

## Welcome to the **AEGIS** SUMMER NEWSLETTER



**S**ummertime is upon us, we appear to be getting on top of COVID, the economy is turning up, offices are opening up, the low-carbon transport agenda is being increasingly prioritised in the run up to the COP26 summit in Glasgow, real life is making a steady return – like seeing real football fans at real football matches.... so, lots to be positive about.

Indeed, positivity is a key element of the AEGIS mindset; you might notice our strapline is "The Positive Choice". We added this as we wanted to push back against the perception that consultancies like ours are a "forced purchase" or someone you call upon as a last resort when you can't find the solution in-house. We want our clients to make a positive choice when they ask us to work with them; when they start a project, we want them to choose us as their delivery partner and we want those partnerships to flourish and deliver successful results over and over again. Sometimes we stumble, but we learn from these events and come back even more positive and determined to deliver the best possible outcomes for our clients.

It's great to see that willingness to learn and deliver help us achieve our ambition to be the Positive Choice – we've been proud to establish numerous framework agreements and partnerships with a number of new and existing clients. Thank you for

trusting us to help you deliver your positive results!

Likewise, when it comes to choice, our vision is that the best engineers and support staff choose AEGIS for their career development. That's why we continually strive to safeguard and also improve the company culture, to create stimulating career possibilities whilst respecting work/life balance and building an inclusive working environment that supports physical and mental wellbeing.

In this quarter's newsletter you'll read about the results of some of this effort; exciting projects delivered in partnership with our clients and continued growth of our great team with the addition of some terrific new talents.

Indeed, we are looking to expand our team significantly over the next 12 months so if you share our positivity and you strive for excellence in everything you do, then please get in touch. Or, if you have a new project and you're looking for a positive and responsive delivery partner for any aspect of consultancy or certification, then please – do get in touch.

In the meantime, I wish you all a very enjoyable summer – and remember to stay positive.

**Mark McCool**

### Some Current Highlights

The Strathclyde Partnership for Transport (SPT) is implementing a modernisation programme of the Glasgow Subway covering construction works for improvements and integration of associated equipment, e.g. depot equipment, control room, power supply. New rolling stock along with an integrated signalling and control system which is Communications Based Train Control (CBTC) will also be delivered.

ANSTA Consortium, composed of Stadler (Unit) and Hitachi STS ensure all rolling stock relevant requirements and targets are well achieved for the new rolling stock. The Stadler vehicle type has been specially conceptualised for the needs and conditions of the Glasgow Subway and will be able to operate as Unattended Train Operation (UTO) (GoA4) into the existing SPT Subway.

Stadler has appointed AEGIS Certification Services (ACS) as Independent Safety Assessor (ISA) for the activities leading from the final approved design to the competition of phase Grade of Automation 2 (GoA2).

The scope of work of ACS as Subsystem Unit (Rolling Stock) (UNT) ISA for the Glasgow Metro Project consists of assessment leading to the completion of phase GoA2 of the project.

The UNT ISA (ACS) will carry out assessment as required for the Type Examination Reports:

- Type Examination Report for Part 1: Manufacturing and Integration.
- Type Examination Report for Part 2: System Validation and System Acceptance.

The activity will include a vehicle audit in Glasgow to be performed by AEGIS personnel as part of safety assurance process.

### VTG ECOFRET 2.0 INTERMODAL TRIPLES WAGONS (BUILD 7)

VTG Rail UK Ltd have ordered a new build of FWA Ecofret wagons from WH Davis.

The wagons are similar to previous builds of FWA Ecofret wagons but have a number of key differences, the main ones being the use of new track friendly TF20 bogies from Axiom Rail Freight, the ability of the outer wagons to carry two additional 20' load units and a new brake system.

AEGIS were appointed by VTG in September 2019 as the NoBo / DeBo and AsBo. Since then, we have delivered the verification assessment for applicable TSIs and NTRs and the Assessment Body safety assessment work against the Common Safety Methods on Risk Evaluation and Assessment (CSM-RA). The vehicles have been authorised by the ORR for operation within GB only.

AEGIS have delivered both the SD and SB Modules. The audits were conducted at both the manufacturing and test facilities under strict Covid-19 site safety rules ensuring all participants adhered to the rules and were working safely.

Validation of the test site organisation was conducted and compliance was assessed against EN17025. Static and dynamic testing was supported with the ISV and interim Technical File and clause compliance to standards was assessed, identifying any limitations, prior to commencement of dynamic testing.



The AEGIS approach to undertaking the approvals and certification activities aimed to maximise delivery efficiency and minimise project risk associated with achieving safety approvals and authorisations. AEGIS have worked closely with the VTG team to support and adjust the programme as required with particular emphasis on milestones and key activities. We fully embraced the project and enjoyed the “one team” approach; we developed a proactive relationship with VTG providing an open, transparent



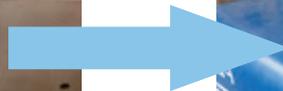
culture building a relationship based on understanding and trust.

Our engineers are recognised specialists in their field. The team who delivered the VTG assessment scrutiny was made up of engineers with considerable rail engineering experience gained over many years in both vehicle assessment and vehicle delivery. We understood the manufacturer’s perspective and developed a relationship that was open with clearly defined paths of communication. We were reactive and able to respond to tight deadlines to ensure the project progressed seamlessly.

We believe that quality is derived from having excellent processes, excellent people, strong project management and a commitment to drive conformance to our processes. Deriving quality and value for money in the things that we do is also strongly related to communications between all parties. We committed to early engagement with stakeholders and to providing regular updates and project meetings with the VTG Project Team.

AEGIS has managed the third party independent review of the Vampire vehicle model validation as referred to by GMRT2141 Appendix E and defined in EN14363:2016 Annex T.

The review considered the modelling methods used, the validation approaches and their validity and the quality of validation achieved (in relation to the planned applications of the models). AEGIS has provided the interface management between the third party reviewer and VTG to ensure clear communication and reporting was provided in a timely manner.



Our specialists have the depth and breadth of knowledge acquired from their careers in manufacturing, design and delivery of rolling stock that translated into clear understanding of VTG's requirements through every stage of the project assessment. Our project management approach has ensured a clear, open communication path across all aspects of the project deliverables. Our team has ensured the timely return of all scrutiny documents across all disciplines with direct lines of communication between specialists and engineers where required to facilitate rapid resolution where standards clarification was required.

The VTG project adds to our portfolio of assurance and certification of rolling stock, AEGIS are very much looking forward to providing VTG with our services again in the future.

AEGIS is accredited by UKAS to BS EN ISO/IEC 17020:2012 as a Type C Inspection Body and to BS EN ISO/IEC 17065:2012 as a Product Certification Body.

## HydroFLEX 2.0 EMC/EMF Support

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AEGIS is providing support to Porterbrook for the HydroFLEX 2.0 project on EMC (Electromagnetic Compatibility) and EMF (Electromagnetic Fields) issues. We are using our expertise to produce a complete package of work covering all aspects of these subject areas including planning, design advice, testing and production of documentation to support the approvals process. The process used is well established and has been successfully applied to a range of projects in the past. It provides the necessary EMC assurance to deal with all applicable legislation.

The process will ensure that:

- All EMC requirements on HydroFLEX are properly identified;
- The design of the new equipment is checked for compliance with its requirements;
- The new equipment is tested to confirm compliance with its requirements;
- The whole train is tested to confirm compliance with its requirements;
- Documentation is issued demonstrating that the requirements have been met.

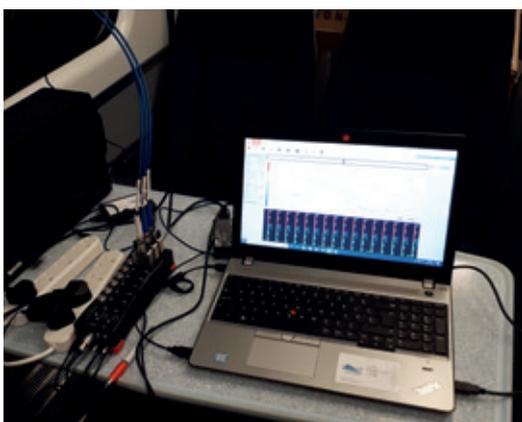
This process manages risk through the project life cycle with the aim of avoiding as far as possible unexpected issues arising at a late stage, threatening the project timescale.

The EMC Strategy and Requirements document has already been issued and slots for the train testing activities have been reserved in the AEGIS testing diary. We will specify, manage, and undertake all EMC and EMF testing required to allow HydroFLEX 2.0 to run in hydrogen mode on the mainline railway. We will also provide the necessary test equipment.

HydroFLEX is to be showcased at the UN Climate Change Conference (COP26) in Glasgow in November. AEGIS offers a complete rail vehicle and equipment EMC and EMF engineering service.

Get in touch today for expert assistance with your EMC and EMF issues.

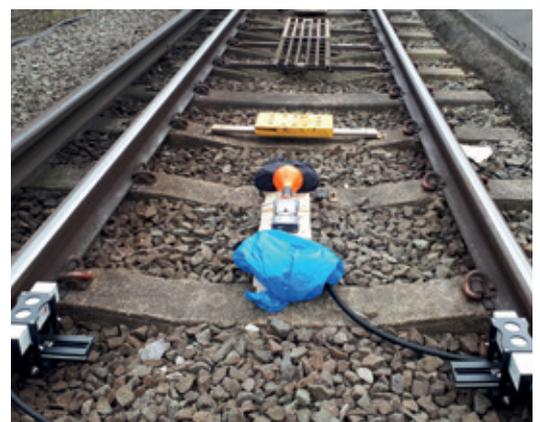
Email: [sales@aegisengineering.co.uk](mailto:sales@aegisengineering.co.uk)



Conducted Emissions testing as well as EMC measurements: Our conducted emissions test equipment can be used for investigations into issues with traction and auxiliary electrical systems.



Antenna for measurement of magnetic fields affecting axle counters



Equipment to measure emissions at axle counter and TPWS frequencies

### Rail Employment and Skills Academy - Mentoring Programme

AEGIS are supporting Derby College with their mentoring programme through the Rail Employment and Skills Academy, the academy has been set up to support all rail industry careers with the aim of providing a true reflection of working within the rail industry. Our mentors represent a cross section of our AEGIS engineering team that volunteer to act as mentors to aspiring engineering students, we help the students to gain the necessary skills and to take responsibility for their professional development.

The mentoring relationship is designed to support the mentee to develop effective independence, particularly with respect to professional development, the AEGIS mentors are chartered engineers or working towards their chartership. We share our professional experiences, discuss ideas, help students find their own solutions and more importantly, challenge students to think differently. Thinking outside the box engineering can offer students a rewarding and enjoyable career where each person can make a difference.

Our mentors support the Derby College showcase days where discussions are held with various groups of students, and we talk about our personal journeys to becoming professional engineers within the rail industry. Our mentors have all had varied career development paths leading to registration with professional engineering institutions. AEGIS has also supported many Women in Engineering events where we have given presentations to college students explaining the variety of inspiring roles that are available to women in all aspects of railway engineering.

### RSN 2021

A Gold Sponsor of RSN 2021, AEGIS is exhibiting at Derby Arena on 30th September alongside 142 other companies.

We are also hosting a Technical Seminar from 10.00 – 14.20 “The future of railways, standardisation and legislation in the UK”.

The programme consists of eight topics hosted by our technical specialists:

#### **10.00 – 10.20 – SESSION 1 – Followed by a 10-minute Q & A**

Brexit: The new regime

Authorisation of vehicles and Infrastructure

Speaker: Luigi D’Angelo – Head of Assessment Body Services



### **10.30 – 10.50 – SESSION 2 – Followed by a 10-minute Q & A**

Cyber Security in railway and CENELEC TS50701

Railway cyber security challenges and the CENELEC technical specification

Speaker: Lucia Capogna – Head of Software and Cyber Security



### **11.00 – 11.20 – SESSION 3 – Followed by a 10-minute Q & A**

The Independent Verification of modifications to Rolling Stock - What types of modification can be verified using the RIS-2700-RST process, what is the process, how is the verification undertaken and what are the outputs?

Speaker: Kathryn Kelly – Head of Certification (Rolling Stock)



### **11.30 – 11.50 – SESSION 4 – Followed by a 10-minute Q & A**

Digital Railway Signalling: ERTMS and the Future - Introduction to the current signalling and train protection systems used in the UK and how they are changing. The basics of ERTMS such as the ETCS Architectures, Levels and Operating Modes and an overview of digital signalling in the UK. Changing concepts, emerging technologies and key ideas that are shaping the future of railway signalling.

Speaker: Dr Shamal Crowther – Senior Engineer



### **12.20 - 12.40 – SESSION 5 - Followed by 10 min Q & A**

Electromagnetic Compatibility (EMC) - EMC and EMC standards and how they apply to the UK railway

Speaker: Colin Place – Head of EMC



### **12.50 -13.10 – SESSION 6 - Followed by 10 min Q & A**

RAMS Standardisation - 2021/2022 - What the future might hold?

Speaker: Daniele Diana - RAMS Specialist



**13.20 - 13.40 – SESSION 7 - Followed by 10 min Q & A**

Automation: A Holistic Approach to achieving higher levels of productivity through automation.

Speaker: Gopal Sivaswamy – Head of Test & Automation



**13.50 - 14.10 – SESSION 8 - Followed by 10 min Q&A**

Level Crossings - Suitable and sufficient Risk Assessments for Level Crossings

Speaker: Andrew Allen – Senior Engineer



For more information: <https://aegisengineering.co.uk/rsn-2021-technical-seminar-programme/>

## The Railway Three Peaks Challenge

As mentioned in previous issues, AEGIS has entered a team into the Porterbrook Three Peaks Challenge by Rail. Due to the current virus outbreak, this event has now been postponed for the third time and will now take place 9th - 11th September 2021. The team "AEGIS Peaky Climbers", together with everyone at AEGIS, have pledged to raise £3,500 for the Railway Children charity. At time of printing, we have raised 78% of our target, so not too far to go now! To sponsor the team please visit

<https://uk.virginmoneygiving.com/Team/AEGISPeakyClimbers1>

All donations gratefully received.

## Nathan Wiles Head of Infrastructure

Nathan joins AEGIS as Head of Infrastructure. He is an accomplished leader of major infrastructure projects with a career spanning 30 years in military aviation, road, rail, and healthcare infrastructure investment. He has previously worked with Jarvis and Network Rail managing electrification, building and civils projects nationally across the UK's North west and Central route. For the last 7 years, Nathan was located in the Middle East leading the Sultanate of Oman's national railway company, Oman Rail. The network comprised 2,135km of new build double track railway designed to European and North American standards and formed part of the wider GCC (Gulf Cooperation Council) Railway network. Nathan also led a subsidiary project and engineering consultancy providing professional services to the Omani government on the design, build and operation of road tunnelling projects and the development of new world class hospitals to UK healthcare standards.



## Balvin Pearce Senior Engineer

Balvin has over 20 years of railway experience previously working at Westinghouse Brakes, Mott MacDonald, SGS and latterly London Underground in various areas ranging from Safety, Rail Certification, Signalling Design and Assurance. He is proficient in NR and LUL Legacy, ATO/ATP and ERTMS/ETCS Level 1-2-3 Train Control Systems.

## Paul Richards Senior Engineer

Paul joins AEGIS as a Senior Engineer working on Infrastructure certification projects, bringing with him over 20 years of rail industry experience. In his previous role at Ricardo Rail, Paul delivered engineering safety management for multi-disciplinary infrastructure upgrade projects and process change. Prior to this, Paul worked for Network Rail and RSSB and in these roles gained considerable knowledge on many aspects of railway infrastructure engineering and technology introduction. He also has a sound understanding of railway systems engineering, asset management, and the interaction between rail vehicles and the infrastructure.



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AEGIS Engineering Systems (AES) Ltd

29 Brunel Parkway

Pride Park

Derby DE24 8HR

T: +44 (0) 1332 384 302

[www.aegisengineering.co.uk](http://www.aegisengineering.co.uk)

AEGIS Certification Services Ltd

29 Brunel Parkway

Pride Park

Derby DE24 8HR

T: +44 (0)1332 384 302

[www.aegis-cert.co.uk](http://www.aegis-cert.co.uk)

**We are delighted to welcome Nathan, Balvin and Paul to AEGIS and to our growing Infrastructure team.**

**AEGIS**  
an **ikos** company