



- Engineering
- Critical Systems





RGB Assurance is an engineering services firm specialising in the provision of consultancy services, software development and training in the area of high-integrity, safety-critical systems.

In particular, we specialise in complex, multi-technology systems comprising people, software and electronic hardware.

# At a Glance



## Industries Served



Rail



Marine



Mining



Oil & Gas



Aviation &  
Defence



Public Utilities



Automotive

We are known for our professionalism, acute sense of value to clients, and industry-leading expertise.

We bring an abundance of enthusiasm to engineering and safety assurance problems while the quality of our work is assured through our ISO 9001 certified Business Management System.

## Mission

RGB Assurance exists to provide engineering services, training, research and development, in the area of safety-, security- and mission-critical systems, particularly those that are software-intensive. We operate in the transport, air traffic management, mining, defence and adjacent industries. We help the world to build critical systems in a cost-effective manner, without undue risk to the well-being of those impacted by such systems' operations.

## Vision

We envision a world where complex systems are engineered to deliver benefits to many, without exposing any to intolerable risk. In this world, we will be industry's "partner of choice" to achieve this vision.

## Values

The values that guide us, while executing our mission, to achieve our vision, are as follows

- Ethics first! Safety, integrity, competence, sustainability.
- Customers and employees next, and if these values conflict, then ethics prevail.
- A challenging, enriching and sustainable work environment for our people.



# What We Do



Safety Engineering  
Consulting

Independent  
Professional Review

Safety & Risk  
Training

Software Development & Research

# Engineering Consulting

We perform high-value engineering services that focus on the assurance of safety and reliability for technological systems and their operation, but also includes:

- Security of information and communications technology;
- Human factors integration;
- Verification and validation; and
- General Systems Engineering.

# Independent Professional Review

We provide expert, independent professional opinion, including:

- Safety Feasibility Studies
- Independent Safety Assessment
- Technical Review – we can review quality, design and usability of software systems
- Expert witness services.

# Training

We deliver specialised training, competency assessment and educational services that harness the passion, expert knowledge and unique experiences of our team. We have developed and delivered training courses to inform general industry groups as well as to upskill dedicated project teams.

# Software Development & Research

We conduct research and develop software and electronic products that leverage our engineering expertise and domain knowledge. Our development services are available to support a range of bespoke projects and we offer the unique combination of a proven history of developing independently assessed, CENELEC SIL 2 software in Australia, plus the ability to support our systems from a national footprint.



# Our Software Products



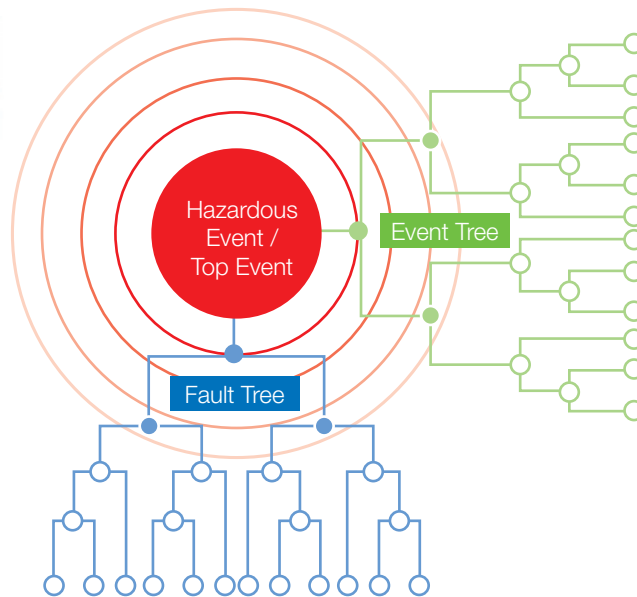


# Australian Rail Risk Model

Building on our extensive work with rail operators to define their risk acceptance criteria, identify and quantify their operating safety risks and facilitate the ongoing monitoring and management of risk, we were honoured to be selected by RISSB as their development partner for the Australian Rail Risk Model, including for development of all the associated software.

ARRM is a tool to help the Australian Railway Industry better understand and manage its safety risk. It holds a set of fault and event trees, designed to capture the precursors to each of the hazardous events faced by Australian Railways, and the consequences of those events. Driving the model is a database of occurrence metrics, populated from the notifiable occurrence data collected by ONRSR.

Since releasing ARRM1.0 in 2018, we have worked with RISSB to update ARRM three times, incorporating new occurrence data from the 2017, 2018 and 2019 financial years. This has extended the capability of the model, allowing users to see risk trends over time.



# Track Database Validation Tool

We developed a SIL 2 tool for validation of track data files for Lockheed Martin Australia. This is used to validate track files for the Advanced Train Management System, currently under development for Australian Rail Track Corporation. ATMS is a communication based train management and safe-working system. It includes a trainborne location determination system, which uses GPS inputs, the track database and trainborne inputs (such as inertial sensors) to determine the precise location of the locomotive.





# Our Consulting Track Record



We are enormously proud of our portfolio of consulting work, which ranges from helping operators improve their Safety Management Systems, to expert reliability analysis of electrotechnical components. We have been instrumental in the establishment of safety assurance programs for a range of complex technology development projects and delivered safety case reports that have passed the high bar of Independent Safety Assessment and regulatory acceptance.

By the very nature of our work, much of what we do is confidential – a responsibility we take extremely seriously. Below are some achievements that we can share.

## Rail

### Consulting and Independent Safety Assessment

RGB Assurance are currently engaged as the independent Safety Assessor (ISA) on many rail projects in Australia, the largest of which is the \$5.4B Cross River Rail (CRR) project in Brisbane, Queensland. Our role as ISA on the CRR project encompasses the entire project, covering tunnels, stations, permanent way, control system, and the new ETCS Level 2 technology that is being introduced.

We also act as project safety advisors to Rail Transport Operators seeking to introduce new signalling and control system technologies, and to some companies seeking to build such technology. Such assignments can range from high-level, whole-of-project advice, through to targeted, detailed studies to resolve a particular technical problem. For example, we recently completed an assignment for a prominent heavy haul rail operator to assess the safety of an in-cab railway signalling system when deployed on AC traction locomotives. This assignment required analysis, simulation and laboratory testing of a proposed electromagnetic noise reduction circuit and our report explored the safety assurance considerations.

## Air Traffic Management

### OneSKY Project

The OneSKY project is an ambitious initiative that aims to replace Australia's current civilian and military air traffic control systems – both of which are nearing end of life – with a harmonised civil and military air traffic management system (CMATS). RGB Assurance is assisting Airservices Australia with the overall, system of systems safety analysis, needed to provide assurance that CMATS will function safely when deployed. As an extension to our primary role, we have also been engaged to perform detailed software safety analysis to support the main supplier, Thales, who are developing the new system.

## Defence

### Department of Defence SCRAM

RGB Assurance was engaged by the Department of Defence Capability Acquisition and Sustainment Group to participate in a Schedule Compliance Risk Assessment Methodology (SCRAM) Review as software safety assurance experts on a particular aircraft related project. Our role included assessment of the outstanding safety assurance activities to be completed.

## Marine

### Fugro

RGB Assurance supported Fugro in the development of a safety case for Fugro's newly built 112-meter, ABS-classed subsea Diving Support Vessel the Southern Star. This vessel is equipped with both a fixed saturation diving system and an air diving system, and an advanced DP3 vessel dynamic positioning system. The Southern Star's Safety Case meets Australia's stringent offshore safety and environmental regulations and Australian regulatory guidelines for vessels working adjacent to offshore hydrocarbon producing facilities.



# Our Clients



“I would like to thank you for the excellent support you, Holger and RGB have provided to date, particularly in view of your obvious proficiency in managing work-load and –flow. It is much appreciated and we look forward to continuing this relationship.”

Project Manager, Robert Bosch Australia

“Very impressed with the competence of the people doing the work. There are a number of people around the industry who purport to understand and don’t. Alena and Neil clearly do know what they are talking about.”

Reviewer of the Australian Rail Risk Model

“Thanks Alena (and the whole RGB team), Really appreciate the work on this topic. Not an easy topic, but one I’m glad we had your expert (and RGB team) help on.”

Project Manager, BHP



# Our Leadership Team



We bring together an exceptional combination of academic, technology and business minds. The two directors of RGB Assurance – Dr Neil Robinson and Dr Alena Griffiths – lead a team of over 15 employees that have extensive experience in engineering practice, engineering management, software development, business consulting and also in teaching and training.



## **Dr. Alena Griffiths** Director and Consultant

Dr. Alena Griffiths is a Consultant and Director of RGB Assurance. Dr Griffiths is a Fellow of Engineers Australia and has over sixteen years experience in the field of systems assurance engineering and management in the Transport, Defence and Research sectors. She is a specialist in the area of system safety engineering, in verification and validation (V&V), and has also worked extensively on software development programs for SIL 2 and SIL 4 railway applications. She has published widely in the areas of systems assurance and high-integrity software engineering and is considered to be an expert in the field.



## **Dr. Neil Robinson** Director and Consultant

Dr. Neil Robinson is a Consultant and Director of RGB Assurance, offering engineering and management consultancy services in the area of safety-related and high integrity systems. Neil is a Fellow of Engineers Australia, Chartered Professional Engineer, Chartered Information Technology Professional and Registered Professional Engineer of Queensland. He has extensive technical experience as a safety and RAM engineer, especially in the rail industry, and has also held senior executive roles in a large Signalling Supply company. In recognition of his contribution to the field of high-integrity computing, Neil is an Adjunct Professor in the University of Queensland's School of Information Technology and Electrical Engineering.



## **Dr. Holger Becht** Principal Safety Consultant

Holger holds a PhD in software engineering of high integrity systems, a MSc in Human Factors and System Safety and first class Honours degree. He has extensive technical experience and has held senior technical management roles at a Signalling Supply company and also the Boeing Company. In recognition of his technical expertise in the field of software and system safety, Holger was a Technical Fellow at the Boeing Company. As President of the Australian Chapter of the System Safety Society, Dr Becht is a nationally- and internationally-recognized expert in the field of system safety and systems assurance.

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