44.9	9		
09:25-09:30	52.5	42.6	12:2512:30	53.9	43.8	15:25-15:30	55.5	45.	ω		18:25-18:30
09:30-09:35	55.8	43.0	12:30-12:35	55.9	43.8	15:30-15:35	56.8	45.	00	_	18:30-18:35
09:35-09:40	62.3	46.0	12:35-12:40	51.7	43.5		57.1	46.	CO.		18:35-18:40
09:40-09:45	64.5	42.5	12:40-12:45	56.6	42.6	15:40-15:45	58.6	46.	COD	8 18:40-18:45	
09:45-09:50	58.0	42.9	12:45-12:50	60.4	44.1	15:45-15:50	48.7	44	00	8 18:45-18:50	
09:50-09:55	55.3	44.6	12:50-12:55	58.6	44.0	15:50-15:55	63.1	46	0	0 18:50-18:55	0 18:50-18:55 57.2
09:55-10:00	59.0	44.6	12:55-13:00	57.6	45.0	15:55-16:00	54.6	47.0	0		18:55-19:00

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F-RP-011 Rev. 02, July 1, 2017



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ANALYSIS REPORT

Project Name Address Customer Name : TLT Consultants Company Limited

: 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10239 โครงการโรงไฟฟ้าบ่ลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง

 คำบลมาบยางพร อำเภอปลวกแลง จังหวัดระยอง : Ambient Noise

Measured Source Project Location

Measured Point

ะ บริเวณที่เหกิดรงการ

GPS. Coordinate

: UTM (WGS84) 47P 0733603 E, 1432601 N

Measured Date : March 18-19, 2019

Measured By

: Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Reported Number Measured Instrument: : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430 : NCC133/2562

	Noise Level For	evel For		Noise Level For	vel For		Noise Level For	evel For		Noise Level For	evel For
Interval Time	5 minutes, dB(A)	es, dB(A)	Interval Time	5 minutes, dB(A)	s, dB(A)	Interval Time	5 minutes, dB(A)	es, dB(A)	Interval Time	5 minutes, dB(A)	es, dB(A)
	Leq	L90		Leq	D67		Leq	190		Leq	190
19:00-19:05	66.3	47.8	22:00-22:05	52.1	40.0	01:00-01:05	49.7	34.4	04:00-04:05	48.0	35.9
19:05-19:10	59.6	48.7	22:05-22:10	51.6	41.3	01:05-01:10	37.5	34.1	04:05-04:10	41.6	37.8
19:10-19:15	56.8	48.1	22:10-22:15	54.4	40.4	01:10-01:15	37.6	34.8	04:10-04:15	44.8	39.0
19:15-19:20	62.4	47.3	22:15-22:20	50.7	39.0	01:15-01:20	44.0	36.5	04:15-04:20	44.3	36.7
19:20-19:25	62.1	47.3	22:20-22:25	50.9	36.9	01:20-01:25	45.5	34.3	04:20-04:25	51.2	36.6
19:25-19:30	61.9	46.1	22:25-22:30	52.7	37.0	01:25-01:30	41.7	33.2	04:25-04:30	41.6	37.5
19:30-19:35	59.7	46.8	22:30-22:35	53.1	36.5	01:30-01:35	43.4	35.8	04:30-04:35	47.1	38.5
19:35-19:40	58.8	45.8	22:35-22:40	51.9	36.7	01:35-01:40	36.3	31.6	04:35-04:40	42.3	37.8
19:40-19:45	60.4	44.1	22:40-22:45	49.7	38.2	01:40-01:45	39.4	33.6	04:40-04:45	48.7	36.1
19:45-19:50	59.1	48.9	22:45-22:50	51.0	40.7	01:45-01:50	45.9	33.7	04:45-04:50	52.0	35.7
19:50-19:55	58.2	47.9	22:50-22:55	48.8	38.0	01:50-01:55	40.2	35.3	04:50-04:55	52.2	37.2
19:55-20:00	55.2	47.9	22:55-23:00	53.0	34.8	01:55-02:00	45.1	36.2	04:55-05:00	37.3	36.0
20:00-20:05	57.3	47.3	23:00-23:05	39.4	34.5	02:00-02:05	42.7	33.7	05:00-05:05	50.4	37.7
20:05-20:10	59.5	47.4	23:05-23:10	50.2	36.5	02:05-02:10	41.4	33.8	05:05-05:10	56.6	35.7
20:10-20:15	59.4	47.7	23:10-23:15	48.2	35.4	02:10-02:15	38.6	33.6	05:10-05:15	52.5	39.9
20:15-20:20	57.6	46.2	23:15-23:20	53.5	36.2	02:15-02:20	40.5	36.7	05:15-05:20	56.2	39.2
20:20-20:25	61.3	48.7	23:20-23:25	47.8	35.6	02:20-02:25	39.8	35.9	05:20-05:25	52.3	38.1
20:25-20:30	63.9	50.1	23:25-23:30	52.9	35.6	02:25-02:30	36.8	34.4	05:25-05:30	55.0	40.3
20:30-20:35	61.2	46.9	23:30-23:35	46.0	38.8	02:30-02:35	47.7	36.4	05:30-05:35	51.1	40.1
20:35-20:40	58,4	43.7	23:35-23:40	44.9	37.1	02:35-02:40	40.7	37.1	05:35-05:40	43.5	39.9
20:40-20:45	59.3	47.4	23:40-23:45	47.3	37.1	02:40-02:45	41.8	35.6	05:40-05:45	55.5	43.0
20:45-20:50	52.5	44.7	23:45-23:50	42.5	37.9	02:45-02:50	41.1	36.2	05:45-05:50	56.8	42.3
20:50-20:55	54.1	45.0	23:50-23:55	44.2	38.8	02:50-02:55	39.0	36.1	05:50-05:55	51.8	40.3
20:55-21:00	48.8	40.8	23:55-24:00	53.4	34.7	02:55-03:00	42.4	35.7	05:55-06:00	53.8	41.6
21:00-21:05	45.2	42.4	00:00-00:05	45.0	35.3	03:00-03:05	36.9	34.6	06:00-06:05	55.0	44.1
21:05-21:10	52.3	42.5	00:05-00:10	48.0	37.7	03:05-03:10	38.6	36,4	06:05-06:10	58.8	43.8
21:10-21:15	50.6	41.9	00:10-00:15	41.1	36.8	03:10-03:15	38.8	36.1	06:10-06:15	61.9	45.2
21:15-21:20	52.6	43.0	00:15-00:20	51.2	34.0	03:15-03:20	39.0	36.1	06:15-06:20	61.9	46.9
21:20-21:25	52.7	42.4	00:20-00:25	50.2	38.2	03:20-03:25	50.3	35.9	06:20-06:25	60.2	48.4
21:25-21:30	52.8	41.0	00:25-00:30	41.2	35.2	03:25-03:30	50.9	35.7	06:25-06:30	59.6	46.8
21:30-21:35	54.5	42.8	00:30-00:35	37.2	33.9	03:30-03:35	37.7	35.8	06:30-06:35	57.6	46.6
21:35-21:40	60.0	45.2	00:35-00:40	42.4	38.5	03:35-03:40	40.9	35.1	06:35-06:40	58.0	48.5
21:40-21:45	58.6	42.7	00:40-00:45	42.7	38.0	03:40-03:45	35.2	34.3	06:40-06:45	60.3	50.5
21:45-21:50	54.2	40.3	00:45-00:50	42.0	37.0	03:45-03:50	38.2	34.8	06:45-06:50	68.0	49.2
21:50-21:55	61.4	41.8	00:50-00:55	40.5	35.5	03:50-03:55	37.0	34.6	06:50-06:55	62.2	49.1
W 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4				2002	35.1	03:55-04:00	46.1	36.0	06:55-07:00	64.8	200



Environment Research & Technology Company Limited 25/113-114 Moo 6 Sol Chinaket I, Ngamwongsun Read, Toongsonghong, Liek, Bangkoh 10210 Tel. 0-2954-7745-6 Fex 0-2954-7747

ANALYSIS REPORT

Address Customer Name โดรงการโรงใฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง TLT Consultants Company Limited 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

ตำบลมาบบางพร อำเภอบลวกแดง จังหวัดระยอง

GPS. Coordinate Measured Point Measured Source Project Location Project Name

บริเวณพื้นที่โครงการ

: UTM (WGS84) 47P 0733603 E, 1432601 N

March 19, 2019

Measured By Measured Date

: Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430

Reported Number : NCC133/2562

Interval Time	Noise Level For 5 minutes, dB(A)	evel For es, dB(A)	Interval Time	Noise L	Noise Level For 5 minutes, dB(A)	Interval Time	Noise L	Noise Level For 5 minutes, dB(A)	Interval Time	Noise I	Noise Level For
	Leq	190		Leq	L90		Leq	L90		Leq	L90
07:00-07:05	64.0	50.4	10:00-10:05	79.7	70.7	13:00-13:05	58.3	45.3	16:00-16:05	57.1	47.0
07:05-07:10	63.3	49.3	10:05-10:10	78.9	69.6	13:05-13:10	52.8	44.8	16:05-16:10	57.0	46.8
07:10-07:15	61.7	47.6	10:10-10:15	73.9	68.7	13:10-13:15	59.5	45.8	16:10-16:15	64.3	45.6
07:15-07:20	63.4	51.1	10:15-10:20	72.2	48.7	13:15-13:20	57.9	47.4	16:15-16:20	58,2	45.7
07:20-07:25	64.2	50.7	10:20-10:25	68.2	65.1	13:20-13:25	53,9	43.8	16:20-16:25	55.3	44.9
07:25-07:30	67.2	49.7	10:25-10:30	68.9	66.1	13:25-13:30	57.3	46.4	16:25-16:30	56.9	44.0
07:30-07:35	64.7	52.6	10:30-10:35	52.4	45.6	13:30-13:35	56.3	46.3	16:30-16:35	57.1	45.9
07:35-07:40	67.9	50.7	10:35-10:40	57.3	44.8	13:35-13:40	55.2	44.6	16:35-16:40	59.1	46.2
07:40-07:45	63.3	47.1	10:40-10:45	69.7	47.7	13:40-13:45	56.2	44.3	16:40-16:45	58.0	47.0
07:45-07:50	62.3	47.2	10:45-10:50	72.9	68.8	13:45-13:50	57.0	44.7	16:45-16:50	58.9	47.0
07:50-07:55	59.0	44.6	10:50-10:55	73.8	69.3	13:50-13:55	57.6	44.4	16:50-16:55	54.3	45.2
07:55-08:00	59.2	46.4	10:55-11:00	71.1	67.5	13:55-14:00	54.3	45.2	16:55-17:00	55.9	46.1
08:00-08:05	62.2	45.6	11:00-11:05	69.2	65.7	14:00-14:05	55.5	46.0	17:00-17:05	62.8	47.7
08:05-08:10	60.7	48.7	11:05-11:10	71.6	66.3	14:05-14:10	58.2	46.5	17:05-17:10	59.7	47.6
08:10-08:15	79.9	59.3	11:10-11:15	72.0	66.5	14:10-14:15	56.3	46.1	17:10-17:15	64.6	51.8
08:15-08:20	77.2	73.9	11:15-11:20	66,4	50.0	14:15-14:20	52.7	44.8	17:15-17:20	59.4	50.3
08:20-08:25	74.9	51.4	11:20-11:25	72.0	68.9	14:20-14:25	55.3	45.7	17:20-17:25	63.1	50.2
08:25 08:30	78.0	72.8	11:25-11:30	70.7	50.5	14:25-14:30	57.9	44.5	17:25-17:30	62.5	50.0
08:30-08:35	80.4	59.6	11:30-11:35	67.9	50.1	14:30-14:35	56.7	44.7	17:30-17:35	59.1	49.5
08:35-08:40	81.2	77.6	11:35-11:40	76.0	52.9	14:35-14:40	53.2	44.7	17:35-17:40	60.2	50,4
08:40-08:45	82.7	79.0	11:40-11:45	74.8	51.6	14:40-14:45	54.0	44.1	17:40-17:45	67.2	51.8
08:45-08:50	77.4	49.2	11:45-11:50	71.9	50.5	14:45-14:50	57.6	44.9	17:45-17:50	66.0	51.0
08:50-08:55	80.3	77.0	11:50-11:55	67.2	62.4	14:50-14:55	58.9	46.6	17:50-17:55	62.7	53.5
08:55-09:00	81.3	76.5	11:55-12:00	58.6	53.8	14:55-15:00	57.4	46.2	17:55-18:00	61.6	48.3
09:00-09:05	80.0	74.7	12:00-12:05	59.7	54.2	15:00-15:05	56.9	45.3	18:00-18:05	60.1	49.1
09:05-09:10	80.8	76.3	12:05-12:10	60.6	50.1	15:05-15:10	57.6	46.2	18:05-18:10	64.6	50.3
09:10-09:15	78.7	74.6	12:10-12:15	60.3	48.7	15:10-15:15	56.6	46.4	18:10-18:15	58.7	48.9
09:15-09:20	78.1	73.7	12:15-12:20	59.9	48.1	15:15-15:20	55.6	45.4	18:15-18:20	64.3	50.0
09:20-09:25	72.2	48.8	12:20-12:25	52.2	46.8	15:20-15:25	57.0	44.6	18:20-18:25	61.5	49.6
09:25-09:30	71.4	49.8	12:25-12:30	58.3	47.3	15:2515:30	59.7	46.7	18:25-18:30	60.4	47.7
09:30-09:35	76.3	70.1	12:30-12:35	56.3	47.4	15:30-15:35	57.7	46,8	18:30-18:35	58.1	46.8
09:35-09:40	79.4	76.2	12:35-12:40	59.7	47.7	15:35-15:40	56.4	46.2	18:35-18:40	62.0	46.5
09:40-09:45	79.9	76.2	12:40-12:45	55.5	47.0	15:40-15:45	55.6	46.6	18:40-18:45	59.9	47.5
09:45-09:50	81.1	74.1	12:45-12:50	54.4	48.6	15:45-15:50	57.2	46.2	18:45-18:50	58.5	46.3
09:50-09:55	73.1	48.7	12:50-12:55	58.2	48.6	15:50-15:55	67.7	50.0	18:50-18:55	59.2	47.4
09:55-10:00	80.7	76.9	12:55-13:00	55,4	44.9	15:55-16:00	60,4	49.5	18:55-19:00	59.3	47.0

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F-RP-011 Rev. 02, July 1, 2017



Exvironment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chimdet I, Ngamwongwan Road, Toongsonghong, Laksi, Bangkok, 10210 Tel. 0-2994-7745-6 Fax 0-2994-7747 E-mall : envi@envirescarch.co.th

ANALYSIS REPORT

Project Name Customer Name TLT Consultants Company Limited โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bengkok 10230

Project Location ผ้าบลมาบบางพร อำเภอปลวกแลง จังหวัดระยอง

Measured Source Ambient Noise

Measured Point

GPS. Coordinate UTM (WGS84) 47P 0733603 E, 1432601 N

บริเวณพื้นที่โครงการ

Measured Date March 19-20, 2019

Measured Instrument : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430 Measured By Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Reported Number : NCC133/2562

Interval Time	Noise L 5 minut	Noise Level For minutes, dB(A)	Interval Time	Noise L	Noise Level For	Interval Time	Noise L	Noise Level For	Interval Time	Noise L	Noise Level For
	Leq	L90		Leq	190		Leq	190	-	Leq	L90
19:00-19:05	60.3	48.7	22:00-22:05	46.5	41.3	01:00-01:05	39.0	34.7	04:00-04:05	40.2	34.4
19:05-19:10	57.0	48.4	22:05-22:10	49.8	43.4	01:05-01:10	40.4	36.7	04:05-04:10	47.5	32.8
19:10-19:15	61.5	50.2	22:10-22:15	53.3	43.9	01:10-01:15	39.5	36.3	04:10-04:15	38.5	35.0
19:15-19:20	58.5	46.8	22:15-22:20	46.4	38.8	01:15-01:20	44.9	36.4	04:15-04:20	51.4	37.5
19:20-19:25	58.6	47.4	22:20-22:25	52.2	39.2	01:20-01:25	40.6	36.7	04:20-04:25	37.5	34.5
19:25-19:30	61.3	45.2	22:25-22:30	53.6	39.3	01:25-01:30	42.1	38.4	04:25-04:30	45.4	35.2
19:30-19:35	59.7	47.9	22:30-22:35	51.1	39.9	01:30-01:35	45.1	36.3	04:30-04:35	47.6	37.2
19:35-19:40	68.3	45.1	22:35-22:40	42.4	39.4	01:35-01:40	37.0	35.5	04:35-04:40	39.7	36.6
19:40-19:45	57.8	46.4	22:40-22:45	52.1	39.9	01:40-01:45	49.1	35.8	04:40-04:45	38.0	36.2
19:45-19:50	55.5	45.7	22:45-22:50	54.7	38.9	01:45-01:50	43.5	36.0	04:45-04:50	49.2	35.5
19:50-19:55	56.1	48.2	22:50-22:55	53.5	38.9	01:50-01:55	42.9	32.3	04:50-04:55	40.1	37.1
19:55-20:00	57.1	47.4	22:55-23:00	47.7	37.8	01:55-02:00	43.6	35.9	04:55-05:00	47.5	37.8
20:00-20:05	60.1	47.8	23:00-23:05	53.1	38.1	02:00-02:05	38.5	36.2	05:00-05:05	51.8	37.8
20:05-20:10	62.3	48.7	23:05-23:10	50.1	38.4	02:05-02:10	38.6	34.8	05:05-05:10	50.5	40.0
20:10-20:15	60.3	48.6	23:10-23:15	44.5	38.2	02:10-02:15	44.2	34,8	05:10-05:15	56.6	41.4
20:15-20:20	63.4	48.9	23:15-23:20	48.8	37.1	02:15-02:20	40.5	34.6	05:15-05:20	50.2	40.9
20:20-20:25	61.4	49.5	23:20-23:25	48.5	37.9	02:20-02:25	43.9	38.3	05:20-05:25	56.2	40.7
20:25-20:30	63.6	47.4	23:25-23:30	44.0	35.4	02:25-02:30	39.0	36.7	05:25-05:30	52.7	42.5
20:30-20:35	60.6	45.8	23:30-23:35	42.3	36.7	02:30-02:35	38.1	35.5	05:30-05:35	49.1	39.0
20:35-20:40	59.8	46.5	23:35-23:40	48.0	38.4	02:35-02:40	38.5	36.6	05:35-05:40	43.6	40.1
20:40-20:45	55,5	45.8	23:40-23:45	40.9	36.3	02:40-02:45	40.7	37.2	05:40-05:45	54.6	43.7
20:45-20:50	57.7	45.1	23:45-23:50	41.3	35.1	02:45-02:50	43.2	34.4	05:45-05:50	55.7	41.6
20:50-20:55	64.5	41.2	23:50-23:55	42.5	38.5	02:50-02:55	36.2	33.2	05:50-05:55	51.5	41.3
20:55-21:00	50.1	43.1	23:55-24:00	51.0	39.0	02:55-03:00	37.2	32.7	05:55-06:00	57.3	43.8
21:00-21:05	52.7	40.4	00:00-00:05	42.3	36.4	03:00-03:05	40.6	36.0	06:00-06:05	56.8	44.2
21:05-21:10	60.6	45.8	00:05-00:10	55.4	35.4	03:05-03:10	36.3	32.9	06:05-06:10	57.9	43.5
21:10-21:15	52.0	43.7	00:10-00:15	53.8	35,4	03:10-03:15	41.6	35.7	06:10-06:15	61.5	46.0
21:15-21:20	53.7	41.5	00:15-00:20	51.3	37.5	03:15-03:20	42.1	35,4	06:15-06:20	61.0	47.1
21:20-21:25	52.5	41.3	00:20-00:25	43.5	36.9	03:20-03:25	43.3	33.5	06:20-06:25	55.0	45.2
21:25-21:30	54.6	41.1	00:25-00:30	42.6	35,5	03:25-03:30	48.1	33.6	06:25-06:30	62.0	45.9
21:30-21:35	59.1	43.0	00:30-00:35	40.8	35.5	03:30-03:35	44.0	33.5	06:30-06:35	57.5	45.7
21:35-21:40	49.3	39.9	00:35-00:40	47.3	37.6	03:35-03:40	47.7	35.5	06:35-06:40	63.8	46.7
21:40-21:45	57.2	39.2	00:40-00:45	43.8	38.4	03:40-03:45	41.1	35.3	06:40-06:45	63.5	49.6
21:45-21:50	56.1	43.0	00:45-00:50	46.9	39.4	03:45-03:50	37.1	32,4	06:45-06:50	60.6	48.6
21:50-21:55	49.6	40.7	00:50-00:55	42.9	33.0	03:50-03:55	36.6	33.5	06:50-06:55	63.2	48.3
21:55-22:00	63.2	41.9	00:55-01:00	51.0	33.8	03:55-04:00	42.5	33.8	06:55-07:00	67.7	49.8

(Ms.Napajarut Muenwong) Laboratory Reviewer CALCONOCACO CONTRACTOR CONTRACTOR

> TEX 60

(Ms.Thanida Bunrungrueang) Laboratory Supervisor



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ANALYSIS REPORT

GPS. Coordinate Measured Date Measured Point Measured Source **Project Location** Project Name Customer Name UTM (WGS84) 47P 0733603 E, 1432601 N บริเวณพื้นที่โครงการ Ambient Noise ฟ้าบลมาบยางพร ยำเภอปลวกแดง จังหวัดระยอง TLT Consultants Company Limited โครงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาทกรรมปลวกแดง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

March 13-14, 2019

Measured Instrument Measured By : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430 Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.)

Reported Number NCC134/2562

Interval Time			Noise Level, dB(A)	rel, dB(A)	
27.00 20.00	Leg	Lmax	1.5	L10	150
07:00 08:00	63.2	81.4	69.9	67.4	55.7
08:00 - 09:00	61.7	87.2	67.5	64.2	53.6
09:00 - 10:00	65.4	87.0	70.8	67.7	62.4
10:00 - 11:00	60.7	90.4	65.5	60.8	50.5
11:00 - 12:00	53.9	78.2	59.8	55.2	46.5
12:00 - 13:00	55.9	78.9	61.9	57.3	47.2
13:00 - 14:00	56.8	85.5	61.9	57.7	47.9
14:00 - 15:00	55.7	74.6	61.8	57.6	48.9
15:00 - 16:00	57.8	79.9	63.8	61.0	50.7
16:00 - 17:00	60.4	88.0	66.8	62.9	51.8
17:00 - 18:00	62.4	83.8	68.7	66.1	56.0
18:00 - 19:00	8.09	81.1	67.0	64.4	54.4
19:00 - 20:00	61.3	90.2	66.8	63.7	52.2
20:00 - 21:00	58.5	81.7	64.7	61.6	51.1
21:00 - 22:00	53.8	72,4	60.1	56.3	46.9
22:00 - 23:00	56.1	81.4	62.1	56.4	45.5
23:00 - 24:00	50.0	77.7	53.0	50.2	41.1
00:00 - 01:00	45.8	70,0	50.3	46.1	39.8
01:00 - 02:00	44.8	70.1	49.3	45.1	39.6
02:00 - 03:00	41,9	62.0	47.3	45.6	38.2
03:00 - 04:00	43.8	66.6	48.7	44.0	36.7
04:00 - 05:00	45,9	68.9	50.5	46.3	39.1
05:00 - 06:00	53.4	76.3	59.9	54.7	43.8
06:00 - 07:00	62.0	90.5	68.1	64.8	51.6
24 Hours Measurement	59.0	90.5	64.9	61.7	52.5
Standard1/	70	115			
Idn	62.3	,			

(Ms.Napajarut Muenwong) Laboratory Reviewer (Ms.Thanida Bunrungrueang) 69

Laboratory Supervisor

B.E.2535 [1992], published in the Royal Government Gazette No. 114 Part 27D dated April 3, B.E.2540 (1997).

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F-RP-008 Rev. 02, July 1, 2017



Environment Research & Technology Company Limited 25/113-114 Moo 6 Soi Chinaket I. Ngamwongwan Road. Toongsonghong, Laksi, Bangkok 10210 Tel. 0-2994-7740-6 Fax 0-2994-7747 E-mail: envi@enviresearch.co.th

ANALYSIS REPORT

GPS. Coordinate Reported Number Measured Instrument Measured By Measured Date Measured Point Measured Source Project Location Project Name Customer Name ะ บริเวณพื้นที่โครงการ : TLT Consultants Company Limited : Integrating Sound Level Meter Type II, RION Model NL-42 Serial Number 00321430 UTM (WGS84) 47P 0733603 E, 1432601 N NCC134/2562 Mr.Suriya Choothong (Personnel of Environment Research & Technology Co., Ltd.) March 14-15, 2019 Ambient Noise ตำบลมาบยางพร อำเภอปลวกแต่ง จังหวัดระยอง โดรงการโรงไฟฟ้าปลวกแดงในพื้นที่สวนอุตสาหกรรมปลวกแดง 152 Nuan Chan Road, Nuan Chan, Bueng Kum, Bangkok 10230

Ldn	Standard1/	24 Hours Measurement	06:00 - 07:00	05:00 - 06:00	04:00 - 05:00	03:00 - 04:00	02:00 - 03:00	01:00 - 02:00	00:00 - 01:00	23:00 - 24:00	22:00 - 23:00	21:00 - 22:00	20:00 - 21:00	19:00 - 20:00	18:00 - 19:00	17:00 - 18:00	16:00 - 17:00	15:00 - 16:00	14:00 - 15:00	13:00 - 14:00	12:00 - 13:00	11:00 - 12:00	10:00 - 11:00	09:00 - 10:00	00:00 - 09:00	07:00 - 08:00	THE CASE A SET IN VEST OF	Interval Time
62.0	70	58.9	61.3	54.0	47.2	44.4	42.7	46.7	45.7	51.3	53.8	56.1	59.7	60.3	60.8	62.1	61.5	65.0	58.0	55.8	55.2	58.6	56.8	60.3	61.2	62.8	Leg	
	115	92.2	83.7	82.5	73.6	71.5	70.5	75.4	68.2	76.9	81.7	78.9	80.1	82.3	82.8	84.0	81.5	84.7	80.8	83.6	76.6	79.5	81.8	92.2	85.9	83.2	Lmax	
4		64.7	67.6	60.6	52.1	49.2	45.5	50.4	50.8	55.2	57.4	62.4	65.7	67.0	67.5	68.6	67.1	69.3	63.3	60.5	61.2	64.4	62.2	64.8	67.1	69.3	1.5	Noise Le
	E	61.8	64.7	56.5	47.6	44.8	43.5	46.9	47.6	51.9	54.3	57.6	62.7	63.5	64.4	65.9	64.5	67.5	59.9	57.3	57.4	60.3	57.6	61.9	64.1	66.8	L10	Noise Level, dB(A)
	-	53.1	53.0	44.1	39.4	37.3	36.9	38.0	41.0	42.6	44.5	47.0	52.0	51.2	52.9	54.5	57.1	63.2	52.6	47.6	47.1	47.4	47.1	51.7	54.2	55.0	L50	
	-	48.8	46.1	40.7	36.5	34.9	34.1	34.7	36.3	39.2	41.1	43.4	47.2	46.5	47.6	48.6	53.7	59.4	48.0	43.7	43.0	43.4	43.6	47.7	50.8	47.5	190	

Remark: Witification of National Environmental Board, No.15, B.E.2540 (1997) under the Enhancement and Conservation of National Environmental Quality Act
B.E.2535 (1992), published in the Royal Government Genetic No.114 Part 27D dated April 3, B.E.2540 (1997).

(Ms.Napajarut Muenwong) Laboratory Reviewer

They

(Ms. Thanida Bunrungrueang)
Laboratory Supervisor 6

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