AEGIS NEWS

THE POSITIVE CHOICE

Issue 14 - Winter 2020/21

Welcome to the AEGIS WINTER NEWSLETTER

I don't know about the rest of you but when I returned to my desk post-Christmas, I swear I heard my office chair groan. I'm not sure whether that was due to the surfeit of mince pies and brandy cream or recognition that we were starting a new year as the last one had ended, in the shadow of a new strain of virus - Episode II: The Virus Strikes Back, or should that be Episode V?

Last year when the pandemic struck, I asked the AEGIS team to give me their best and that's exactly what they did. COVID didn't count on how formidable a force we are! So, with an iron will and a twinkle in our eyes, we put on our EN ISO 20345 compliant steel toe-capped footwear, took a collective step backwards and gave the coronavirus a solid kick between the spike proteins.

Even with the unprecedented challenges of the virus and the uncertainty of BREXIT, 2020 will go down as another huge success with so many highlights. A few notable ones include:

- We did not place anyone on furlough leave, we didn't reduce wages, we didn't make any redundancies. In fact, we recruited 17 people in 2020 alone …… the vast majority of those entirely online, and we even managed to give our staff a Christmas bonus,
- We have established a team in Spain,
- AEGIS was Highly Commended in the Top Employer category at the Women in Rail Awards,
- We nailed our values to the door by signing up to the RIA / Women in Rail Equality, Diversity and Inclusion Charter,
- We set up a whole new business sector – Test and Automation,
- We secured a major rolling stock design project,
- We strengthened our Digital Railway expertise, taking key roles on numerous ETCS projects,
- We continued to work on multiple decarbonisation projects and the year ended with the announcement that we were part of the successful consortium to deliver Scotland's first hydrogen-powered train.

So, I start 2021 as I ended 2020, with heartfelt thanks to my AEGIS colleagues for caring for each other and for their resilience, determination and dedication to deliver excellence consistently for our clients and partners.

I look forward, with the same excitement as my twin boys on Christmas eve, to the next chapter in the AEGIS storybook. We have recently undergone internal restructuring to provide an even greater focus on delivery and delighting the customer and to strengthen our business development muscle so we can reach new markets and new clients. So please get in touch to see how we can help.

I wish you all a safe, healthy and successful 2021.

Mark McCool

Ps A drop of 3-in-1 oil stopped the chair groaning……
now then, pass me one of those mince pies!

Some Current Highlights

We are proud to announce our involvement in a consortium of industry-leading Scottish and UK businesses in hydrogen fuel cell integration, specialist rail engineering and functional safety that will help to demonstrate the future potential of hydrogen powered trains. AEGIS will provide third party safety assessment and compliance verification of the project to deliver Scotland's first hydrogen powered train and associated infrastructure.

"AEGIS is delighted to have been selected to team up with Arcola Energy and partners for this prestigious project that will help to enable the Scottish Government's objective of phasing out diesel only trains by 2035. With our growing portfolio of railway decarbonisation projects, AEGIS looks forward to working with industry leaders in hydrogen technology to assure the safe integration of hydrogen fuel cells into passenger rolling stock, enabling the rail industry to further develop this technology towards a carbon neutral rail network."

For more information visit our website: https://aegisengineering.co.uk/aegis-to-provide-third-party-safety-assessment-and-compliance-verification-to-deliver-scotlands-first-hydrogen-powered-train-and-associated-infrastructure/

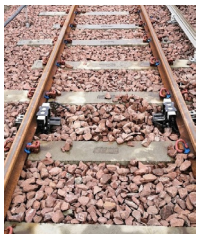
EMC Axle Counter Instrumentation & Testing

Our EMC team has recently expanded our in-house testing capabilities after purchasing a set of three-dimensional magnetic field antennae and analysis equipment from Adts GMbH for measuring the magnetic field levels at axle counter locations. The antennae have three coils inside them arranged in the x, y and z planes, measuring the magnetic field in each direction respectively, whilst rolling stock passes over them. The equipment complies with the relevant Euronorm EN50592. This equipment allows the team to check compliance of the unit in question with the requirements for electromagnetic compatibility with axle counter heads.

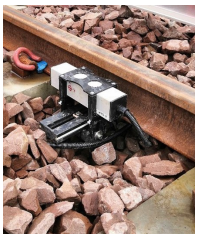
The antennae were installed for the first time at the Glasgow Subway test track, where AEGIS have been contracted to undertake an EMC compatibility assessment of the new subway trains. The antennas are installed in the 4ft, with the cables routed and mounting bracket fitted underneath the rail, ensuring there is no obstruction to the rail head. The cables then return to the data acquisition equipment and laptop which is setup in a tent at a safe distance from the track, allowing the team to monitor and analyse the tests at the site.

Post analysis is conducted using the software provided with the antennas from Adts. This software produces raw time domain, fast Fourier transform (FFT) and frequency specific time domain results with the limits plotted against the FFT values. This software allows for immediate review of results, meaning the team can see how the train is performing during testing and address any issues before post analysis, if needed. The EMC team is also developing an in-house analysis routine to systematically follow the steps in section 5 of EN 50592 to check compliance of the rolling stock with the standard.

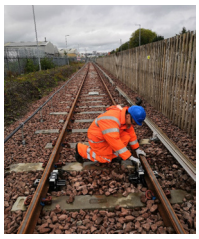
Thanks to the support from staff at Stadler and due to the fore planning of both teams, axle counter instrumentation and testing went smoothly and AEGIS were able to collect the required data to begin an EMC assessment for the new subway trains compatibility with axle counter systems.



Sensors fitted at Glasgow Subway Test Track



Fitment of the antenna



Colin Place, AEGIS' lead EMC engineer, making some final adjustments to the antenna

Data acquisition setup

Analysis tent

Are you making a change to the operational Railway? Or introducing new or modified infrastructure or rolling stock?

Under current UK regulations, as part of the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS), you will be required to apply the Common Safety Method for Risk Evaluation and Assessment (CSM-RA) (EU 402/2013) process any changes to the Operational Railway that is determined to be 'significant'. An Assessment Body (AsBo) needs to be assigned to independently check that the CSM process has been correctly applied.

At AEGIS Certification Services (ACS), we can provide you with Assessment Body (AsBo) Services to support you in achieving approval for entering into service rolling stock or infrastructure equipment. We have a team of specialists for the different disciplines of Signalling, Operation, EMC, Traction and Electrification.

If you need assistance in understanding how to apply CSM, or in producing CSM compliant documents, please get in touch.

CSM-RA Training Courses

It can be difficult to interpret the guidance on Common Safety Methods (CSMs) if you are not familiar with the regulation. AEGIS offer bespoke CSM-RA training courses to help you and your staff understand how to apply CSM correctly to your projects, learn good practice in producing CSM documents and understand the principles of CSM.

Please direct any enquiries relating to CSM-RA Courses to info@aegisengineering.co.uk.

Additional Services Offered

AEGIS Certification Services also offer

- Approved Body (UKAB) (previously NoBo) for compliance with National Technical Specification Notices (NTSNs). (Previously TSIs).
- Approved Body (DeBo) for compliance with National Technical Rules (NTRs).

  The above coming into force on 1st January 2021 as a result of the United Kingdom s exit from the European Union and the ending of the transition period on 31st December 2020.
- RIS -2700-RST Engineering Change Approvals.
- RIS -1710-PLT Plant Assessment Body.
- Independent Safety Assessment (ISA) – for projects where CSM-RA does not apply (i.e. outside of the operational railway, such as work in possessions, or depot operations).
- Independent Competent Person (ICP).

As amended by the Rail Safety (Amendment etc.) (EU Exit) Regulations 2019 [S.I. 2019/837] (as amended by the Railways (Safety, Access, Management and Interoperability) (Miscellaneous Amendments and Transitional Provision) (EU Exit) Regulations 2019 [S.I. 2019/1310]).

Please get in touch if you are unsure of what kind of independent assessment you require so that we can guide you through the process most suitable for your project.

Maintaining Independence

As a requirement of our accreditation BS EN ISO/IEC 17020:2012 for Assessment Body work. The Assessment Body must be independent from the CSM -RA process.

ACS have procedures in place to assess any conflicts of interest before team members (including associates) are assigned to a project, and to ensure that independence is maintained.

For Accredited Certification Body work, the requirements of BS EN ISO/IEC 17065:2012 apply to ensure strict impartiality and confidentiality are maintained.

Staying One Step Ahead…

The AsBo forum was set up to discuss issues raised with CSM-RA and formally agree changes to the regulation. Our Head of AsBo and ISA Services, Luigi D'Angelo, is a member of the UK AsBo Forum and actively involved in the evolution of CSM-RA and clarifying the interpretation of CSM-RA. As an AsBo forum member, Luigi is informed of future changes to CSM-RA and the consensus on interpretation of the regulation, so our clients can be assured that we have the most up to date knowledge on CSM-RA. Luigi also regularly attends the European cooperation forum in France.

Brexit Impact

Following Brexit, there will be several changes to independent safety assessments and certifications in the UK (TSIs will cease to apply in the UK , currently there are no provisions to keep pace with CSMs if there are changes to them in the EU) but the fundamental principles of assessments will remain unchanged.

Future Expansion

As part of maintaining a foothold in the European market, we have established a team in Spain, Spain, which will enable us to continue operating as an AsBo on European projects.

Who We Are

Luigi D'Angelo – Head of AsBo and ISA Services

Luigi is a Chartered Engineer with more than 15 years of experience in independent assurance assessments, safety engineering, systems engineering, project management, assurance, certification and safety engineering and approvals training.

Luigi has delivered training courses on Risk Assessment ((EC) No. 402/2013 (as amended)) and carried out certification work for High-Speed trains in the UK, Italy and South Korea for colleagues and external clients.

He has a solid background working with both rolling stock and infrastructure, including ERTMS/ETCS, GSM-R (Luigi has certified the Siemens GSM-R v4 for the UK market), electrification of railways and AWS/TPWS.

Most recently he led the assessment successful entry into service of the Class 769 for Transport for Wales Rail Services (TfWRS) and the assessment of the Heathrow Express upgrade with the latest signalling technology (ETCS) for Great Western Railways (GWR).

Suhail Ermus – Principal Engineer

Suhail is Principal Engineer with more than 10 years of experience in independent safety assurance assessments, safety engineering, systems engineering, project management, certification, and approvals training.

Suhail has experience with RAM and Safety management according to EN-50126, EN-50128, EN-61508, CSM-RA and EN- 50129 concerning all phases of project lifecycle, SW/FW/HW assessment and safety management: safety functions and safety integrity level (SIL), hazards management and safety related application conditions (SRACs). Safety assessment applied to new product development, existing products (as deltas) and train modifications.

He has a solid background working with both rolling stock and infrastructure. Good understanding of ERTMS, ETCS, RBCs, GSM-R, IxL, CTC, ATS, CBTC and ASFA as products. Suhail possesses field experience integrating ETCS, CBTC and ASFA (as STM) on high speed/conventional trains and EMUs and a good understanding of train subsystems with interface to ETCS: TCMS, DMI, GSM-R, electrical and brakes.

Suhail has delivered more than 320hrs of training courses on Common Safety Methods Risk Assessment 402/2013 (as amended) to the infrastructure Manager in Spain (ADIF) and several RAMs training courses to clients in Spain and Turkey over the past years. Most recently he worked on the assessment of the Heathrow Express upgrade with the latest signalling technology (ETCS L2) for Great Western Railways (GWR).

Barry Allan – Principal Engineer

Barry is Principal Engineer and railway safety specialist who has broad experience of technical risk management as applied to diverse railway subsystems, including rolling stock, command control and signalling systems (CBTC, ETCS, Class B systems) and trackside signalling (interlocking).

Barry joined us in 2020 from the safety and certification team of Stadler Valencia, where he was responsible for the application of the Common Safety Method for Risk Assessment and Evaluation for locomotives, metros and light rail vehicles destined for operation in several European countries, including the UK (Class 88 locomotives, Sheffield TramTrain, Class 777 metro vehicles, Cardiff TramTrain). He is responsible for undertaking safety assessment and risk analysis of safety critical systems.

Asma Khan – Senior Engineer

Asma has nearly 20 years of experience working in the railway industry with experience in both risk and safety assessments, and programme management. She recently moved from the Infrastructure team at AEGIS into the AsBo team and her current role involves undertaking assessments of safety documents for their compliance with CSM-RA. Most recently she supported the successful entry into service of the Class 769 for Transport for Wales Rail Services (TfWRS). She also assists with the safety activities for other projects where there is no conflict of interest with the AsBo team. She is providing ongoing safety engineering support to Stadler for the introduction of the new metro trains for the Glasgow Subway, and more recently for the route clearance for the cascade of an existing mainline fleet to a new operator where she helped facilitate HAZID workshops, develop hazard records and produce CSM compliant safety documents.

Álvaro Gil – Senior Engineer

Alvaro has 8 years' experience in project safety management and assessment. He is an Industrial Engineer, having previously worked as Safety Engineer and Assessor for various railway companies in his home country Spain including Bombardier RCS South Europe Division based in Madrid and also working for Siemens Mobility UK where he worked as a RAMS Engineer. He has extensive experience working in safety management of projects and also as a safety assessor according to CENELEC standards EN50126, EN50128, EN50129 and CSM-RA. Alvaro is working with the BT Safety RAMS team and as safety assessor for ISA/AsBo/NoBo assessment in GB GSM-R Baseline 1 and GWR Class 387 ETCS amongst other projects.

REORGANISATION

As Mark mentioned in his Introduction piece, we are looking forward to the next chapter in the AEGIS storybook. Having successfully "10x" ed the business, we are getting ready and dreaming big for the next phase. To set ourselves up for this, we have recently put in place a new structure and organisation that gives us the foundation for this.

In fact, the rationale for the restructure achieves two important goals: not only setting the foundations for future growth but also cementing the structure that meets the very demanding requirements of EN 17065, guaranteeing the independence and impartiality between consultancy and certification and so offering the industry the greatest level of impartiality. Hence the establishment of AEGIS Rail Holdings Ltd to own the two delivery companies equally and separately.

AEGIS Rail Holdings

AES | **ACS**

In terms of supporting continued growth, we've established a structure that clearly places accountabilities for different business functions with particular positions within the company. We see this as future proofing the business as it develops and crucially giving those in positions of leadership the time to lead.

We have strengthened our core services by bringing in a new QHSE Manager; we have strengthened our sales and marketing team by employing a dedicated Business Development Manager. We have given our Head of Business Systems a remit of systemising the way we work to make things easy for both our staff and our clients.

We have created COO positions in each company to focus on productivity and delivering excellence. There are Heads of Sectors with responsibility for business planning and growth, supported by Service Leaders who bring the technical expertise and team management elements to the mix.

The rationale behind all of this is to build on the foundations we've set down over the last few years, to double down on the culture and values, to bring clear focus on the contributions and accountabilities we all have and so to get ready for the roaring Twenties (once they get going post-Covid!)

AEGIS CUSTOMER SATISFACTION SURVEY RESULTS 2020

A simple three question Customer Satisfaction Survey was sent out to existing AEGIS customers in November 2020 and the results have now been collated.

What does AEGIS do really well?

Here is what our customers have to say about us….

- AEGIS has a really good core team of people with an excellent range of skills.
- We have had several requests internally for unique challenges. I've been able to recommend AEGIS due to their specialist understanding of RAMS for software and their approvals team. Additionally, their engineering team has some outstanding engineers.
- AEGIS is excellent at understanding the customer's needs.
- AEGIS does what they say they are going to do, when they say they are going to do it, to the expected level of quality.
- Quick to respond to technical issues.
- AEGIS is customer service focused while ensuring high standards are maintained.
- Professional, helpful service.
  - clarity in communications, feedback has never required further clarification to be sought; - flexible and responsive - professional - subject matter knowledge

Listening to our customers

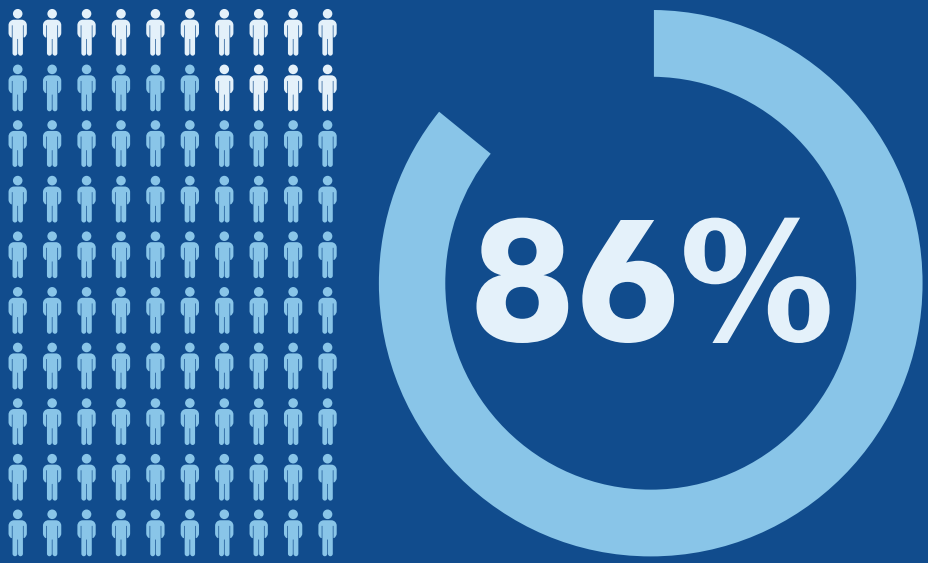
We have been working hard over the last four years to really understand what our customers want from us and how we can improve on our already highly rated service.

Some of the feedback received in the 2019 Customer Satisfaction Survey asked that we increase our ETCS capability. So, in 2020, we addressed this and employed several specialists in this area of expertise.

We were also asked for "More options for signatories" within the certification department so again we have addressed this requirement and employed a RIS-2700-RST signatory and increased our PAB signatories to five.

We are delighted and proud that 86% of respondents said that they were either likely or extremely likely to recommend AEGIS – we feel that this reflects that our hard work is being acknowledged and appreciated by our customers.

Visit our website today www.aegisengineering.co.uk



On a scale of 1-10, 86% scored 8 or above and nobody scored less than 7

AEGIS Monthly Webinars

Following the highly successful "Rail Market Approvals Demystified" Webinar held in September 2020, we are pleased to be hosting a series of monthly webinars in the first half of 2021.

Webinar 2: Tuesday 26th January - 12.30 – 13.30
Title: Authorisation of UK Passenger Rolling stock, Freight and Infrastructure post Brexit - Presenter: Luigi D'Angelo – Head of Assessment Body and ISA Services

The United Kingdom is out of the transition period and the EU so the old regime does not apply anymore. Listen to the latest update on the authorisation of vehicles and infrastructure.

Webinar 3: Tuesday 23rd February - 12.30 – 13.30
Title: Software Standards - The differences between the standards - Presenter: Lucia Copogna –Head of Software and Cyber Security

Several SW Standards are available for Railways applications: EN50128:2011, EN50657:2017, EN50128:2011+A2:2020. Understanding the differences and similarities, applicability and scope.

Webinar 4: Wednesday 10th March - 12.30- 13.30
Title: Digital Railway Signalling: ERTMS and the Future ¬- Presenters: Suhail Ermus - Principal Assurance Engineer & Dr Shamal Crowther - Senior Engineer

Understanding basic concepts of ERTMS, architecture, Operational Modes, Level transitions, current and future development of the ETCS in the UK and Europe. Also, a wider look into the future of command, control and signalling ideas, developments and technologies.

Webinar 5: Monday 19th April – 12.30 – 13.30
Title: Level Crossing suitable and sufficient risk assessment - Presenter: Andrew Allen - Senior Engineer

An overview of level crossing risk and how risk is managed.

Webinar 6: Wednesday 12th May – 12.30 – 13.00
Title: The how and why of the IRSE Professional Exam - Presenter: Dr Shamal Crowther - Senior Engineer

What are the benefits of taking the IRSE exam for aspiring signalling engineers, how to apply and an overview of the relevant topics? The IRSE Exam structure has changed recently and this presentation will be ideal for anyone hoping to sit the exam as well as those wondering what it is all about!

Webinar 7: Tuesday 15th June – 12.30 – 13.30
Title: EMC in the UK railway - Presenter: Colin Place – Principal Engineer

EMC and EMC standards and how they apply to the UK railway.

If you would like to attend any of the online Zoom webinars above, please send email seminar@aegisengineering.co.uk and title the email i.e. Webinar 2, Webinar 3 etc to register your interest. Visit our web page for more information https://aegisengineering.co.uk/aegis-monthly-webinars/

Phil Elwell

Phil is our new Business Development Manager. He has been in the Rail industry 20 years, of which 15 years have been in Sales & Marketing roles with predominantly Atkins and SNC-Lavalin. Phil leads all of our Business Development and Marketing activities to support the future growth strategy of the business.

John Eaton

John has joined us as a Senior Engineer. He has worked in the railway industry on and off for 30 years having worked for Brush Traction, Metro-Cammell, Network Train Engineering Services, Railcare and SNC Lavalin previously. John is working in our Rolling Stock team and will be specialising in gauging, dynamics, structures, FEA and mechanical systems.

Bethan Mack

Bethan has joined AEGIS as a Project Manager. She has worked in the rail industry for over 8 years. Bethan started her career as a Manufacturing Apprentice for Bombardier. Latterly she has worked in various project management roles for SNC-Lavalin/ Atkins and Loram UK. Bethan joins AEGIS to strengthen our project management capability. She will be working on a variety of new and existing projects.

Elena

Elena is a Project Delivery Coordinator. She is new to the railway industry having worked previously in the aerospace industry where she was working closely with the Finance, Operations and Commercial functions. Elena has a First-Class Honours degree and a Master of Science in Economics. She will be helping to optimise our project management and reporting processes.

Mark Franik

Mark has joined us as a Senior Certification Engineer. He is a Chartered Engineer with over 40 years' experience in a vast number of disciplines associated with Traction and Rolling Stock. He has previously worked at Bombardier as Certification Engineer and Safety Case & Certification Manager and as Certification Engineer at Railway Approvals Ltd. He has previously worked at also held the role of Fleet Performance Engineering Manager for Network Rail as Fleet Performance Engineering Manager.

Mark is working within the Rolling Stock Certification Team and will be undertaking work on Verification of Engineering Change (RIS-2700-RST) together with a cross section of approval projects.

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