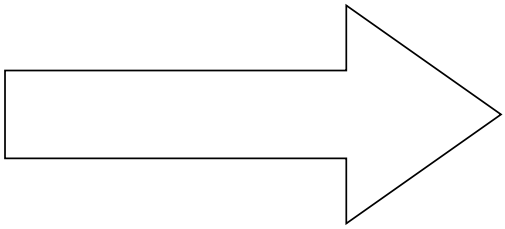

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1. INTRODUCTION

This Environmental Impact Assessment (EIA) report is prepared for the Project entitled **Proposed Additional Scheduled Waste Codes and Capacities at PT 3547 and PT 3548, Taman Perindustrian Tengas, Ulu Yam Bharu, Mukim Ulu Yam, District of Hulu Selangor, Selangor**. The "Project Proponent" for this Project is Riyaland Sdn.Bhd.

The total area for both land at PT 3547 and PT 3548 is approximately 8049 m^2 (2 acre). Their premise at PT 3547 is currently utilized as off-site scheduled waste recovery facility, whilst the current activity at PT 3548 is for the paint process and trading of petroleum related product. The premises will be upgraded to provide more area for the Project. The Project site is under the jurisdiction of Majlis Daerah Hulu Selangor (MDHS).

The Project site is situated within a gazetted industrial area, which is approximately 3 km southwest from Pekan Batang Kali and 1.2 km towards northwest of Pekan Ulu Yam Baharu. It can be accessed via the North-South Expressway exiting at Tg. Malim (Exit 121) and driving through Federal Road (1) before entering State Road (Jalan Hulu Yam (B57)). From Jalan Hulu Yam, the Project site is located at the right side of the road which is through Jalan Tengas into Taman Perindustrian Tengas. Geographically, the Project site is situated at latitude 3°26'14.97"N and longitude of 101°38'59.71"E.

2. TERMS OF REFERENCE (TOR)

This Project is subjected under Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015 for the Second Schedule in Activity 14: (a) Schedule waste (iii) construction of off-site recovery plant or treatment facility that generates significant amount of wastewater which is located at the upstream of public water supply intake. Therefore, this requires the Project Proponent to submit an Environmental Impact Assessment (EIA) report to the Department of Environment (DOE) for approval prior any development.

TOR report for this Project has been submitted to Department of Environment (DOE) Putrajaya and approved on 5th September 2018 [reference number: JAS 50/013/902/246 Jld. 2 (28)].

The approved scope of studies for EIA report preparation are listed as follows:

a. Air Quality
b. Noise and Vibration
c. Water Quality/ Surface Water
d. Waste Management
e. Risk

3. STATEMENT OF NEED

Project Proponent has been involved in scheduled waste recovery for more than 10 years. Their current off-site recovery premise is located at PT 3547, Taman Perindustrian Tengas, Mukim Ulu Yam, Hulu Selangor.

Due to high demand from the existing client and potential client, Project Proponent is planning to add more scheduled waste code and

capacities. Riyaland and Power Fuel premises will be renovated to allocate the area for additional scheduled waste storage, product and process area. The implementation of the Project should be literally viewed as an effort by Project Proponent to reduce the waste generation and converted the waste into a value product.

The need of the Project is listed as follow:

a. Demand for recovery facility.
b. Product demand.
c. Support government environmental strategy.
d. Create new job and business opportunities.

4. PROJECT OPTION

Project options relevant to the Plant are divided into two (2) aspects as below:

a. Site option
b. Technology option

The comparison for 'No Project Option' and 'Implementation of Project Options' is described in **Table ES 4-1** as follow.

Table ES 4-1: Advantages and Disadvantages 'Built' and 'No Built' Option

No.	Option Criteria	No Built Option	Built Option
1.	Economic value	Miss the opportunity of income to the government and public.	Increasing income for relevant authority base on taxes. Provide economic opportunities for direct (i.e. equipment & material supply, engineering and transportation) and indirect (i.e. property and food establishment) businesses.
2.	Social enhancement	The economic contribution is from the existing recovery facility	Increase job opportunity
3.	Environmental value	Limited waste code can be recovered at Riyaland facility. The involvement to the environment is remained the same.	More waste code can be recovered at Riyaland facility. This will improve the waste management, less disturbance to the ecosystem, reduce the river water, groundwater and land contamination.

5. CURRENT PROJECT DESCRIPTION

Riyaland was incorporated in 2001. Riyaland's main activities is collecting and recovery of scheduled waste i.e. SW 305, SW 306, SW 307, SW 322, SW 323 and SW 417. The wastes are collected from variety of industries such as manufacturing industries, chemical industries, plantation, etc.

The operation of paint production and warehouse at PT 3548 started in 2007 and currently manage by Power Fuel Sdn Bhd. The warehouse is used to store product produced by Riyaland (at PT3547) and all related-petrochemical product such as hydraulic oil, fuel oil, diesel, kerosene and thinner.

5.1 SCHEDULED WASTE RECOVERY PLANT (PT3547)

5.1.1 General Process Flow

The general process flow for current process is summarized in **Figure ES 5-1**.

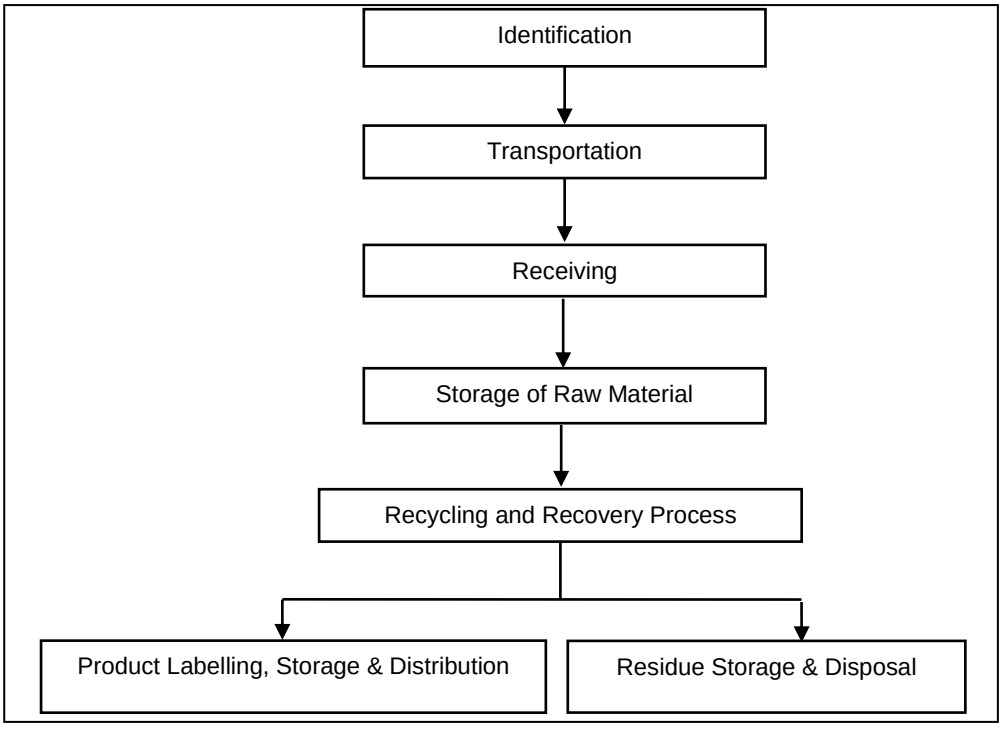

Figure ES 5-1: General Process Flow

5.1.2 Detail Process Flow

The scheduled waste recovery at the site involves the six (6) scheduled waste codes i.e. SW305, SW306, SW307, SW322, SW323 and SW417. The recovery process can be divided into 2 process which are Oil Recovery Process and Solvent Recovery Process.

a. Oil Recovery Proces

Spent Lubricating Oil (SW305), Spent Hydraulic Oil (SW 306) and Mineral Oil-Water Emulsion (SW 307) will undergo the same recovery process as illustrated in **Figure ES 5-2**.

b. Solvent Recovery Process

Waste of Non-Halogenated Organic Solvent (SW 322), spent halogenated organic solvent (SW 323) and waste paint (SW 417) will undergo the same recovery process as illustrated in **Figure ES 5-3.**

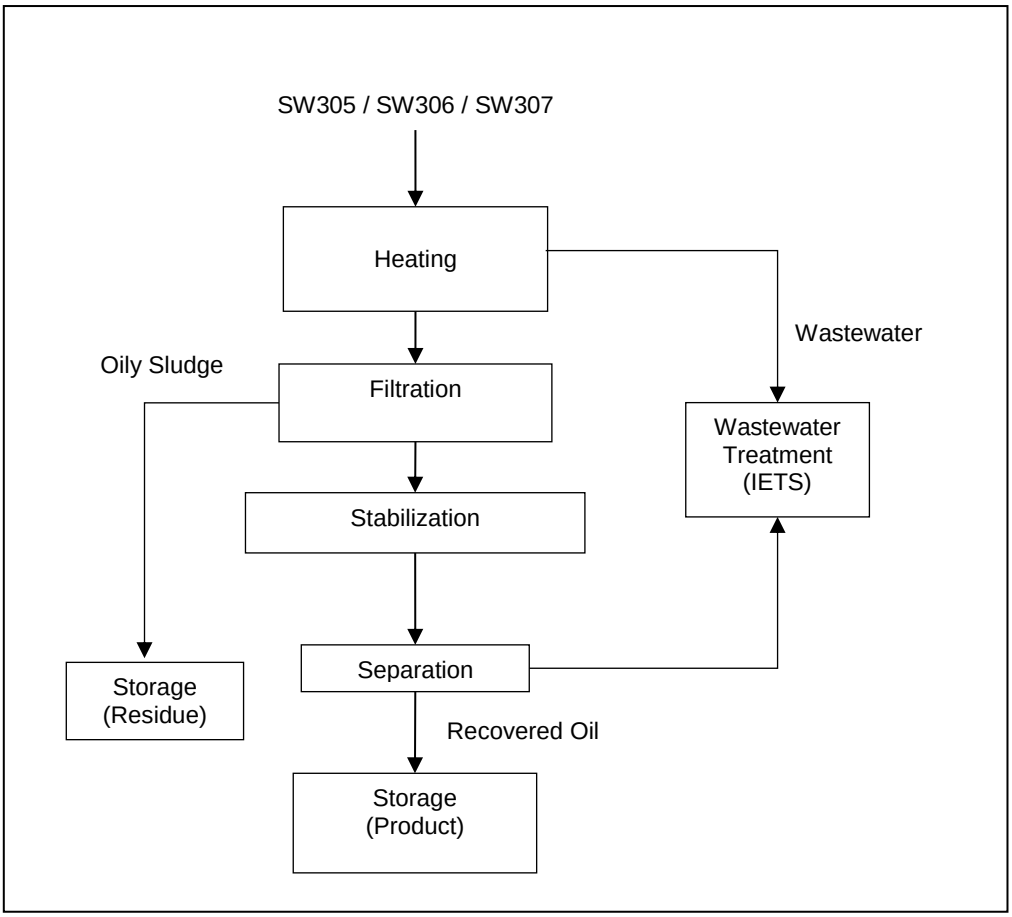

Figure ES 5-2: Oil Recovery Process

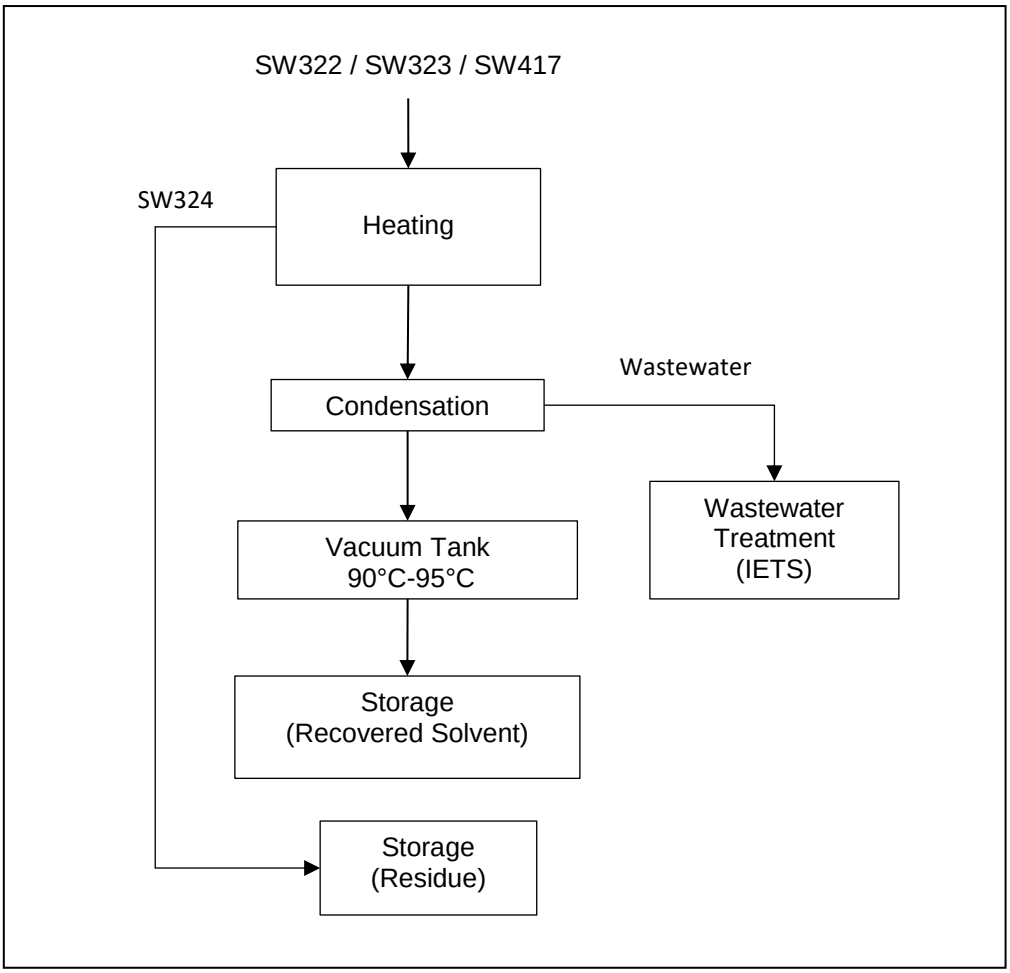

Figure ES 5-3: Solvent Recovery Process

6. PROPOSED PROJECT DESCRIPTION

The existing premises will be renovated to provide an adequate area for additional scheduled waste code and capacity. The front section of Riyaland building will be extended to provide the area for pyrolysis equipment. Meanwhile, the other area at Riyaland building will be arranged for recovery process area, incoming scheduled waste storage area, product storage area and pollution control.

6.1 GENERAL PROCESS FLOW

The general process flow is presented in **Figure ES 6-1** as follow.

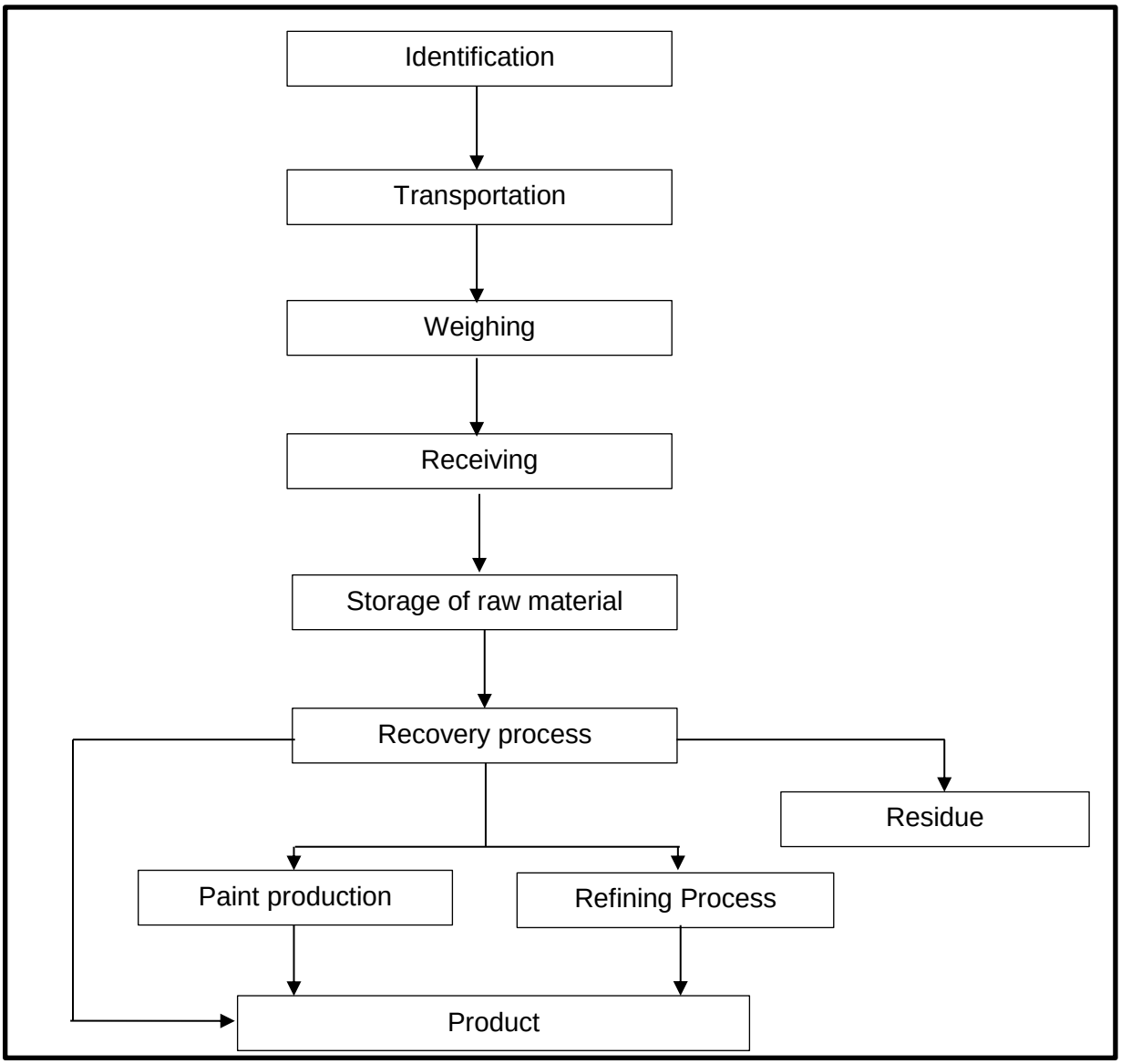

Figure ES 6-1: General Process Flow

6.2 DETAIL PROCESS FLOW

The recovery activity involves twenty-six (26) types of scheduled waste code. However, there will be twenty-eight (28) process involved in this process due to the different types of waste.

a. Process Flow for The Recovery Process of Waste Catalyst Containing Nickel (SW 202).
b. Process Flow for The Recovery Process of Metal Hydroxide Sludge Containing Nickel And Copper (SW 204).
c. Process Flow for The Recovery Process of Spent Inorganic Acid Such As Hydrochloric Acid (SW 206).
d. Process Flow for The Recovery Process of Adhesive Or Glue Waste Containing Organic Solvents Excluding Solid Polymeric Material (SW 303).
e. Process Flow for The Recovery Process of Spent Lubricating Oil (SW 305).
f. Process Flow for The Recovery Process of Spent Hydraulic Oil (SW 306)
g. Process Flow for The Recovery Process of Spent Mineral Oil-Water Emulsion (SW 307).
h. Process Flow for The Recovery Process of Oil Water Mixture Such As Ballast Water (SW 309).
i. Process Flow for The Recovery Process of Sludge From Mineral Oil Storage Tank (SW 310).
j. Process Flow for The Recovery Process of Waste Of Oil Or Oily Sludge (SW 311).
k. Process Flow for The Recovery Process of Oily Residue From Automotive Workshop, Service Station Oil Or Grease Interceptor (SW 312).
l. Process Flow for The Recovery Process of Oil or Sludge from Oil Refinery Plant Maintenance Operation (SW 314).

m. Process Flow for The Recovery Process of Waste Containing Formaldehyde (SW 320).
n. Process Flow for The Recovery Process of Waste of Non-Halogenated Solvent (SW 322).
o. Process Flow for The Recovery Process of Waste of Halogenated Solvent (SW 323).
p. Process Flow for The Recovery Process of Waste Of Halogenated or Unhalogenated Non-Aqueous Distillation Residues Arising From Organic Solvent Recovery Process (SW 324).
q. Process Flow for The Recovery Process of Uncured Resin Waste Containing Organic Solvents Or Heavy Metals Including Epoxy Resin And Phenolic Resin (SW 325).
r. Process Flow for The Recovery Process of Waste Of Thermal Fluids (Heat Transfer) Such As Ethylene Glycol (SW 327).
s. Process Flow for The Recovery Process of Contaminated Soil, Debris Or Matter Resulting From Cleaning-Up Of A Spill Of Chemical, Mineral Oil Or Scheduled Wastes (SW 408).
t. Process Flow for The Recovery Process of Container Contaminated with Solvent/ Paint (SW 409).
u. Process Flow for The Recovery Process of Drums and Container Contaminated with Oil Or Acid (SW 409).
v. Process Flow for The Recovery Process of Used Rag Contaminated with Oil, Solvent or Chemical (SW 410).
w. Process Flow for The Recovery Process of Used Oil Filter (SW 410).
x. Process Flow for The Recovery Process of Sludge of Inks, Paints, Pigments, Lacquer, Dye or Vanish (SW 416).
y. Process Flow for The Recovery Process of Waste of Sludge of Inks, Paints, Pigments, Lacquer, Dye or Vanish (SW 417).
z. Process Flow for The Recovery Process of Discarded Or Off-Specification Inks, Paints, Pigments, Lacquer, Dye or Vanish Products Containing Organic Solvent (SW 418).

aa. Process Flow for The Recovery Process of Contaminated Aluminium Chip Arising from Turning Process (SW 422).

bb. Process Flow for The Recovery Process of Discarded Or Off-Specification Solvent (SW 429).

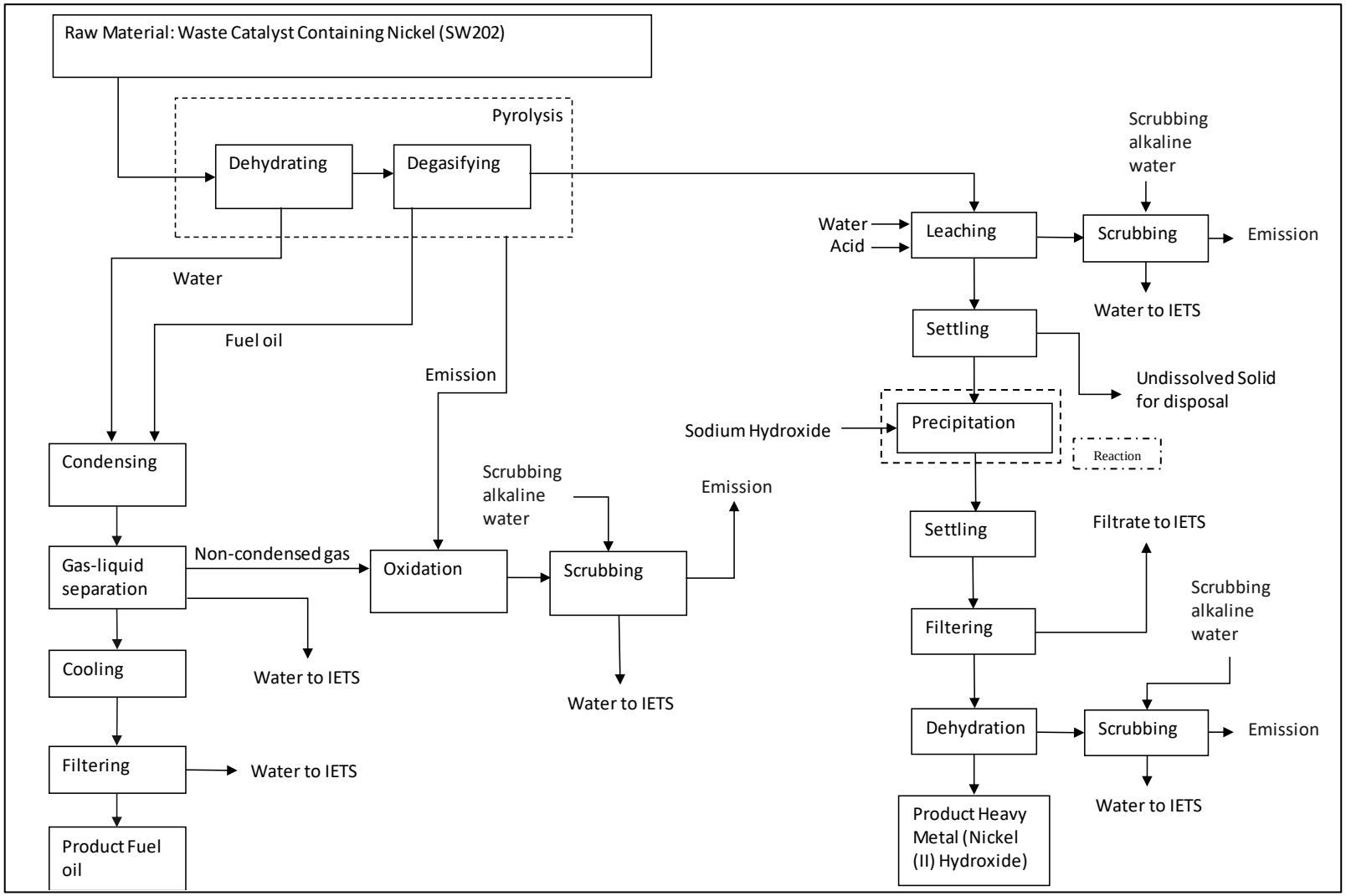

Figure ES 6-2: Process Flow for The Recovery Process of Waste Catalyst Containing Nickel (SW 202)

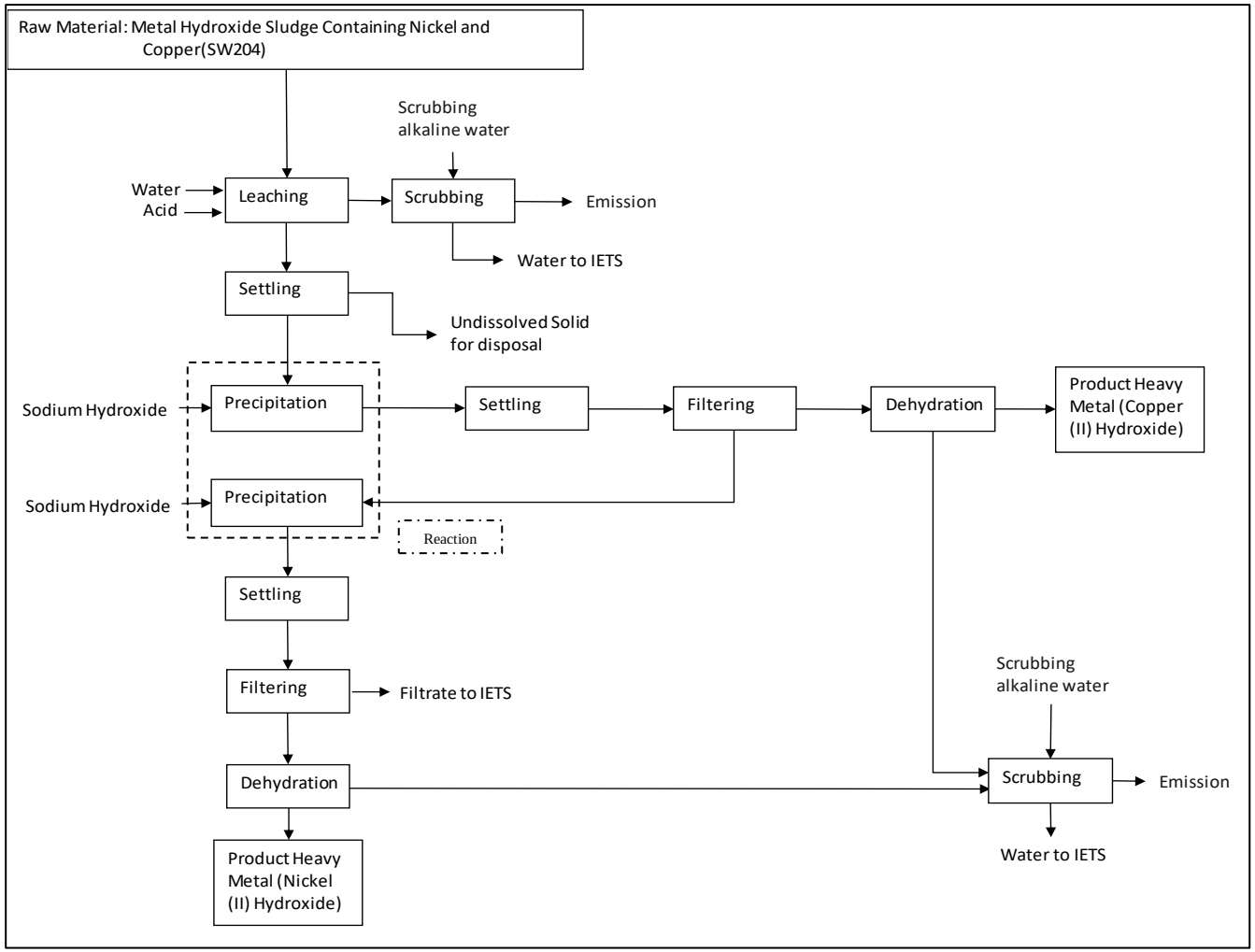

Figure ES 6-3: Process Flow for The Recovery Process of Metal Hydroxide Sludge Containing Nickel and Copper (SW 204)

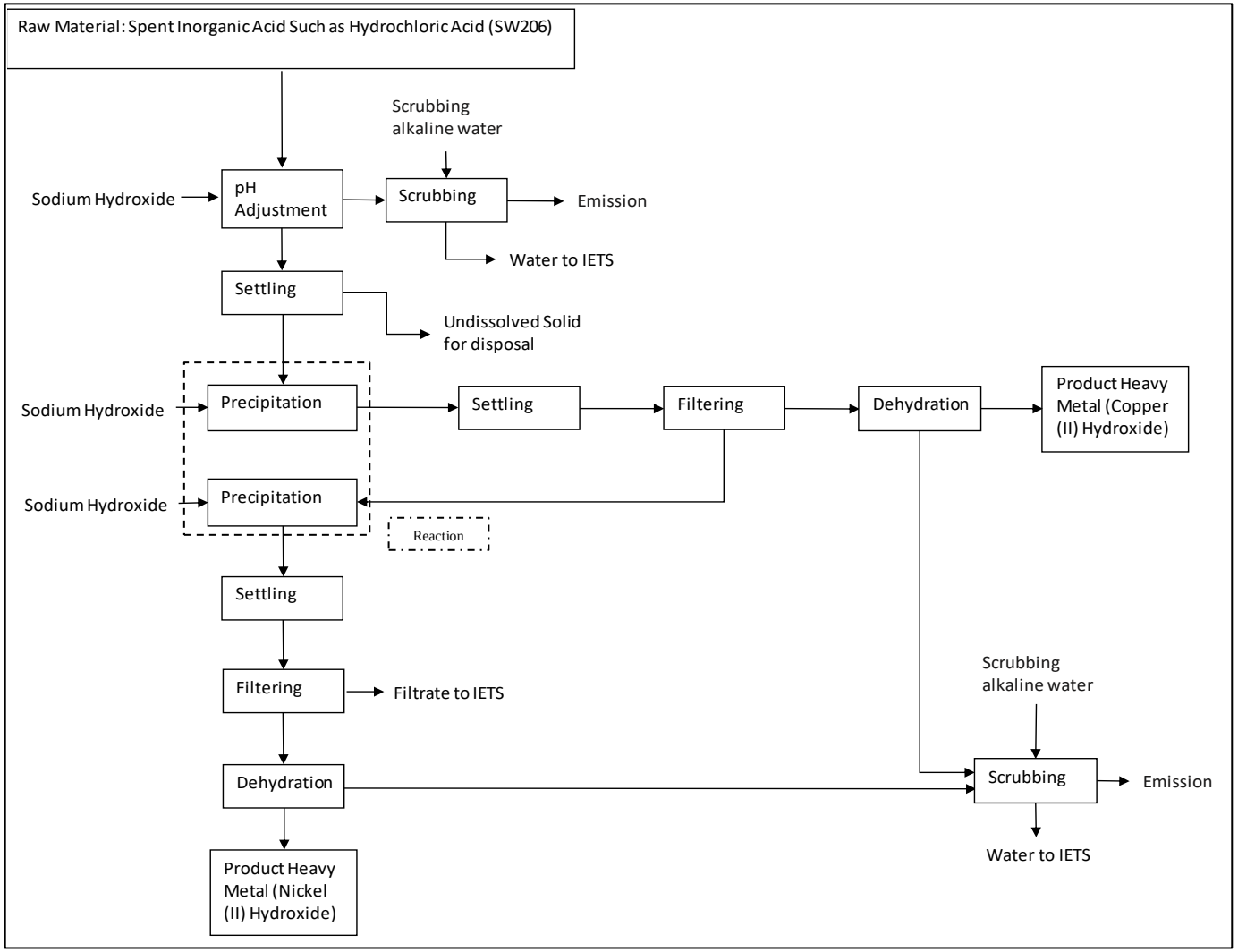

Figure ES 6-4: Process Flow for The Recovery Process of Spent Inorganic Acid (SW 206)

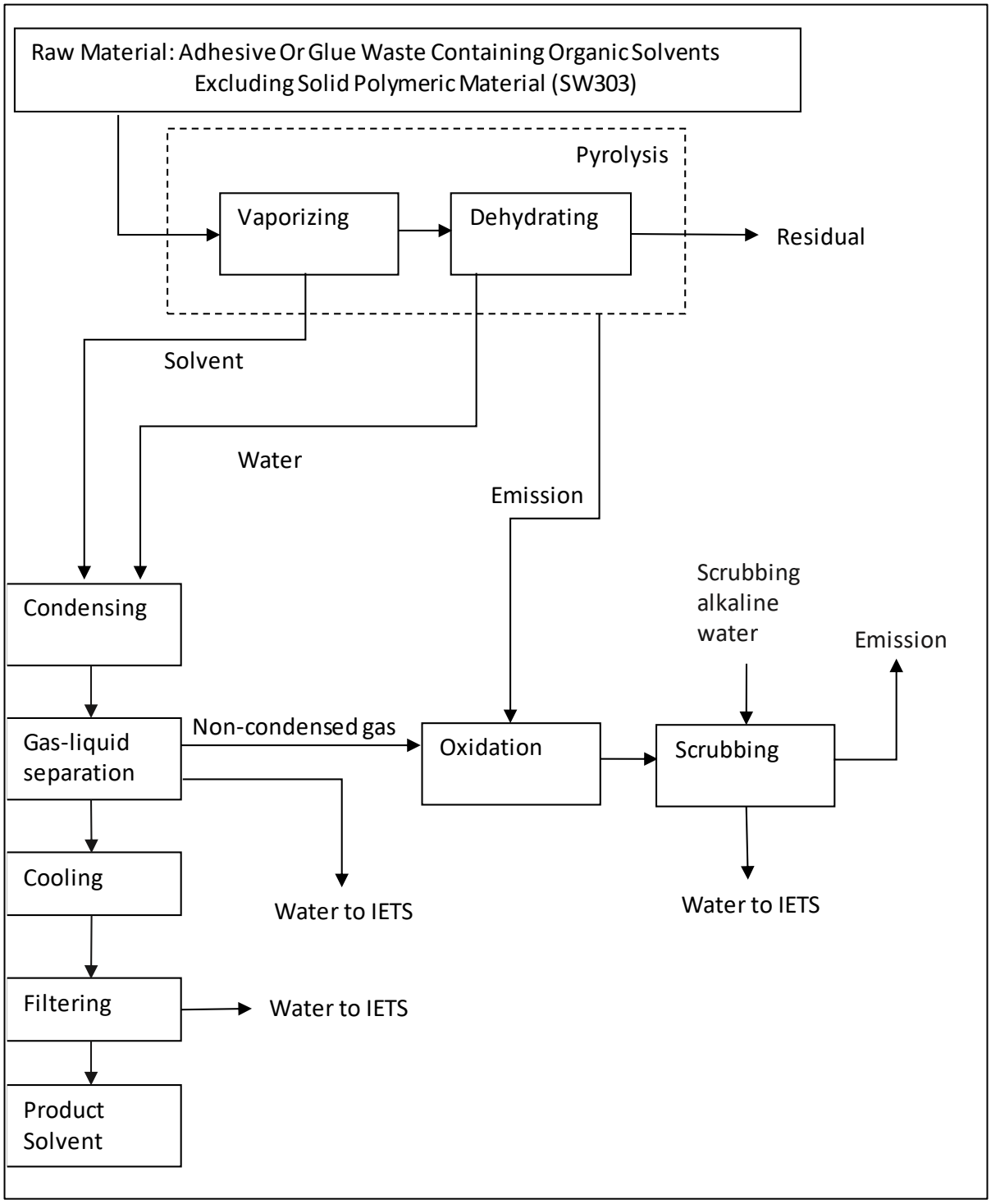

Figure ES 6-5: Process Flow for The Recovery Process of Adhesive Or Glue Waste Containing Organic Solvents Excluding Solid Polymeric Material (SW 303)

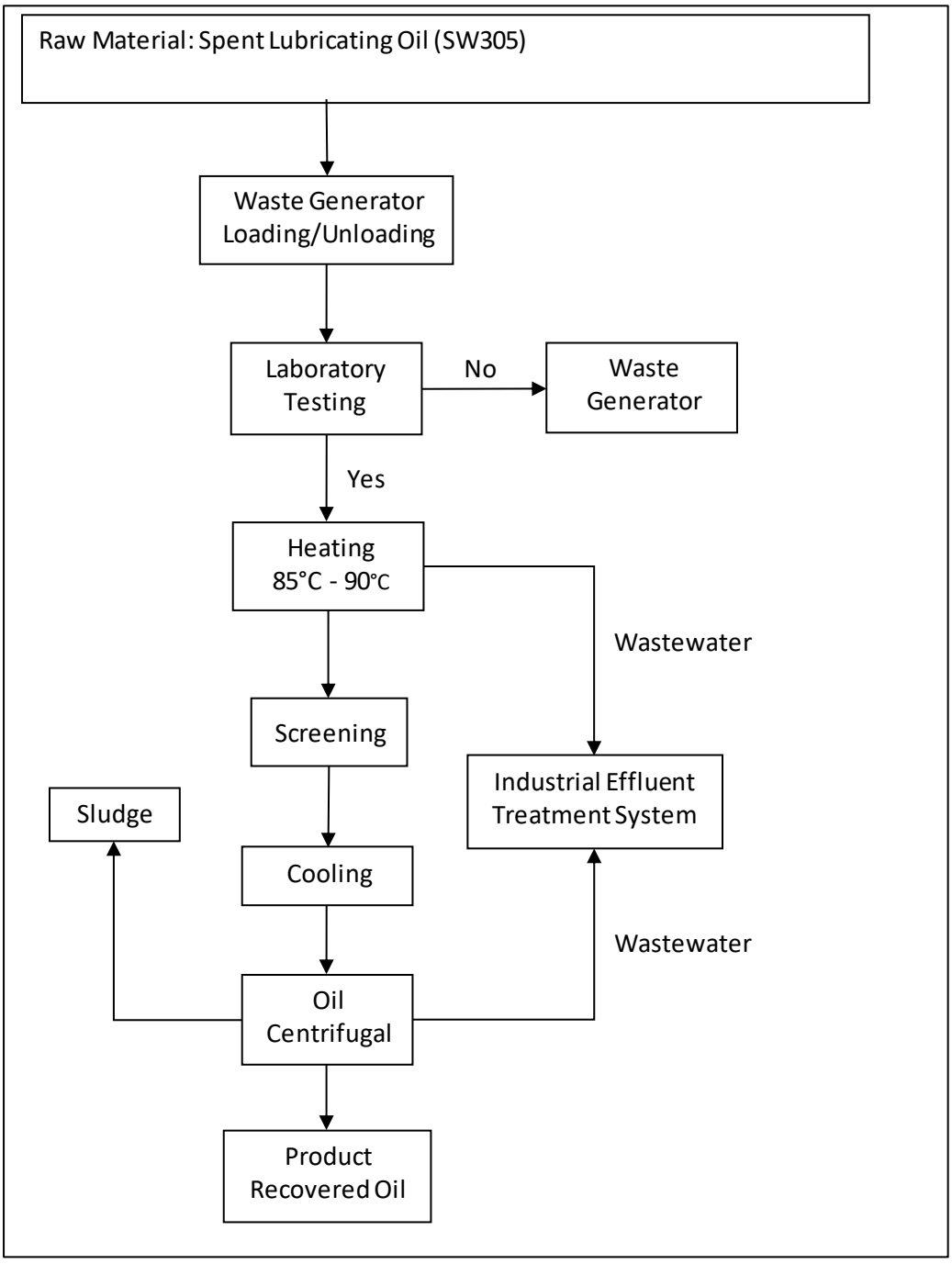

Figure ES 6-6: Process Flow for The Recovery Process of Spent Lubricant Oil (SW 305)

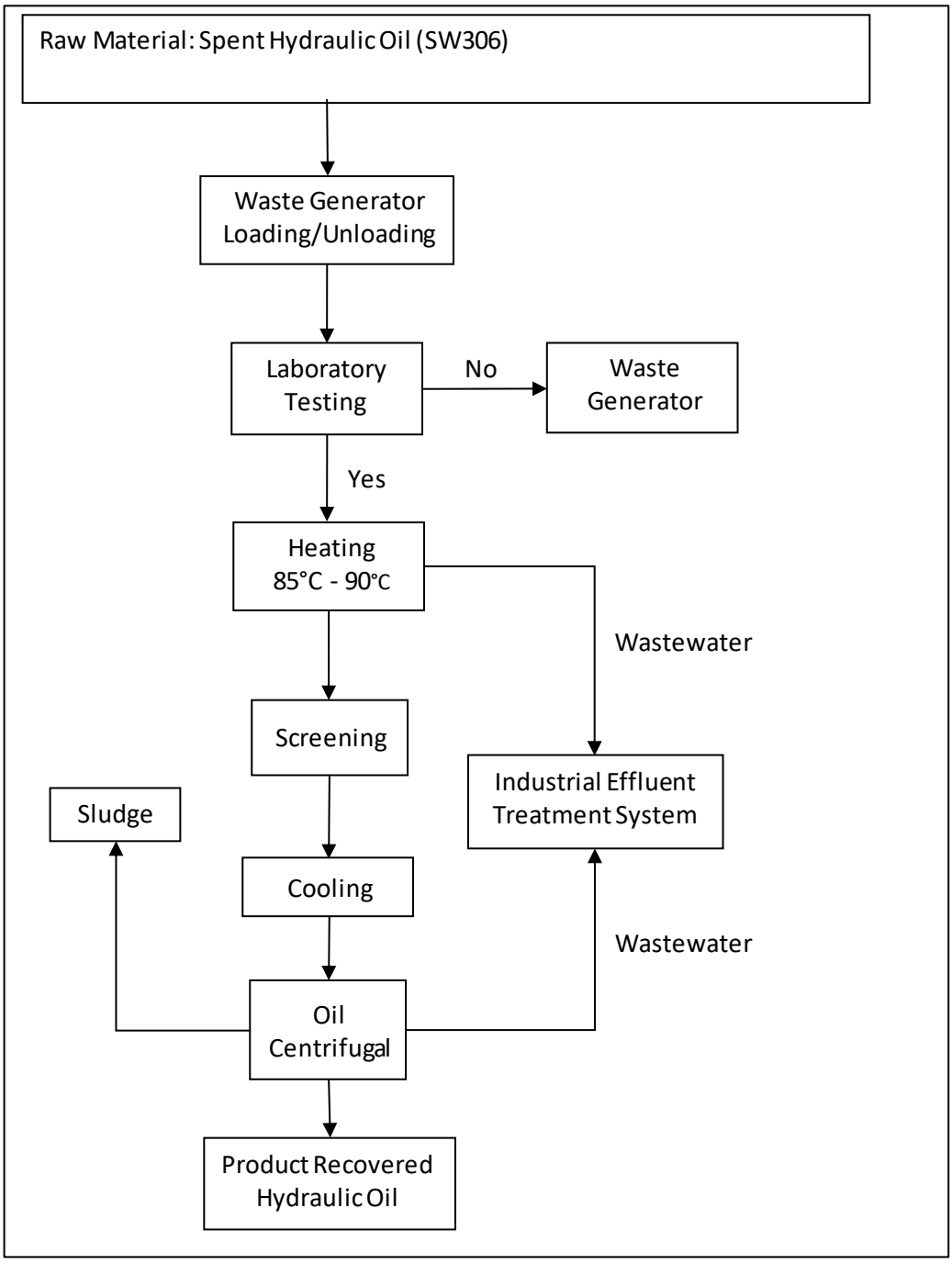

Figure ES 6-7: Process Flow for The Recovery Process of Spent Hydraulic Oil (SW 306)

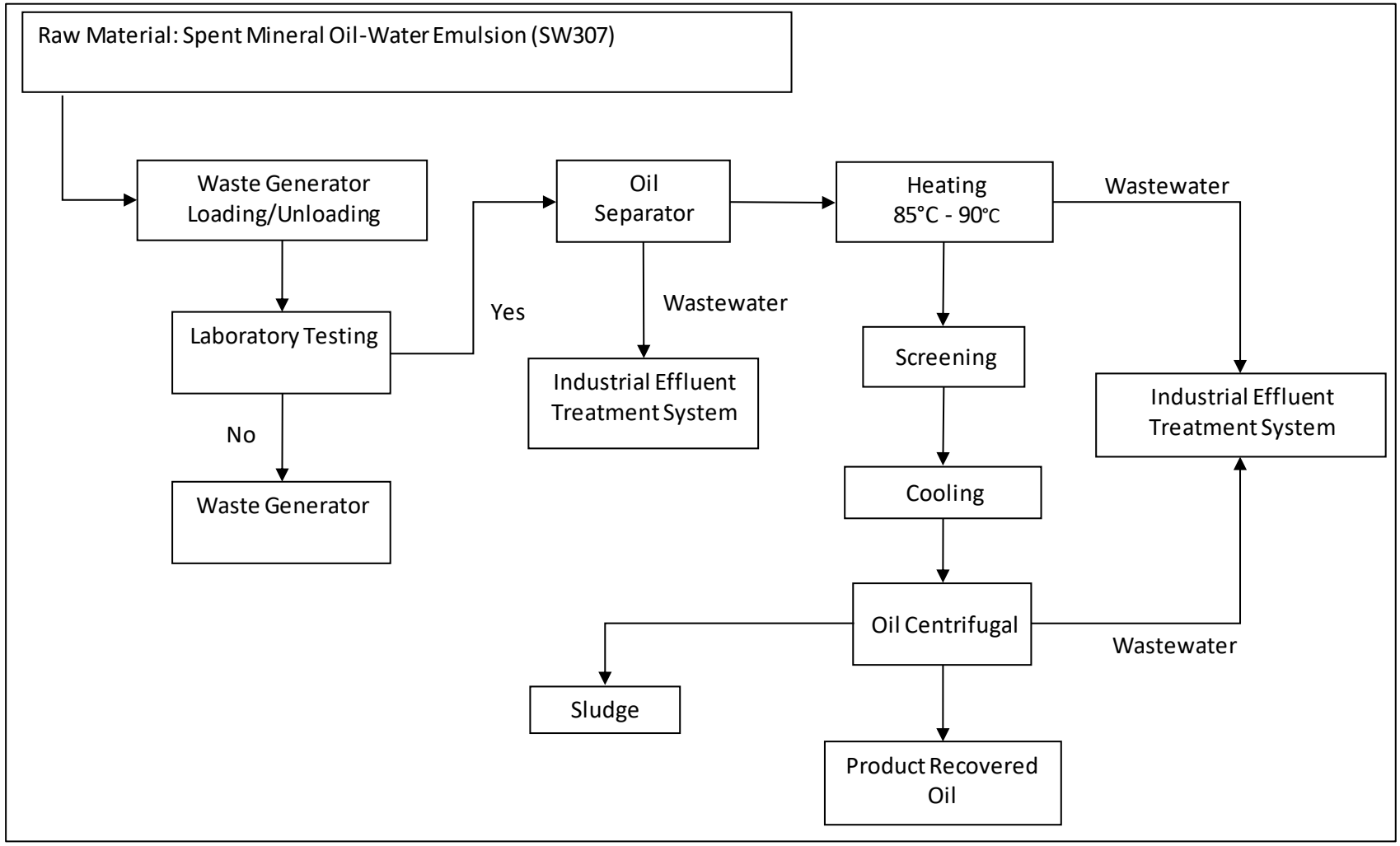

Figure ES 6-8: Process Flow for The Recovery Process of Spent Mineral Oil-Water Emulsion (SW 307)

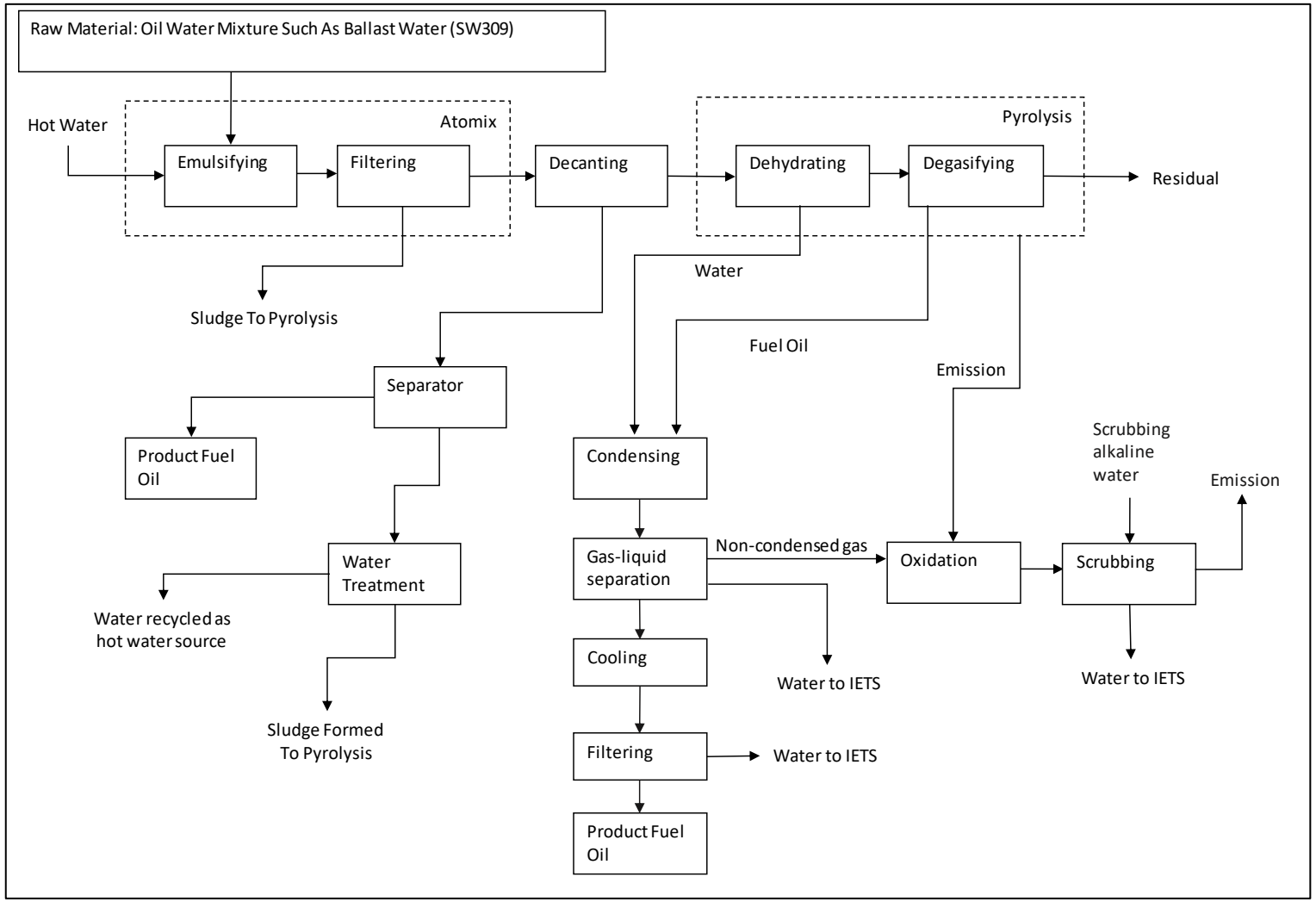

Figure ES 6-9: Process Flow for The Recovery Process of Oil Water Mixture Such As Ballast Water (SW 309)

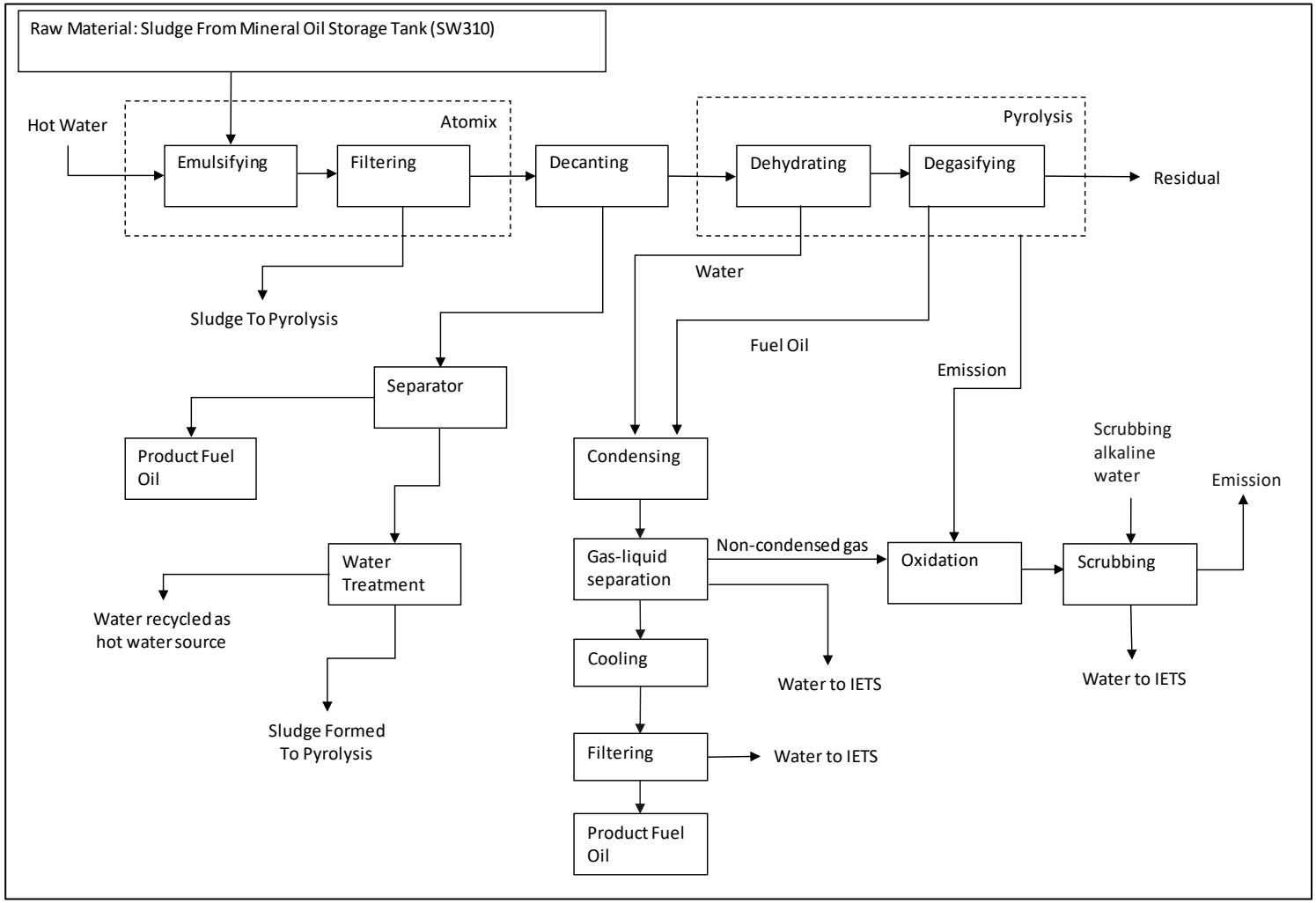

Figure ES 6-10: Process Flow for The Recovery Process of Sludge Mineral Oil Storage Tank (SW 310)

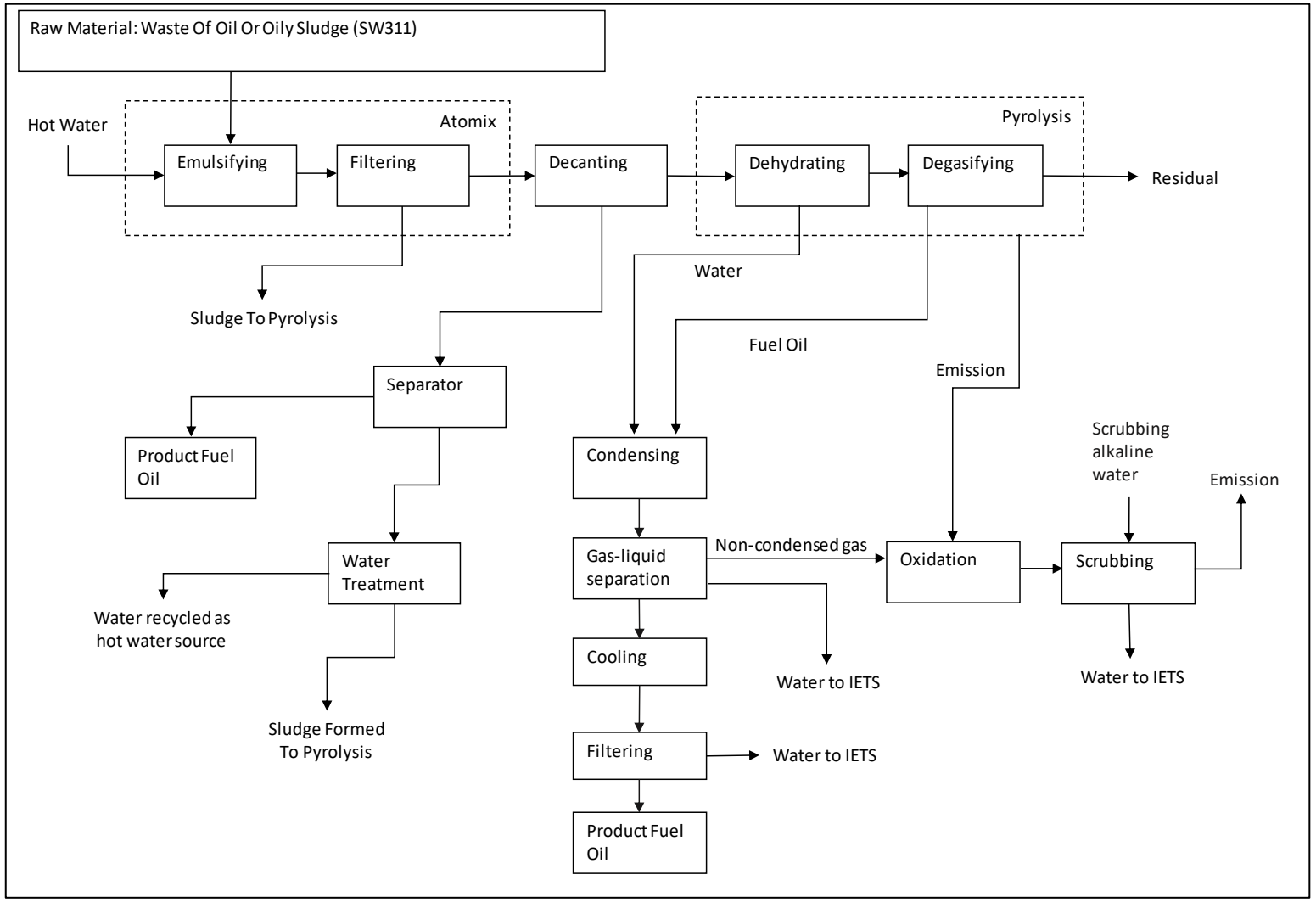

Figure ES 6-11: Process Flow for The Recovery Process of Waste of Oil or Oily Sludge (SW 311)

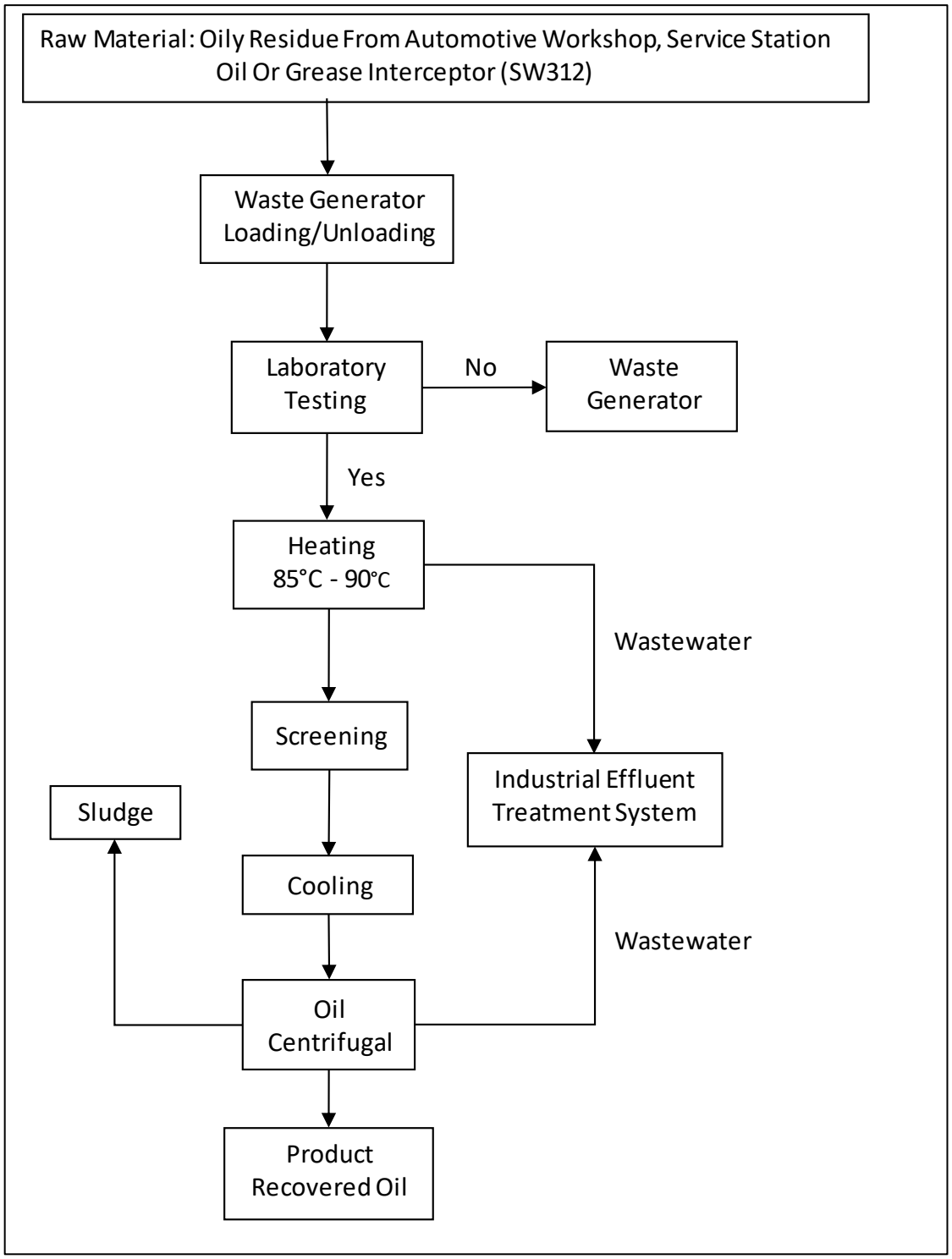

Figure ES 6-12: Process Flow for The Recovery Process of Oily Residue from Automotive Workshop, Service Station Oil Or Grease Interceptor (SW 312)

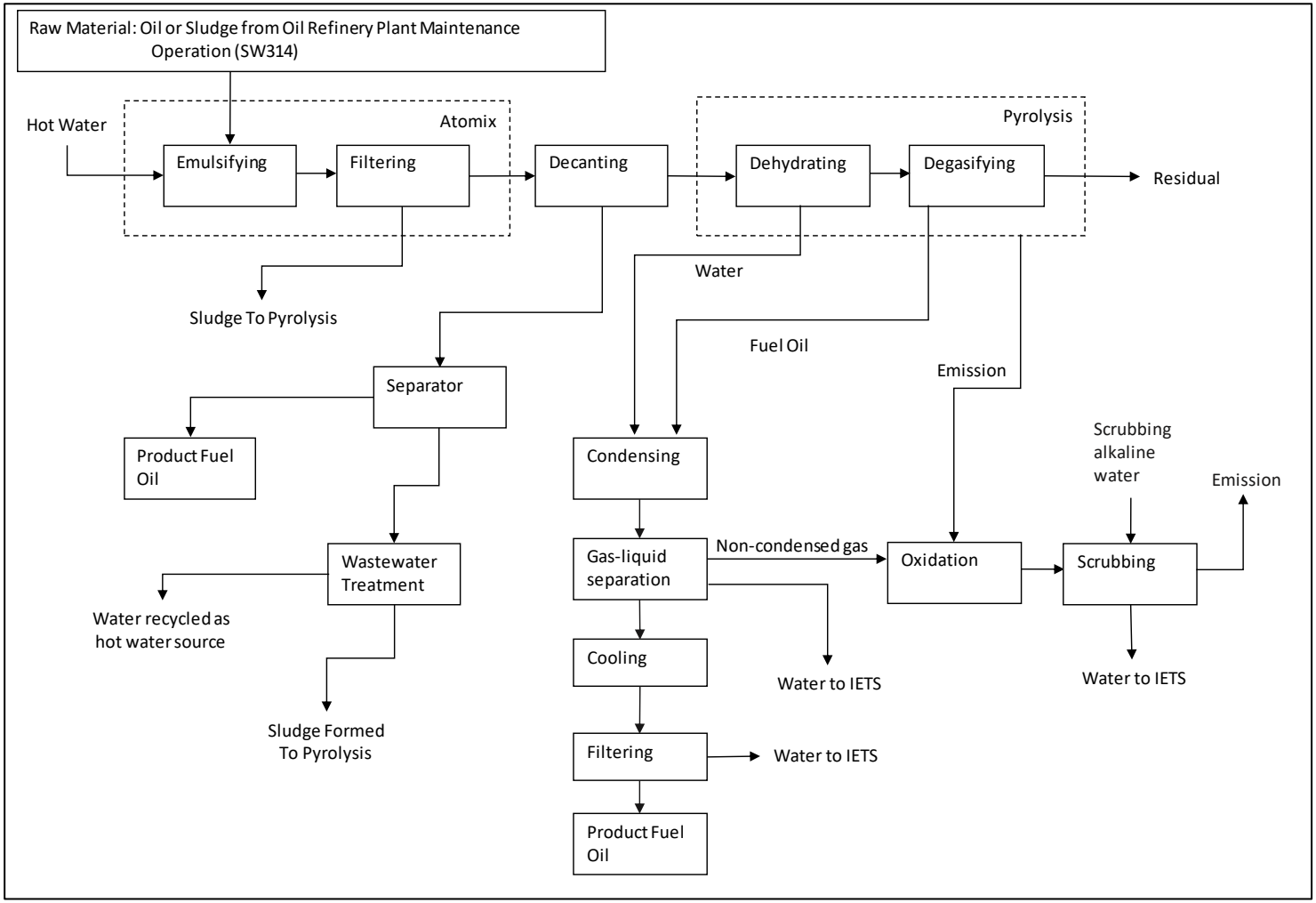

Figure ES 6-13: Process Flow for The Recovery Process of Oil or Sludge from Oil Refinery Plant Maintenance Operation (SW 314)

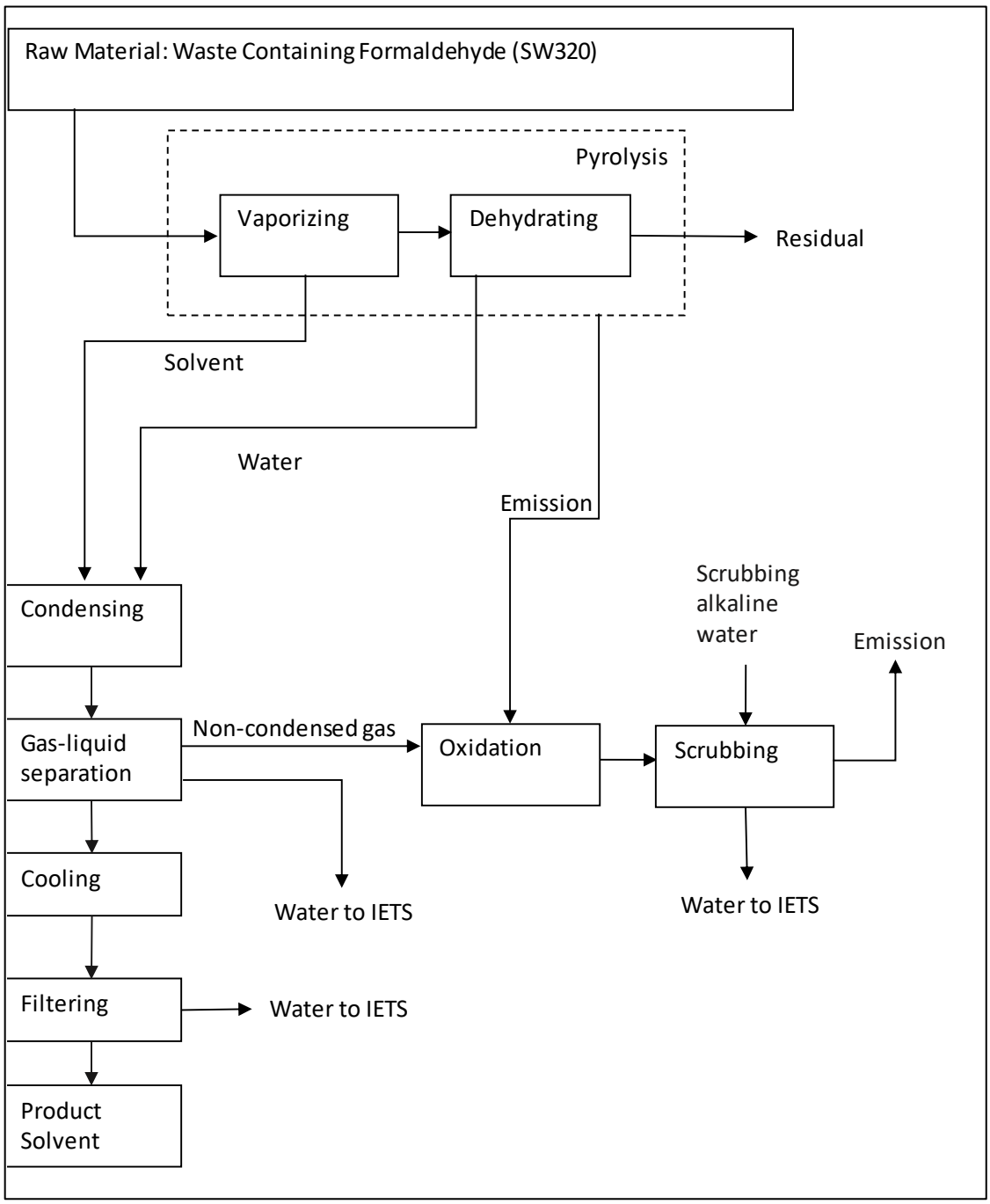

Figure ES 6-14: Process Flow for The Recovery Process of Waste Containing Formaldehyde (SW 320)

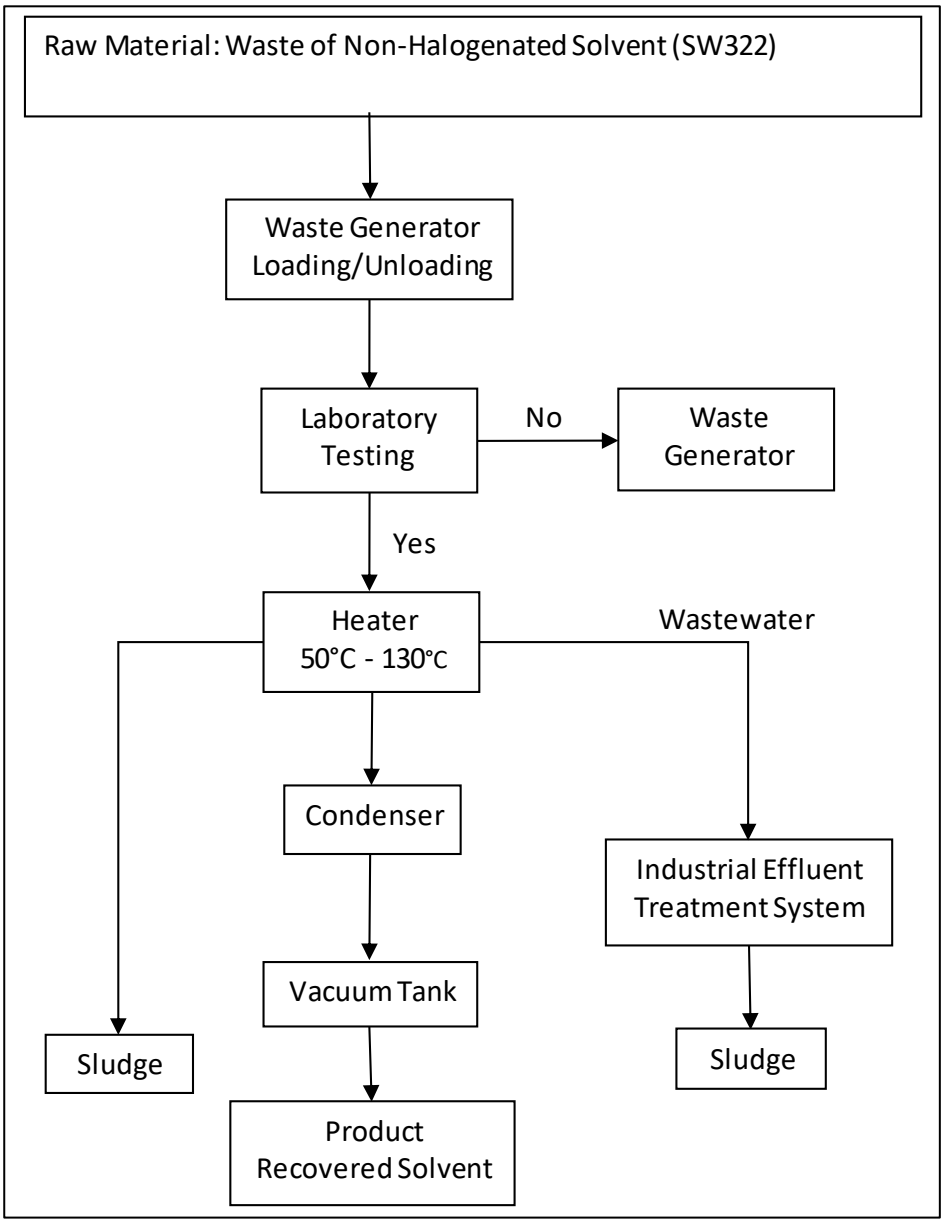

Figure ES 6-15: Process Flow for The Recovery Process of Waste of Non-Halogenated Solvent (SW322)

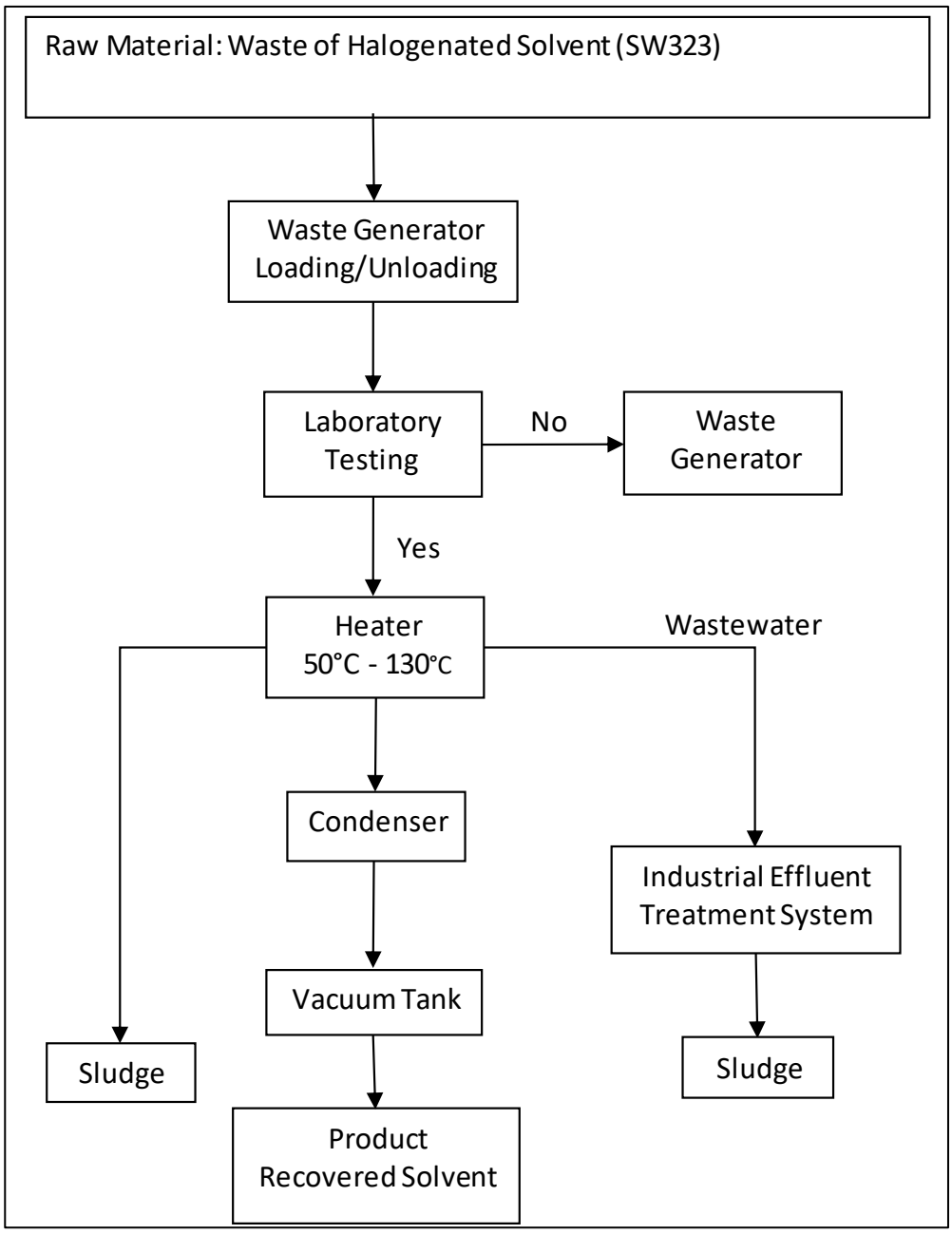

Figure ES 6-16: Process Flow for The Recovery Process of Waste of Halogenated Solvent (SW 323)

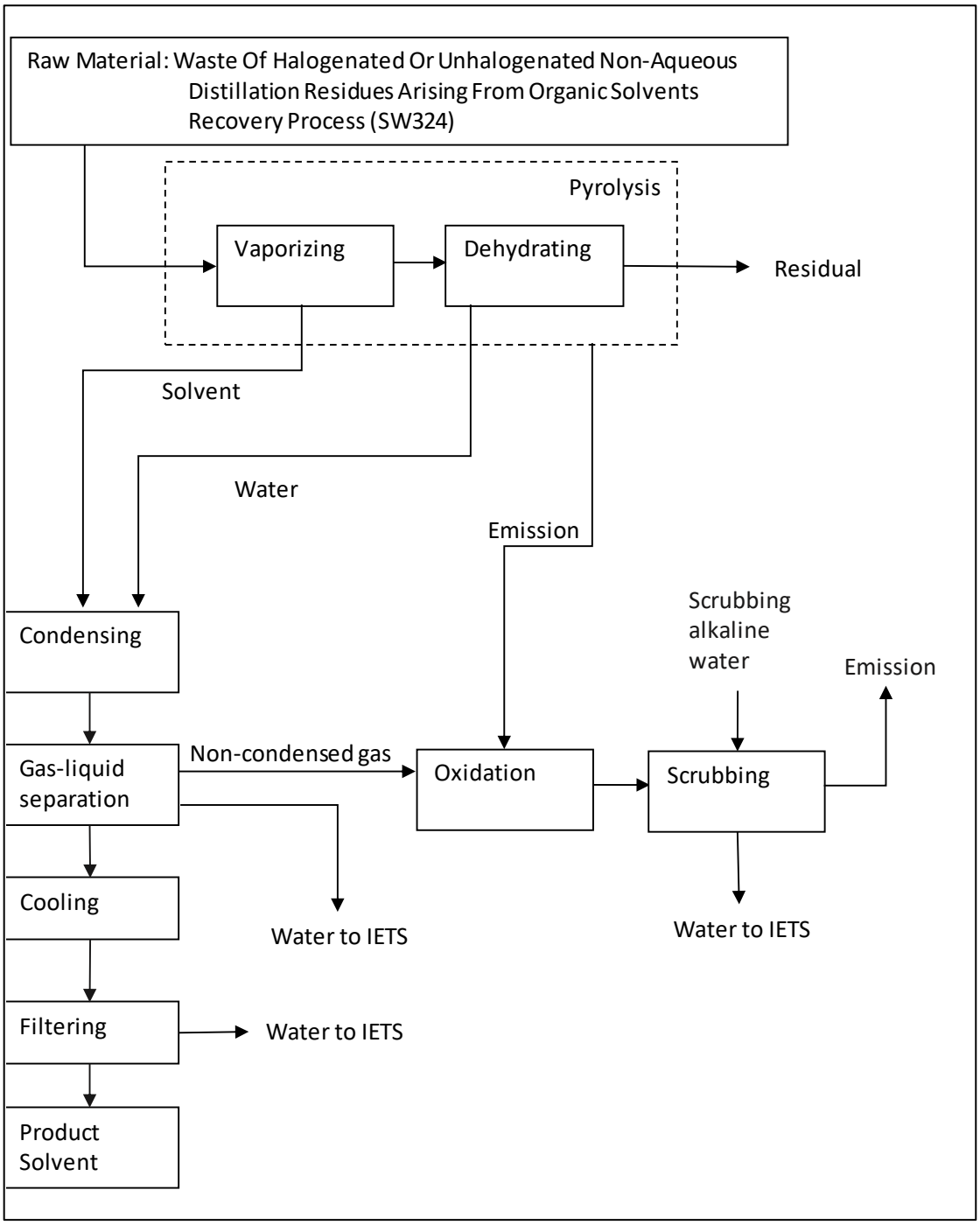

Figure ES 6-17: Process Flow for The Recovery Process of Waste Of Halogenated or Unhalogenated Non-Aqueous Distillation Residues Arising From Organic Solvent (SW 324)

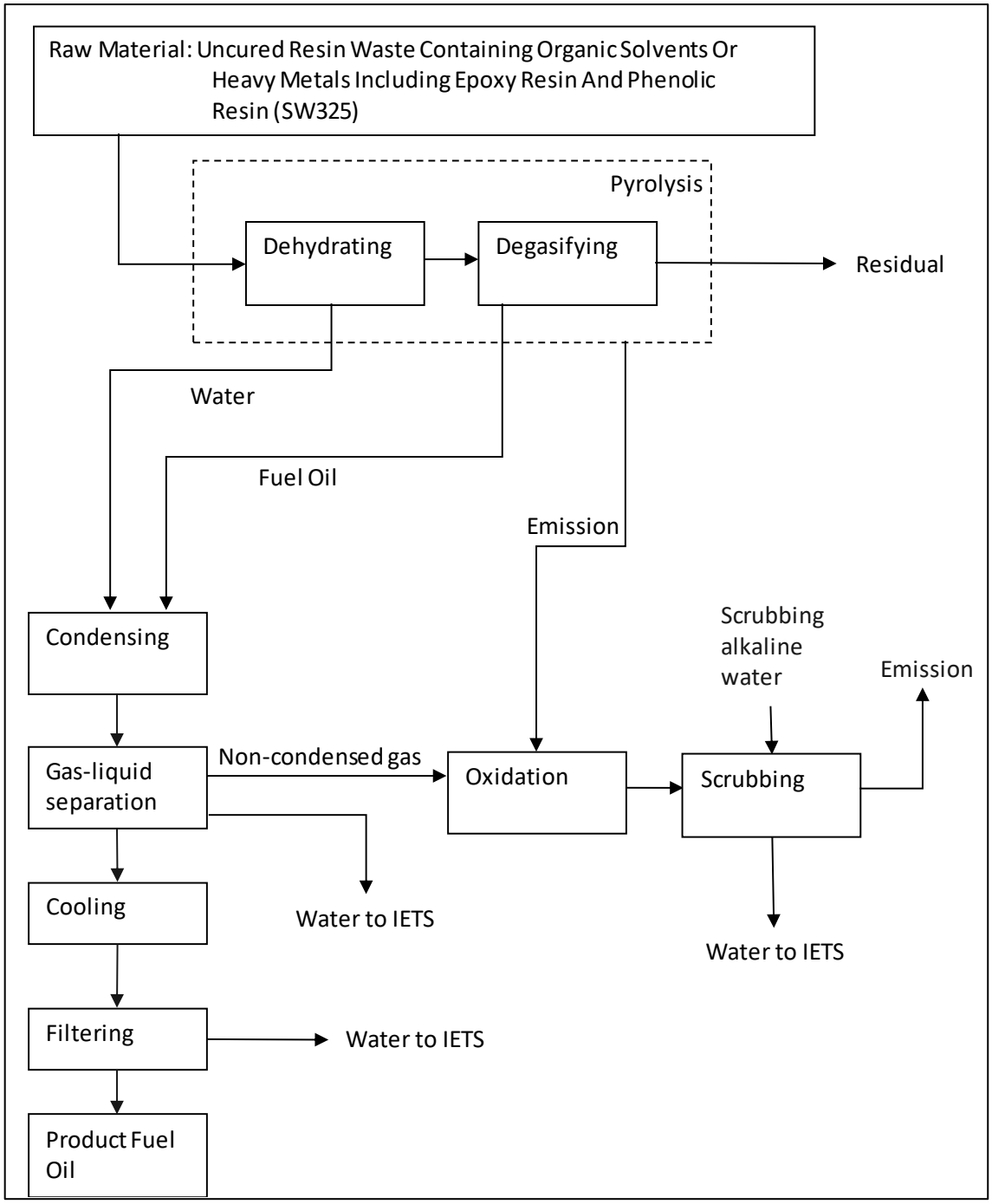

Figure ES 6-18: Process Flow for The Recovery Process of Uncured Resin Waste Containing Organic Solvents Or Heavy Metals Including Epoxy Resin And Phenolic Resin (SW 325)

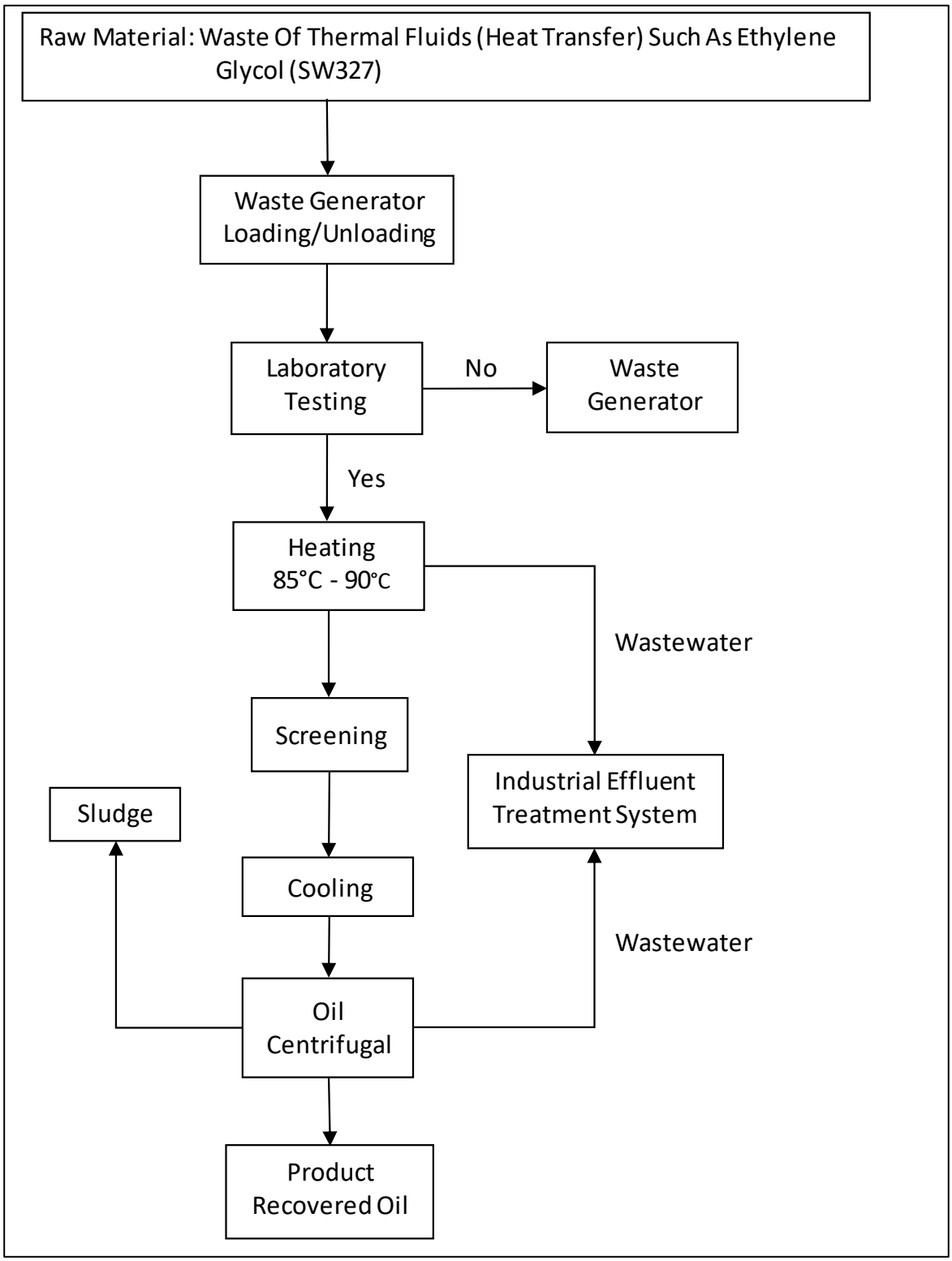

Figure ES 6-19: Process Flow for The Recovery Process of Waste Of Thermal Fluids (Heat Transfer) Such As Ethylene Glycol (SW 327)

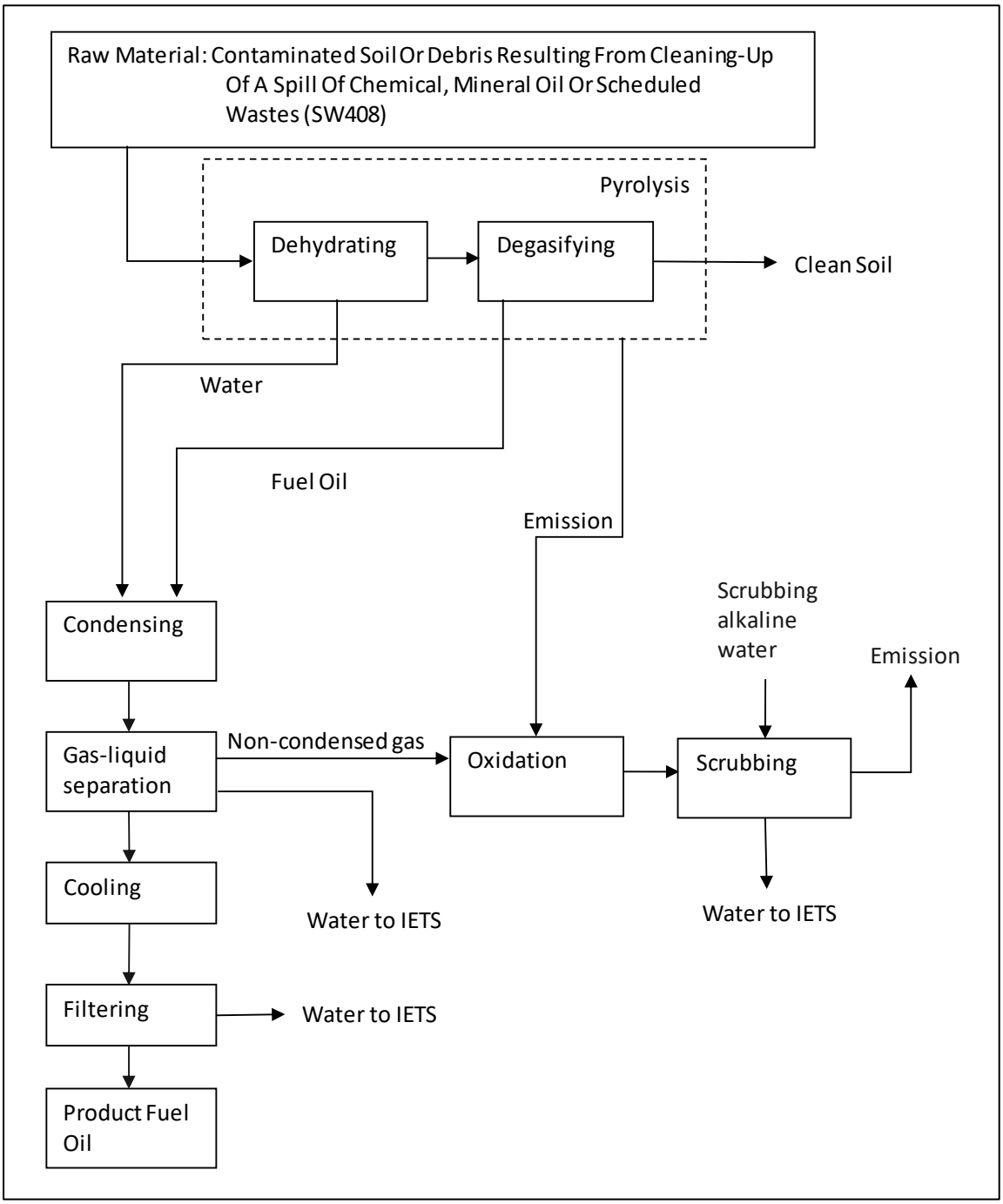

Figure ES 6-20: Process Flow for The Recovery Process of Contaminated Soil, Debris or Matter Resulting From Cleaning-Up Of A Spill Of Chemical, Mineral Oil Or Scheduled Wastes (SW 408)

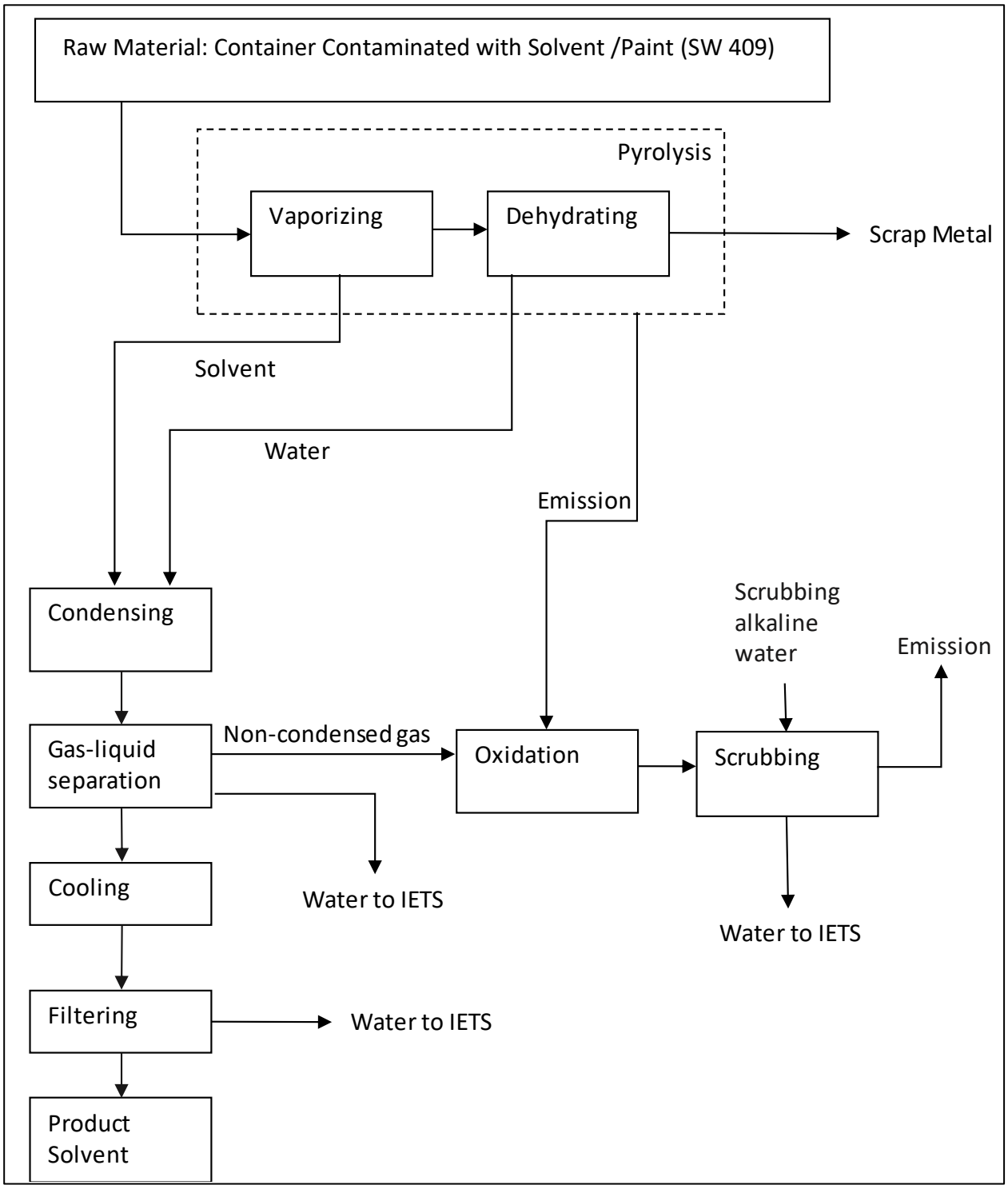

Figure ES 6-21: Process Flow for The Recovery Process of Container Contaminated with Solvent/Paint (SW 409)

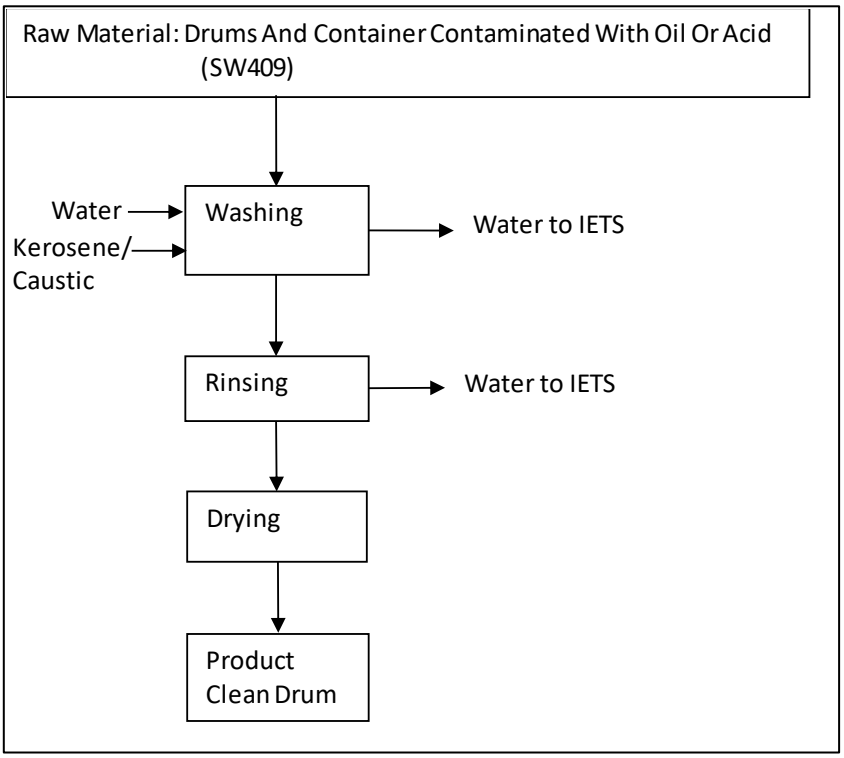

Figure ES 6-22: Process Flow for The Recovery Process of Drums and Container Contaminated with Oil Or Acid (SW 409)

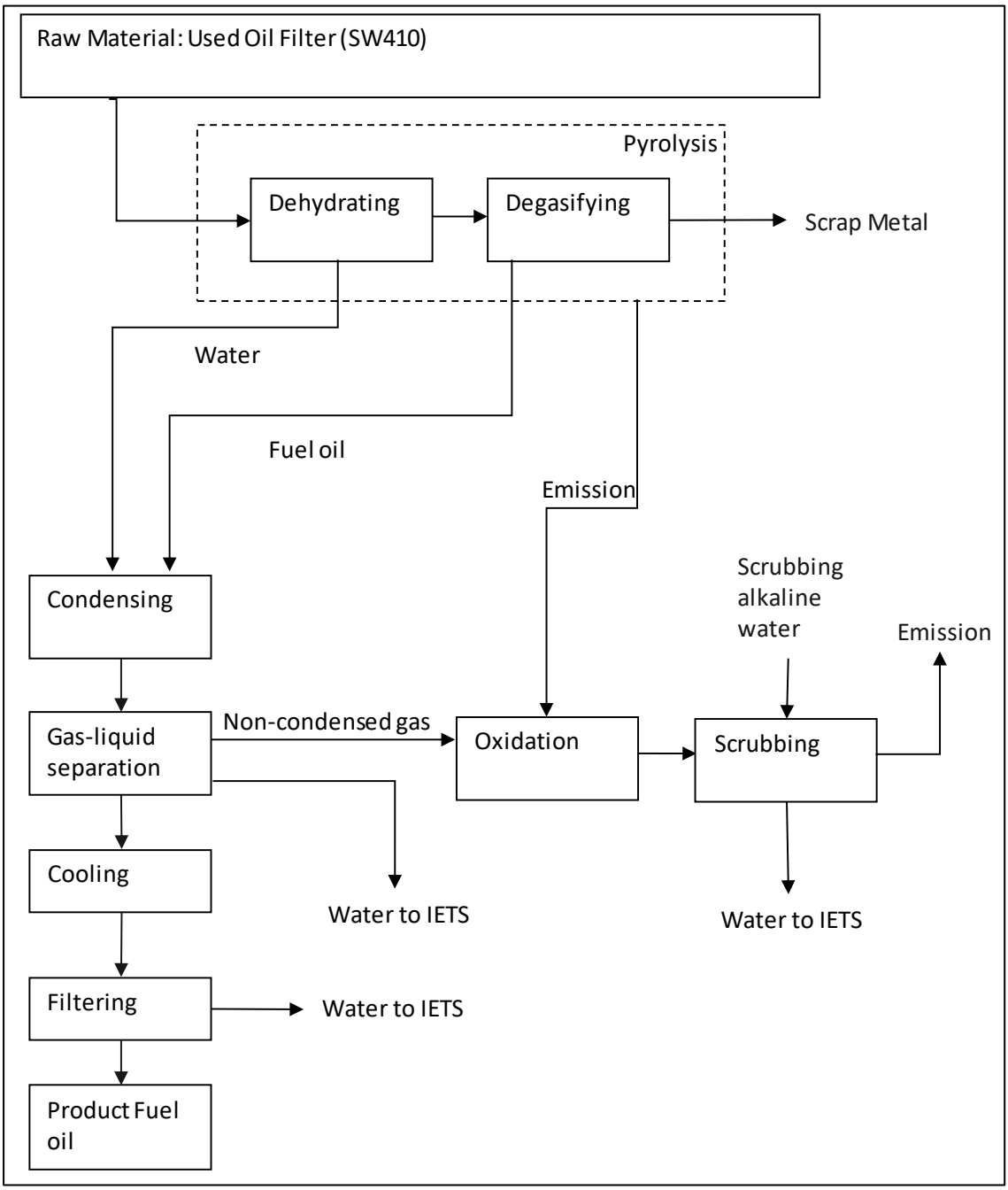

Figure ES 6-23: Process Flow for The Recovery Process of Used Oil Filter (SW 410)

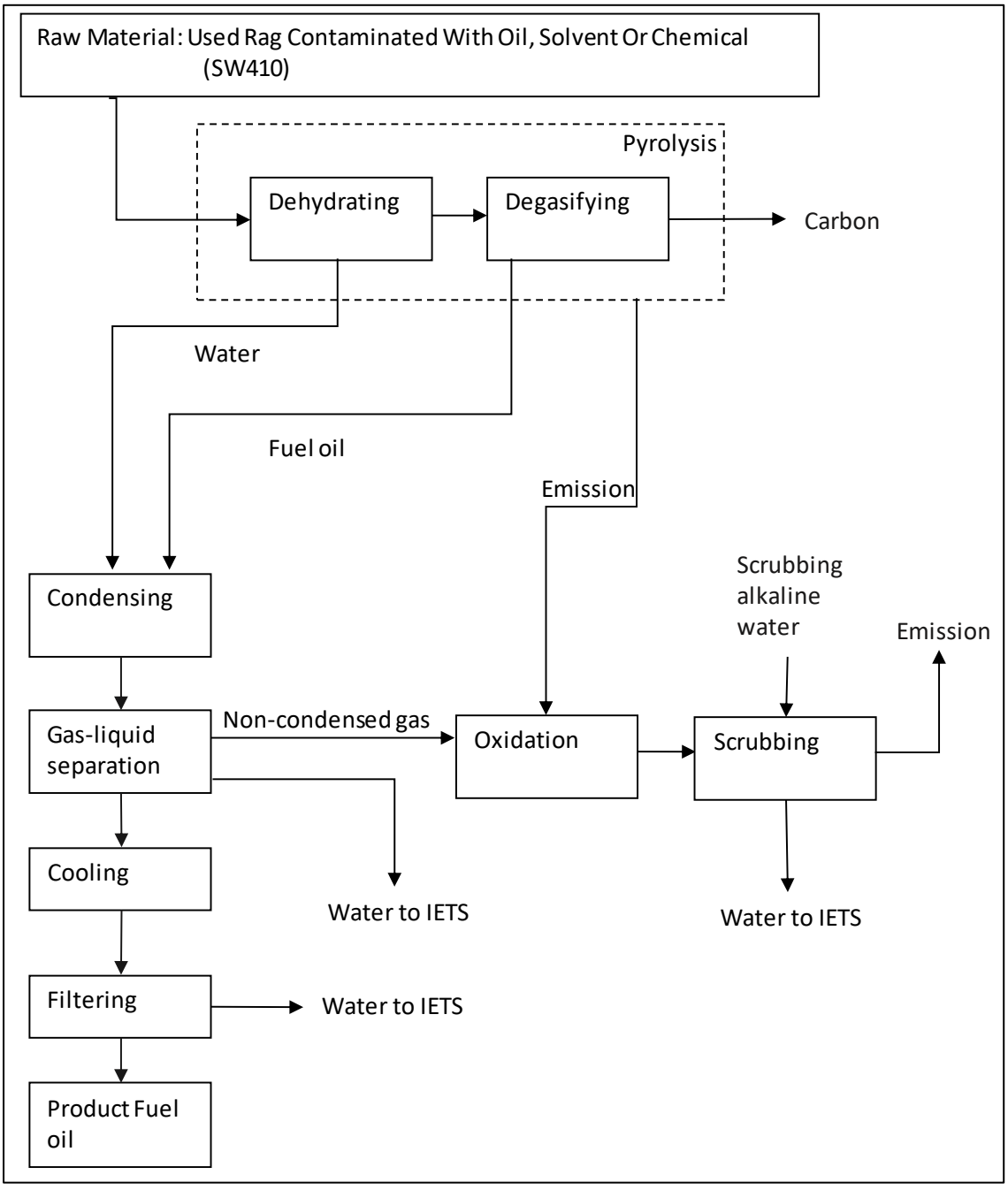

Figure ES 6-24: Process Flow for The Recovery Process of Used Rag Contaminated with Oil, Solvent Or Chemical (SW 410)

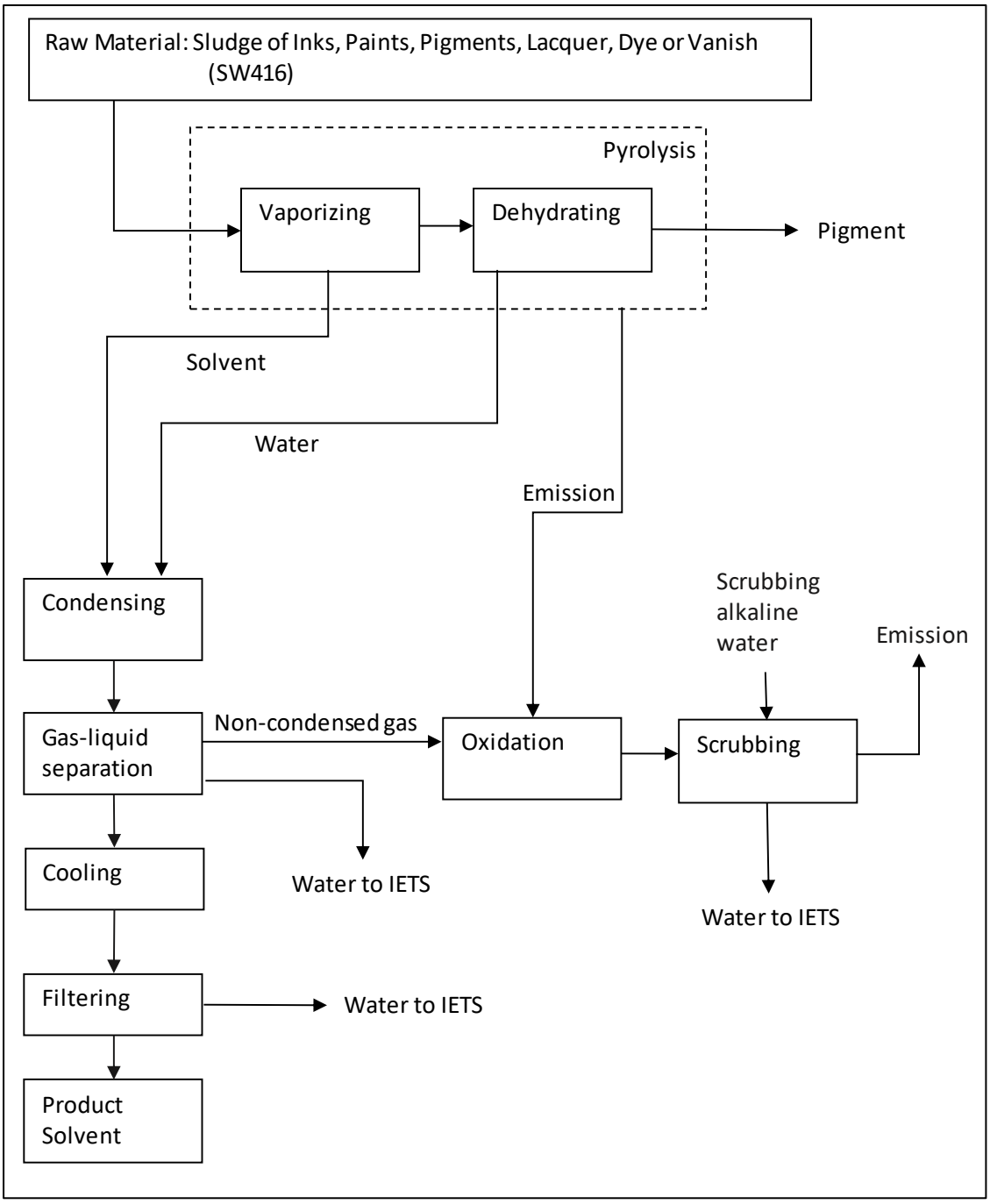

Figure ES 6-25: Process Flow for The Recovery Process of Sludge of Inks, Paints, Pigments, Lacquer, Dye or Vanish (SW 416)

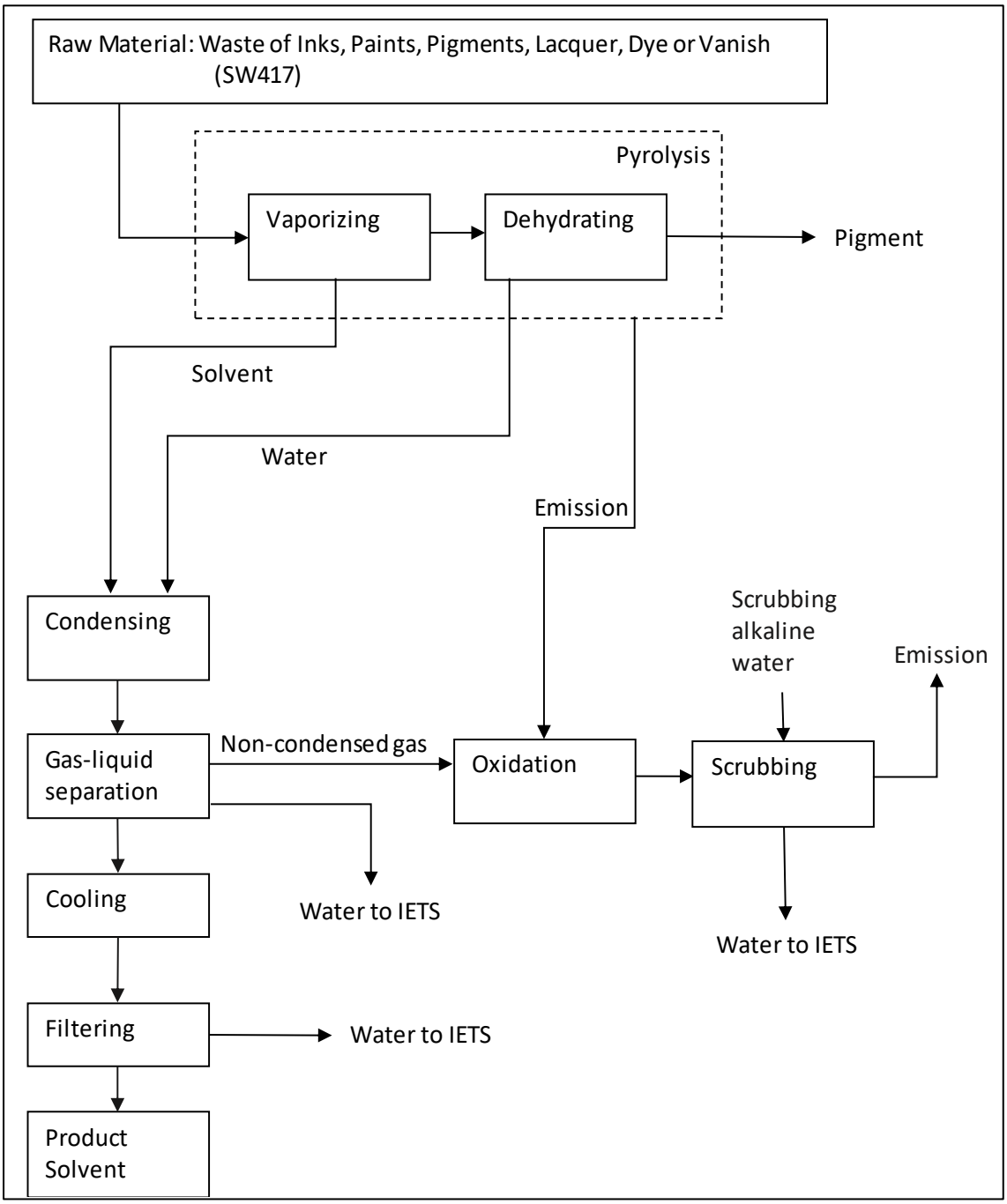

Figure ES 6-26: Process Flow for The Recovery Process of Waste of Sludge of Inks, Paints, Pigments, Lacquer, Dye or Vanish (SW 417)

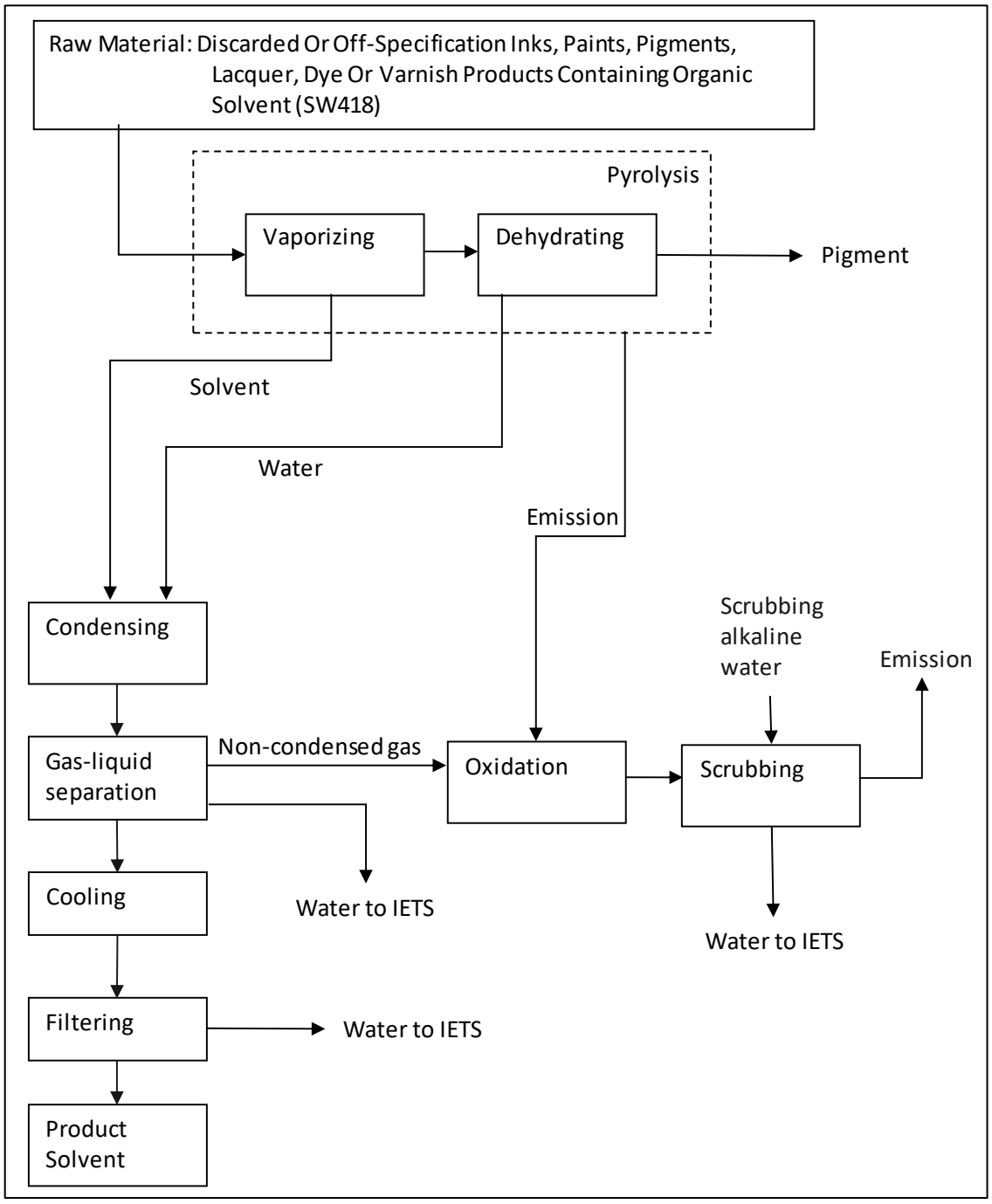

Figure ES 6-27: Process Flow for The Recovery Process of Discarded Or Off-Specification Inks, Paints, Pigments, Lacquer, Dye or Vanish Products Containing Organic Solvent (SW 418)

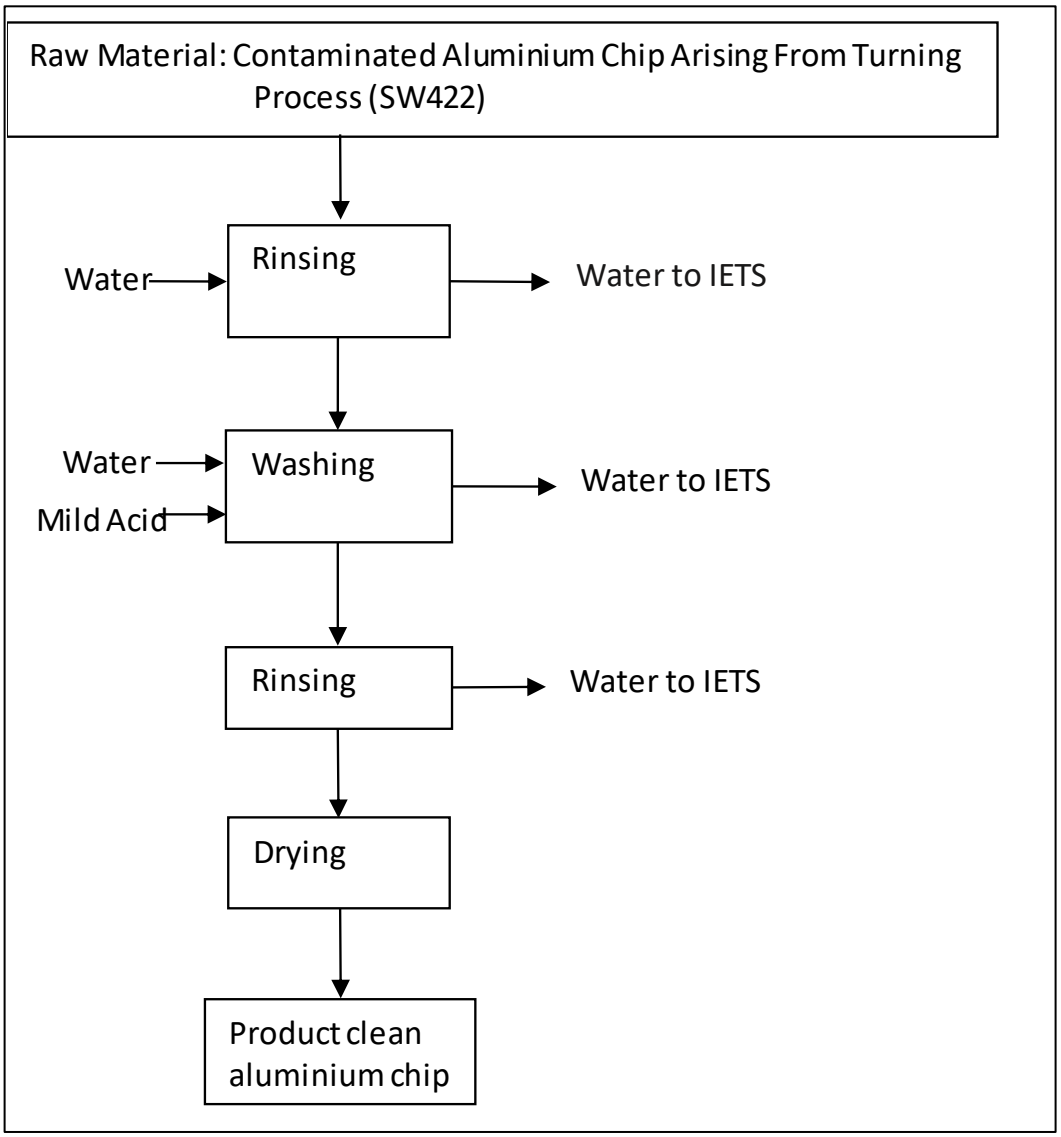

Figure ES 6-28: Process Flow for The Recovery Process of Contaminated Aluminium Chip Arising from Turning Process (SW 422)

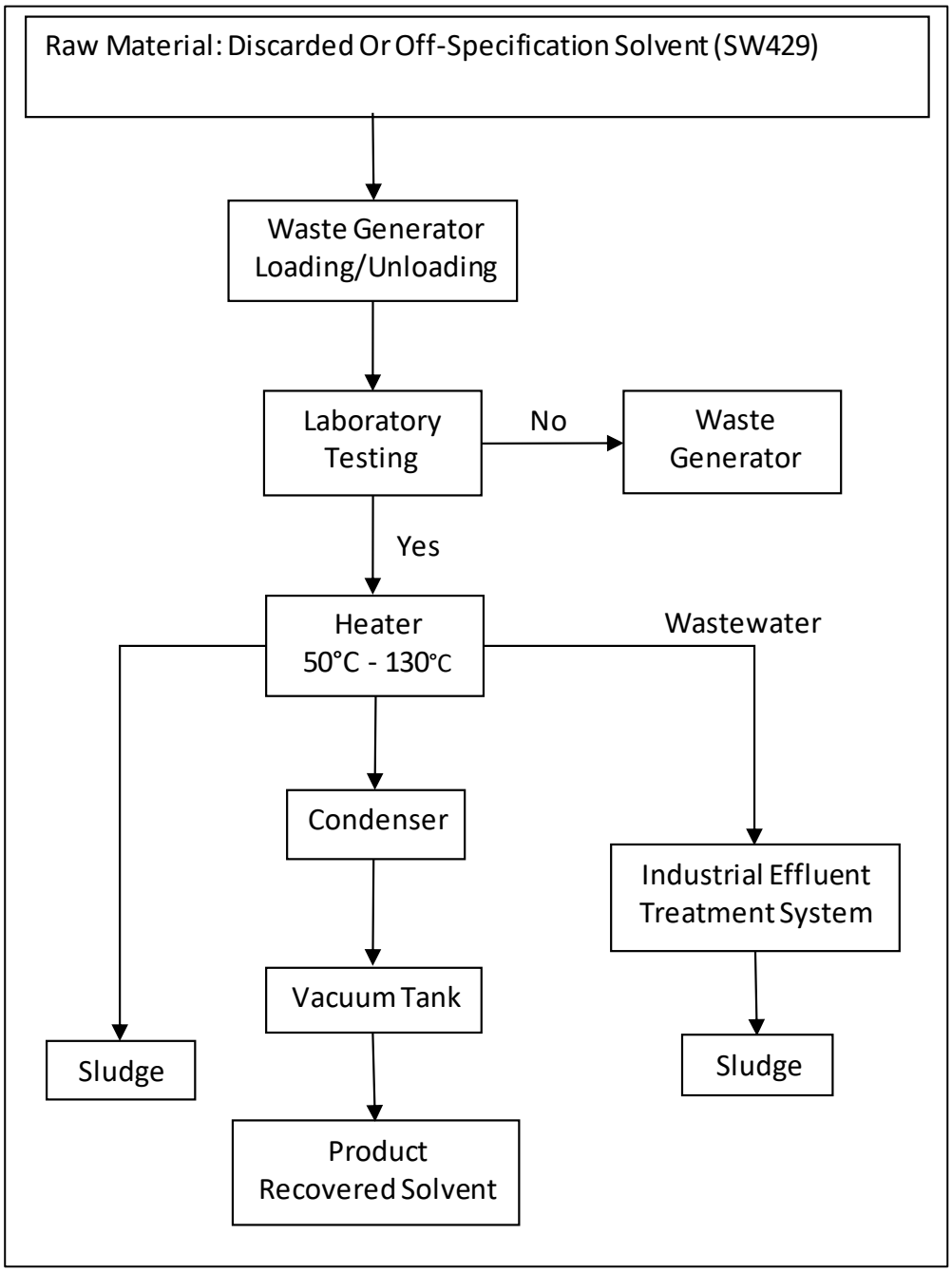

Figure ES 6-29: Process Flow for The Recovery Process of Discarded or Off-Specification Solvent (SW 429)

7. EXISTING ENVIRONMENT

7.1 Physico-Chemical Environment

7.1.1 Topography

The proposed Project is located on a flat piece of industrial lot at Taman Perindustrian Tengas, Mukim Hulu Yam, District of Hulu Selangor, Selangor Darul Ehsan. The area was formerly part of huge mining area. The terrain in Hulu Yam Bharu is flat to slightly undulating and the topography ranges from 50-500 meters above mean sea level.

7.1.2 Geology and Soil Series

Based on the Geological Map of Peninsular Malaysia (1985) published by the Minerals and Geoscience Department Malaysia, the Project Site is underlain with Ordovician-Silurian period. The formation occurred 400 million years ago. The meta-sedimentary rocks consist of schist, phyllite, with minor intercalations of sandstone and volcanic. The limestone/marble lithology is also located adjacent of the Project site.

The soil type within 500 m from and within the Project Site is mined land. The existence of these lands is largely due to the process of mining, especially tin ore. The soil type contains a very high sand component which is more than 95% of the total soil texture.

7.1.3 Surface Hydrology and Drainage

In terms of hydrological aspect, the factory is located within Sg. Selangor river basin which is a large catchment with an area of about 1,937 $km^{2.}$ There are several water intakes downstream of the river namely WT1 (Rantau Panjang), WT2 (Sungai Selangor Fasa 3 Bukit Badong), WT3 (Sungai Selangor Fasa 2 Bukit Badong) and WT4 (Sungai Selangor Fasa 1 Bukit Badong) water supply

scheme. All the water intake is under maintenance of Syarikat Bekalan Air Selangor Sdn Bhd (SYABAS).

Taman Perindustrian Tengas has already equipped with surface concrete drain alongside with the road. Generally, any discharged from the industrial area and specifically from the Project site is expected to be released into this existing concrete drain and subsequently flows into Sg. Liam before entering Sg. Batang Kali at the north east. From Sg. Batang Kali itself, the water will flow into Sg. Selangor and eventually drains into Malacca Straits.

7.1.4 Baseline Monitoring

a. River Water Quality

Based on the baseline results, it was observed that several parameters indicated incompliance from the standard limit that has been allocated, such as COD, TSS, turbidity, Total Coliform and Total Faecal Coliform Count. The possible reason of these matter maybe contribution from adjacent untreated sewage, agriculture sources, runoff erosion and industrial sources.

b. Drainage Water Quality

The results for drainage water quality as labelled DWQ1 and DWQ2 had been complied with the Class IV, of National Water Quality Standards (NWQS).

c. Groundwater Quality

The exceedance of heavy metals concentration found in groundwater maybe contributed from the agrochemicals (pesticides, etc.) and fertilizer. Iron and manganese commonly found in water and are essential elements required in small amounts by all living organisms. The concentration of iron and manganese in groundwater are often higher than those measured in surface waters[1]. The most common sources of iron and manganese in groundwater are naturally occurring, for example from weathering of iron and manganese bearing minerals and rocks.

d. Ambient Air

The results are complied with the Malaysian Ambient Air Quality Standards (MAAQS) Interim Target 2 (IT-2 in 2018) except parameter PM2.5 for sampling point AQ1 and AQ2. The exceedance of the limits may be contributed to dust dispersion from the nearby premises, agrochemicals (pesticides, etc.) and vehicular movement nearby the sampling station.

e. Noise Quality

From the result in table above, the results had been exceeded the DOE recommended limit, except for station N1 for daytime and night-time. It is because the noise contributor may come from the movement of the vehicles near to the sampling stations as well as the community noise. Other reason was from noise from animals such as birds and insects respectively.

[1] https://www.rdn.bc.ca/cms/wpattachments/wpID2284atID3808.pdf (Accessed on 26th November 2018)

f. Vibration

The results had been complied with the DOE recommended limit – refer to Safe Level, Schedule 1; Annex A: Schedule of Recommended Limits for damage risk in building from steady state vibration, The Planning Guideline for Vibration and Control, DOE.

7.1.5 Land Use

Based on the recent site visit conducted from 2nd to 4th October 2018, the area surrounding the Project Site displays a coherent land use pattern which comprises agriculture, forest, residential, commercial, industry. The agricultural activities are the largest land use adjacent to the Project site namely Taman Kekal Pengeluaran Makanan Hulu Yam (TKPM).

The nearest residential area is Kg. Kalong Tengah located 0.5 km north east of Project site. It can be considered as traditional village due to unplanned development. Meanwhile, there have abundance of ex-mining ponds surrounding Project site which part of it is being converted into aquaculture activities. The area also equipped with complete access road connecting Project site to the other town nearby.

7.1.6 Meteorological Data

The nearest station provided by Malaysian Meteorological Department (MMD) is located at Kuala Kubu Baharu Hospital covers monthly rainfall amount and number of rain days, temperature and relative humidity. Meanwhile, for evaporation and wind rose summary is obtained from Subang Airport.

a. Rainfall and Number of Rain Days

Annual rainfall for the year 2012-2018 can fluctuate from year to year from the highest of 3414.8 mm in 2017 to the lowest of 2632.2 mm in 2014. The highest downpour was recorded in October and November at more than 330 mm each month which represent during northeast monsoon.

The number of rain days was explicitly high during 2013 and 2017 which was about 219 days of rain and the lowest is 2015 and 2016 both result 137 and 138 days.

b. 24-Hour temperature and Relative Humidity

Generally, the 24-hour temperature fluctuates in a small range between 26 °C to 27 °C, with temperatures tending to be slightly higher in the first half of the year. The highest mean temperature was found in June which result 27.4 °C while the lowest is 26 °C in November.

Meanwhile, for the percentage relative humidity, it can be found that the maximum mean humidity occurs in November and December both recorded 86% and 83% respectively. In addition, low humidity occurs in February each year results as 71.4%.

c. Evaporation

For the evaporation, it can be found that the highest mean daily evaporation was on March (5.1 mm), while the lowest was on December (3.9 mm).

d. Surface Wind

The dominant wind direction comes from the northwest occurring at 19.2.% followed by the west which recorded at 12.4% with calm conditions happen at 15.2% of the year.

7.2 Human Environment

The FGD was held in Masjid Al Falah, Hulu Yam Bharu. There were nineteen (19) potential participants present from nearby village such as Kg. Kalong Tengah and Kg. Sg. Kamin. The main aim of the FGD session was to have an interactive discussion with the participants regarding the proposed Project in relation to their views and provide the platform for them to raise any issues pertaining the impact of the proposed Project on them.

The people's awareness of both the scheduled waste process and Riyaland involvement in it was extremely low. None of the nineteen (19) FGD participants knew about it.

Generally, the FGD participants perceived the scheduled waste regulation as a new wonder that could save the environment from serious pollution and that factory work were now safer from accidents and general health hazards. Their only concern was safety of operations particularly in relation to factory SWR process. Yet, they did not protest. In fact, they generally agreed with the expansion plan. Besides, they also indicate the need for visibility and transparency.

8. EVALUATION OF IMPACTS AND MITIGATION MEASURES

Potential Impacts and mitigation measures for the proposed Project are summarized in **Table ES 8-1.**

Table ES 8-1: Summary of Pollution Prevention and Mitigation Measures (P2M2)

Phase of Development and Activity	Potential Impact	Mitigation Measures
Pre-Renovation Phase		
Document preparation Environmental work i.e. EIA report preparation, engineering work i.e. layout preparation, etc.	Activities is localized and not expected to generate any disturbances to the environment. Beneficial impact such as job opportunities	None
Renovation Phase		
Noise quality Noise generated from piling, demolish work and installation of new machinery	Noise emission	• Avoid usage of machineries/equipment with extra noise. • Silencers and mufflers to be used for all noisy equipment. • Provision of PPE to all workers. • Provision of absorber for piling work.
Solid Waste • Waste from demolish work • Domestic waste from workers • Office waste • Installation of machineries, pipes and wiring	Improper waste disposal will cause the waste accumulation at the Project site.	**Domestic waste:** • Do not accumulate and burn waste at the site. • Provision of two types of waste bin i.e. roro bin which is for recyclable item and for non- recyclable item. • Solid wastes will be collected by Majlis Daerah Hulu Selangor for disposal at Bukit Tagar Landfill. **Construction wastes** • Construction wastes that can be recycled such as steel, PVC and aluminium will be sent to scrap yard.

Phase of Development and Activity	Potential Impact	Mitigation Measures
		• Wastes that do not have any economic value will be sent for disposal at Bukit Tagar Landfill.
Social Employment of foreign workers	Social impact	If there is a need to employ foreign workers, the following steps should be taken into account: • Conduct a full medical check-up. • Check for any criminal record. • Ensure that the workers are registered with the Immigration Department. • Ensure the workers has valid work permit; and • Always monitor the workers movement.
Operation Phase		
Air Quality Emission from stack during recovery activity	Air Quality degradation: Emission from stack. Release of pollutant such as SO_2, NO_2, PM_{10}, HCl, H_2S, Cl_2 and NH_3. Source of air pollution comes from existing thermal oil heater, new pyrolysis, new leaching and new dryer.	Proper design, installation and maintenance of the air pollution control system: • Installation of air pollution control system. i.e. scrubber. • The continuous emission monitoring (CEMS) for new chimney will be installed at the Project site. • Preparation and submission of performance monitoring to be conducted by competent person. • Sampling and analysis shall be conducted at the Project site against the Clean Air Regulations (CAR), 2014. • Submission of written notification and declaration erection of air

Phase of Development and Activity	Potential Impact	Mitigation Measures
	Also, particulate matter will be emitted from the stand-by generator set.	pollution control system and burning equipment. Engagement of competent person: • Air pollution control will be operated and supervised by competent person, Certified Environmental Professional in Scrubber Operation (CePSO). Performance monitoring, compliance monitoring, impact monitoring: • Performance monitoring for chimney and air pollution control (APC) system must be conducted regularly to ensure the system is being operated optimally and good working conditions. • Emission compliance and monitoring report must be submitted to Department of Environment annually as stated in Environmental Quality (Clean Air) Regulations 2014. The design/ installation of generator set should be incoherent with Guidance Document for Fuel Burning Equipments and Air Pollution Control Systems.
<u>Water Quality</u> • Spillage during and unloading and loading • Spillage during transportation and storage of scheduled waste	Water quality degradation	• All personnel / workers involved in the handling of scheduled waste shall be train on the SOP, safety and ERP at least once a year. • An access route to transport the waste will be provided between both premise (PT 3547 & PT 3548)

Phase of Development and Activity	Potential Impact	Mitigation Measures
• Spillage and leakage during recovery activity		to prevent the spillage on public road. • The scheduled waste stored in the tank at PT 3548 will be transferred to the process area at PT 3547 through piping. • Ensure the efficiency of IETS. • Conduct Industrial Effluent Characteristics Study (IECS) according to Guidelines on Industrial Effluent Characterization Study for the detail design and installation of wastewater treatment plant. • Hire a competent operator to operate the IETS. • Regular inspection and maintenance of the system. • Schedule for performance monitoring. • Follow the SOP for the operation of the treatment plant. • Conduct periodic effluent discharge analysis at the final discharge point. • Wastewater drain should be designed separately from the stormwater drain to avoid contamination of roof and surface water. • The scheduled waste storage area should be surrounded by a concrete dike or other equivalent structure to contain any spillage of the waste under the worst-case scenario.

Phase of Development and Activity	Potential Impact	Mitigation Measures
		• The capacity of the containment should be 110% of the largest container stored in the storage area.
Noise Quality Noise contribution is expected from the equipment during the recovery processes i.e. pump.	Noise emission	• Workers operating machineries and equipment which emitted high noise level should be equipped with PPE such as ear plugs if necessary. • Conduct noise monitoring to identify and measure potential noise from noise emitted equipment. • Regular maintenance and service of truck. • The generator set is equipped with discharged silencer to reduce the noise emission.
Safety Impact The potential risk at the Project site is the handling of scheduled waste material.	In general, these materials are flammable and therefore, their existences are possible in posing risk in terms of fire or explosion.	Traffic control during transportation (outside from Project boundaries) • The transporter shall avoid heavy traffic and populated route for the transportation of materials to the Project site. • Main roads and highways will be selected. • Sensitive areas, unpaved and damaged roads will be avoided. • Congested roads with high traffic density to be avoided. • Advisable to be used during off peak hours. • Observe speed limit during transportation.

Phase of Development and Activity	Potential Impact	Mitigation Measures
		• Speed limit not exceeding 90 km/hr on highways and 60 km/hr on normal road is recommended. • Information on scheduled waste shall be prepared and displayed at the scheduled waste storage area and provided to the transporter during collection of scheduled waste. Traffic Control during Transportation within PT 3547 and PT 3548 (within Project boundaries) • Avoid using public road to transport the scheduled waste or product from PT 3547 to PT 3548 vice versa. • An access route to transport the waste by using forklift will be provided between both premise (PT 3547 & PT 3548) to prevent the spillage on public road. • Traffic controller shall be allocated at the access point to direct vehicles in and out. Proper Material Handling • Training and awareness on scheduled waste management shall be provided to all workers. • The workers will be trained on the appropriate method to transfer the scheduled waste. • The workers shall be equipped with protective equipment i.e. gloves, face mask, etc. while

Phase of Development and Activity	Potential Impact	Mitigation Measures
		transporting the scheduled waste to the storage area. • The emergency response procedure will be presented at the office and training will be conducted to cater the spill or accidental discharge causing material damage arising from spillage on floor, road, waste, fire, and explosion.
<u>Solid Waste</u> Domestic wastes i.e. wrappers, papers, and bottles are mainly contributed by the workers from their daily activities.	Accumulation of solid waste.	• No open burning. • Ensure that the solid wastes are stored properly by practicing good housekeeping. • Utilize existing garbage container within the site. • Coordinate waste disposal with Majlis Daerah Hulu Selangor (MDHS) for disposal at Bukit Tagar Landfill.
<u>Scheduled Waste</u> Scheduled waste generated during recovery operation.	Scheduled waste generated from the Project site if not properly manage can contribute to land contamination and water pollution.	• Generated scheduled wastes within the Project site should be properly managed according to the SWR and other related guidelines. • Scheduled wastes generated from the Proposed Plant should be notified to DOE, properly pack, labelled, properly inventoried and shall only be stored in a scheduled waste storage area. • Competent person for scheduled waste management (CePSWaM) will be appointed for the Project.

Phase of Development and Activity	Potential Impact	Mitigation Measures
		• The storage area for scheduled waste shall be: - Fully bunded to cater for potential leak or spill. - Equipped with drainage system and a collection sump to collect wastewater generated from cleaning and housekeeping activity. - Concreted and coated with non-slippery and acid proofed coating flooring. - Design with an adequate floor bearing capacity to take load of the equipment and materials to be stored. - Good housekeeping practice should be implemented. - Clearly marked with "Scheduled Waste Storage Area" (the signage shall be place at a strategic location, in front of the storage areas). - A "No Smoking" and "No Eat and Drink" area. - Scheduled wastes shall not been stored more than 20 MT or not more than 180 days after generated or either one come first. • Scheduled waste shall be sent to a DOE approved scheduled waste recovery facility and Schedule Waste Disposal at Bukit Nanas,

Phase of Development and Activity	Potential Impact	Mitigation Measures
		Negeri Sembilan manage by Kualiti Alam Sdn. Bhd. • The vehicles transporting wastes will be equipped with safety and emergency equipment. • All personnel / workers involved in the handling of scheduled waste shall be train on the SOP, safety and ERP at least once a year. • The transportation activities are to adhere to the following general guide: - Main roads, trunk roads and highways will be selected. - Sensitive areas, unpaved and damaged roads will be avoided. - Congested roads with high traffic density to be avoided. - Advisable to be used during off peak hours. - Observe speed limit during transportation. - Speed limit not exceeding 90 km/hr on highways and 60 km/hr on normal road is recommended. - The wastes to be sent directly to the licensed facility. - Vehicles to transport the wastes should have a valid permit issued by the DOE. - Proper documentation using “Consignment Note”. - Containers and vehicles carrying scheduled wastes

Phase of Development and Activity	Potential Impact	Mitigation Measures
		should be clearly and marked with scheduled waste codes. - Scheduled wastes transported must be accompanied by information (Waste Card)
Social Employment of foreign workers	Social impact	• Conduct a full medical check-up. • Check for any criminal record. • Ensure that the workers are registered with the Immigration Department. • Always monitor the workers movement.
Safety and health abandonment	Safety and health impact	• Formulation of closure plan must be submitted to the Department of Environment for approval before the Project is expected to cease.

9. ENVIRONMENTAL MANAGEMENT PLAN

The environmental management plan for the project site should consist of the following:

a. Environmental monitoring programme.

i. Performance monitoring for IETS and scrubber.
ii. Compliance monitoring for IETS and chimney.
iii. Impact monitoring for river water, ambient air, noise.
iv. Monitoring to be conducted during renovation and operation.
v. Environmental monitoring frequencies and reporting.

b. Environmental audit programme.

c. Environmental Response Procedures.

10. STUDY FINDINGS

Impacts identified can be reduced in intensity by the application of mitigating measures recommended in this report. With the potential significant impacts from the proposed project, mitigation and abatement measures have been proposed to prevent, reduce or offset the adverse impacts for all the component of the environment.

Project proponent is also committed to work in an integrated manner together with the consultants to ensure that the residual impacts from the Project implementation will be nominal.