THE CATALYST

Q3 2023

JOIFF

The International Organisation For Industrial Emergency Services Management

JOIFF NEWS

JOIFF highlights New Members, an updated airport guideline and an invitation for NMCI & JOIFF Shared Learning meeting in Ireland

Roll of Honour

Joiff's Roll of Honour returns in the Q3 edition of the Catalyst, celebrating persons who were awarded JOIFF qualifications during April, May and June 2023.

News from Accredited Training Providers

Showcasing successful JOIFF audits from Q2 2023 as well as welcoming new accredited training providers

IN THIS ISSUE

Fomtec Enviro ARK and Enviro USP

FM approved and UL listed Fluorine Free Foams

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ABOUT JOIFF

JOIFF, the International Organisation for Industrial Emergency Services Management is a not-for-profit organisation dedicated to developing the knowledge, skills and understanding of personnel who work in and/or who are required to provide emergency response to incidents In Industry, primarily High Hazard Industry, with the aim of ensuring That risks in Industry are mitigated and managed safely.

The 4 pillars of JOIFF aiming to support its Membership in preventing and/or mitigating hazardous incidents in Industry are: Shared Learning – improving risk awareness amongst JOIFF Members; Accredited Training – enhancing operational preparedness in emergency response and crisis management; Technical Advisory Group – raising the quality of safety standards in the working environment of High Hazard Industry and Professional Affiliation - networking and access to professionals who have similar challenges in their work through Conferences and other events and the prestige of being a member of a globally recognised organisation of emergency response.

Full Members of JOIFF are organisations which are high hazard industries and/or have nominated personnel as emergency responders/hazard management team members who provide cover to such organisations. Commercial Members of JOIFF are organisations that provide goods and services to organisations in the High Hazard Industry.

JOIFF welcomes enquiries for Membership - please contact the JOIFF Secretariat for more information.

JOIFF CLG is registered in Ireland. Registration number 362542. Address as secretariat.

JOIFF is the registered Business Name of JOIFF CLG.

ABOUT THE CATALYST

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Message from The Chairman

Dear JOIFF Members and Catalyst readers,

Seasonal changes are a fact of life and us humans must adapt with these changes at least four times a year – I have heard from many different people on what season they prefer and why, but I am yet to find someone that does not like any of the four seasons. Changes are not only natural occurrences, but life changes are also an everyday event. In the emergency fraternity we are trained to operate in sometimes rapidly changing environments and to keep up with all these changes which one should seize to learn!

The one major change/challenge that is now facing the emergency fraternity is the ban on foam concentrates containing PFOS/PFAS – the "forever chemicals". This impacts on the foam concentrates we currently use mainly and something that will need very serious planning to address properly.

I take for granted that the readers would have seen the article on the deal that 3M reached with a host of U.S. public water systems entities, over a period of 13 years - $10.3 billion – this is no small money! After I read the article, the one fact that stuck in my mind was how this will impact on emergency response in high hazard industry now – today!

Mr. Chief Fire Officer, should you have a fire today, you must decide to use your current stock of foam, or to let the fire burn itself out – what will your decision be?

The agreement that 3M reached with public water system entities, is telling me that I must stop using any foam concentrate containing per- and polyfluoroalkyl substances – PFAS / PFOS immediately, as I will not be able to defend the use of these foam concentrates as from today, by pleading innocence anymore. When challenged by the authorities in future, we all will have to explain why we have not stopped using these PFOS/ PFAS – the "forever chemicals" after one of the largest manufacturers decided made it public that these are "forever chemicals"!

I would like to open this discussion by asking those of you that are currently dealing with this challenge to share some learnings on what fellow members can do in this regard. It is definitely not a case of "just let it burn" – the environment will also be affected then, but what do we do today to address this very challenging situation?

I trust that all readers will find this edition of the Catalyst of great value and again, please share with me your lessons learnt in the challenging times we are living in – I will gladly share with the rest of the members, should you allow me to do so.

Stay safe. Regards,

Pine Pienaar
FIFireE; FJOIFF; FSAESI
Chairman & Director: JOIFF
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Please visit **www.joiff.com** for more information.

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RelyOn Nutec
Fire Academy

The Catalyst

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JULY 2023

ROLL OF HONOUR

During April, May and June 2023, the following persons were awarded JOIFF qualifications:

JOIFF DIPLOMA

Aytuğ Ayhan Dip.JOIFF
Technical Safety Superintendent
Izmit Refinery

Aytug Ayhan is from the Republic of Türkiye. Aytug graduated from BSc in Mechanical Engineering at Technical University in 2015. He started his career as a Technical Safety Engineer in 2015 at TUPRAS Türkiye's largest and Europe's one of the largest companies in the oil & gas industry. After working as a Technical Safety Supervisor between 2019 and 2020, he has been working as Technical Safety Superintendent since 2020 at TUPRAS. His main responsibility is to coordinate emergency response teams by managing emergency response operations and to take part in Crisis Center processes. He is also responsible for the development of the competence of emergency response teams, increasing the availability and efficiency of emergency response equipment, and fire protection systems of the refinery.

On being awarded the JOIFF Diploma, Aytug said "The Joiff Diploma Program process was exciting, instructive, and quite challenging. It was a lot of fun to have the opportunity to deep dive into the emergency response processes during the Program. Thanks to the JOIFF Diploma, as a mechanical engineer, I had the chance to improve my practical knowledge as well as my theoretical knowledge about emergency response operations and equipment. Successfully completing the JOIFF Diploma Program is both an honour for me and a milestone for my career. I am looking forward to completing the JOIFF Technician program in the next period."

Burak Çankaya Dip.JOIFF
Fire&Rescue Chief
Kirikkale Refinery

After starting his career as a firefighter in the city fire department in 2004, Burak continued to work as a fire chief and training coordinator until 2009. In 2011, he started to work as a rescue team leader in TUPRAS Izmit RUP refinery construction works, and now he has been working as a Fire and Rescue Chief at TUPRAS Kirikkale refinery in Türkiye since 2016.

During his working life in municipality and TUPRAS fire department, Burak has responded to hundreds of fires and rescue incidents, and held roles in emergency management, incident control and response operations; in consequence he gained serious experience in firefighting and rescue activities. Additional to his firefighting experience, he has IRATA and SPRAT L3 certifications and has competence in rescue with technical rope too.

He successfully completed the JOIFF Diploma programme for which he registered in 2022, within a year. On being awarded the JOIFF Diploma, Burak said "Firstly, I am very happy to be a part of such an instructive program and to be among the first team to complete this program in Türkiye. The contribution of the JOIFF program to me is huge in terms of improving my competence in fire, rescue, emergency management, etc. Moreover, thanks to this programme I gained many different perspectives and had the opportunity to apply these perspectives to my professional life. In this way, I aim to create safer and faster response strategies in TUPRAS."

Enis Sarıçiçek Dip.JOIFF
Technical Safety Specialist
Kirikkale Refinery

Enis started his career at TUPRAS Kirikkale Refinery in 2008 and has been working in the fire department for 15 years. During these years he has been involved in and intervened in many indoor and outdoor fires. Especially in the vicinity of the location of their facility and in the city where it is located, there are factories such as the Mechanical Chemical Institution, Weapons Factory, Steel Factory, Ammunition Factory, Gunpowder Factory, Chemical Factories and furniture factories, and he intervened in fires in these facilities.

On being awarded the JOIFF Diploma, Enis said "Throughout my professional life, I considered myself fully competent in firefighting. When I started taking the JOIFF Diploma program, I realized that I still had a lot to learn. This program has encouraged me to feed from different sources and to learn with my teammates. I would like to thank my Chief Engineer Mr. Hayati NIHAN and the JOIF management who provided this diploma program."

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The Directors of JOIFF extend congratulations to all those in the JOIFF Roll of Honour.

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Ercenk Uluçam Dip.JOIFF
Technical Safety Superintendent
Izmir Refinery

Ercenk graduated with a BSc in Mechanical Engineering in 2015. After working for a company that produces fasteners for about 2 years, he started to work as a Technical Safety Engineer at the TUPRAS Izmir Refinery Fire Department in 2017. He is currently working as a Technical Safety Superintendent at TUPRAS. His main jobs are the management of the emergency response teams at the refinery, the availability and efficiency of emergency equipment and the purchase of new ones, the assessment of fire risk, the development of fire protection strategies, and the working on fire protection systems projects.

On being awarded the JOIFF Diploma, Ercenk said "As an engineer, working in the fire department excites me. Being actively involved in the team that responds to emergencies in the refinery and taking part in the management of these teams is very beneficial for me in developing emergency response strategies and fire protection projects. If I know the field applications of the job well, I think I can do engineering better. The JOIFF Diploma program reminded me of this again. While explaining many competencies practically in diploma program, it helped me to remember and convey what I know better and enabled me to generate new ideas about my job. I am very pleased to have participated in this program and to receive the internationally recognized JOIFF Diploma."

"I would like to thank my manager Mr. Baris Gemalmaz, who helped me start the Diploma program and successfully complete this process. I am looking forward to starting JOIFF Technician program soon."

Mehmet Sabir Tirki Dip.JOIFF
Technical Safety Shift Supervisor
Batman Refinery

Mehmet Sabir Tirki started working at TUPRAS Batman refinery in 2007. He has been working in the fire department for 16 years. He did not have any knowledge about fire when he first got the job. He started to work as a fireman at the beginning. Thanks to the training, he improved himself and he was promoted to shift supervisor in 2017. Until today he received training in different categories such as industrial fires, Hazmat response, search and rescue. And he has now completed JOIFF Diploma program.

On being awarded the JOIFF Diploma, Mehmet said "When I was included in the JOIFF "Responding to Emergencies" Diploma program at TUPRAS, I did not know exactly what the JOIFF program was. However, when I entered the program as a student, I saw that the program was much more advanced and broader than I thought or imagined. Completing the program was really not easy. It took a lot of time and when I came to the end, I realized that I had much more knowledge. I consider myself lucky to be included in this program and to be successfully awarded this D iploma. Finally, I am proud to work at TUPRAS and to have a JOIFF diploma. Thank you all..."

Lee Clark Dip JOIFF,
INEOS O& P UK,
Grangemouth,
Scotland.

After seven years in the financial industry, Lee became a Firefighter in 2008, joining the Scottish Fire and Rescue Service. After nearly 12 years there, working in different areas of the organisation, he was given the opportunity to join the team at INEOS in 2020. This industry can have a very different approach to Firefighting and the JOIFF Diploma has very much assisted me in my learning and development.

Murat Hamzacelebioglu Dip.JOIFF
Fire Chief
Izmir Refinery

Murat started to work at TUPRAS Izmir Refinery in 2000 as a fireman. After working for 6 years in that position, he was appointed as a Technical Safety Specialist in 2006. In this role, he prepared hot work permits and he was also interested in process safety, occupational health and safety, and fire training. Since 2022, he has been working as Fire Chief. He continues to work on the management of the emergency response teams at the refinery, the development of fire protection strategies, the availability of emergency equipment and the assessment of fire risk.

On being awarded the JOIFF Diploma, Murat said "I am very happy to have participated in this program. Despite all my years of experience, I learned new things thanks to this program. I always look forward to opportunities for self-development. Next step is JOIFF Technician."

"I would like to thank my manager Mr. Baris Gemalmaz who gave this opportunity to me. Many thanks to my team as well. Keep growing with them."

Serdar Oğhan Dip.JOIFF
Technical Safety Superintendent
Batman Refinery

Serdar Oğhan graduated from the Department of Environmental Engineering and received a masters degree in Occupational Health and Safety. In his first work experience, he worked in the construction sector between 2013 - 2018. Since 2018, he has been working as Technical Safety Officer at TUPRAS Batman Refinery and has been working on Fire Hazards, Toxic Gas, Environmental Spill, Process Safety, etc. He works for prevention and intervention in all possible emergencies.

On being awarded the JOIFF Diploma, Serdar said "I have attended many trainings before, but I have never needed to do such a comprehensive and detailed study for a specialization. The JOIFF Diploma Program posed many research and educational needs and enabled me to gain a lot of new knowledge in the process. During the preparation process, I had the opportunity to repeat many of my experiences that we knew but did not reinforce much. I would like to thank my company and all my managers who supported my participation in this diploma program and provided information and opportunities. I think it is a training that provides many benefits in terms of technique and practice, increasing self-confidence in determining emergency prevention methods and intervention strategies in the management of all emergencies."

JOIFF TECHNICIAN

Ameen Slemang Tech.JOIFF
Senior Emergency Response Specialist,
OQ Refinery
Sultanate of Oman

Ameen started his career as an emergency responder in 1989 as a recruit Firefighter. He advanced through the ranks and started his International career working in different countries in 2002. He now holds the position of a Senior Emergency Response Specialist in the biggest refinery in Oman and he is always looking for new opportunities and ways to enhance his skills with embedded knowledge and experience.

Ameen successfully complied the JOIFF Diploma in 2020. On successfully completing and being awarded the JOIFF Technician professional qualifications, Ameen said "Obtaining this new qualification just pushes me to proceed to the next level".

GRADUATE OF JOIFF

David Rodwell Grad.JOIFF,
Commercial Project Manager,
Falck Fire Services UK Limited,
United Kingdom

David started his career in the British Army where he was Specialist and held senior positions in Communications. He joined Cleveland Fire Brigade, where he was Firefighter, Technical Rescue Supervisor and was also engaged in the Hazardous Chemicals and Health and Safety programmes of the Brigade. He was a Supervisory Firefighter in the HSE Department of the European Organisation for Nuclear Research (CERN) in Geneva, Switzerland, during which time, he was an Integral part of an international award-winning project team that designed, implemented and transitioned the new digital TETRA telecommunications network.

MEMBER OF JOIFF

Dr. Thomas Leonhardt MJOIFF
Product Management,
Dr. Sthamer GmbH & CO. KG
Hamburg
Germany.

Dr. Thomas Leonhardt, has a Ph.D. in Metalorganic Synthesis and Electro-Chemistry from the University of Heidelberg; is an Environmental, Health Sciences Engineer and is an ISO 14,000-Auditor. He started his career as a researcher in fire retardants, then took a sales role for 2 years, before heading up manufacturing, R&D, product management and Sales as Chief Technical Officer with a manufacturer of fire retardants. After that took the role as Senior Manager Business Development with Bioinnova focussing on business development and product management.

In 2003 joined TOTAL Walther Löschmittel GmbH as Technical Director in charge of manufacturing, quality management and R&D. Accepted an offer to head up the German lab and later managing the global Chemical Research Group at Engineering Department with TYCO International until 2015. Then took a role as Senior Manager Global Agents R&D within TYCO. Moved to Fabrik Chemischer Präparate von Dr. Richard Sthamer GmbH & Co. KG as Global Product Management and acting as advisor to the board. Dr Leonhardt represents EUROFEU, as the nominated representative at OSPAR (Oslo-Paris-Treaty on Protection of the North Sea and the North East Atlantic), as an accredited Stakeholder to the European Commission and the European Chemicals Agency (ECHA) and as an Observer to the United Nation's Basel-Rotterdam and Stockholm-Convention.

Paul Richardson MJOIFF
Station Officer
QatarEnergy
Qatar

Paul has been a firefighting professional with over 17 years in the petrochemical, domestic and nuclear sectors. His current role is a Station Officer within QatarEnergy. During his time in the petrochemical industry, he has gained excellent knowledge and understanding of all health and safety procedures that accompany top tier COMAH sites as well as the different fire and explosion hazards within the industry. He has a unique knowledge of firefighting foams, systems and equipment that are in use today.

Paul was a fire fighter with Humberside Fire & Rescue service for eight years both working the whole-time, and retained duty systems. He has attended many emergencies each with their own unique challenges. For the last 10 years he has been a guest instructor at TEEX for Williams Fire and Hazard Control at their annual industrial fire school. In 2014, he was part of a small team put on standby ready to mobilise into Libya due to a large-scale incident at a facility in Tobruk.

Paul is an assessor for students working on the JOIFF Diploma and the JOIFF Technician programme.

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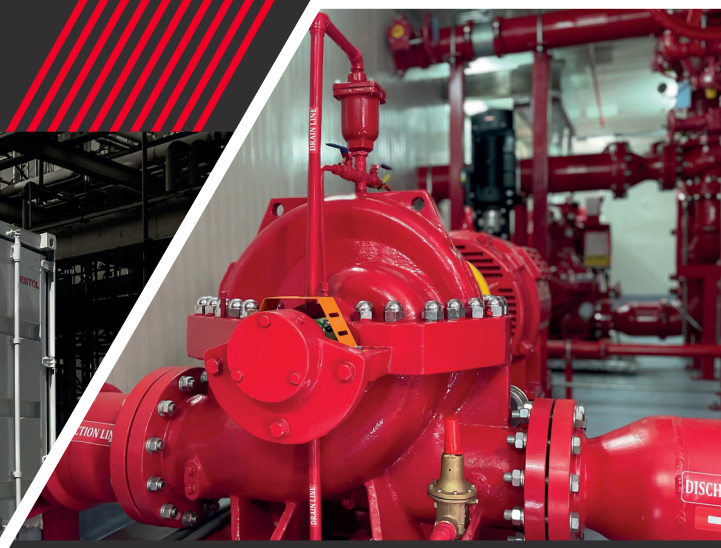

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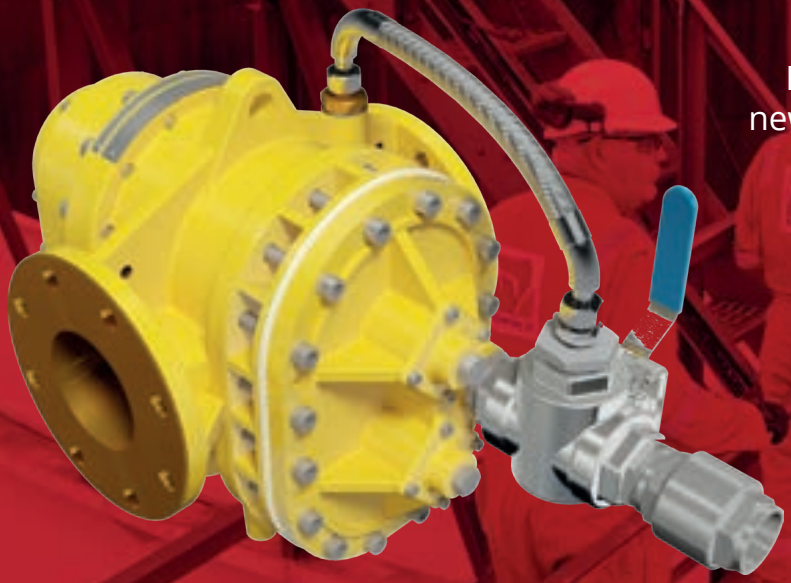

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JOIFF NEWS

JOIFF in conjunction with NMCI invite you to a JOIFF Shared Learning meeting in Ireland

JOIFF, in Conjunction with NMCI Services - Global leaders in Maritime Training invite you to a shared learning event. Held at National Maritime College of Ireland on Tuesday 5th September 2023.

The programme will include papers about:

•EU Regulations relating to PFAS in Firefighting Foam.
•Practical issues on change over to Fluorine Free Foam (FFF)
•Alternatively fuelled vehicles
•Environmental Emergency Response using a High Volume Pump
•Practicalities of Hosting an Emergency Incident on your site.
•European Standards & proposed / new developments for Portable Fire Extinguishers
•Oil Spill Response
•NMCI Services Training
•JOIFF Accredited Training

For more information and to register for this Shared Learning Event, please scan the QR code below:

JOIFF Airport guideline:

A very positive reaction was received to the JOIFF Guideline on Emergency Services Management of Airports which was published in July 2021. The JOIFF Aviation Working Group have reviewed the comments made and during the past months, they have updated the first edition.

JOIFF is pleased to advise its members that the revision of the first edition has been completed and is now in the Members Area of the JOIFF website for free download.

NEW MEMBERS

During April, May and June 2023, the JOIFF Board of Directors were pleased to welcome the following new Members.

BASF Antwerp, represented by Tom Engels, Manager Emergency Response. BASF Antwerp is located in the northernmost part of the port of Antwerp. It is the largest chemical production site in Belgium and the second largest BASF Group site in the World.

The site contains fifty production facilities, and its product range comprises base and speciality chemicals, synthetics and primary products, refining products and inorganic chemicals.

BASF Antwerp products go on to be utilized in virtually all processing sectors, such as the automotive industry, the construction sector, paper and leather manufacturing, sports equipment, as well as the textile, food and pharmaceutical sectors.

ENOC Emergency Response Centre, Dubai represented by Khalid Ismail Almheiri, Head - Enoc Emergency Response Centre, Rashed Salem Aghadier, Chief Fire Officer, Khalid Ibrahim Ali Al Mutawa, Deputy Chief Fire Officer and Bibhu Prasad Sahoo, Station Fire Officer. ENOC (Emirates National Oil Company Limited L.L.C.) is a wholly owned company of the Government of Dubai, initially established in 1993 and has evolved from a local oil and gas player to a global operator across various aspects of the energy sector value chain.

ENOC Emergency Response Centre responds to fire, leak/spill of hazardous material, search and rescue operations and technical rescue operations from confined spaces, high angles and difficult to access locations. It is also engaged in inspections of ENOC's process units and storage units, emergency response planning/procedure validation, testing of emergency response plan through fire drills, providing in house fire and rescue training and fire drill for fire fighters, hazardous material management, review of fire protection system design and engineering and pre fire incident plans and performance testing, preventive maintenance of firefighting and rescue equipment as major appliances.

We look forward to the involvement of our new and existing Members in the continuing development of JOIFF.

NEWS FROM JOIFF ACCREDITED TRAINING PROVIDERS

SUCCESSFUL JOIFF ACCREDITATION AUDITS

During Q2 2023, successful JOIFF accreditation audits were carried out for:

AIS SURVIVEX LTD
Scotland, United Kingdom

AIS Survivex Team being presented with their JOIFF certificate of accreditation

Chris Wright, Technical Writer/ Lead Auditor, Jamie Purvis General Manager, Gerry Johnson, JOIFF Auditor, Neale Allan HSEQ Lead.

FALCK FIRE SERVICES UK LTD.
Wilton, United Kingdom

Falck Fire Services UK being presented with their JOIFF certificate of accreditation

David Rodwell Commercial Project Manager, Business Development, Gerry Johnson, JOIFF Auditor

FIRE SERVICE COLLEGE
United Kingdom

Fire Service College being presented with their JOIFF certificate of accreditation

Lee Bransby, Instructor. Gary Marsden, Quality Training Manager/Lead IQA, Kevin Deveson, JOIFF Auditor.

INTERNATION FIRE TRAINING CENTRE
United Kingdom

International Fire Training Centre being presented with their JOIFF certificate of accreditation

Julie Britton, Course Coordinator; Jack Denneny: Course Coordinator (Apprentice);Gerry Johnson JOIFF Auditor; Daryl Bean, Curriculum Manager. Di Nazimi: Head of Compliance and Technical Services

NEWLY JOIFF ACCREDITED TRAINING PROVIDERS

During Q2 2023, JOIFF was pleased to welcome the following newly JOIFF Accredited Training Providers.

TUPRAS IZMIR REFINERY
TURKEY

Tüpras Izmir Refinery being presented with their JOIFF certificate of accreditation

Alec Feldman and Gerry Johnson, JOIFF Auditors, Barış Gemalmaz, Technical Safety and Environment Manager, Pınar Çağdaş DURAN; Technical Safety Director.

VITAL FIRE SOLUTIONS
Durham, United Kingdom

Vital Fire Solutions being presented with their JOIFF certificate of accreditation

Fraser McGuffog, Instructor, Paul Burlison, Operations Director, Gerry Johnson, Auditor

NCEC's HAZMAT CONFERENCE 2023

Dinner at the NCEC Hazmat Conference 2023

More than 150 people attended the National Chemical Emergency Centre's (NCEC) Hazmat Conference 2023 which was held on 24th and 25th May 2023 in Crowne Plaza, Stratford-upon-Avon.

Pre-Conference – 23rd May 2023 centred on NCEC's own Hydrogen Awareness training course.
NCEC's emergency response training team delivered our Hydrogen Awareness course to a select group of pre-conference delegates. Delegates from the Department for Transport, ITOPF, Ambipar and several Fire & Rescue Services were present – highlighting the importance of having an awareness of hydrogen and its associated safety concerns as we progress towards an alternative fuels future. Our training team will continue to deliver their Hydrogen courses throughout the coming year. For more information on NCEC hydrogen training courses see https://the-ncec.com/en

Day 1 – Morning consisted of keynote speeches and hazmat focused speaking session.
Head of NCEC's Chemical Regulatory and Consultancy and the conference's chairperson, Caroline Raine, opened the conference with a thank you to all delegates, speakers, and exhibitors – particular thanks to conference supporter, JOIFF, for their support in promoting the conference. As 2023 marks NCEC's 50th anniversary, Caroline also spoke about how NCEC remains dedicated and focused in understanding and preparing for the next 50 years of chemical safety challenges.

We then had the keynote speech by Deputy Chief Fire Officer for West Yorkshire Fire & Rescue Service, Dave Walton. Dave spoke on future challenges facing the Hazmat community and the importance of attending conferences, such as Hazmat 2023, to share, network, and learn from one another. Dave's keynote introduction was particularly thought provoking in that it was partially composed by ChatGPT – a conversational AI.

This was followed by 45-minute parallel speaking sessions. Topics of unique interest were:

- Emerging technologies and future safety challenges at airports: Ricardo's Simon Morris & Rui Neiva discussed that due to the rapid change in variety of fuels and their associated supply and storage infrastructure at airports, driven by factors such as achieving net zero for air travel, significant impacts on safety must be considered at every stage from well to tank and from tank to wing over the next 5 to 10 years.

- Occupational health risks amongst UK firefighters: Prof. Anna Stec's (the Centre for Fire and Hazards Sciences) presentation explored firefighters' occupational exposure to fire contaminants at their workplace and through their personal protective equipment (PPE). Also discussed was firefighters' culture/attitudes towards uptake or compliance with decontamination procedures, and the most common occupational cancers and diseases amongst firefighters.

- Energetic Hazards and Solutions: Senior Explosives Officer, David Welch, from Ramora UK introduced the work of the Gas and Hazardous Operations Support Team (GHOST) which provides a reactive capability to gas, sensitive chemicals and energetic (explosives) based incidents.

Day 1 – Afternoon, focused on practical workshops and case studies.
Prof. Paul Christensen of Newcastle University discussed the emerging risks associated with lithium-ion batteries with the aid of his own experiments as well as media and academic literature research. In particular, the understated hazard of vapour cloud explosion was covered in detail, and included an assessment of detection and suppression systems, and the potential of the latter to flip the hazard of lithium-ion batteries in thermal runaway from fire to explosion. This was a workshop that was extremely well attended, with maximum room capacity being reached on both occasions of Paul delivering.

A trio from Resilience Network Advisors consisting of Jon Hall, Chris Singer, and Gavin Williams presented on Organophosphorus Nerve Agent Exposure (OPNA) decontamination. Here, attendees heard what OPNA's are, how they work, recent experiences and current good practice for decontamination arrangements.

Another trio, consisting of speakers from Environment Agency, DEFRA, and NCEC delivered an interactive workshop on PFAS & firefighting foams. Workshop attendees were provided with an understanding of the concerns associated with the use of PFAS in firefighting foams, a look at future regulatory landscape including alternatives to PFAS containing foams, safe use and disposal of firefighting foams, as well as a desk-based scenario exercise on situational awareness, and guidance on fluorine free foams.

Conference Dinner – Hazmat awards and quiz
After the conference dinner, NCEC hosted the inaugural Hazmat Awards Ceremony. Standout awards were presented to Station Officer Adam Stone for Outstanding research in the field of Hazmat, and to Deputy Chief Fire Officer Dave Walton for Outstanding lifetime achievement. NCEC's popular pub quiz closed the conference dinner and day 1 of the conference!

Day 2 - Morning sessions included topics from hydrogen safety to hazmat incidents on ships. The hazmat incidents on the ship session was particularly well received and included the subsequent crew response and shoreside assistance – a topic covered by Paul Coates, Waves Group. Given the popularity of this session, these types of hazmat incidents will certainly be covered in future Hazmat Conferences.

Dr Stuart Hawksworth, Head of the Centre for Energy and Major Hazards at the Health and Safety Executive (HSE), spoke to delegates about the importance of enabling a Safe Net Zero strategy. With Hydrogen being one of the low carbon energy solutions that will be critical for the UK's transition to net zero, Stuart gave an overview of the key projects and programmes that are helping to safely enable hydrogen to be used as a low carbon energy vector for heat, power, and transport. Several case studies were also presented that demonstrated what happens when we don't get it right. An introduction to the National Carriage of Dangerous Goods Practitioners Forum, and how it supports all parties involved in the transportation of dangerous goods was covered by Jason Dearsley, Essex Police. Jason also expressed how important it is to exercise emergency plans on a regular basis and set this against a lorry fire case study on the M11 in Essex.

Hazmat incident containment and clean up was covered by Chris Ramsbottom from Adler & Allan. Chris' session covered the Llangennech derailment of August 2020, an incident and the subsequent response operation described by the environmental regulator in Wales as amongst the most challenging in the last 25 years. Chris shared an overview of that operation, including the emergency response efforts and the strategy developed to successfully deliver the ongoing containment, investigation, assessment, and restoration of the spill.

Ed Sullivan, NCEC and Gerry Johnson, JOIFF

Day 2 - Afternoon focused on alternative fuels discussion.
An alternative fuels discussion panel, hosted by NCEC's Hazmat Lead Ed Sullivan, was the final session of the Hazmat 2023 Conference. The panel member's consisting of experts on lithium-ion batteries, hydrogen, emergency response, and environmental risks, discussed in detail the future safety and environmental concerns surrounding many alternative fuels of the future. Ed then presented these concerns against a real-life backdrop and encouraged audience participation in how to tackle such alternative fuel incidents.

With the hydrogen, lithium-ion battery, and panel discussion sessions being amongst the most popular, it was clear that the topic of alternative fuels and the relevant safety considerations was a key concern for many attendees.

After the closure of the panel discussion, Caroline Raine summed up yet another successful Hazmat Conference and thanked everyone for their continued support in attending, supporting, and exhibiting at the conference.

Conclusion
Many attendees complimented the topical programme and conference organisation including:

JOIFF Director, Gerry Johnson said, 'An excellent conference with up-to-date information, the mixture of subjects was about right for the range of attendees. A well organised and controlled conference with excellent speakers.

Northumberland Fire and Rescue officer said, 'The whole event, from arrival to departure, was fantastic. Admin and logistics all thought out, room check ins and registration all quick and easy. Meals and refreshments all perfect. The dinner, awards and quiz was a brilliant little step away from business that allowed for some good networking.'

Devon & Cornwall Police said, 'the information is so useful for ALL emergency services as key H&S risks and good practice etc. can be taken away and disseminated to roads policing officers in their training.'

Hazmat Conference 2024 registrations open from 1 July 2023 and can be found at www.hazmatevent.co.uk. Super early bird rates will be applicable only until 30 September so book your place at the earliest registration window!

JOIFF ACCREDITED eLEARNING PROGRAMMES

The JOIFF Accredited eLearning programmes are now available on a new Emergency Response eLearning platform. The programmes are

• JOIFF Diploma –key skills for industrial emergency responders.
The programme consists of 24 Units in which there are over 100 elements and in excess of 700 competences. The outcome on successful completion of this programme is that student is awarded a Diploma certificate and can use the professional qualification post nominal Dip. JOIFF

• JOIFF Technician - technical knowledge of industrial emergency responders.
This programme provides the platform for persons engaged in emergency response to enhance their knowledge and skills, having already demonstrated their competence in key response skills. To achieve full success in demonstrating the competences of this programme requires the student to do individual research and study. The outcome on successful completion is that student is awarded a Technician certificate and can use the professional qualification post nominal Tech.JOIFF

• Leadership 1 –knowledge and skills of a Team Leader in industrial emergency response.
For this programme, a Team Leader is regarded as the person who leads a team of 5 to 8 persons. This programme provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response Team Leader role in emergency service delivery. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

• Leadership 2 –knowledge and skills of an Officer in industrial emergency response.
For this programme, an Officer is regarded as the person who leads multiple single Teams of emergency responders. This programme provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response Officer role in Team Leadership and Management. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

The JOIFF accredited eLearning programmes are cost effective as the programmes are computer based and learnt and demonstrated by the student in their workplace. The programme is also available for download and use on a mobile app for Android and iOS.

Each student is assigned an individual electronic portfolio which sets out a structured training path divided into Units and Elements of the various competences of the programmes. The student must be assessed on each element of each unit so that each student's work provides a traceable system of assessment for final verification of their competence.

An assessor with the relevant background, competence and relevant knowledge and experience of the subject matter needs to be appointed to each student. Assessors can be e.g. the site's trainers/fire team leaders etc. who should have the ability to assess students on an on-going basis, to evaluate their work as they progress and to confirm "competent" or "not yet competent" for each of the elements and Units as they go forward. The work is remotely verified by the administrators of the programme, Fulcrum Consultants.

Students can demonstrate competence in a number of clauses at the same time if the work takes place e.g. during a training exercise/ drill or at an actual incident. In such cases, the requirements of progressing through the programme will be that the competences must be assessed.

Subject to approved assessment and verification, suitable and relevant formal Approved Prior Learning and Experience (APLE) also known as Recognition of Prior Learning (RPL) gained by the student during a period of up to two years prior to the commencement of the programme is acceptable as part of the recognition of competence required in the programme. The programmes are drawn from National and International Standards and experience and Good Industry Practice. It is not necessary to follow the units and elements in sequence, how the work on the programme is completed is at the discretion of the site management/student.

Other JOIFF accredited programmes available are Responder to Hazardous Materials Incidents programme and Emergency Response Control Room Operator programme.

The JOIFF accredited eLearning programmes for emergency response to industry have been developed and are marketed and administered by JOIFF Member organisation, JOIFF Secretariat Fulcrum Consultants.

For further information:
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Can They Be Prevented?

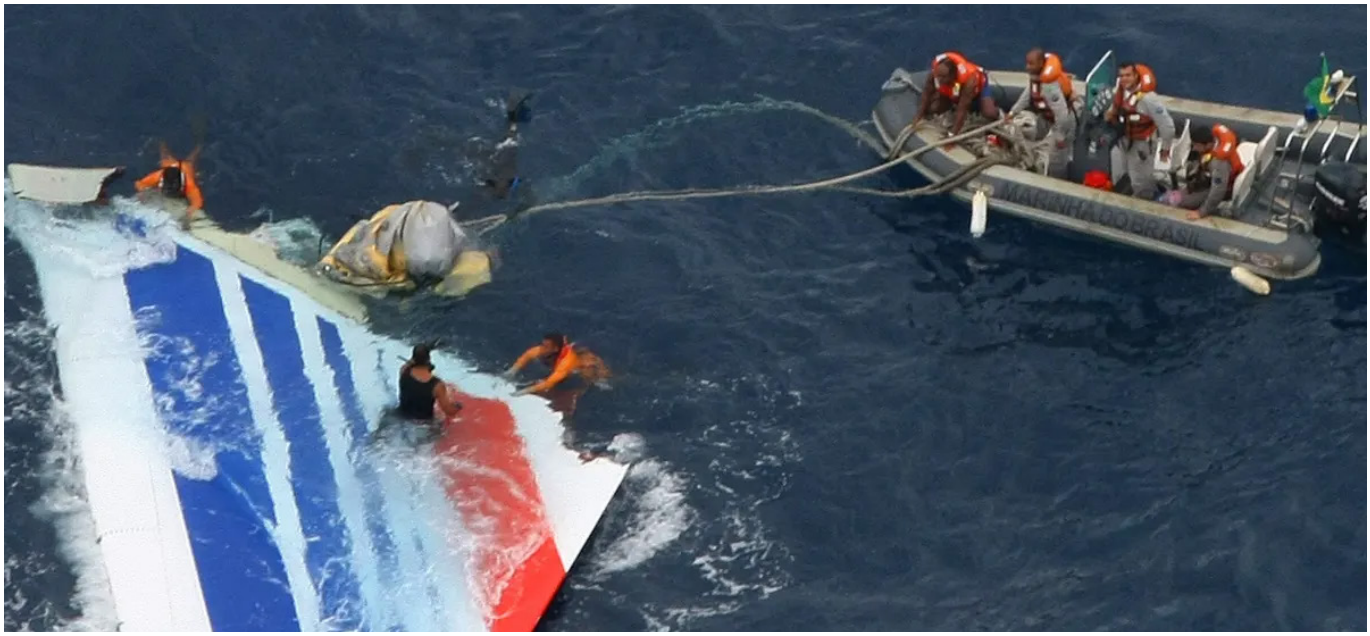

Image Source: The Guardian

The Catalyst researches and provides reports on some of the major industrial incidents that have taken place in past years in the hope that this may stir people to action so that future incidents and subsequent unnecessary losses can be prevented.

APRIL 2023 AIR FRANCE AND AIRBUS acquitted in trail over fatal Rio-Paris 2009 plane crash

On Monday 17th April 2023, a French court cleared Air France and Airbus of involuntary homicide in a criminal trial over the 2009 crash of a flight from Rio de Janeiro to Paris that killed 228 passengers and crew. It took two years to find the plane and its black box recorders on the ocean floor at depths of more than 4,000 mtrs. Readers of The Catalyst are invited to review the summary of the incident below, taken from various reports of the incident, and make up their own minds as to whether the French Court made the correct decision.

For the purposes of this article, the 3 pilots are entitled the Captain, First Officer 1 (FO1) and First Officer 2 (FO 2). PF is the pilot flying and PNF is the pilot not flying the aircraft.

The Incident:

On Sunday 31 May 2009, Flight 447, an Airbus 330 operated by Air France took off at 22.29 hrs to perform a scheduled flight between Riode Janeiro Galeão and Paris Charles de Gaulle airports. Twelve crew members (3 flight crew, 9 cabin crew) and 216 passengers were on board.

The Airbus A330 is designed to be flown by two pilots, but the 13-hour "duty time" (the total flight duration, as well as pre-flight preparation) required for the Rio to Paris route exceeded the 10 hours permitted before a pilot had to take a break as dictated by Air France's procedures. To comply with these procedures, Flight 447 was crewed by three pilots - a captain and two first officers. With three pilots on board, each pilot could take a break in the A330's rest cabin, located behind the cockpit.

In accordance with practice, the Captain sent FO 2 for the first rest period with the intention of taking the second break himself. At 01:55 hrs. he woke up FO 2 to take his place.

• Between 1 h 59 mins 32 and 2 h 01 mins 46, the Captain attended a briefing between the two co-pilots, and then he left the cockpit to rest.

• At 2 h 06 mins 04 the PF warned the cabin crew that they were about to enter an area of turbulence and a few minutes later, the aircraft encountered icing conditions and ice crystals began to accumulate in the pitot tubes – these are aircraft sensors that measure airspeed.

• At 2h 08 mins 07, the PNF suggested that the PF should “go a little to the left”. The airplane began a slight turn left, the level of turbulence increased slightly and the pilots decided to reduce speed to from Mach 0.82 to 0.80, which was the recommended speed to penetrate turbulence.

• At 2 h10 mins 05, the autopilot disengaged, most likely because the pitot tubes had iced up, and the PF took manual control of the aircraft. The turbulence caused the aircraft to start to roll to the right and the PF made a left nose-up input. During the next 30 seconds, the aircraft rolled alternately left and right as he adjusted to the altered handling characteristics of the aircraft and at the same time, he abruptly pulled back on his side-stick, raising the nose,

an action that was considered in the report as unnecessary and excessive under the circumstances. The aircraft's stall warning briefly sounded twice because the angle-of-attack tolerance was exceeded, the aircraft's indicated airspeed dropped sharply and the aircraft's angle of attack increased.
• At 2 h 10 mins 50 the PNF tried several times to call the Captain back.
• At 2 h 10 mins 51 the stall warning triggered again. The PF took action and the aircraft subsequently began to climb above its cruising altitude of 35,000 ft. During this ascent, the aircraft attained vertical speeds well in excess of the typical rate of climb for the Airbus A330.
• At 2 h 11mins 42 the Captain came back into the cockpit and in the following seconds, all of the recorded speeds became invalid and the stall warning stopped. The altitude was then around 35,000 ft., the angle of the aircraft exceeded 40 degrees and the vertical speed was around minus 10,000 feet per minute.
• At 2 h 12 mins 02 the PF said “I don’t have any more indications” and the PNF said “We have no valid indications”.
• Around fifteen seconds later, the PF made pitch-down inputs. In the following moments, the angle of attack decreased, the speeds became valid again and the stall warning was triggered again.
• At 2 h 13 mins 32, the PF said "we’re going to arrive at level one hundred". About fifteen seconds later, simultaneous inputs by both pilots on the sidesticks were recorded and the PF said to the PNF " you have the controls". The PNF pushed his side-stick forward to try to regain lift for the airplane to exit the stall. However, the aircraft was too low to recover from the stall. Shortly thereafter, the ground proximity warning system sounded an alarm, warning the crew of the aircraft's imminent crash with the ocean.
• The recordings stopped at 2 h 14 mins 28. The last recorded values were a vertical speed of minus 10,912 ft/min, and a ground speed of 107 knots, No emergency message was sent by the crew. The wreckage was found on the seabed at 3,900 m on 3 April 2011, 6.5 nautical miles north-north-east of the last position transmitted by the airplane.

The Cause:

The official investigation found that multiple factors contributed to the crash including pilot error and the icing over of external sensors called pitot tubes:
•The Captain’s departure occurred without clear operational instructions.
•There was no explicit task-sharing between the two co-pilots.
•There was an inconsistency between the measured speeds, likely as a result of the obstruction of the pitot probes in an ice crystal environment.
•At the time of the autopilot disconnection, the Captain was resting.
•The co-pilots had received no high altitude training for the unreliable Indicated Air Speed (IAS) procedure and manual air craft handling.
•There was no Crew Resource Management training for a crew made up of two co-pilots in a situation with a relief Captain.

The Casualties:

All 228 passengers and crew on board died on impact from extreme trauma and the aircraft was destroyed.

The Blame:

An Associated Press investigation at the time, found that since at least 2002, Airbus had known about problems with the type of pitot tubes used on the jet that crashed, but failed to replace them until after the crash. Airbus was accused of not doing enough to urgently inform airlines and their crews about faults with the pitot tubes or to ensure training to mitigate the risks.

Aer France was accused of not having implemented training in the event of icing of the pitot tubes despite the risks.

5th May 2023 FIRE at SHELL CHEMICALS DEERPARK, TEXAS, USA

When a serious incident occurs, it is usual that no information other than basic media reporting of what has happened is reported. For this incident, an active research department in a local TV station provided some interesting information relative to the incident.

Image Source: The Houston Chronicle

The Incident:

On Friday, 5 May 2023, a major fire took place in a large refinery jointly owned by Mexican oil company Pemex and Shell Chemicals in Deer Park industrial complex in Houston, Texas, USA. Plant fire crews responded and the plant began burning off oil through nearby flares. Multiple agencies responded to the fire as well as fire fighters from nearby industrial departments.

The fire was reported as starting during maintenance on the olefins unit.

The Casualties and The Environmental damage:

No injuries were reported. Air monitoring was on-going.

Other information of interest:

A television report of the incident reported that they looked into the plant's safety and environmental records and found
• more than US dollar $ 400,000 in EPA fines during the last 5 years,
• over the past 2 years the plant has been in violation of the Clean Air Act every quarter and
• in 2021, OSHA fined them US dollar$ 26,000.00 for safety management practices around highly hazardous chemicals and controlling hazardous energy. According to the EPA facility report there are more than 60 chemicals at that one location.

18th April 2007 QINGHE SPECIAL STEEL CORPORATION DISASTER

The Incident:

The Qinghe Special Steel Corporation disaster occurred on April 18, 2007, in Qinghe District, Tieling, Liaoning, China. when a ladle used to transport molten steel separated from an overhead rail in the Qinghe Special Steel Corporation factory. The ladle separated from the overhead iron rail connecting it to the blast furnace while it was being positioned over a work table in preparation to pour out its contents. All 30 tonnes (33 tons) of liquid steel, at a temperature of approximately 1,500 degrees Celsius (2,730 F), were spilled. This liquid steel then burst through the windows and door of an adjoining room 5 metres away where workers had gathered during a change of shifts, engulfing that room entirely.

Emergency Response:

When emergency services arrived, they were initially unable to provide assistance as the high temperature of the molten steel prevented them from entering the area. When they were able to access the area, they retrieved the few survivors and recovered the bodies of the deceased.

Image Source: NBC News

The Casualties:

Thirty-two people were killed and six were injured.

The Cause:

The Chinese authorities immediately launched an investigation into the disaster which concluded a week later. The investigation concluded that the direct cause of the disaster was Qinghe using a standard hoist instead of one specifically designed for dangerous smelting work. Other contributing factors identified were
• lax safety measures and "chaotic" management,
• equipment and materials inside the workshop were messy,
• the work space was narrow, and
• safety passages did not meet requirements.

The report indicated that the accident highlighted poor working conditions and safety measures in the Chinese steel industry, stating that "Some firms cannot adapt to the demands of rapid expansion and ignore safety. Safety inspection is not in place, leading to multiple accidents. Work safety conditions in the metallurgy sector are extremely grim".

The Blame:

Within 24 hours of the disaster, officials had arrested the plant's owner and the manager of the mill, an operator, a technician and a workshop supervisor. who were in charge of work safety issues.

Could any these incidents have been prevented ?

What do you think ?

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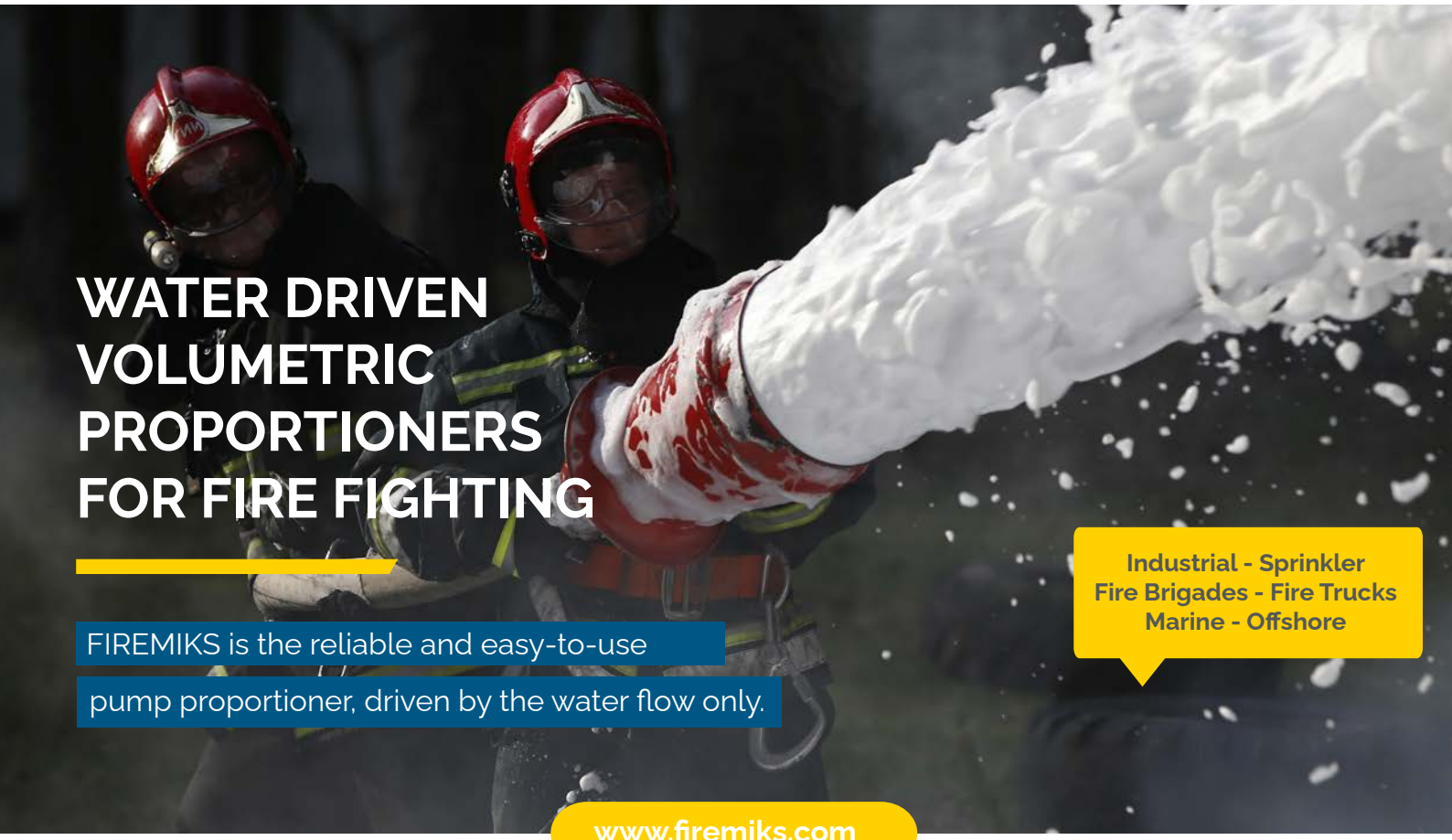

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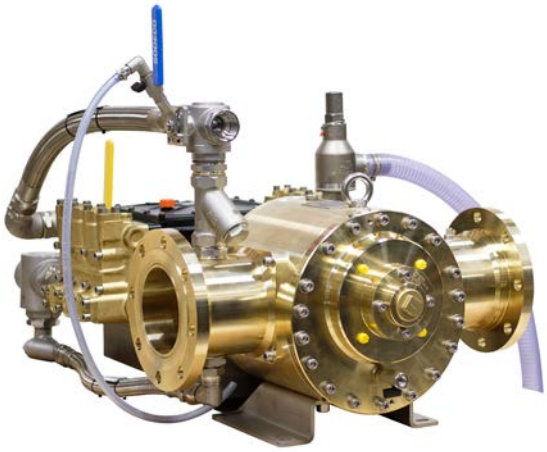

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Competence assessment Program for Industrial Fire and Emergency Response Organisations

Competency Skills assessment of elementary to complex tasks through observation against set criteria

Introduction:

Industrial fires can pose significant risks to both life and property, requiring swift and efficient emergency response. Industrial fire response teams play a crucial role in mitigating these hazards and minimizing the potential damage. However, in order to ensure the effectiveness of these teams, regular competence assessments are essential. These assessments not only validate the skills and knowledge of team members but also identify areas for improvement and reinforce best practices. In this article, we will explore the importance of competence assessments for industrial fire response teams and highlight key considerations for implementing an effective assessment program.

The Significance of Competence Assessments:

Ensuring Preparedness:

Competence assessments provide an opportunity to evaluate the readiness of industrial fire response teams. By assessing the team members' knowledge, skills, and abilities, organizations can identify any gaps or deficiencies that may hinder effective emergency response. This process enables the teams to address these weaknesses through training, education, or the allocation of additional resources, thus enhancing their overall preparedness.

Enhancing Safety:

Industrial fires can pose serious risks to the safety of personnel and the surrounding environment. Competence assessments help identify any shortcomings in safety protocols and procedures, enabling teams to rectify them promptly. Regular assessments ensure that team members are up-to-date with the latest safety guidelines and practices, fostering a culture of safety within the organization.

Promoting Efficiency:

Efficiency is crucial when responding to an industrial fire, as every second counts. Competence assessments enable organizations to evaluate the team members' ability to work cohesively, communicate effectively, and make quick decisions under pressure. By identifying areas where efficiency can be improved, such as response times, resource allocation, or incident command systems, organizations can optimize their emergency response strategies.

Implementing an Effective Competence Assessment Program:

Establish clear objectives for the competence assessment program. Define the specific skills, knowledge, and abilities that team members should possess, aligning them with the unique risks and challenges of the industrial setting. These objectives should be regularly reviewed and updated to reflect industry best practices and regulatory requirements.

Setting competencies for fire and emergency responses against pre-determined job performance requirements is a critical aspect of ensuring effective and efficient emergency services. Competencies serve as a framework to assess and measure the skills, knowledge, and abilities required for individuals working in the field of firefighting and emergency

response. By aligning these competencies with pre-determined job performance requirements, organizations can establish clear expectations and standards for their personnel, ultimately enhancing the overall effectiveness of their emergency response efforts.

To begin with, competencies for fire and emergency responses should be established based on a comprehensive analysis of the job requirements. This analysis involves identifying the specific tasks, roles, and responsibilities that individuals in this field are expected to perform. For example, firefighting competencies may include skills such as fire suppression, hazardous materials handling, search and rescue, and emergency medical response. By breaking down the job into its constituent parts, organizations can develop a comprehensive list of competencies that cover all necessary aspects of the role.

Once the competencies have been identified, they should be aligned with pre-determined job performance requirements. These requirements serve as benchmarks against which individuals' performance will be evaluated. Job performance requirements may include response times, adherence to safety protocols, effective use of equipment, and teamwork. By linking competencies to these performance requirements, organizations can ensure that their personnel possess the necessary skills and abilities to meet the demands of the job effectively.

Competencies should be specific, measurable, attainable, relevant, and time-bound (SMART). Each competency should be clearly defined, outlining the knowledge, skills, and abilities required. For example, a competency related to fire suppression might include the ability to identify different types of fires, select appropriate firefighting techniques, and effectively operate firefighting equipment. By making competencies specific, organizations can ensure that individuals understand what is expected of them and can work towards developing and improving the necessary skills.

Skills assessment of firefighters and Commanders in a combined exercise

Regular training and evaluation play a crucial role in establishing and maintaining competencies. Training programs should be designed to provide individuals with the opportunity to develop and enhance the required skills and knowledge. These programs can include both classroom instruction and practical hands-on exercises, simulating real-life emergency scenarios. Regular evaluations, such as practical assessments and written exams, can gauge individuals' competence levels and identify areas for improvement.

In addition to technical skills, competencies for fire and emergency responses should also encompass critical soft skills. These may include effective communication, decision-making under pressure, problem-solving, leadership, and teamwork. In emergency situations, clear communication, and the ability to work collaboratively with others are vital for successful outcomes. Including these competencies in the framework ensures that individuals possess a well-rounded skill set to handle diverse emergency situations effectively. Competency frameworks for fire and emergency responses should be dynamic and responsive to evolving industry standards and best practices. It is essential for organizations to stay up-to-date with advancements in firefighting techniques, equipment, and safety protocols. Regular reviews and updates of the competency framework will ensure that it remains relevant and aligned with the changing demands of the job.

In conclusion, setting competencies for fire and emergency responses against pre-determined job performance requirements is crucial for ensuring the effectiveness and efficiency of emergency services. By aligning competencies with job requirements, organizations can establish clear expectations and standards for their personnel. Regular training, evaluation, and updates to the competency framework are essential to maintaining a high level of competence in this critical field. Ultimately, a well-defined and comprehensive competency framework will contribute to the overall success of fire and emergency response efforts, promoting public safety and saving lives.

Knowledge gained in the classroom must also be assessed through stimulation or direct questioning

If you require any further information regarding competency training and assessment for your organisation, please contact our consultancy department of RelyOn Nutec Fire Academy (fireacademy@nl.relyonnutec.com / tel. +31 (0)181 376666).

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Evaluation of the fire protection effectiveness of fluorine free firefighting foams

FINAL REPORT BY:

Gerard G. Back
JENSEN HUGHES
Baltimore Maryland, USA

John P. Farley
NAVAL RESEARCH LABORATORY
Washington, DC, USA

January 2020

NFPA RF Report 2020

165 UL Fire tests show Fluorine-Free Foams need higher rates:

- 2 – 4 times AR-AFFF rates for IPA Fires (Gentle Application)
- 3 – 4 times AR-AFFF rates for Mil Spec Gasoline (Forceful Application)
- 6 – 7 times AR-AFFF rates for E10 Gasoline (Forceful Application)

NFPA RF Final Report

FAA Part 139 Cert Alert No 21-05 2021

Safety concerns of Fluorine-Free Foams identified:

- Notable increase in extinguishment time;
- Issues with fire reigniting (failure to maintain fire suppression); and
- Possible incompatibility with other firefighting agents, existing firefighting equipment, and aircraft rescue training and firefighting strategy that exist today at Part 139 air carrier airports.

FAA Cert Alert

US FAA Part 139 Cert Alert No 21-05 issued October 4, 2021

"While FAA and DoD testing continues, interim research has already identified safety concerns with candidate fluorine-free products that must be fully evaluated, mitigated, and/or improved before FAA can adopt an alternative foam that adequately protects the flying public."

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One of Europe's leading airports makes the transition to fluorine free firefighting foam- with a little help from Dr. Sthamer of Hamburg

We all recognise that Brussels' European Parliament is at the heart of EU politics. It's perhaps no surprise that its airport wanted to be one of the first to comply with a change that is likely to sweep across Europe and beyond by 2025: the latest EU wide restriction on the use of fluorinated compounds commonly known as PFAS (per- and polyfluoroalkyl substances). In the airport's case, this means firefighting foam.

ICAO (International Civil Aviation Organisation) set the standards against which all aircraft firefighting foam is benchmarked. The current Level C performance standard, the elimination of C8/C6 formulations and now the proposed complete removal of fluorine means that the bar has been raised even higher for foam manufacturers. But, environmental stewardship must be matched to performance. Brussels Airport chose **Dr. Sthamer's vaPUREx LV ICAO C 3% F-5** for that very reason. Extensive testing with their ARFF vehicles demonstrated that Dr Sthamer would be their first choice.

ICAO level C & the economies of efficiency: less is more. ICAO level C presents both challenges and opportunities in the airport sector. Whilst reducing application rates from 2.5 lpm/m2 to 1.56 lpm/m2 enables cost savings through greater efficiency in media use, it will expose weak manufacturers who were previously relying on overkill from high volume truck monitors. When Level C is fully embraced, new appraisals can lead to reductions in the size of trucks, foam stock inventories and reviews on the personnel required to achieve the best results.

ARFF vehicles which were calibrated for the existing 3% concentrate, if the replacement foam is too viscous significant modification work would have to be undertaken to ensure tactical readiness. Needless to say, remedial work was not required with the installation of the **Dr. Sthamer vaPUREx LV ICAO C 3% F-5, made without the addition of PFAS** .Training has always been at the heart of aircraft rescue, The potential increase in viscosity of certain PFAS Free products has also become a barrier to transition implementation with regard to the existing proportioning system on the trucks. To

Dr. Sthamer and their local distributor supported Brussels airport on the disposal of PFAS containing foam stocks, and as a subsequent ARFF vehicle cleaning process. To ensure the correct calibration of the vehicles at Brussels airport technical specialist were testing the foam systems onboard.

be compatible, a replacement foam should have similar low viscosity characteristics to previous generation AFFF's. Brussels is running their ARFF vehicles which were calibrated for the generation AFFF's. Brussels is running their but the use of foam from an environmental stewardship viewpoint has been highly contentious for many years. Site contamination from the older C8 and C6 fluorinated AFFF's has been widely identified at numerous sites across the world. This means that all run-off must be contained for treatment which invariably means high temperature incineration. Not only is this environmentally undesirable, but it is also very costly. **Dr. Sthamer vaPUREx LV ICAO product range** offers easy and complete biodegradability. However, all responsible manufacturers advocate site containment to avoid groundwater contamination. Ongoing support from your foam supplier cannot be overlooked either. Assistance in proportioning system calibration, regular concentrate performance lab testing, and the all-important emergency replacement stock should all be factored in when deciding on your partner in the fluorine free foam world. Dr Sthamer's Hamburg manufacturing base and their extensive distributor network means that Brussels Airport will be fully supported with replacement product as quickly as needed.

Bram Neele Area Sales Manager – Dr. Sthamer commented as follows:

"The goal of Brussels airport was to transition to a fluorine free foam while reducing the required adjustments to a minimum, ensuring good extinguishing performance and quick foam supplies in case of an incident. Together with our local dealer, we provided technical consultancy in the initial transition phase together with a proven track record of fast and reliable emergency deliveries of fire-fighting foam concentrates." Dr. Sthamer's vaPUREx LV ICAO C 3% F-5, made without the addition of PFAS, was carefully chosen as an environmentally benign alternative for Brussels Airport with the following features:

•• Emergency foam stocks supported by local distributor and factory back-up (24/7 available). A 3% aviation specific fluorine free foam concentrate that meets ICAO level C
• A 3% foam concentrate with a low viscosity (≤ 20 mm^2/sec at 20°°C).
• A -5°C freeze protection to secure operation during winter
• A 100% bio-degradable foam concentrate.
• A 3% foam concentrate that is fully compatible with both the size of fire truck foam tank and current operational practice.
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Dr. Sthamer, a long-established foam concentrate supplier with an R & D heritage founded on four generations of technical expertise and innovation.

Dr. Sthamer vaPUREx product Range is made without the addition of PFAS containing ingredients.

Contact Dr. Sthamer for more information

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vaPUREx® LV ICAO C is suitable for forceful and gentle foam application on spill fires or 3D-fires of jet fuel for both Level B and Level C applications on airports or in hangars and works well on fires of other non-polar class B fuels like hydraulic oils. Additionally due to its built-in wetting capabilities **vaPUREx® LV ICAO C** can be used on fires of solid materials (class A-fires) such as freight stocks, plastics or wood.

For foam transition support, demonstration and pricing get in touch with us by mail: **info@sthamer.com**

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Storage Tank Fire at Intercontinental Terminals Company, LLC (ITC) Terminal

On Sunday, March 17, 2019, a large fire erupted at the Intercontinental Terminals Company, LLC (ITC) bulk liquid storage terminal located in Deer Park, Texas. The fire originated in the vicinity of Tank 80-8, an 80,000-barrel aboveground atmospheric storage tank that held a blend of naphtha and butane product, a flammable liquid. Once the fire erupted, ITC was unable to isolate or stop the release. As a result, the fire burned, intensified, and spread to the other 14 tanks located in the same containment area. The fire burned for three days, until it finally was extinguished on Wednesday, March 20, 2019. The fire caused substantial property damage at the ITC Deer Park terminal, including the destruction of fifteen (15) 80,000-barrel aboveground atmospheric storage tanks and their contents.

The incident also significantly impacted the environment. A containment wall around the tanks breached and released an estimated 470,000–523,000 barrels of hydrocarbon and petrochemical products, firefighting aqueous film forming foam, and contaminated water into Tucker Bayou and adjacent water, sediments, and habitats. From there, the released materials flowed into Buffalo Bayou and were carried out by streamflow and tides into the Houston Ship Channel and surrounding waters. A seven-mile stretch of the Houston Ship Channel adjacent to the ITC Deer Park terminal was closed, as were several waterfront parks in Harris County and the City of LaPorte, due to the contamination.

The incident did not result in any injuries or fatalities; however, the local community experienced serious disruptions, including several shelter-in-place orders because of benzene-related air quality concerns. A shelterin-place was issued for the entire City of Deer Park at one point, and local schools and businesses either closed or operated under modified conditions. A portion of a major highway in the area also was closed. ITC estimated that property damage resulting from the loss of the First & Second 80's tank farm associated with the March 17, 2019, incident exceeded $150 million

SAFETY ISSUES

The U.S. Chemical Safety and Hazard Investigation Board's (CSB's) investigation identified the safety issues below.

• Pump Mechanical Integrity.
ITC did not have a formal mechanical integrity procedure in place that defined requirements for maintaining the mechanical integrity of Tank 80-8 and its associated equipment, including the Tank 80-8 circulation pump. A formal mechanical integrity program for pumps in highly hazardous chemical service could have prevented this incident by providing ITC with additional opportunities to identify pump issues prior to the incident. The mechanical seal on the pump failed on March 17, 2019, allowing butane-enriched naphtha product to release from the pump while it continued to operate.

• Flammable Gas Detection Systems.
Tank 80-8 was not equipped with a flammable gas detection system to warn personnel of a hazardous atmosphere resulting from loss of containment from the tank or its associated equipment. In 2014, a hazard review team recommended the addition of flammable gas detection systems near Tank 80-8; however, ITC did not implement this recommendation, and did not document why it was not implemented. In the absence of a flammable gas detection system, there were no alarms to alert personnel about the initial release of butane-enriched naphtha product around the Tank 80-8 piping manifold. Consequently, the butane-enriched naphtha product continued to release from the failed pump for approximately 30 minutes, completely undetected, before its flammable vapors eventually ignited.

• Remotely Operated Emergency Isolation Valves.
Tank 80-8 and the other aboveground storage tanks located in the First & Second 80's tank farm were not equipped with remotely operated emergency isolation valves (ROEIVs) designed to mitigate process releases remotely from a safe location. The primary drivers for identifying the need for this type of equipment would have been through implementation of hazard assessments, such as those required by the Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) standard and the U.S. Environmental Protection Agency (EPA) Risk

Management Program (RMP) rule, as well as insurance company audits and/or corporate risk evaluations results. On the day of the incident, the large volume of butaneenriched naphtha product contained in Tank 80-8 could not be remotely or automatically isolated, and it continued to release, via the failed pump, fueling the fire that continued to intensify around the tank. As the Tank 80-8 fire intensified, flames from the fire spread to adjacent tank piping manifolds in the tank arm and eventually compromised the equipment, causing breaches in piping that allowed the hydrocarbon and petrochemical products contained in the storage tanks to release into the common containment area.

• Tank Farm Design.
Although the First & Second 80's tank farm was designed largely in accordance with applicable National Fire Protection Association (NFPA) 30 requirements, elements of the tank farm design, including tank spacing, subdivisions, engineering controls for pumps located inside the containment area, and drainage systems, made it difficult for emergency responders to slow or prevent the spread of the initial fire and allowed the fire to spread to other tanks within the tank farm. While NFPA 30 defines minimum requirements for tank farm design, additional industry guidance documents provide more robust tank farm design recommendations. While ITC was not required to implement additional industry guidance recommendations, many of which were developed after construction of the First & Second 80's tank farm, implementation of such recommendations could have prevented the escalation of this incident.

• PSM and RMP Applicability.
ITC did not apply a formal process safety management program to Tank 80-8 because neither the OSHA PSM standard nor the EPA RMP rule applied to Tank 80-8 and its associated equipment. Tank 80-8 was not covered by the OSHA PSM standard due to the atmospheric storage tank exemption in the standard, and the EPA RMP rule did not apply due to the flammability rating exemption in the rule for the butane-enriched naphtha mixture. Although ITC applied some process safety management elements across the terminal, the company did not apply other key elements, such as Mechanical Integrity and Process Hazard Analysis, to atmospheric storage tanks in highly hazardous chemical service.

Applying these elements would have provided the company with additional opportunities to identify and control hazards through multiple layers of protection, including the examples of preventative and mitigative safeguards discussed in this report. Thus, had ITC developed and implemented a comprehensive process safety management program that effectively identified and controlled hazards for Tank 80-8 and its related equipment, the incident could have been prevented.

CAUSE

The CSB determined that the cause of the incident was the release of flammable butane-enriched naphtha vapor from the failed Tank 80-8 circulation pump, which accumulated in the area and ignited, resulting in a fire. Contributing to the severity of the incident were the absence of a flammable gas detection system to alert the operators to the flammable mixture before it ignited approximately 30 minutes after the release began, and the absence of remotely operated emergency isolation valves (ROEIVs) to safely secure the flammable liquids in Tank 80-8 and the surrounding tanks in the First & Second 80's tank farm.

Elements of the tank farm design, including tank spacing, subdivisions, engineering controls for pumps located inside the containment area, and drainage systems also contributed to the severity of the incident by allowing the fire to spread to other tanks within the tank farm. The resulting accumulation of hydrocarbon and petrochemical products, firefighting foam, and contaminated water in the secondary containment area ultimately contributed to a breach of the containment wall and a release of materials to the local waterways.

Finally, the CSB determined that because of the atmospheric storage tank exemption contained in the OSHA PSM standard and the flammability exemption contained in the EPA RMP rule, ITC was not required to develop and implement a formal PSM program for Tank 80-8 and its associated equipment that could have provided a process to identify and control the specific hazards that resulted in this incident, which also contributed to this incident.

RECOMMENDATIONS

(These recomendations have been sumarised, please view the full article for further detail)

• Develop and implement a process safety management system for all atmospheric storage tanks and associated equipment in highly hazardous chemical service at the ITC Deer Park terminal.

• Establish a condition monitoring program for all pumps in highly hazardous chemical service at the ITC Deer Park terminal.

• Install flammable gas detection systems with associated alarm functions in product storage and transfer areas at the ITC Deer Park terminal.

• Install remotely operated emergency isolation valves configured to "Fail-Closed" for all atmospheric storage tanks containing highly hazardous chemicals or liquids with an NFPA-3 or higher flammability rating at the ITC Deer Park terminal.

• Evaluate the design of all new and existing tank farms at the ITC Deer Park terminal against the applicable sections of API STD 2610 and NFPA 30.

To view full the full 100-page report, please visit this link:

https://www.joiff.com/wp-content/uploads/2023/07/CSB-Catalyst-Q3.pdf

The CSB is an independent federal agency charged with investigating, determining, and reporting to the public in writing the facts, conditions, and circumstances and the cause or probable cause of any accidental chemical release resulting in a fatality, serious injury, or substantial property damages.

The CSB issues safety recommendations based on data and analysis from investigations and safety studies.

The CSB advocates for these changes to prevent the likelihood or minimize the consequences of accidental chemical releases.

More information about the CSB and CSB products can be accessed at www.csb.gov or obtained by contacting:
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