Forensic Services

FORENSIC SERVICES TEAM

Consulting Chemist/Scientist (Forensics)

Mr Cheong Kuok Sum

Mr Keneddy Chat

Ms Chelsea Wong Wan Ling

Mechanical (Forensic) Engineer

Mr Amirul Azim Ali

Electrical (Forensic) Engineer

Mr Naim Iman

Metallurgical (Forensic) Engineer

Mr Fadhil Abdullah

Forensic Services

FORENSIC SERVICES TEAM

Associate Consulting Scientist/Technical Advisor
Mr Yu Ong Sing

Associate - Marine Biologist & Aquaculture Engineer
Mr Paul Henderson

Business Development Manager - ASEAN Region
Ms Chew Wan Chyn



CHEONG KUOK SUM

MANAGER/
CONSULTING CHEMIST
(FORENSICS)

Forensic Services

PROFILE SUMMARY

Bachelor of Science (Industrial Chemistry) (Hons.)
Registered Chemist, Member of Malaysian Institute of Chemistry (MMIC)
Member, National Association of Fire Investigators (NAFI)

Over 20 years of experience
Forensic investigation | Fire science | Chemical analysis | Laboratory management

Investigated over 180 cases throughout ASEAN region.

Fire and explosion | Failure analysis
Product liability assessment | Process incident investigations

Acquired and upkeep ISO/IEC 17025:2017 accreditation for the in-house laboratory specializing in Forensic Science and Metallography.

Forensic Services

SPECIALTY

Expert in **Chemistry Application and Equipment**:

Well versed in the design of experiment and data interpretation for product liability claims using wide spectrum of equipment such as SEM with EDS or WDS, FE-SEM, FTIR, XPS, AES, ToF-SIM, FIB, X-ray CT-Scan, DSC, TGA, TMA, Py-GCMS, XRF, ICP-OES, GPC, GC-FID.

Marine Cargo Claim Assessment:

Contamination, wetting, corrosion, spoilage, sea water ingress, etc of marine cargoes, goods in transits and storage.

High Hazard Process Incident:

Investigated fire, explosion, and equipment failure incidents across oleochemical, petrochemical, animal feed additive, and tapioca starch processing plants in Malaysia and Thailand.

Forensic Services

HIGHLIGHTS

Fire and Explosion Investigation

Type of Industries:

Textile, timber/plywood/veneer, furniture, transport, department stores, houses, warehousing, entertainment, agricultural, plastics, petrochemical, palm oil processing and refinery, oleochemical, electroplating, automotive industries, tyres, paper, packaging films, textile, garments, food and beverages, latex and synthetic gloves, electronic/electrical appliances, department stores and hypermarkets.

Type of Structures/Buildings:

Shophouses, apartments, warehouse, various types of factory buildings, processing plants, process equipment, bulk material storage and handling facilities such as tank farms, cold room, restaurants and furniture malls.

Vehicles and Heavy Machineries:

Excavators and busses.

Forensic Services

HIGHLIGHTS

Causes of Fires:
Arson, self-heating, spontaneous combustion, electrical, mechanical, smoking, mechanical friction, hot work and thermal runaway reaction.

Fire Protection System:
Post fire investigation into the operational status of the fire protection system.

Expert Witness Testimonies:
Court appearances in Sandakan and Penang High Court of Malaysia for fire origin and cause, as well as chemical analysis.



AMIRUL AZIM ALI

MANAGER - MECHANICAL (FORENSIC) ENGINEERING

Forensic Services

PROFILE SUMMARY

Bachelor of Science in Mechanical Engineering, Pennsylvania State University, USA

Registered Graduate Engineer with Board of Engineers Malaysia (BEM)
Member, National Association of Fire Investigators (NAFI)
Member, International Association of Arson Investigators (IAAI)
Affiliate Individual, The Institute of Fire Engineers, Malaysia Branch (IFEM)
Member, National Association of Professional Accident Reconstruction Specialists (NAPARS)

Over eight (8) years of experience in forensic investigation. Lead engineering-related and vehicular casework across the ASEAN region.

On-site examination and executed consultation services for insurance claims involving engineering failure, vehicle accident reconstruction, lightning damage, fire and explosion throughout Malaysia, Indonesia, Thailand and Laos.

Published and co-authored over 400 technical investigation reports.

Forensic Services

SIGNIFICANT CASES

Expert in **Failure Investigation** for **Heavy Machinery, Equipment, and Structures**:

Experienced in investigating failures involving gas turbine, Flue Gas Desulfurization (FGD) system, chemical deflash equipment, CNC machines, oil cooler, mobile and side loader cranes, gensets, furnaces, thermal oil heater, boilers, underground cables, switchgear, and geomembrane HDPE covers.

Investigated incidents such as HVAC system explosion, freefall lift failures, oil tanker topplings, explosions of furnace burner and boiler, structural failure (asphalt hot storage tower, chimneys, sheds, roof structure, racking systems), and damage from lightning, water, and windstorms affecting lifts, escalators, and building structures.

Forensic Services

SIGNIFICANT CASES

Specialist in **Fire Investigation and Accident Reconstruction** for **Motor Vehicles and Heavy Machinery**:

Experienced in investigating fire incidents involving heavy machinery and trucks, including 4-axle semi-trailers, Doosan DX700LC excavators, Hitachi ZX130L units, Sinotruk Howo A7 trucks, XCMG Dump Truck, and Scania Bus.

Passenger vehicles spanning economy, commercial, performance, and luxury segments. Investigations cover brands including Audi (Q5, Q7), Bentley (Continental Flying Spur), BMW (325i, 740Li, M4, X1, X3, X5, X6), Chery (Easter, Omoda), Ford (Mustang), Honda (Civic), Jaguar (XJL), Land Rover (Range Rover Sport), Lexus (IS300), Maserati (Ghibli S Q4), Mercedes-Benz (CLA200, GL63 AMG, E200, S350L, S400L), Nissan (X-Trail), Peugeot (308), Perodua (Alza, Axia, Myvi), Porsche (Cayenne), Subaru (XV), Toyota (Hilux, Vellfire), Volkswagen (Passat), and Volvo (XC40, XC90, S90).

Forensic Services

SIGNIFICANT CASES

Structural Fire Investigation:

Experienced in investigating structural fires involving battery distributor warehouses, bus assembly plants, lighting appliance stores, shop lot buildings, supermarkets, general warehouses, and waste segregation areas.

Expert Witness Testimony:
Experienced in court appearances in Indonesia and Malaysia.



MUHD NAIM IMAN

ELECTRICAL
(FORENSIC) ENGINEER

Forensic Services

PROFILE SUMMARY

Bachelor of Electrical & Electronic at Universiti Malaysia Sarawak.

Registered Graduate Engineer with Board of Engineers Malaysia (BEM).
Level I - Certified Infrared Thermographer.
Trained in Earthing & Electrical Protection System in Malaysia.
Trained and Registered OSH Coordinator.

A passionate and detail-oriented Electrical Forensic Engineer with over 2 year of experience in failure investigation, damage assessment, and forensic reporting.

Areas of Expertise

Electrical Forensics | High-Voltage Analysis | Damage Assessment
Renewable Energy | Diagnostic Testing | Fire Investigation
Risk Assessment | Reporting & Safety | Public Speaking

Forensic Services

SIGNIFICANT CASES

Transformer & Switchgear Incidents:

Oil-Immersed Transformers: Investigated failures in 2.5 MVA (33 kV/415 V) and 500 kVA (11 kV/433V) oil-immersed units.
Power & Dry-Type: Failure analysis of a 180MVA (275/132kV) power transformer and various dry-type transformers (500kVA to 2000kVA).
Switchgear: Investigated 11kV switchgear failures and arc-flash incidents on on-load tap changers (OLTC).

Power Generation, Distribution & Vehicles:

Diesel Power Plant: Investigated the simultaneous failure of 18 diesel gensets at a power plant.
Distribution: Analyzed 33kV cable failures at steel manufacturing facilities.
Collision Investigation: Conducted investigations into vehicle collision incidents to determine contributing factors.

Forensic Services

SIGNIFICANT CASES

Damage Assessments (Water, Machinery & Retail):

Water Ingress & Flooding: Conducted investigations into lift water ingress resulting from pipe bursts and incidents involving flooding into lift shafts and mechanical components.

Post-Fire Machinery: Performed detailed damage assessments of industrial machinery following fire incidents to determine repair viability.

Retail Infrastructure: Evaluated damage to counter cashiers and CCTV systems at supermarket .

Specialized Equipment: Assessed a toppled 1MVA, 11/0.42kV dry-type transformer and digital corrugated printers.

Forensic Services

SIGNIFICANT CASES

Lightning Strike & Specialized Diagnostics:

Residential Infrared: Conducted infrared thermography (thermal imaging) surveys on residential houses to detect overheating components and hazards.
Lightning Assessment: Evaluated alleged strikes at 50MW solar plants, LPG terminals, fire alarm panels, and 450T crawler cranes.

Fire & Explosion Investigations:

Renewable Energy: Investigated fire incidents involving inverters on solar farms, rooftop photovoltaic (PV) panels, and waste-to-energy plants.
Industrial & Commercial: Fire incidents at microturbine generators, battery rooms, furniture showrooms, and food processing facilities.
Transportation: Forensic investigations into vehicle fires and incidents involving public transportation buses.



FADHIL ABDULLAH

METALLURGICAL
(FORENSIC) ENGINEER

Forensic Services

PROFILE SUMMARY

Bachelor of Science (Hons) in Material Science, Universiti Putra Malaysia.

Professional Technologist, Malaysian Board of Technologist
Member, Malaysian Society for Non-Destructive Testing
Affiliate Member, Institute of Materials Malaysia

Metallurgist with a total of 7 years of experience in condition assessment and failure analysis of power plant and oil & gas facilities.

Area of Expertise

Metallurgical testing | Damage mechanism analysis | Technical consulting
Strong knowledge in microstructure evaluation, VGB, NDT, API 571, and ISO 17025 compliance.

Known for creative problem-solving, multitasking, and effective team contribution.

Forensic Services

SIGNIFICANT PROJECTS

Failure Analysis & Root Cause Investigation

Extensive experience in metallurgical failure investigations and RCA using metallography, fractography, hardness testing, and corrosion assessment techniques across the oil & gas, petrochemical, utilities, marine, and industrial sectors:

- Compact Substation Unit – Flashover caused by ohmic heating and localized oxidation.
- Shackle Coupler at Single Anchor Leg Mooring (SALM) – **Fatigue crack growth under cyclic marine loading**.
- Centrifugal Gas Compressor Unit – Combined corrosion and wear damage affecting rotating components.
- Manifold C2 Tube – **Chloride Stress Corrosion Cracking (CLSCC) under elevated temperature service conditions**.
- Offshore Bolt Failure – **Hydrogen embrittlement** in high-strength steel components.
- Aluminium Pontoon – Exfoliation corrosion associated with environmental and chemical exposure.

Forensic Services

SIGNIFICANT PROJECTS

Failure Analysis & Root Cause Investigation

- Aluminium Blade – Combined sulphide attack and Chloride Stress Corrosion Cracking failure.
- Manifold Tube, Weldolet Flange & Fittings – Fatigue and cyclic loading-induced cracking.
- Cracked Spool – **Dynamic embrittlement** coupled with cyclic stress loading.
- CACA Blower & Motor Assembly – Corrosion fatigue and mechanical cyclic loading failure.
- Production Tubing Leakage – Localised corrosion degradation mechanisms.
- Gasket Holder & Stud Bolt – Stress corrosion cracking and cyclic fatigue damage.
- KP18 & KP22 Pipeline Damage – Mechanical impact and external damage assessment.
- Flashback Arrestor Rupture – Rapid pressurisation and overload failure.
- Coil Tubing Pinhole – Mechanical impact-induced localized damage.
- Sprinkler Head Rupture – **Ductile overload** failure mechanism.
- Thermal Oil Cooler Leakage – Atmospheric corrosion deterioration.
- Smelting Furnace Leakage – **Refractory graphitization and erosion-related degradation**.

Forensic Services

SIGNIFICANT PROJECTS

On-site Metallurgical Replica & Hardness Assessment

Experienced in conducting on-site metallurgical replica inspection, hardness testing, hotspot assessment, and integrity evaluation for critical industrial equipment and **high-temperature assets:**

- **Heat Recovery Steam System (HRSG) & High Pressure Super Heater (HPSH) & Reforming Unit –** Creep assessment via replica and hardness testing.
- **High Pressure Flare Scrubber & Furnaces –** Life assessment under thermal aging.
- **Boiler Tubes, Pipe Spool, Melter Tank –** Hotspot investigation confirming local creep and thermal degradation.
- **Heat Exchanger Coil, Girth Flange, Pipe Burner, Water Pump Cracks, Crude Heater**



KENEDDY CHAT

CONSULTING CHEMIST
(FORENSICS)

Forensic Services

PROFILE SUMMARY

Bachelor of Science (Hons) in Chemistry (Forensic Analysis) from Universiti Teknologi MARA.

Origin and cause investigation | Fire debris analysis
MS ISO/IEC 17025:2017 accredited forensic laboratory

On-site examination and co-authored of over 40 investigation report involving a number of industrial incidents.

Currently pursuing professional membership with the Malaysian Institute of Chemistry (IKM) and undertaking training as an OSH Coordinator to further strengthen capabilities in workplace safety and regulatory compliance during forensic site operations.

Client outreach and stakeholder engagement.

Forensic Services

SIGNIFICANT CASES

Structural Fires

- **Manufacturing** facilities such as production of plastics, papers, cotton, textiles, foams, pastries, palm oil, oil refinery and furnitures.
- **Warehouses** of praying materials, furnitures, e-commerce parcels, hardwares, electrical appliances, chemicals, food and beverages, plywood and garments.
- Shoplots or **commercial building** such as hypermarket, vehicle workshops, massage parlour and departmental stores.

Motor Vehicle Fires

Excavator, Sky-lift, lorries, and passenger vehicles

Damage Assessment

Lifts and escalators

Forensic Services

TECHNICAL SKILLS

Fire Forensic Investigations

Scene documentation, evidence gathering, forensic evaluation and reporting
Inspection of fire safety system

Chemical Analysis

ASTM E1412-19, ASTM E1618-19, Agilent ChemStation, Interpretation of GC-MS chromatograms for ignitable liquids, MS ISO/EIC 17025:2017 standard practices

Digital Marketing

Market analysis, Canva Pro, Capcut Pro, FinalCut Pro
Google Forms, Docs, Slides and Sheet
Organising and coordinating webinars



CHELSEA WONG

CONSULTING SCIENTIST
(FORENSICS)

Forensic Services

PROFILE SUMMARY

Bachelor of Forensic Science (Hons) from Management and Science University (MSU).

Origin and cause investigation | Fire debris analysis
MS ISO/IEC 17025:2017 accredited forensic laboratory
Accident reconstruction investigation
Building risk assessment

On-site examination and co-authored of over 20 investigation report involving a number of industrial fires, vehicle fires, and accident reconstruction incidents.

Currently pursuing professional membership with the Malaysian Institute of Chemistry (IKM).

Forensic Services

HIGHLIGHTS

Structural fire investigation

Shop lot | Commercial buildings | Warehouses

Vehicle fire/incident investigation

BMW | Mercedes Benz | Land Rover Range Rover | Volvo

Specialty

Origin and cause of structural and vehicular fires

Consistency of the vehicle incidents

Technical report writing

GCMS analysis and interpretation

Building risk assessment

Forensic Services

PAST EXPERIENCE

Grit and Dedication in Malayan Tiger Protection

Was part of a PERHILITAN-led research project.
Diligently collected the tiger's DNA samples from the virgin forest of Peninsular Malaysia.
Conducted DNA extraction and DNA analysis to determine the genetic varieties and generate a whole genomic profile for *Panthera Tigris Jacksoni*.

A Chemistry-Based Research Project at MSU

ATR-FTIR Analysis and Chemometric Evaluation of PVC and PE Cling Films, which are often used as wrappers of illicit drugs.
Forensic determination of the base polymer of each cling film brand available in the Malaysian market, enabling the classification and differentiation of the films.

Forensic Services

OUR PROFESSIONAL ATTRIBUTES

Meticulous

Analytical

Inquisitive

Persistent

Consistent



YU ONG SING

ASSOCIATE
CONSULTING
SCIENTIST/
TECHNICAL ADVISOR

Forensic Services

PROFILE SUMMARY

MSc Materials Science, BSc (Hons) Physics
Certified Fire & Explosion Investigator, NAFI-CFEI
Certified Fire Investigator, IAAI-CFI

With over 25 years of experience in fire and explosion investigations across a wide range of industries throughout Asia, primarily serving insurance clients.

Fire risk inspections for industrial facilities | Post-fire assessments of fire protection systems

Provided expert testimony for fire-related cases in multiple jurisdictions throughout Asia, including Malaysia, Thailand, Vietnam, the Philippines and Northern Mariana Islands.

Forensic Services

HIGHLIGHTS

Countries:

Investigated fires and explosions in Malaysia, Indonesia, Indonesia, China, Thailand, Vietnam, the Philippines, Taiwan, Cambodia, South Korea, Guam and Saipan.

Industries:

Automobile, Food and Beverage, Pharmaceutical, Chemical, Garments/Textile, Wooden/Steel Furniture, Confectionery, Oil and Gas, Skincare Products, Department Stores, Plastics, Restaurant, Electronics/Electrical Appliances, Packaging Films, Steel Manufacturing, Semiconductors, Agricultural products, Latex and Synthetic Gloves, Entertainment Centers, Papers and Rubber

Forensic Services

HIGHLIGHTS

Type of Structures/Buildings:

Cool Rooms, Processing Plants, Sawmills, Factory buildings, Restaurants, Tank Farms, Solar Panels, Furniture Malls, Shophouses, Warehouses, Mini Markets, Supermarkets, Workshops, Shopping Malls.

Causes of Fires:

Arson, Self-heating, Spontaneous Combustion, Electrical, Mechanical, Smoking and Hot Work.

Furnace Failures:

Steel: Investigated blast furnace failures, electric arc furnace failures, and explosions.
Brass & Copper: Examined explosions in melting induction furnaces.



PAUL HENDERSON

ASSOCIATE
MARINE BIOLOGIST &
AQUACULTURE ENGINEER

Forensic Services

PROFILE SUMMARY

MSc (Aquaculture Engineering)
Hons BSc (Marine Biology)

With 28 years of experience in the oil and gas sector, including 8 years of offshore operations on jack-ups, semi-submersibles, and fixed platforms across the British, Danish, and Norwegian sectors of the North Sea, as well as the West African and Indian coasts.

Engaged by Forensic Services on an ad-hoc basis, delivering specialized expertise in oil and gas drilling equipment failures, marine pollution investigations, and aquaculture-related incidents.

Forensic Services

HIGHLIGHTS

1. Investigated a reported electrocution event affecting high-dollar aquaculture fish stocks, concluding the cause was oxygen deprivation due to inadequate air supply and the absence of backup systems, alarms, and failsafes.
2. Devised a safe and cost-effective procedure for the disposal of a chemical product at a landfill, mitigating the need for expensive treatment processes.
3. Assessed and reported on damage to a Blowout Preventer (BOP) stack following a rupture incident during cavity pressure testing.
4. Conducted failure analysis of a twist-off Bottom Hole Assembly (BHA) Mud Motor at an onshore drilling site in Indonesia.
5. Investigated oil contamination on silt nets in Penang through underwater diving operations, photographic documentation, sample collection, and the recommendation of environmentally sustainable recovery solutions.
6. Consulted on coil tubing failures and down-hole tool failures in conjunction with FSM's resident metallurgist.



CHEW WAN CHYN

BUSINESS DEVELOPMENT
MANAGER
ASEAN REGION

Forensic Services

PROFILE SUMMARY

MSc Fire Safety Engineering | BSc (Hons) Forensic Science
Fire Risk Assessor (IFEM) | Certified Fire and Explosion Investigator (NAFI/IAFI)
IAAI-FIT, M-IAAI, AIFireE, OIM-MARIM, AiBEC (IIM), MMIC

Since 2025, she is leading business development effort for Forensic Services across the ASEAN region, focusing on market expansion, strategic growth, and brand visibility.

Key responsibilities include:
Bridging the gap between technical and commercial aspects
Driving social media marketing and webinar/seminar campaigns
Managing customer relationships and sourcing new prospects and partnerships
Shaping business strategy and overseeing website redevelopment
Supporting talent acquisition and formation of the OSH Committee

Forensic Services

INVESTIGATION EXPERIENCE

With a decade of field experience, she helmed the Fire Forensic Department as HOD/Senior Forensic Consultant in a Malaysian forensic consultancy firm, specializing in fire and explosion investigations, chemical-related disputes, engineering and material failures, motor vehicle accident reconstruction, and lift auditing.

She conducted on-site examinations, evidence gathering, technical analysis, and authored over 226 investigation reports while peer-reviewing more than 283 cases. She supervised over 500 fire and forensic investigations across structural, vehicular, and industrial incidents.

Certified as a Fire and Explosion Investigator (CFEI) since 2019 and an Accredited Fire Risk Assessor (IFE Malaysia) since 2022, she complemented her professional practice by completing a Master's degree in Fire Safety Engineering in 2024.

Forensic Services

SIGNIFICANT CASES

Fire and Explosion Investigations

Extensive experience in industrial fires involving food production (noodles, vermicelli, flour mills, creamer dryers), palm oil mills, chemical plants (biodiesel, agrochemical, disinfectant), plastics and foam manufacturing, textile factories, and steel mills. Commercial property fires at shopping malls, supermarkets, warehouses, retail outlets, hotel laundries, and office buildings. Explosion investigations involving boilers, tank failures, pyrolysis reactors, paint ovens, and kitchen cooking systems.

Motor Vehicle and Heavy Transport Investigations

Fire and damage investigations involving a wide range of passenger vehicles (Land Rover, Audi, BMW, Bentley, Mercedes-Benz, Toyota, Volkswagen, Nissan, Mazda, Perodua, etc.). Specialized in hybrid and electric vehicle (EV/PHEV) fire cases, including BMW i8 and Mercedes-Benz hybrids. Public transport and heavy equipment fires (buses, excavators, tugboats, prime movers). Collision reconstruction and post-impact fire analysis.

Forensic Services

SIGNIFICANT CASES

Specialized and High-Risk Case Types

Investigations of deliberate fires targeting industrial premises, vehicles, workshops, and public facilities. Spontaneous combustion events linked to oil palm processing, essential oil storage, and restaurant operations. Hot work-induced fires in active industrial plants. Specialized assessments of spontaneous ignition, static discharge incidents, and chemical reaction losses.

Causation Analysis and Damage Assessment:

Electrical faults, mechanical failure, friction, hot work, smoking material, chemical reactions, spontaneous combustion, static discharge, arson, collision impacts, and natural hazards (lightning, windstorm, flood).

Consultancy Scope:

On-site examinations, remote investigations, damage assessments, causation analysis, forensic laboratory work, desktop reviews, risk assessment, and multi-party collaborations.

Forensic Services

OUR VALUES

Commitment

Integrity

Excellence

Forensic Services

CONTACT US

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Forensic Services

CONTACT US

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