INDUSTRIAL TRAINING

JABATAN ALAM SEKITAR NEGERI SEMBILAN

21 JANUARY – 6 JULY 2018

NAME OF STUDENT: SITI NUR HAJAR BINTI ROHIM (176573)

JASNS SUPERVISOR: PN. NOSORA BINTI MOHD JADI

FACULTY SUPERVISOR: DR. ZULFA HANAN BINTI ASH'AARI

BAC. ENVIRONMENTAL SCIENCE & TECHNOLOGY

DEPARTMENT OF ENVIRONMENT NEGERI SEMBILAN

The main function of the DOE is **to prevent, eliminate, control pollution and improve the environment**, consistent with the purposes of the Environmental Quality Act 1974

VISION

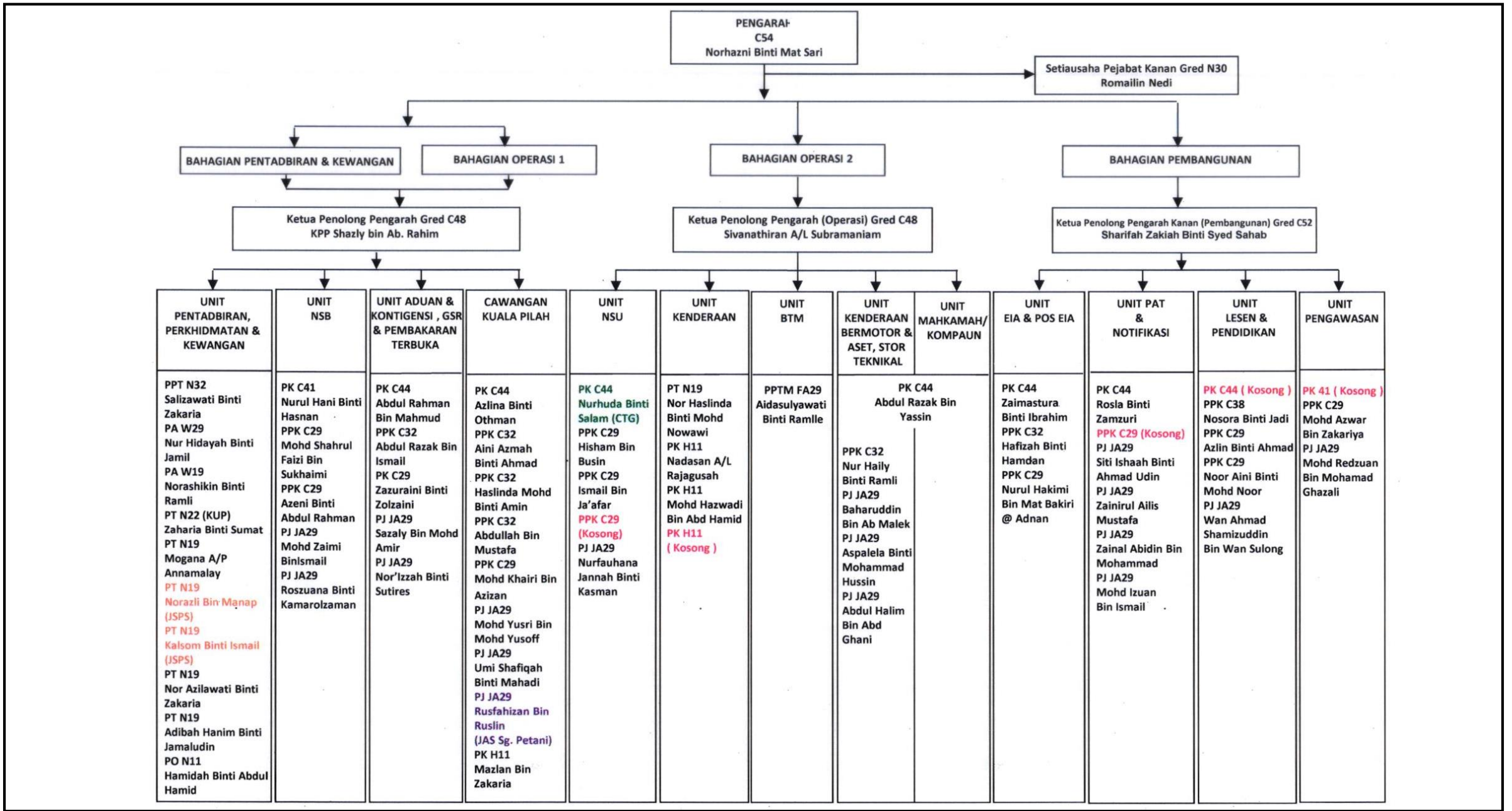
Environmental Conservation for the Well-being of the People

MISSION

To ensure sustainable development in the process of nation building

ORGANIZATION CHART

DEPARTMENT OF ENVIRONMENT NEGERI SEMBILAN



INTERNSHIP SCHEDULE

Date	Unit
22/1 – 22/2	**License & Education** [Pn. Nosora] *[Lesen & Pendidikan]*
23/2 – 8/3	**Complaints & Contigency, GSR & Open burning** [En. Razak] *[Aduan & Kontigensi, Guided Self Regulation & Pembakaran Terbuka]*
9/3 – 22/3	**EIA & Post EIA** [Pn. Zaimastura]
23/3 – 5/4	**NSU** [En. Hisham]
6/4 – 19/4	**NSB** [Pn. Nurul Hani]
20/4 – 3/5	**Monitoring / BTM** [En. Azwar] *[Pengawasan / Bahagian Teknologi Maklumat]*
4/5 – 17/5	**Motor vehicles & assets, technical stor** [Pn. Aspalela] *[Kenderaan bermotor & aset, stor teknikal]*
18/5 – 31/5	**PAT & Notification** [Pn. Rosla] *[Penilaian Awal Tapak & Notifikasi]*
1/6 – 14/6	**Court / Compound** [En. Razak Yasin] *[Mahkamah / Kompaun]*
15/6 – 6/7	**License & Education / Project Presentation** [Pn. Nosora]

ACTIVITIES DURING 24 WEEKS OF INTERNSHIP

Week 1 - 4

- Introduction, briefing rule of conduct & organization chart DOENS.
- Visit site at **NS Cement Industries Sdn Bhd** & **Sendayan Tech Valley**, Negeri Sembilan.
- **Lorry inspection** (Check their **PPE (Personal Protective Equipments)** and **smoke test** from the lorry).
- Learn to fill the **vehicle inspection form** for the license of transport of scheduled waste.
- **Learn how to communicate** with other government agencies (SWCorp) [3R Campaign of unused garments/clothing].
- Learn how to do a **memo to inform** all the staff about 3R Campaign of unused garments/clothing.

Week 5-6

- **Register the data** of the member of **RAS into the system.**
- **Lorry inspection** at Sendayan Tech Valley.
- Participate a **briefing about health** ("The important of pH-potential of hydrogen" by En. Husayn).
- Help En. Azwar do a **schematic diagram of river basin** at Negeri Sembilan.
- Follow Pn. Jaja, Pn. Nor and En. Sazaly to Rembau & PD (There are **complaints about open burning**).
- Follow Pn. Azlin & En. Wan to Tadika Anakku Nur Iman, Ampangan (There are **talk about environment**)
- Listen to **conservation recording** about open burning case with En. Razak & Pn. Nor.

- **Participate a campaign** "anti polisterina" at IPG KPT, Bandar Enstek, NS.

- Participate **EIA Meeting** & **Majlis Pelancaran Pelan Tindakan Komuniti Daerah Kuala Pilah BEBAS Dadah 2019.**

- Participate a program which is **a visit while learning to lighthouse** and **raptorwatch activities** & **jungle tracking** at Batu Putih Tanjung Tuan, Melaka [11 March 2018].

  Follow En. Hakimi & Pn. Hafizah to Taman Gadong Jaya and Highway Quarry (Do a photo reports).

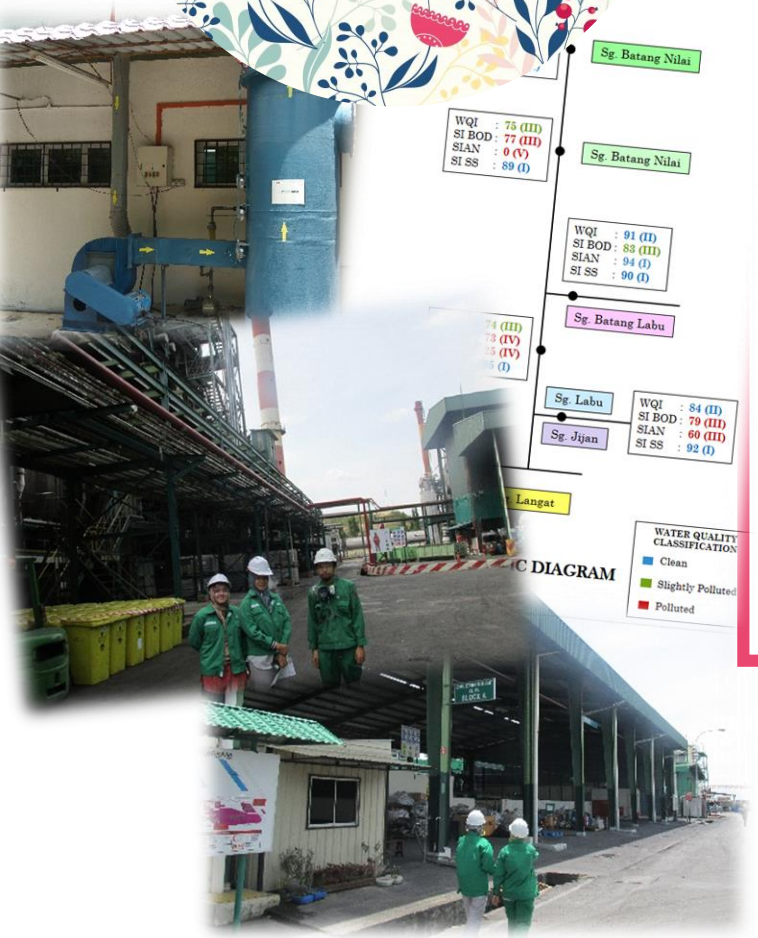
- Follow En. Hakimi & Pn. Ailis to JAKSA & Batu Tiga Quarry.

- Learn to fill in the **environmental auditor's assessment form.**

Week 9-10

- Visit **sanitary landfill at CyPark** (A follow up visit at on site detention tank) with En. Hakimi and Pn. Hafizah.
- Participate **"Eco Community Outreach Program"** – Green Preservation project in conjunction with **World Water Day 2018** organized by KKTM Rembau, JASNS, Greenplus Society, SK Bongek, Jab. Perhutanan, Jab. Kesihatan, MPAG & SWM at Port Dickson [25 March 2018].
- Follow En. Hisham, En. Ismail & Pn. Hana to QL Poultry, DECRA Roofing System and Engkah Enterprise **(check their wwtp & take industrial effluent sample).**
- Visit Jab. Kimia Malaysia **(send sample for analysis).**
- Participate a meeting (There are **presentation about rubber industries**).

Week 11 - 12



- Follow En. Hisham & En. Ismail to Royce Pharma **(check their production, scheduled waste, dust collector, wet scrubber & wwtp).**
- Help En. Azwar do a **schematic diagram of water quality index** for Sg. Linggi, Langat, Rembau & Muar [List their **water classification**].
- Participate a meeting "Plogging activities & beautiful our beach campaign for **Earth Day 2018**".
- Follow Pn. Nosora & Pn. Azlin visit **Kualiti Alam Sdn Bhd** (Visit their incineration & CRR).
- Participate a meeting (There are **presentation about scheduled waste – for renewal license**).

Week 13 - 14

- Video recording for **"Let's read together for 10 minutes"** program in conjunction with World Book Day on 23 April every year.

- Participate **EIA Meeting** – development of quarry at Tampin.

Participate a **meeting technical committee** for renewal of license for Prescribed Premises Scheduled Wastes (Continuity of presentation).

- Participate **monthly meeting DOENS** & there are briefings from **AADK** (Agensi AntiDadah Kebangsaan) and **BTN** (Biro Tatanegara).

Week 15 - 16

- **Participate a meeting** "Plogging activities & Beautiful our beach Campaign for Earth Day 2018".

- **Participate a meeting HASN 2018** at state level which will be held on 21 October 2018 at Kompleks Rakan Muda, Kuala Pilah, Negeri Sembilan.

- Participate a **program Plogging activities & Beautiful Our Beach Campaign in conjunction with Earth Day 2018** at Pantai Bagan Pinang, Port Dickson [13 May 2018]. Organized by JASNS with Seri Pajam Development Sdn. Bhd. & UiTM Seremban 3.

❖ Plogging activities
❖ Tree planting
❖ Exhibition & Face painting
❖ Press Conference

Week 17-19

- **Help register** the data of the member of RAS into the system.
- Help do a **layout plan** for HASN 2018 [Layout Kompleks Rakan Muda, Kuala Pilah].
- Participate a meeting (There are presentation from **Jaewon Frontier (M) Sdn. Bhd.**)
- Participate a (kolokium) talk from **Osmocell (M) Sdn. Bhd.** and **Aliran Ihsan Resources Berhad**)

❖ Seawater Membrane Desalination (Reverse Osmosis)
❖ Membrane Bio-Reactor (MBR)
❖ Boot Concept Featuring Wastewater Recycling
[Build Own Operate Transfer]

AIR
A Member of MMC Group

SCHEDULED WASTE MANAGEMENT AT KUALITI ALAM SDN BHD

OUTLINES OF PRESENTATION

OBJECTIVES

INTRODUCTION

PROCEDURE FOR LICENSE

PROBLEM IN WASTE MANAGEMENT

KUALITI ALAM SDN BHD

OPERATION OF WASTE MANAGEMENT

WASTE MANAGEMENT FLOW

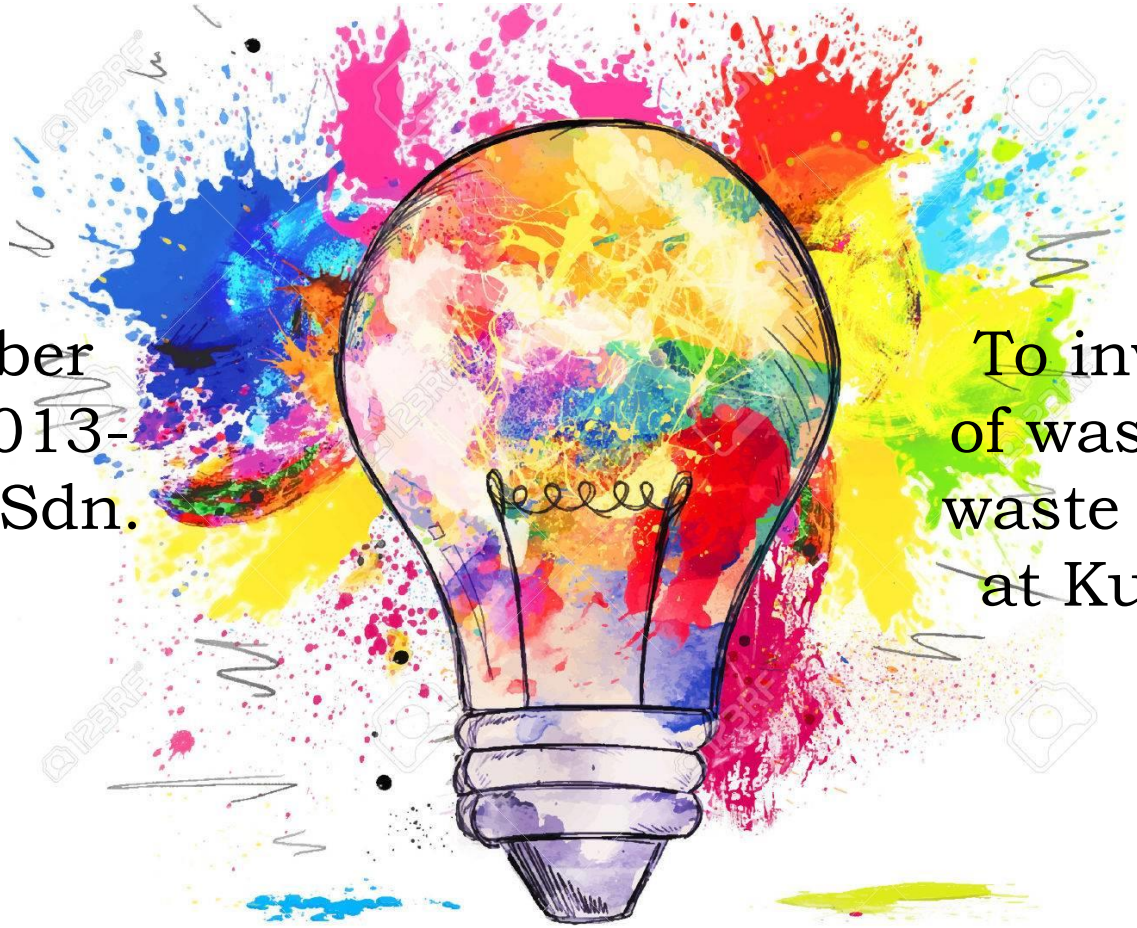
INCINERATION PLANT

INCINERATION PROCESS

RESULT & DISCUSSION

CONCLUSION

OBJECTIVES



1

To identify the number waste generated in 2013-2015 at Kualiti Alam Sdn. Bhd.

2

To investigate the number of waste treated between all waste management facilities at Kualiti Alam Sdn. Bhd.

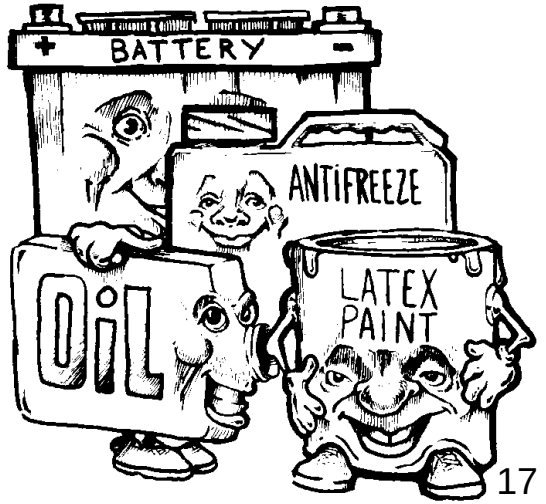
INTRODUCTION

What is Scheduled Waste?

- ✓ Scheduled waste is **any wastes that possess hazardous characteristics** & have the potential to adversely **affect to the public health and environment.**

- ✓ **77 types of scheduled wastes** listed under First Schedule of Environmental Quality (Scheduled Wastes) Regulations 2005 & the management of wastes shall be in accordance with the provisions of the above Regulations.

(Retrieved from: https://www.doe.gov.my/portalv1/).



ENVIRONMENTAL QUALITY ACT 1974

ENVIRONMENTAL QUALITY REGULATIONS (SCHEDULED WASTES) 2005

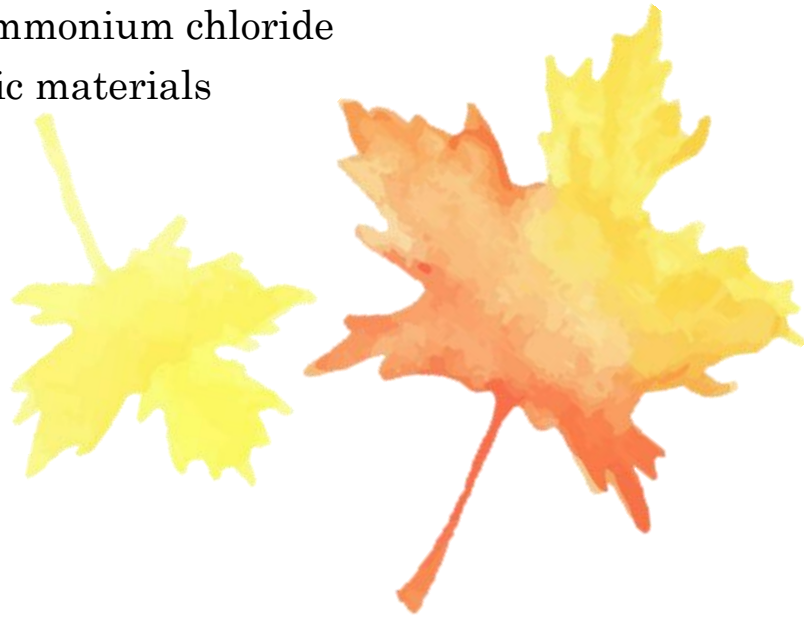
FIRST SCHEDULE

(Regulation 2)

SW 1	**Metal and metal-bearing wastes**
SW 101	Waste containing arsenic or its compound
SW 102	Waste of lead acid batteries in whole or crushed form
SW 103	Waste of batteries containing cadmium and nickel or mercury or lithium
SW 104	Dust, slag, dross or ash containing arsenic, mercury, lead, cadmium, chromium, nickel, copper, vanadium, beryllium, antimony, tellurium, thallium or selenium excluding slag from iron and steel factory
SW 105	Galvanic sludges
SW 106	Residues from recovery of acid pickling liquor
SW 107	Slags from copper processing for further processing or refining containing arsenic, lead or cadmium
SW 108	Leaching residues from zinc processing in dust and sludges form
SW 109	Waste containing mercury or its compound
SW 110	Waste from electrical and electronic assemblies containing components such as accumulators, mercury-switches, glass from cathode-ray tubes and other activated glass or polychlorinated biphenyl-capacitors, or contaminated with cadmium, mercury, lead, nickel, chromium, copper, lithium, silver, manganese or polychlorinated biphenyl

SW 2	**Wastes containing principally inorganic constituents which may contain metals and organic materials**
SW 201	Asbestos wastes in sludges, dust or fibre forms
SW 202	Waste catalysts
SW 203	Immobilized scheduled wastes including chemically fixed, encapsulated, solidified or stabilized sludges
SW 204	Sludges containing one or several metals including chromium, copper, nickel, zinc, lead, cadmium, aluminium, tin, vanadium and beryllium
SW 205	Waste gypsum arising from chemical industry or power plant
SW 206	Spent inorganic acids
SW 207	Sludges containing fluoride

SW 3	**Wastes containing principally organic constituents which may contain metals and inorganic materials**
SW 301	Spent organic acids with pH less or equal to 2 which are corrosive or hazardous
SW 302	Flux waste containing mixture of organic acids, solvents or compounds of ammonium chloride
SW 303	Adhesive or glue waste containing organic solvents excluding solid polymeric materials
SW 304	Press cake from pretreatment of glycerol soap lye
SW 305	Spent lubricating oil
SW 306	Spent hydraulic oil
SW 307	Spent mineral oil-water emulsion
SW 308	Oil tanker sludges
SW 309	Oil-water mixture such as ballast water
SW 310	Sludge from mineral oil storage tank



SW 311	Waste oil or oily sludge
SW 312	Oily residue from automotive workshop, service station, oil or grease interceptor
SW 313	Oil contaminated earth from re-refining of used lubricating oil
SW 314	Oil or sludge from oil refinery plant maintenance operation
SW 315	Tar or tarry residues from oil refinery or petrochemical plant
SW 316	Acid sludge
SW 317	Spent organometallic compounds including tetraethyl lead, tetramethyl lead and organotin compounds
SW 318	Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCB) or polychlorinated triphenyls (PCT)
SW 319	Waste of phenols or phenol compounds including chlorophenol in the form of liquids or sludges
SW 320	Waste containing formaldehyde
SW 321	Rubber or latex wastes or sludge containing organic solvents or heavy metals
SW 322	Waste of non-halogenated organic solvents
SW 323	Waste of halogenated organic solvents
SW 324	Waste of halogenated or unhalogenated non-aqueous distillation residues arising from organic solvents recovery process
SW 325	Uncured resin waste containing organic solvents or heavy metals including epoxy resin and phenolic resin
SW 326	Waste of organic phosphorus compound
SW 327	Waste of thermal fluids (heat transfer) such as ethylene glycol

SW 4 Wastes which may contain either inorganic or organic constituents

SW 401 Spent alkalis containing heavy metals

SW 402 Spent alkalis with pH more or equal to 11.5 which are corrosive or hazardous

SW 403 Discarded drugs containing psychotropic substances or containing substances that are toxic, harmful, carcinogenic, mutagenic or teratogenic

SW 404 Pathogenic wastes, clinical wastes or quarantined materials

SW 405 Waste arising from the preparation and production of pharmaceutical product

SW 406 Clinker, slag and ashes from scheduled wastes incinerator

SW 407 Waste containing dioxins or furans

SW 408 Contaminated soil, debris or matter resulting from cleaning-up of a spill of chemical, mineral oil or scheduled wastes

SW 409 Disposed containers, bags or equipment contaminated with chemicals, pesticides, mineral oil or scheduled wastes

SW 410 Rags, plastics, papers or filters contaminated with scheduled wastes

SW 411 Spent activated carbon excluding carbon from the treatment of potable water and processes of the food industry and vitamin production

SW 412 Sludges containing cyanide

SW 413 Spent salt containing cyanide

SW 414 Spent aqueous alkaline solution containing cyanide

SW 415 Spent quenching oils containing cyanides

SW 416 Sludges of inks, paints, pigments, lacquer, dye or varnish

SW 417	Waste of inks, paints, pigments, lacquer, dye or varnish
SW 418	Discarded or off-specification inks, paints, pigments, lacquer, dye or varnish products containing organic solvent
SW 419	Spent di-isocyanates and residues of isocyanate compounds excluding solid polymeric material from foam manufacturing process
SW 420	Leachate from scheduled waste landfill
SW 421	A mixture of scheduled wastes
SW 422	A mixture of scheduled and non-scheduled wastes
SW 423	Spent processing solution, discarded photographic chemicals or discarded photographic wastes
SW 424	Spent oxidizing agent
SW 425	Wastes from the production, formulation, trade or use of pesticides, herbicides or biocides
SW 426	Off-specification products from the production, formulation, trade or use of pesticides, herbicides or biocides
SW 427	Mineral sludges including calcium hydroxide sludges, phosphating sludges, calcium sulphite sludges and carbonates sludges
SW 428	Wastes from wood preserving operation using inorganic salts containing copper, chromium or arsenic of fluoride compounds or using compound containing chlorinated phenol or creosote
SW 429	Chemicals that are discarded or off-specification
SW 430	Obsolete laboratory chemicals
SW 431	Waste from manufacturing or processing or use of explosives
SW 432	Waste containing, consisting of or contaminated with, peroxides
SW 5	**Other wastes**
SW 501	Any residues from treatment or recovery of scheduled wastes

PROCEDURE FOR LICENSE

ENVIRONMENTAL QUALITY (PRESCRIBED PREMISES) (SCHEDULED WASTES TREATMENT AND DISPOSAL FACILITIES)

Procedures for obtaining licenses involving **three (3) stages**:

GENERAL GUIDELINES FOR SUBMISSION OF LICENSE USING BLESS

1. Register as an individual in BLESS & proceed to register the entity.
2. Any fees to the agency can be made using BLESS's e-Payment module / manually.
3. Upload the documents as stated in the license's Checklist & Guidelines together with a complete form.
4. Submitted online through BLESS & an email notification will be sent.

CHECKLIST & GUIDELINES FOR LICENSE

- Official Letter of application
- Processing fee of RM 100 in the form of check or money order to the “Director General of Environmental Quality”
- Complete Form AS-1
- PAT Approval Letter (Partial Recovery)
- EIA Approval
- Written Approval Letter Section 19
- Written Approval Letter PPKAS (UB) 2014
- Review written declaration for the construction of premises in accordance with the specifications of Written Approval Section 19 by a Qualified Engineer

Form AS-1

(A.S. 1-Pin. 1/86)

JABATAN ALAM SEKITAR MALAYSIA
KEMENTERIAN SUMBER ASLI DAN ALAM SEKITAR

PERMOHONAN * LESEN/UNTUK MEMBAHARUI LESEN/UNTUK MEMINDAH MILIK LESEN DI BAWAH AKTA KUALITI ALAM SEKELILING 1974

*APPLICATION FOR *A LICENCE/RENEWAL OF A LICENCE/TRANSFER OF A LICENCE UNDER THE ENVIRONMENTAL QUALITY ACT 1974*
BORANG DITETAPKAN DI BAWAH PERATURAN 2 PERATURAN-PERATURAN KUALITI ALAM SEKELILING (PERLESENAN) 1977
FORM PRESCRIBED UNDER REGULATION 2 OF THE ENVIRONMENTAL QUALITY (LICENSING) REGULATIONS 1977

(Satu salinan hendaklah diisi / *One copy to be completed*)

Ketua Pengarah
Jabatan Alam Sekitar
Kementerian Sumber Asli Dan Alam Sekitar
Aras 3-7, Parcel C4
Pusat Pentadbiran Kerajaan Persekutuan
62662 PUTRAJAYA

Director General
Department of Environment
Ministry of Natural Resources and Environment
Level 3-7, Block C4

Federal Government Administrative Centre
62662 PUTRAJAYA

SAYA / KAMI memohon suatu lesen†
.....
I/WE required by section† (Nyatakan maksud lesen itu / *State purpose of licence)*

Dikehendaki oleh seksyen .....Akta Kualiti Alam Sekeliling 1974
As required by section *of the Environmental Quality Act 1974*

Dan memberi butir-butir yang berikut:
And give the following particulars:

Butir-Butir/*Particulars*	**Panduan Untuk Mengisi Borang/*Instructions for Completion***
1. (i) Nama pemohon ..... *Name of application*	1. (i) Jika pemohon adalah orang perseorangan, nama penuh mestilah diberi dan jika pemohon adalah pertubuhan perbadanan, nama berdaftar atau berkanunnya mestilah diberi
(ii) Alamat pemohon: *Address of application:* Pejabat ..... *Business* Telefon ..... *Telephone* Tempat Tinggal: ..... *Residence* Telefon: ..... *Telephone*	*1. (i) The name must be the full name in the case of an individual and the registered or statutory name in the case of a body corporate*
(iii) Keturunan ..... *Nationality*	(ii) Alamat tempat tinggal perlu diberi hanya jika pemohon adalah orang perseorangan
2. (i) Nama syarikat induk: ..... *Name of parent company*	*(ii) The residential address need only be given if the applicant is an individual*
(ii) Alamat syarikat induk ..... *Address of parent company* ..... Telefon ..... *Telephone*	(iii) Jika pemohon adalah pertubuhan perbadanan, nyatakan tempat di mana didaftar atau ditubuhkan
3. (i) Nama premis ..... *Name of premises*	*(iii) If the applicant is a body corporate, state place where registered or established*
(ii) Alamat premis ..... *Address of premises* ..... Telefon ..... *Telephone*	2. Dipakai hanya jika pemohon adalah syarikat subsidiari *2. Applicable only if the applicant is a subsidiary company*
(iii) Letaknya premis ..... *Location of premises*	3. Perkataan "premis" disini dan di tempat-tempat lain dalam Borang ini adalah berkenaan dengan premis yang lesen dikehendaki baginya *3. The word "premises" here and elsewhere in this Form refers to the premises for which a licence is required*

2

Butir-Butir/*Particulars*	**Panduan Untuk Mengisi Borang/*Instructions for Completio***
4. (i) Nama pemegang lesen sebelumnya..... *Name of previous licensee*	4. (i) Dipakai jika lesen hendak dipindahmilik *4. (i) Application in the case of a transfer of licence*
(ii) Alamat pemegang lesen sebelumnya ..... *Address of previous licensee*	

(iii) Nama premis sebelumnya .....
Previous name of premises
.....

(iv) Tarikh dikeluarkan .....
Date of issue
Tarikh tamat .....
Date of expiry

(v) No. Lesen .....
Licence No
Rujukan Fail .....
File reference

(iii) Dipakai jika nama premis telah bertukar
(iii) Applicable if name of premises has changed

(iv) Catatkan tarikh lesen dikeluarkan, tarikh tamatnya, mengikut susunan tarikh, bulan dan tahun
(iv) Enter dates of issue and expiry of licence in date-month-year order

Bayaran yang ditetapkan sebanyak $ ..... adalah dihantar bersama dengan permohonan ini.
The prescribed fee of $ is forwarded with this application.
(Jika pemohon tidak dapat menentukan atau menghitung amaun bayaran itu, mintalah nasihat dan bantuan dari
(If the applicant is unable to ascertain or compute the amount of the fee, advice and assistance may be obtained
Jabatan Alam Sekitar atau mana-mana Pejabat cawangannya).
From the Department of Environment or any branch office thereof).

Saya, ... pemohon/agen yang diberikuasa bagi pemohon, dengan ini
I, *, the applicant/authorized agent of the applicant, hereby*
Mengaku bahawa segala maklumat yang diberi dalam permohonan ini adalah benar dan betul sepanjang pengetahuan
declare that all information given in this application is to the best of my knowledge and belief true and correct.
dan kepercayaan saya.

Alamat agen yang diberikuasa:
Address of Authorized Agent:
.....
.....
.....
.....

Tandatangan pemohon atau agen yang diberikuasa,
Signature of applicant or authorized agent,

Untuk dan bagi pihak:
for and on behalf of:
(Bubuh meteri atau cap pemohon)
(Affix seal or stamp of applicant)

Catatan-*Note*

Lesen-lesen yang berikut adalah dikehendaki oleh Akta Kualiti Alam Sekeliling 1974:
The following licences are required by the Environmental Quality Act 1974:

Seksyen 18 (1) ** Lesen untuk menduduki atau menggunakan premis yang ditetapkan
Section 18 (1) *Licence to occupy or use prescribed premises*

Seksyen 22 (1) * Lesen untuk mengeluar atau melepaskan buangan ke dalam udara dengan melanggar syarat-syarat yang boleh diterima yang ditentukan di bawah seksyen 21
Section 22 (1) *Licence to emit or discharge wastes into the atmosphere in contravention of the acceptable conditions specified under section 21*

Seksyen 23 (1) ** Lesen untuk mengeluarkan atau menyebab atau membenar dikeluarkan apa-apa bunyi bising yang lebih kuat bahana, keamatan, atau kualitinya dengan melanggar syarat-syarat yang boleh yang boleh diterima yang ditentukan di bawah seksyen 21.
Section 23 (1) *Licence to emit or cause or permit to be emitted any noise greater in volume, intensity, or quality in contravention of the acceptable conditions specified under section 21.*

Seksyen 24 (1) ** Lesen untuk mencemarkan atau menyebab atau membenar dicemarkan mana-mana tanah tanih atau permukaan mana-mana tanah dengan melanggar syarat-syarat yang boleh diterima yang ditentukan di bawah seksyen 21.
Section 24(1) *Licence to pollute or cause or permit to be polluted any soil or surface of any land in contravention of the acceptable conditions specified under section 21.*

Seksyen 25 (1) ** Lesen untuk mengeluarkan, melepas, atau meletakkan apa-apa buangan ke dalam mana-mana perairan daratan dengan melanggar syarat-syarat yang boleh diterima yang ditentukan di bawah seksyen 21.
Section 25 (1) *Licence to emit, discharge, or deposit any wastes into any inland waters in contravention of the acceptable conditions specified under section 21.*

Seksyen 29 (1) ** Lesen untuk melepaskan buangan-buangan ke dalam perairan Malaysia.
Section 29 (1) *Licence to discharge wastes into Malaysia waters.*

PROBLEM IN WASTE MANAGEMENT

1. In Malaysia, the waste management has been **a major concern.**

2. When a material is discarded with impunity, it becomes waste and **may give a potential hazard to the human health** and **environment**

3. The **most difficult waste to be managed** are scheduled and hazardous waste.

cenviro

KUALITI ALAM SDN BHD

1

Owns & operates the **only integrated hazardous waste management** center.

2

License to handle 76 categories of 77 scheduled wastes (except SW 431)

3

Capacity to store, treat and dispose more than 100,000 tonnes.

4

Incineration Plant, Physical & Chemical Treatment Plant, Solidification Plant, Secured Landfill & Clinical Waste Treatment Center.

SW 431 Waste from manufacturing or processing or use of explosives

LICENSE OF FACILITIES AT KUALITI ALAM SDN BHD
(APPROVED BY DOE NEGERI SEMBILAN)

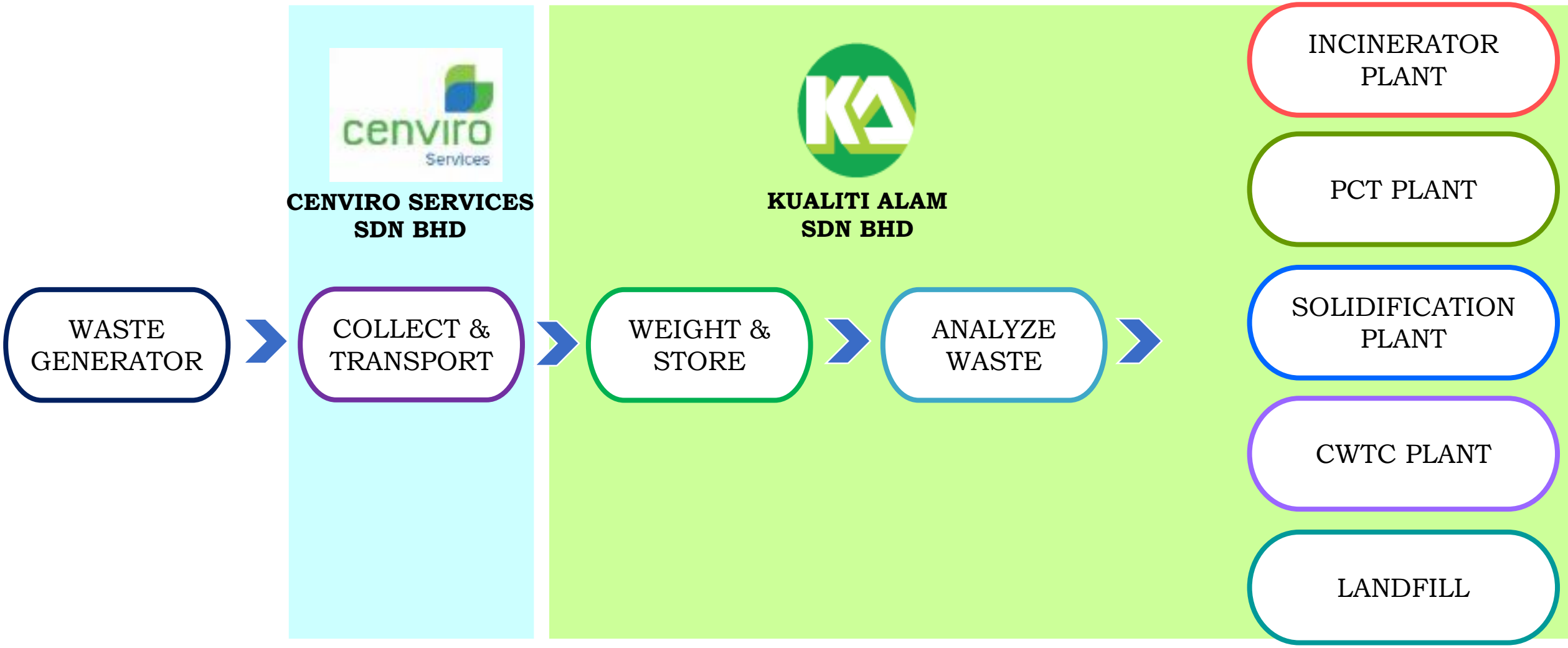
BIL	FACILITIES	NO LICENSE
1	INCINERATOR 1	004492
2	KUALITI ALAM MODULARISED INCINERATOR (KAMI)	002076
3	SOLIDIFICATION PLANT	004997
4	PHYSICAL & CHEMICAL TREATMENT (PCT)	004996
5	OFF SITE SCHEDULED WASTE	004993
6	PEMBAWA YANG DITETAPKAN, KENDERAAN BAGI TUJUAN PENGUMPULAN, PEMINDAHAN DAN PENGANGKUTAN BUANGAN TERJADUAL	003319
7	SECURED LANDFILL	003291
8	RUBBER SLUDGE LANDFILL	003881
9	LOJI PRA-RAWATAN SISA BUANGAN ORGANIK SISTEM DISTABILISASI ENAPCEMAR DAN SISA BUANGAN MINYAK BERSILIKON	002085
10	LOJI PRA-RAWATAN ENAPCEMAR MINYAK (OILY SLUDGE) DAN SPENT CAUSTIC	002086
11	MICROWAVE	004998
12	CENVIRO RECYCLING AND RECOVERY SDN. BHD.	003856

METHODOLOGY:

OPERATION OF WASTE MANAGEMENT

WASTE MANAGEMENT CENTRE

WASTE MANAGEMENT FLOW



PCT – Physical & Chemical Treatment
CWTC – Clinical Waste Treatment Center
CRR – Cenviro Recycling and Recovery

Treatment & Disposal

INCINERATION PLANT

Treats **organic waste** & **inorganic waste** more than 10% **Total Organic Carbon (TOC)**.

Slag

PHYSICAL / CHEMICAL TREATMENT

Treats **inorganic liquid** & the residual filter cake from the detoxification process is treated at the Solidification Plant.

Ash

Slurry/Filter Cake

SOLIDIFICATION PLANT

Treat **inorganic solid** that **failed the TCLP test**.

Solidified Waste

Innocuous Waste

Solid Waste

CLINICAL WASTE TREATMENT CENTER

Microwave technology & capable to process up to 300 kilogram per hour.

Residue

SECURED LANDFILL

Some wastes meeting the **Direct Landfill Waste Acceptance Criteria,** includes the **TCLP test** & **the 10% limit on TOC**.

Incineration Plant

INCINERATOR 1

Combustion of organic substances.

Converts the waste into **ash, flue gas & heat.** Quantities is **44 960 MT/year.** (Nominal capacity of **100 MT/day**).

The **ash** is mostly formed by the **inorganic constituents.**

The **flue gases** is **cleaned of gaseous** & **particulate pollutants.**

ENVIRONMENTAL QUALITY ACT 1974

ENVIRONMENTAL QUALITY REGULATIONS (SCHEDULED WASTES) 2005

ENVIRONMENTAL QUALITY (PRESCRIBED PREMISES) (SCHEDULED WASTES TREATMENT AND DISPOSAL FACILITIES) ORDER 1989 (AMENDMENT) 2006

ENVIRONMENTAL QUALITY (PRESCRIBED PREMISES) (SCHEDULED WASTES TREATMENT AND DISPOSAL FACILITIES) REGULATIONS 1989 (AMENDMENT) 2006

COMPLIANCE SCHEDULE

License Number: 004992

Type of Premise: Incinerator 1

Name of Holder License: Kualiti Alam Sdn. Bhd.

LICENSE CONDITIONS

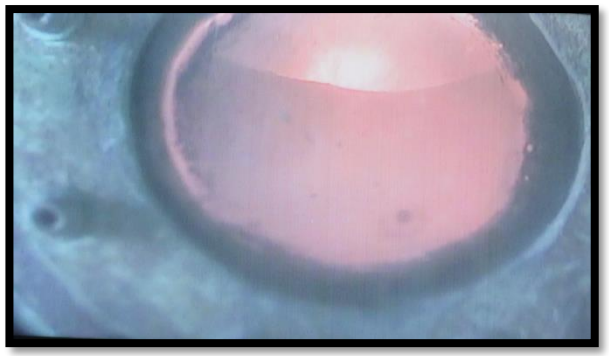
2. TYPES OF SCHEDULED WASTE

2.1 Type of waste that can be burned in incinerators are as follows:

Bil	Name of Waste	Waste Code	Quantity allowed (per year)
i	Extraction of oil and waste containing oil;	All waste codes in the First Schedule (Regulation 2) of the Environmental Quality (Scheduled Wastes) Regulations 2005 except the SW431 code	44 960 MT/year
ii	Organic waste includes organic solvents whether containing halogen and sulphur;		
iii	Wastes containing the remnants of raw materials and products from pesticide formulations;		
iv	Pharmaceutical waste which must be destroyed by burning;		
v	Wastes of printing ink, paint, pigment, lacquer or varnish containing organic solvents; and		
vi	Wastes containing a scheduled waste mix (i) to (v) as above.		
vii	Pathogenic waste, clinical wastes or quarantined material		
viii	Discarded drugs containing psychotropic substances or containing substances that are toxic, harmful, carcinogenic, mutagenic or teratogenic		

INCINERATION PROCESS

Inlet waste (3-4 drums can enter in one process)

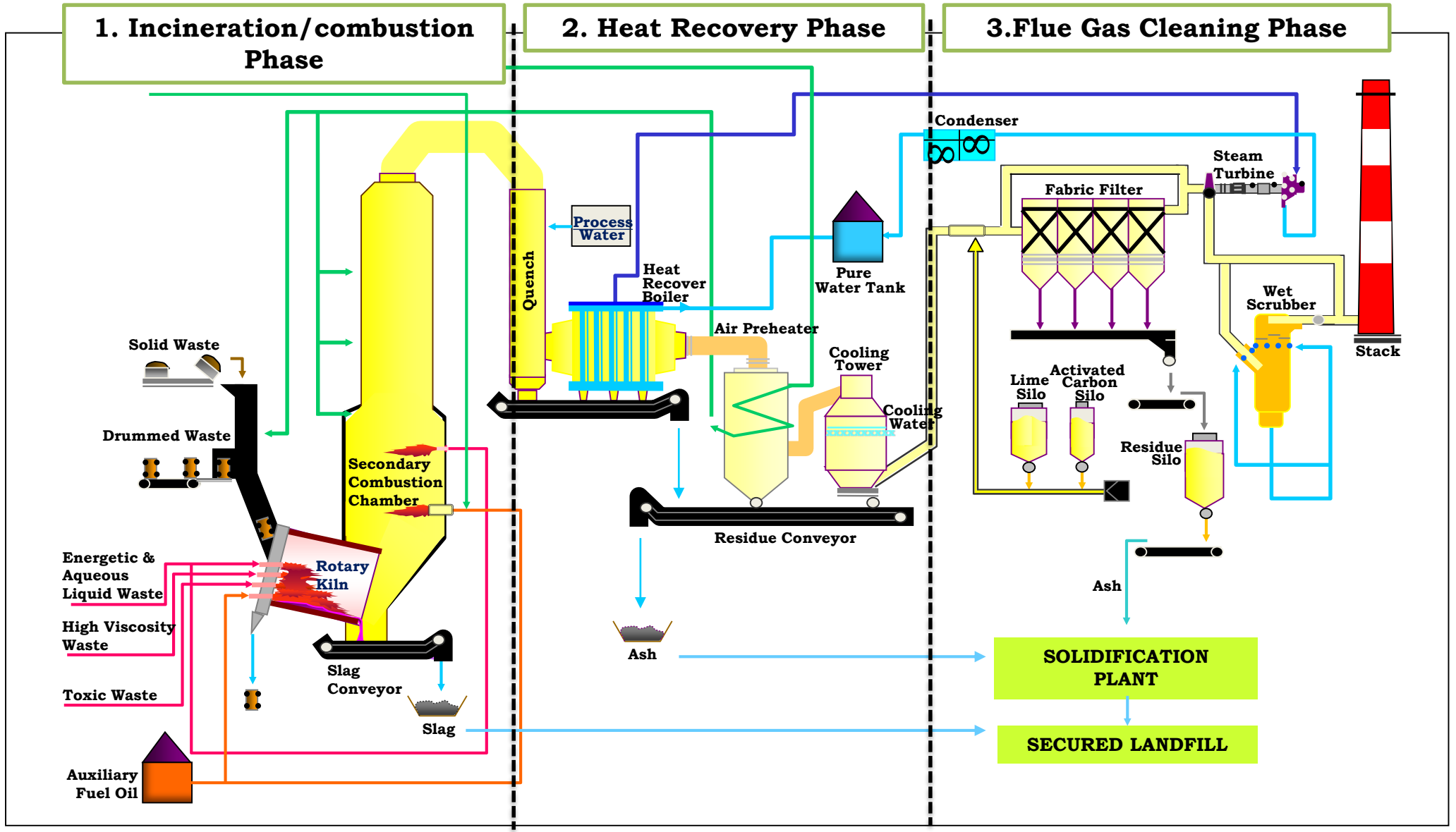


Process incineration (1000▫C, 30-90 minutes)

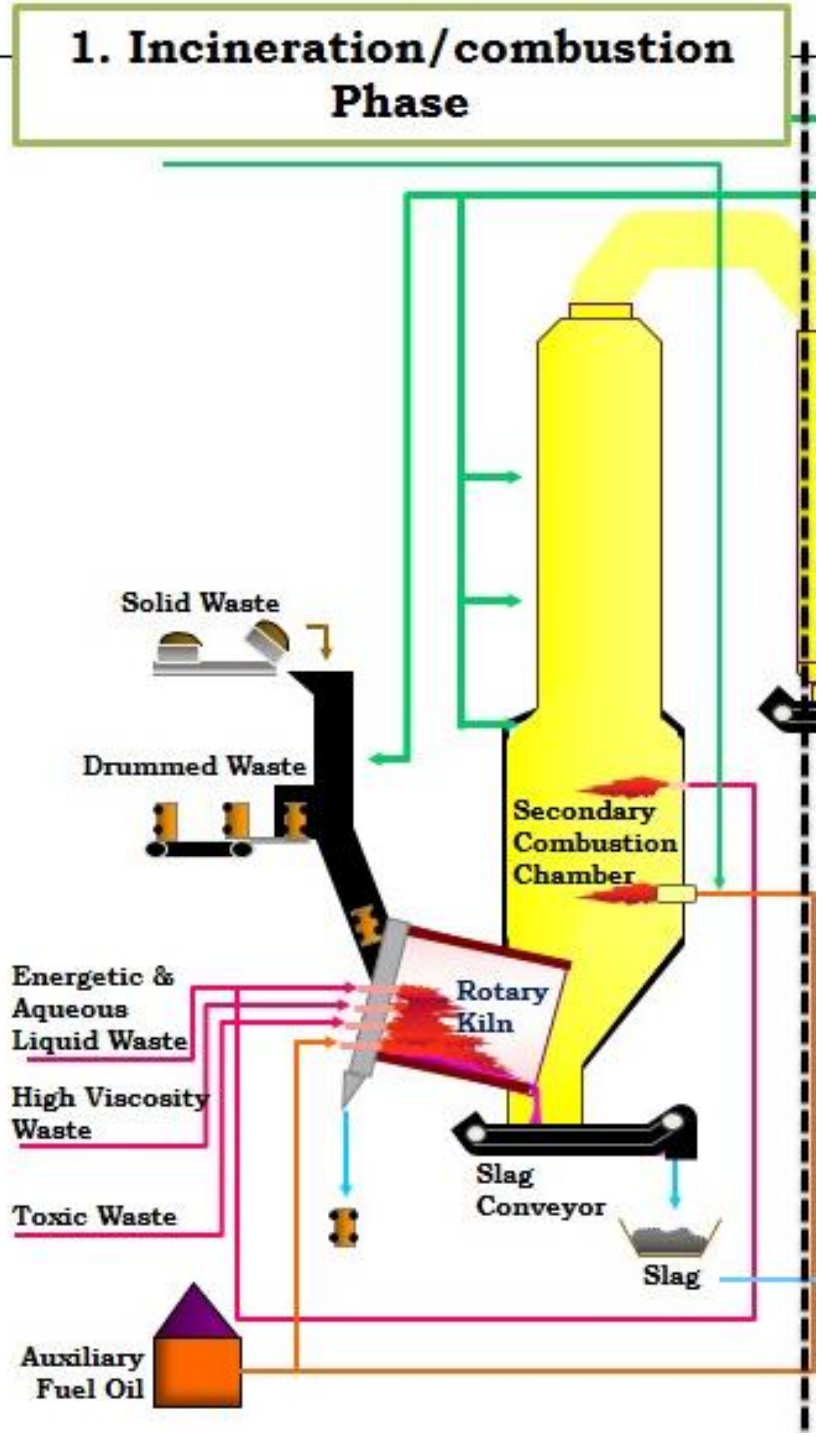
Residue condition in CCTV

Stack in CCTV

INCINERATION PROCESS

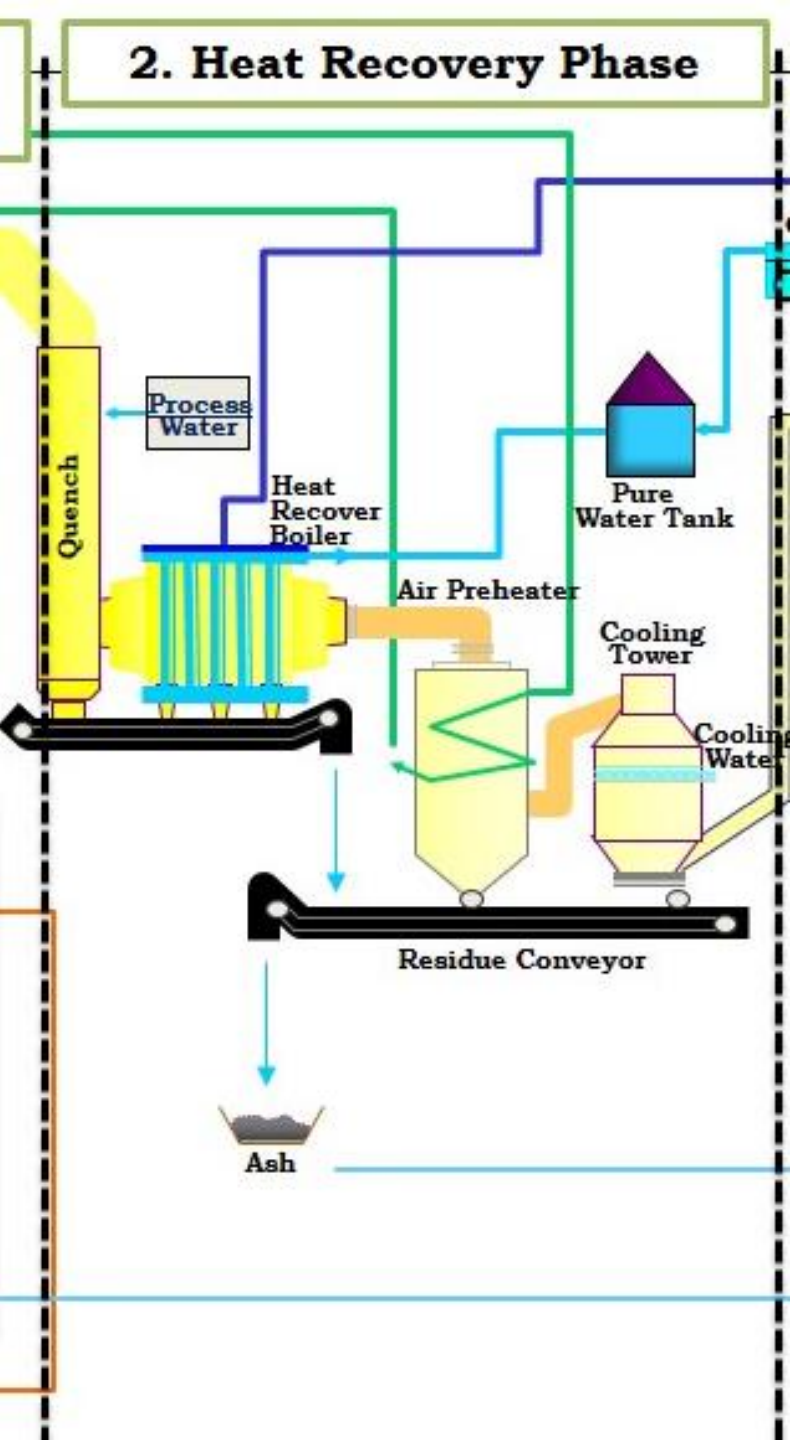


Sources: Kualiti Alam Sdn Bhd



- The solid waste or drummed waste will **enter & burn in rotary kiln (1000◦C to 1300◦C)**. Resident time is **30 to 90 minutes**.
- **Slag is immediately cooled** to form solid & discharge directly to **Landfill.**
- Apply Vortex-SCC Concept, where the **secondary air & liquid waste are injected tangentially.**
- Substances in the flue gas leaving SCC are burnt out completely, then will be introduced to Heat Recovery System.

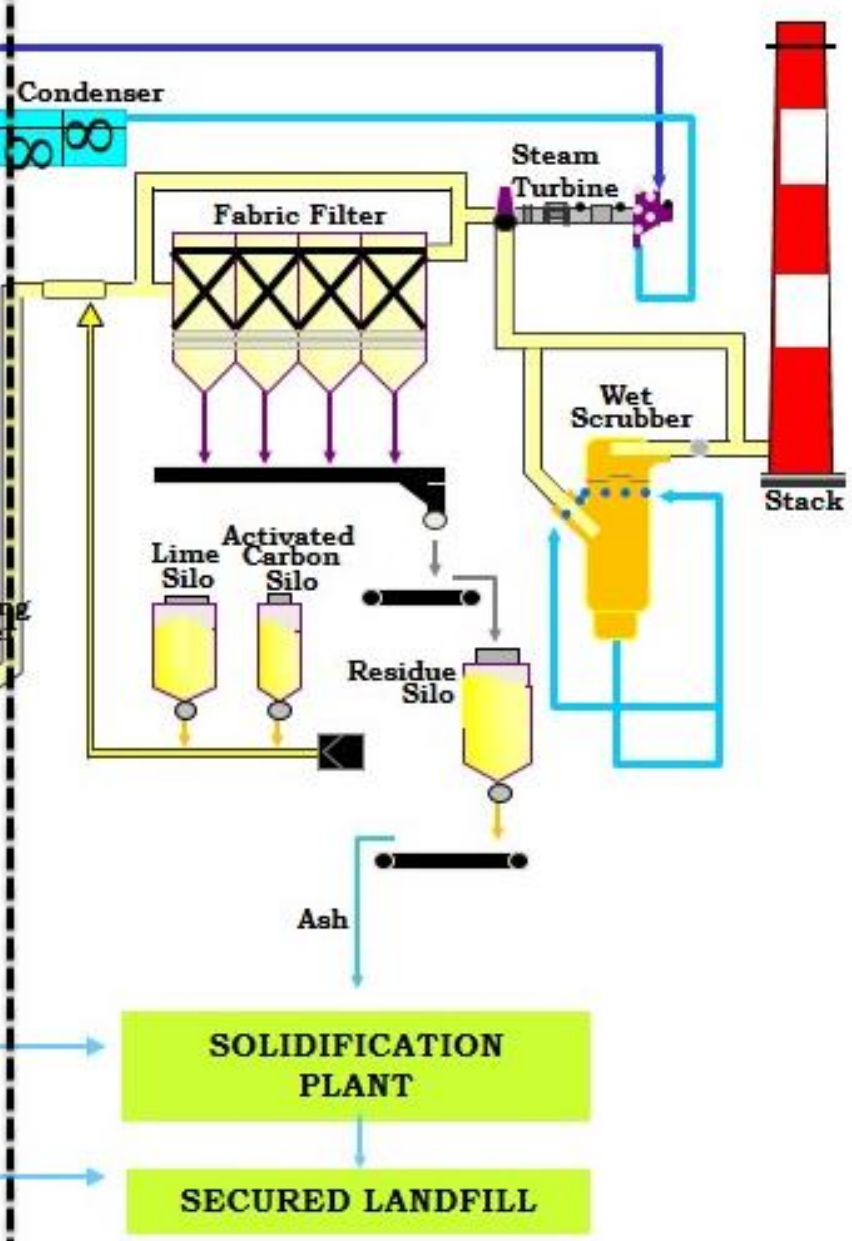
Sources: Kualiti Alam Sdn Bhd



- Heat from Flue gases is then converted into steam at the Heat Recovery Boiler.
- Air Preheater **(APH) is used to further cooled down** the Flue Gas temperature & **generate hot air** for combustion system.
- **Cooling Tower** is to achieve suitable range of temperature by means of **injecting atomized water** before Flue gas cleaning phase.
- **Toxins are destroyed** when waste is treated with **high temperature.**

Sources: Kualiti Alam Sdn Bhd

3.Flue Gas Cleaning Phase

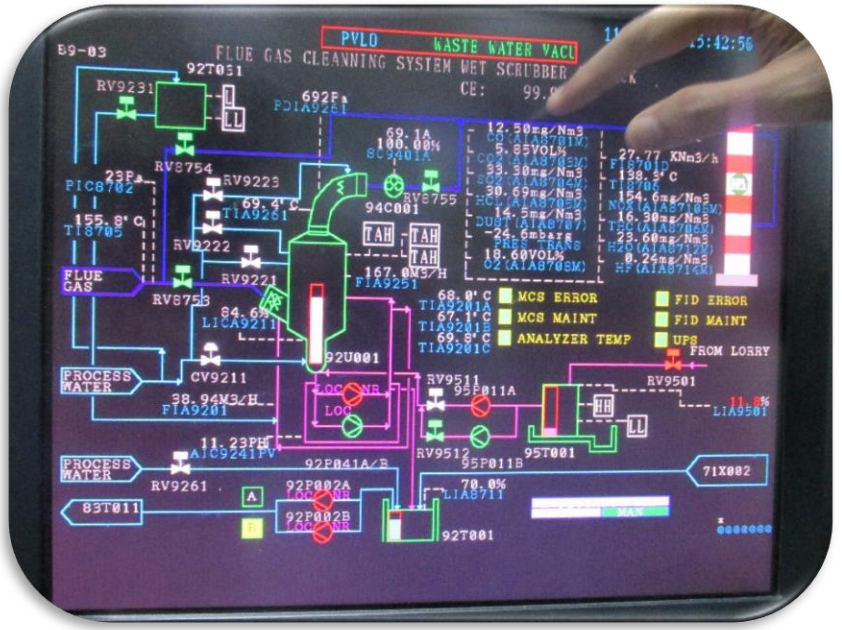


- **Sulfur dioxide removed** by dry desulfurization by **injection limestone slurry into the flue gas**.
- NOx is either reduced by **catalytic reduction with ammonia** in a catalytic converter / by a **high temperature reaction** with ammonia in the furnace.
- **Flue gas cleaning system** is built **to ensure the star commission is complied with authorized standard.**
- **The heat** from the incineration process is being **recovered via steam turbine.**

Sources: Kualiti Alam Sdn Bhd

Continuous Emission Monitoring System (CEMS)

Continuous Emission Monitoring System (CEMS) is one of mandatory requirement place by DOE whereby several parameters such as CO, NOx, SO_2, HCL, TPM (Dust), & HF



INC 1 Reading	Reading	LIMIT
CO mg/Nm3	12.50	125 mg/Nm3
NOx mg/Nm3	154.6	400 mg/Nm3
SO_2 mg/Nm3	33.30	200 mg/Nm3
HCL mg/Nm3	30.69	100 mg/Nm3
DUST	14.5	30 mg/Nm3
HF	0.24	100 mg/Nm3

ENVIRONMENTAL QUALITY ACT 1974
ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 2005

License no. 5.1: The production of impurity into the air from the chimney for a period of up to 4 June 2019 shall not exceed the discharge limits as in Appendix F. An air leakage analysis report from the chimney shall be submitted to the State Department of Environment.

Appendix F

Parameter	Had Pelepasan	Frekuensi Percontohan	Jan	Feb	Mac	Apr	Mei	Jun	Jul	Ogos	Sept	Okt	Nov	Dis
Asap (smoke)	Tidak melebihi Carta Ringelmann No. 1	Berterusan												
Kumin pepejal particulate	0.03 g/Nm^3	Berterusan												
Hidrogen Klorida	0.1 g/Nm^3	6/tahun												
$NO_x(NO_2)$	0.40 g NO_2/Nm^3	6/tahun												
SO_2	0.2 g/Nm^3	6/tahun												
Karbon Monoksida (CO)	0.125 g/Nm^3	6/tahun												
HF	0.1 g/Nm^3	6/tahun												
Gas klorin	0.2 g HCl/Nm^3	6/tahun												
Dioksin & Furan	0.1 ng/Nm^3	2/tahun												
Arsenik (As)	0.025 g/Nm^3	4/tahun												
Kadmium (Cd)	0.015 g/Nm^3	4/tahun												
Plumbum (Pb)	0.0014 g/Nm^3	4/tahun												
Raksa (Hg)	0.0002 g/Nm^3	4/tahun												
Kuprum (Cu)	0.1 g/Nm^3	4/tahun												
Chromium (Cr)	0.05 g/Nm^3	4/tahun												
Total Organic Carbon	20 g/Nm^3	4/tahun												
Zink	0.1 g/Nm^3	4/tahun												
Antimoni	0.025 g/Nm^3	4/tahun												

ENVIRONMENTAL QUALITY ACT 1974

ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 2005

16. Compounding of offences

(1) Every offence which consists of **any omission or neglect to comply with**, or any act done or attempted to be done contrary to these Regulations may be compounded under section 45 of the Act.

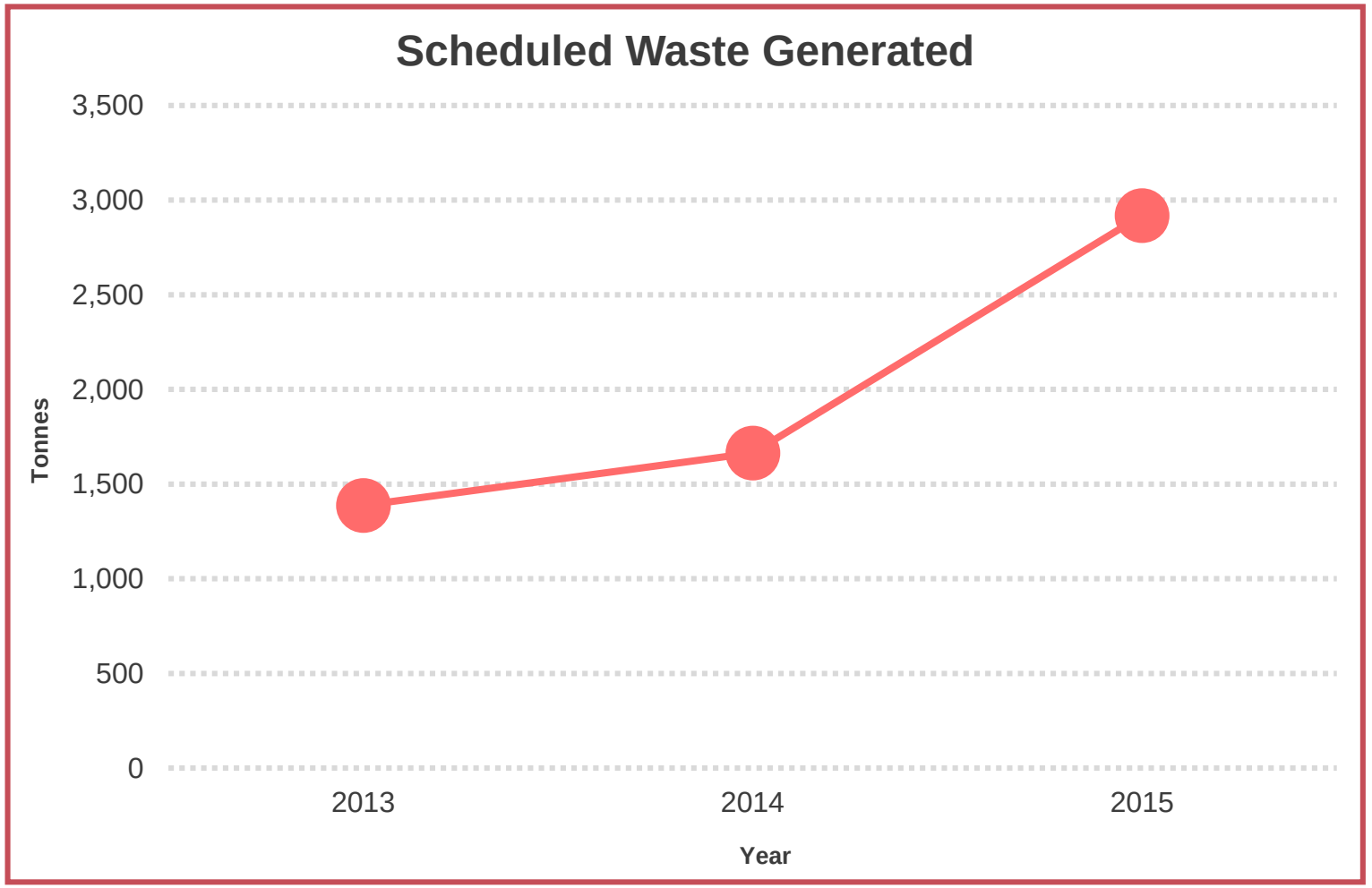
ENVIRONMENTAL QUALITY ACT 1974

45. Compounding of offences

(1) The Director General or any Deputy Director General, or any other public officer or any local authority to whom the Director General has delegated such power in writing, may compound any offence under this Act or the regulations made thereunder which is prescribed by the Minister to be compoundable offence by accepting drom the person reasonably suspected of having committed the offence a sum of money not exceeding **two thousand ringgit**.

Sources: Environmental Quality Act 1974

RESULTS & DISCUSSION



Scheduled waste generated in 2015 is higher because of high collection rates.

The graph shows an obvious increase of scheduled waste generation.

WASTE TREATED

Treatment facilities	Waste Treated (tonnes)		
	2014	2015	2016
Incineration plant (INC)	35,470	49,488	40,962
Physical and chemical treatment plant (PCT)	1,504	4,921	2,605
Solidification treatment plant (STP)	14,450	9,806	11,054

INC: Low collection rates, resulting in lower total waste incinerated in 2016.

PCT: The amount of physical and chemical treatment plant waste was 12% lower compared to 2015.

STP: More scheduled waste collected in 2016 led to 29% increase.

Sources: Kualiti Alam Sdn Bhd

HAZARDOUS WASTE TREATED

Landfill
668,000 tonnes

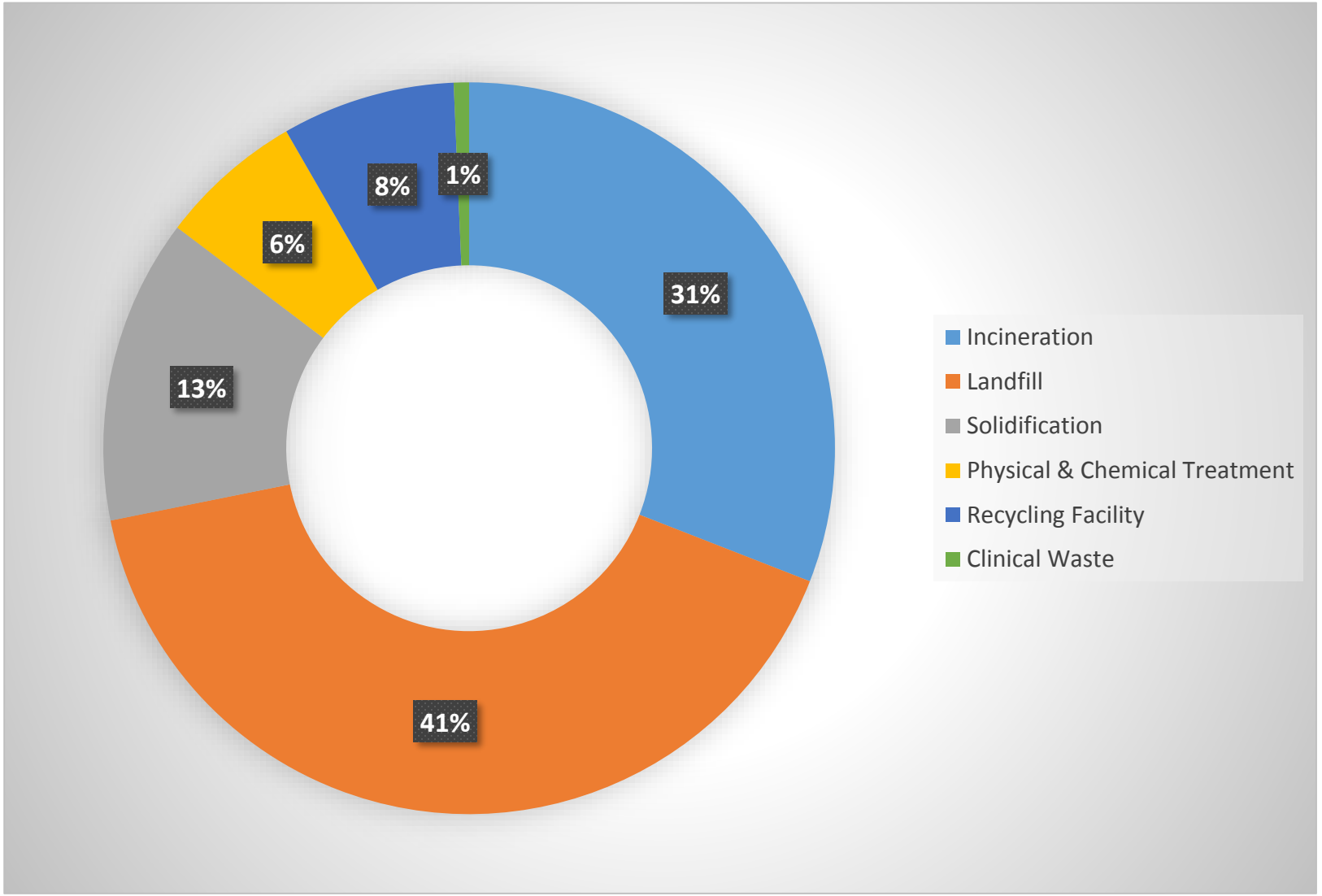
Incineration
505,000 tonnes

Solidification
220,000 tonnes

Recycling Facility
125,000 tonnes

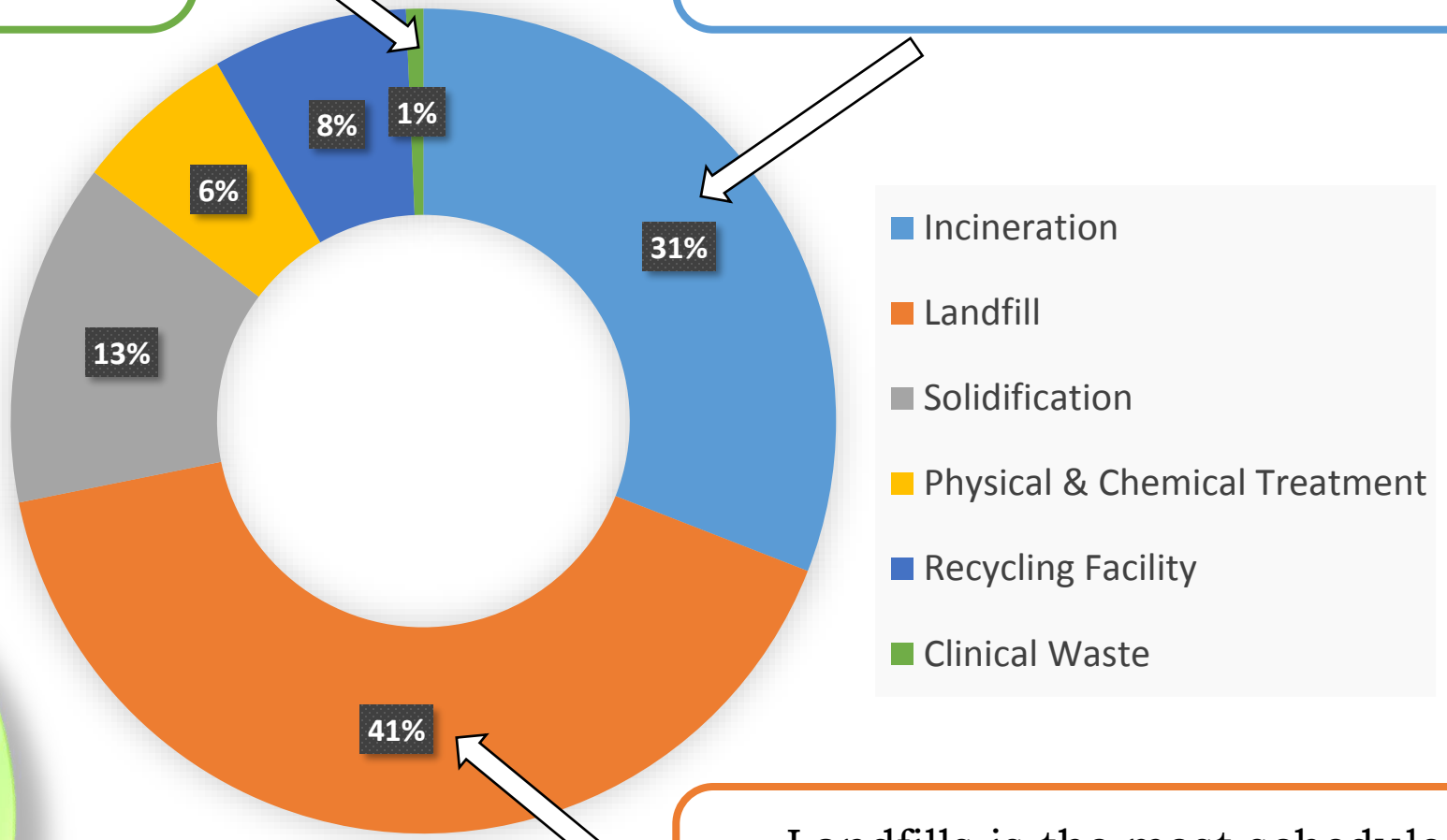
Physical & Chemical Treatment
104,000 tonnes

Clinical Waste
11,000 tonnes



The clinical waste is the lowest treated which is only 11,000 tonnes (1%).

The scheduled waste that treated by incineration is 505,000 tonnes (31%) of waste.



1.7 million of scheduled waste are accumulated from1998-2017 to treat it at Kualiti Alam Sdn Bhd.

Landfills is the most scheduled waste treated which is 668,000 tonnes (41%) of waste.

Sources: Kualiti Alam Sdn Bhd

CONCLUSION

- KA was established in Malaysia to have her own scheduled waste management centre (**capable to provide treatments for 76 of 77 categories** of scheduled waste).
- KA has **effective & efficient scheduled waste management processes and facilities.**
- Comprehensive & committed waste management facilities & disposal procedures, **a cleaner environment for our future generation is greatly assured.**

Thank you for your attention and support.

Thank you for gave me an opportunity to industrial training at Department of Environment Negeri Sembilan