# Press release: Making sense of big data to improve the nation's defence, security and prosperity

The Defence Science and Technology Laboratory (Dstl) has today announced the launch of the Data Science Challenge. The challenge is designed to bring the brightest minds in data science together to solve real-world problems. The first challenges – detecting and classifying vehicles from aerial imagery and the classification of documents by themes– are now open to entrants, with each challenge boasting a total prize fund of £40,000.

The Data Science Challenge is part of a wider programme set out in the Defence Innovation Initiative that aims to build an open innovation 'ecosystem', harnessing the talents of individuals, academia and industry to develop new approaches to complex problems. The Data Science Challenge is piloting new ways of working including the use of crowdsourcing to engage the data science community to develop cutting edge solutions to Defence and Security problems.

The Data Science Challenge includes two distinct problems that will test the participants' ability to mine large unstructured datasets to extract useful information:

- Safe passage: detecting and classifying vehicles in aerial imagery

Being able to automatically detect and categorise vehicles in aerial imagery will dramatically improve how quickly we can assess and identify them. This challenge asks participants to detect and classify vehicles such as buses, cars and motorbikes, from a set of aerial images.

- Growing instability: classifying crisis reports

Analysing data in documents such as media reports can provide a better understanding of a potential crisis situation, growing instability in a particular region or specific theme such as terrorism. Using news material, this challenge asks participants to predict topic tags for classifying unseen reports so that they can be used to improve awareness and understanding.

Minister for Defence Procurement Harriett Baldwin MP said:

> Our Innovation Initiative is about harnessing diverse and talented individuals from business, academia, and beyond to keep the UK ahead of our adversaries.
>
> In this latest challenge, supported by our £800 million Innovation Fund, we are calling on experts to develop the latest technology to crunch big data and identify the solutions that will keep us safe.

James Srinivasan, a Principal Data Scientist at Dstl added:

> Around the world, governments are using the power of data to meet many of the huge challenges that they are facing. By analysing complex, evolving information, data science can provide invaluable insight that informs how we can best respond to event.
>
> There is real talent out there and we want to encourage the curious to experiment and learn. We are determined to push the boundaries of what can be done, and to keep striving to always be better. This is why we are launching the Data Science Challenge today.

We are keen to encourage all data scientists, not just those in the defence and security sectors, who want to rise to the challenges that we have thrown-down today, to get involved.

The Data Science Challenge is sponsored by Dstl, the Government Office for Science, Secret Intelligence Service and MI5.

Participants can register from today at www.datasciencechallenge.org and have between 3 April and 11.59pm on 17 May 2017 to develop and submit their solutions. Winners from each of the challenges will be announced at the end of May 2017.

The top three entrants will receive cash prizes. The first prize is £20,000, the second placed entrant will receive £12,000 whilst the third will get £8,000.

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# News story: Royal Fleet Auxiliary's new tanker arrives in UK for customisation work sustaining 300 jobs

The 39,000-tonne tanker, which can carry up to 19,000 cubic metres of fuel and 1,300 cubic metres of fresh water, will join the Royal Fleet Auxiliary, a civilian-manned fleet which provides support for warships, helping the Royal Navy to maintain its operations 24/7, 365 days a year, around the world.

Tidespring is the first of a fleet of four Tide Class tankers which will all be taken through customisation in Falmouth. She will now undergo an intense programme of work at the A&P shipyard, and is expected to enter service before the end of the year. The new Tide Class tankers will provide key support to the Queen Elizabeth Class carriers when they come into service, alongside the wider fleet.

The arrival is a significant milestone in the ‘Year of the Navy’ which will also see the debut in Portsmouth of the first of the Queen Elizabeth-Class aircraft carriers, the start of construction for the fleet of new Type 26 Frigates and the opening of the first permanent Royal Navy base east of Suez in more than half a century.

The first of the newest support ships for the Royal Navy, RFA Tidespring.

## Minister for Defence Procurement Harriett Baldwin said:

> RFA Tidespring’s UK arrival is a key milestone in 2017, the Year of the Royal Navy, which will also see the MOD develop world-class ships and submarines in support of Britain’s role as a leading naval power.
>
> Backed by a rising Defence budget, the delivery of the Tide Class tankers is a crucial element of the Government’s £178 billion plan to ensure our armed forces have the equipment they need.

The customisation work is helping to support around 300 jobs at A&P Falmouth. The UK work content in the wider Tide Class programme is worth around £150 million, sustaining further jobs at 27 UK-based companies. The project is being delivered well within budget by the MOD.

Systems to be installed in Falmouth include the communications equipment, self-defence weapons and armour needed to allow the ship to operate in the most challenging environments.

RFA Tidespring. Crown Copyright.

## Vice Admiral Simon Lister, who led procurement of the Tide Class at Defence Equipment and Support, said:

> RFA Tidespring will be a familiar and reassuring presence for Royal Navy ships as they undertake missions in defence of the UK’s interest.
>
> The continued successful delivery of the Tide Class programme, meeting all requirements and under budget stands as a testament to the excellent working relationships which DE&S has built with suppliers in the UK and around the world.

The Tide Class has a flight deck able to accommodate the large Chinook helicopter and offer significant improvements over previous RFA tankers such as double hulls and greater environmental protection measures.

# News story: Freight train derailment, East Somerset Junction

At around 17:50 hrs on Monday 20 March, six loaded wagons of an eastbound freight train became derailed as the train passed over East Somerset Junction, between Castle Cary and Frome, while travelling at about 20 mph (32 km/h). The train, the 17:05 hrs service from Merehead to Acton yard, was joining the up Westbury line from the Merehead single branch line.

There were no injuries. The accident resulted in substantial damage to the railway infrastructure; around 100 metres of track including two sets of switches and crossings were destroyed. Train services between London Paddington and the West Country were diverted via Swindon while the wagons were recovered and track repairs took place over the following four days.

The freight train consisted of a class 59 diesel-electric locomotive hauling 38 loaded wagons of types JNA, JHA, HOA and IIA. It was carrying stone from the Merehead quarries for use in the construction industry. The wagons that derailed were the 24th to 29th from the front of the train. The train split between the 21st and 22nd wagons when the derailment occurred, and the train was stopped by the automatic application of the brakes.

The leading wagon which derailed was of the HOA type. The derailment occurred close to where a set of trailing points had been removed and replaced by plain line in 2012.

Our investigation will identify the sequence of events that led to the accident, and how the wagons derailed. It will also include consideration of:

- the condition of the track, its geometry and how it was maintained
- how the wagons were loaded
- the condition of the wagons
- any relevant underlying management factors

Our investigation is independent of any investigation by the railway industry, the British Transport Police or by the industry's regulator, the Office of Rail and Road.

We will publish our findings, including any recommendations to improve safety, at the conclusion of our investigation. This report will be available on our website.

You can subscribe to automated emails notifying you when we publish our reports.

# Press release: Illegal waste site and exports uncovered

On Tuesday 28 March, following a two-day trial, magistrates found company director, Mark Paul Stone, and his company, Salhouse Norwich Ltd, guilty of allowing an illegal waste site to operate from a site it owned.

A third defendant, Mark Ian Quinsey, pleaded guilty at an earlier hearing to running the illegal operation, failing to clear the site when told to by the Environment Agency, and illegally exporting waste. Yesterday he was sentenced to 20 weeks custody which has been suspended for 18 months, and ordered to carry out 200 hours of unpaid work.

Norwich Magistrates' Court heard that hundreds of tonnes of waste mattresses and mattress textiles were found stored on the site – almost 100 times as many as a registered exemption for the operation allowed.

Stone denied knowing that the waste site, off Rice Way on Salhouse Industrial Estate, run by their tenant, Quinsey, was illegal.

Quinsey, 39, trading as Salhouse Recyclers, had registered exemptions for an operation far smaller than the one he ran and should have applied for a permit.

Nicholas Ostrowski, prosecuting on behalf of the Environment Agency (EA), told the court that he had deliberately breached environmental regulations and despite being served an enforcement notice to clear the site, had failed to do so.

Mr Ostrowski said when EA investigators visited the site in August 2015 following a report from a member of the public, they found the site so jammed full of badly stored mattresses and mattress textiles, there was a serious risk to the environment. The fire service was also concerned about the risk of fire.

It was heard that during investigations Quinsey sent paperwork to the EA, which included evidence of a shipment of 27 compressed bales of waste to Egypt for recycling in March the previous year. However Quinsey did not have the appropriate approvals in place for this export.

The court was told that an enforcement notice served on Quinsey in August was only partly complied with when some waste metals were removed.

The EA also approached Salhouse Norwich Ltd and Stone, who were advised to clear the site and an action plan for the removal of the waste was requested but the waste still remains on site.

The magistrates were told the EA made five requests for a voluntary action plan from the company.

Quinsey of The Lane, Briston, Norfolk, told investigators he had found a company in Egypt which would take the fabric for recycling but then there was a problem with Egyptian customs so he had to store the material until he found another outlet, which he was unable to find.

He didn't contact the EA as he was worried his business would be closed down and had hoped to resolve the situation himself.

Quinsey admitted that the site had no environmental management system, no fire suppression system, no fire detection system, no dust suppression system, no litter prevention infrastructure nor sealed drainage system. He also admitted having no insurance for his activities and no official lease on one of the buildings he used.

He said the business had left him in debt, claiming that it grew too quickly. He admitted he probably hadn't done enough research.

Stone, 69, from Marleybone High Street, London, told investigators that Quinsey had said he had relevant permissions to carry out the waste operation. No checks were made to ensure these permissions were in place.

He said his company had concerns about the fire risk and were "horrified" by all the waste on site but were worried if they asked Quinsey to stop operating, he would leave them with a factory full of waste. He also admitted being aware that the operation was out of hand and perhaps should never have started.

An analytical chemist for the EA concluded that any plume from a fire at the site could contain toxic and harmful substances which could affect human health.

Mr Ostrowski said Quinsey, Stone and Salhouse Norwich Ltd had co-operated with the investigation and Quinsey had removed some waste from the site.

Quinsey pleaded guilty to operating a waste facility without a permit, failing to comply with an enforcement notice and exporting waste to Egypt without the appropriate permissions in place. He was sentenced to a total of 20 weeks custody which has been suspended for 18 months, 200 hours of unpaid work and ordered to pay a contribution to costs of £720. He was also ordered to pay a victim surcharge of £115.

Following trial Stone and Salhouse Norwich Ltd were found guilty of knowingly permitting the operation of a waste facility without a permit. Stone and Salhouse Norwich Ltd will be sentenced on 5 May following a pre-sentence report.

After the hearing Environment Agency investigator Lorraine Machin said:

> We acted quickly to try to get the occupier and landowner to clear the site because of the environmental and fire risk but the majority of the waste still remained on site.

This case shows how important it is to ensure that any new operation has been fully researched, properly permitted and any site used is adequate for the operation.

Mark Ian Quinsey pleaded guilty to:

1. Between 16 August 2015 and 28 October 2015 at land off Rice Way, Salhouse Industrial Estate, Norwich NR7 9AP, you did operate a regulated facility, namely a waste operation for the treatment and storage of waste, without being authorised by an environmental permit granted under Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010.

Contrary to Regulation 12(1)(a) and 38(1)(a) of the Environmental Permitting (England and Wales) Regulations 2010

1. You failed, without reasonable excuse, by 8 January 2016, to comply with all the requirements in a notice dated 24 August 2015 and served on 24 August 2015 pursuant to section 59 (1)(a) of the Environmental Protection Act 1990 to remove controlled waste from land occupied by you at the date of service of the said notice known as land off Rice Way, Salhouse Industrial Estate, Norwich NR7 9AP in the county of Norfolk.

Contrary to section 59 (5) Environmental Protection Act 1990

1. On 7 March 2014 and by virtue of Article 37 of the European Waste Shipment Regulation EC 1013/2006, you transported waste namely waste textiles to Egypt, a country to which the OECD decision does not apply as listed in the Annex to EC Commission Regulation 1418/2007

Contrary to Regulation 23A(2) and 58 of the Transfrontier Shipment of Waste Regulations 2007

Mark Paul Stone was found guilty of:

Between 24 August 2015 and 8 June 2016 on land off Rice Way, Salhouse Industrial Estate, Norwich NR7 9AP, Salhouse Norwich Limited did, with your consent or connivance or attributable to neglect on your part as a director of Salhouse Norwich Limited, knowingly permitted the operation of a regulated facility, namely a waste operation for the storage of waste, without being authorised by an environmental permit granted under Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Contrary to Regulation 12(1)(a), 38(1)(b) and 41(1)(a) and (b) Environmental Permitting (England and Wales) Regulations 2010

Salhouse Norwich Ltd was found guilty of:

Between 24 August 2015 and 8 June 2016 at land off Rice Way, Salhouse Industrial Estate, Norwich NR7 9AP, you did knowingly permit the operation of a regulated facility, namely a waste operation for the storage of waste, without it being authorised by an environmental permit granted under

Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010.

Contrary to Regulation 12(1)(a) and 38(1)(b) of the Environmental Permitting (England and Wales) Regulations 2010

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# News story: Inventory of radioactive wastes and materials in UK updated

The 2016 UK Radioactive Wastes and Materials Inventory (the Inventory) is updated every 3 years to provide the latest national record on radioactive wastes and materials in the UK.

The Inventory is part of an ongoing programme of research jointly conducted by the Department for Business, Energy and Industrial Strategy (BEIS) and the Nuclear Decommissioning Authority (NDA).

The Inventory provides information on the status of radioactive waste stocks (at 1 April 2016) and estimates of future radioactive waste arisings in the UK.

Information collected for the 2016 Inventory is presented in a series of reports:

- Context and methodology report
- UK radioactive waste inventory report
- Radioactive wastes and materials not reported in the 2016 UK Inventory
- Summary of data for international reporting
- A summary of the 2016 Inventory

All documents have been prepared on the basis of information supplied to the 2016 Inventory contractors.

UK Radioactive Wastes and Materials Inventory website

Explained: how much UK radioactive waste is there?