REAL
Rail Electrification Alliance

Learning from Events

The REAL way of life is keeping Everyone safe like family

REAL is a partnership between:

Network Rail · SIEMENS · MURPHY · VolkerRail · SYSTRA · Jacobs

Contents

Contents

Contents

Safety Alerts

Our REAL Legacy

Introduction

Al Pattison, Alliance Director

The Rail Electrification Alliance [REAL] project has been a valuable experience for all involved. There are many lessons gleaned from the decade or so that we have spent on this complex, large scale and ultimately rewarding programme.

As part of the East Coast Main Line Power Supply Upgrade, we have worked hard to improve the power supply to enable faster, quieter, and more environmentally friendly electric trains to run, paving the way for the introduction of new trains, including LNER's Azuma and Hull Trains' Paragon fleets.

Rather than gathering dust in a computer file, we have taken the time to review the activities on the project, collating it into a single living and breathing health and safety learning booklet. An aide memoire to cascade these learnings for our colleagues across the rail industry, going forward. We hope that readers can build on the lessons we have learned and prevent future potential incidents and harm.

For context, REAL is a partnership between Network Rail, Siemens Mobility, J Murphy and Sons, VolkerRail, Systra, and Jacobs. The project has brought together industry experts from across these organisations to identify solutions, enabling the growth of a greener, more efficient, and digitally enabled rail network.

Siemens Mobility handled the traction power design, supply, installation, and SCADA; VolkerRail managed the overhead line equipment and signalling works. J Murphy and Sons were responsible for civil works, structures, and cable routes and both Jacobs and Systra provided professional consultancy and design support.

The power upgrade covers a distance of 393 miles from London to the Scottish Borders.

As an Alliance, we have been dedicated to building a strong safety culture, one without blame or accusation. To achieve this, we created and deployed a 'Back to basics' model as a foundation for safety improvements. You can read more about how we developed this within the booklet, and we look forward to seeing how other projects or alliances utilise this concept going forward.

In the booklet, you will also hear directly from the Partner Alliance Board (PAB) and Alliance Leadership Team (ALT) on their personal insights into what learning from events and the REAL legacy means to them.

Finally, we give the last word to our emerging talent - the voices of the new generation of railway graduates and their reflections on what the REAL legacy means to them, as they begin their careers in rail. We are proud to have played a part in supporting them at the start of their journey and look forward to seeing them continue to thrive.

We believe that this booklet is a living and breathing testament to the REAL ethos of 'Keeping Everyone safe like family' and we hope that it provides a valuable resource for you and the wider rail industry, going forward.

REAL Alliance Partners

REAL Power Supply Upgrade East Coast Main Line (ECML)

Responsibility for delivery of the East Coast Main Line Power Supply Upgrade Project lies with the Rail Electrification Alliance (REAL), comprised of the following partners:

NetworkRail	Client management and project management
SIEMENS	Traction power design, supply, installation and SCADA (Supervisory Control and Data Acquisition)
MURPHY WORLD-CLASS INFRASTRUCTURE	Civil works and structures, cable and cable route
VolkerRail	Overhead line equipment works and signalling works
SYSTRA	Professional consultancy and design support
Jacobs	Professional consultancy and design support

REAL Project Map

PSU1

The project began work in 2014, and covers 393 miles on the East Coast Main Line.

Power Supply Upgrade 1 (PSU1) delivery includes:

- 23 substations
- Over 600km of new cabling
- 110 foundations
- 55 new structures to support OLE and telecommunications equipment
- New 400kv connection to the main National Grid supply point at Ryhall and Essendine and modifications at Wymondley (Coreys Mill)

REAL Project Map

PSU2

Power Supply Upgrade 2 (PSU2) delivery includes:

- 27 substations
- New Return Screening Conductor (RSC) and fibre cable installed between Bawtry and Edinburgh
- 57kn of booster transformer removals from Bawtry and Colton Junction
- Firm Service Capacity upgrades at Hambleton Junction, York, Hutton Bonivlle, Durham, Ulgham, Marshall Meadows and Innerwick
- New 132kV connection to the distribution network at Hambleton Junction

REAL Principles Wheel

Partner Alliance Board

PAB

What 'Learning From Events' means to us

Ben Brooks, Network Rail

I am new to the REAL Alliance, although working close by means that I have observed a decade or so of project delivery. It is clear that learning from events and minimising risk from harm is a key priority for the REAL team.

My second observation is that the project team have done their best to deliver the power supply upgrade with minimal 'boots on ballast'. The team are leaving a railway fit for purpose, improving reliability and increasing capacity. A "safe by design" approach ensures that our maintenance teams can work in safe, dry, twenty-first century conditions, without having to access the live railway to monitor and maintain assets.

It is also evident that, over the course of the ECML Power Supply Upgrade project, the health and safety culture has matured and strengthened. Health, safety, and wellbeing are clearly core values for the REAL team, with a focus that goes beyond physical risk mitigation. Notably, the project has embraced mental health awareness, including the introduction of mental health first aiders, highlighting a holistic approach to safety and wellbeing.

Beth Newton, Jacobs

On alliances, there is always tension between the alliance requirements and the partners' requirements. On REAL, it feels as if the Alliance has its own workforce and there is clear cohesion and a culture where we make decisions as a unified team, with a heavily invested board supporting us to make safe decisions.

The implementation of Back to Basics has steered us on the right track. As a design partner, when we look at safety we have a different focus to construction contractors. As designers, we have less focus on standard contractor risks and instead look at culture to instinctively help our people to make the right decision, allegorically speaking the 'seatbelt phenomenon'.

It has taken 40 years for us to instinctively put on our seatbelts automatically as a habit without thinking. What would it be like if the REAL culture, which has taken over a decade to develop, was the starting point for the next alliance? It would be fantastic to see others follow the evolution we have been through to get to this positive high achieving safety and performance position results, but in a shorter space of time.

Partner Alliance Board

PAB

What 'Learning from Events' means to us

Sekoura Benissad, SYSTRA

For me, the real learning curve from the REAL project has been all about collaboration and how we can best utilise an open and shared approach to work effectively as one team. By working together, we can overcome challenges and succeed to achieve overarching objectives and goals.

This fosters an environment where we can celebrate wins, champion our skills and support each other through challenges. As the success of the REAL project has shown, working together as one team can reap real benefits, for individuals, all our businesses and the rail industry for many years to come.

Chris Cayton, J Murphy & Sons

Learning from events is key. We need to maintain our corporate memory and actively understand cause and prevent reoccurrence.

We are seeing a maturity of the health and safety culture in the rail industry. I believe that it is a good thing that we are now more willing to share lessons learnt, collectively learning from them and continuously improving.

Partner Alliance Board

PAB

What 'Learning from Events' means to us

Stuart Birch, VolkerRail

To ensure that we fully embrace what has been achieved and learnt, we must also signpost that because alternative design arrangements have been employed and innovative solutions used by the project. Much new ground has been made, with new and best practices established.

Statistically, the alliance can demonstrate a positive improvement of safety performance and cultural development, noting the incurrence of low frequency one off incidents that have required specific intervention and remedy.

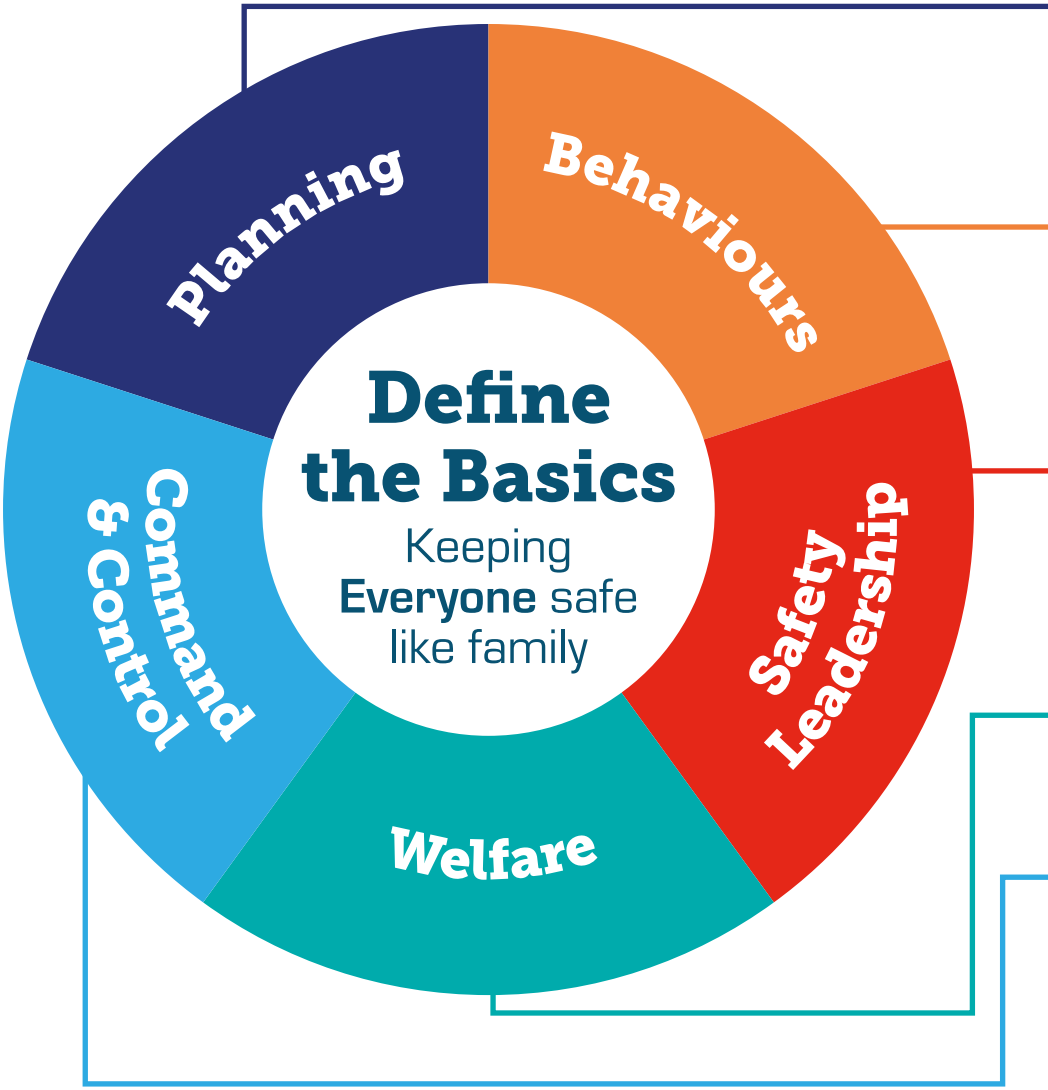
This is ultimately as a result of relentless focus, engagement and effective safety leadership to learn, fix and move on to proactively identifying and mitigating the next prevailing risk and issues.

Jon Humpherson, Siemens

It is imperative that we learn from safety events, as we are responsible for safeguarding our people. It is important that we take the time and effort to understand the root causes, that are often a direct result of a wider systemic issue. We did not originally benefit from Alliance systems, procedures, or policies. Creating the right safety culture became easier to achieve once PSU was fully contracted, which enabled us to move from the stop-start project nature that we had in the early years of REAL.

With the new contract in place, we have been able to better mobilise our teams and systems to create an excellent safety culture within REAL. When an issue occurs, we find the underlying cause of the issue cause and put mitigations in place to prevent a recurrence. The right safety culture is difficult but critical to create. To do this, the REAL team have worked as a single multidisciplined organisation under a single principal contractor, collaborating closely to create the right behaviours. Planning is everything. We learn the lessons and learn from each other, adapting knowledge from each discipline across the Alliance to evolve and grow.

REAL Back to Basics



Planning

- Plan the work/work the plan
- Be specific (task briefs/risk assessments)
- Assure arrangements are in place (task brief surgeries)
- No freestyling
- Recognise change
- Stop and assess the risk
- Escalate/validate

Behaviours

- Think out loud
- Respect the PPE requirements
- Look after your mates
- Standard you walk by is the standard you accept
- Create a safe environment and then put people to work
- Report close calls
- Have safety conversations
- Don't just "box tick"

Safety Leadership

- Close call reporting
- Make time for safety tours and engagement
- Clear communication, follow the Lifesaving Rules
- Encourage engagement and leadership from the ground up
- Manage late change
- Be positive

Welfare

- Appropriate and adequate
- Keep it clean/look after it
- Be clear on ownership (site lead)
- Prepare for seasonal works

Command & Control

- Ensure it is clear and communicated
- Validate teams' awareness/pre-shift briefs
- Escalate issues
- Validate decisions on change
- Is it safe?
- Is it the right thing to do?
- Take time to brief
- Test understanding
- Brief everything
- Engage, don't read

Alliance Leadership Team

ALT

What 'Learning from Events' means to us

Al Pattison, Alliance Director

If we are not learning from the past, then we will continue to put people at risk. We take every event seriously, learning from each incident, implementing changes and training, further embedding safety improvements to minimise risk. This is part of the wider picture and that is to ultimately keep every single person safe.

Each incident has the potential to cause injury, impact the operational railway and damage our reputation. All risks are important and of equal importance, from health and safety, to environmental, operational, and reputational.

The overarching understanding is that all these risks can have a catastrophic impact. It is imperative that we take our learning from events to keep mitigating risk for the industry going forward.

Shane Watson, Alliance Manager

When a safety event happens, there is a period of disappointment. Then the normal process of crisis management and resolving issues takes place. Once the incident has been closed out, we take the time to reflect, look at it retrospectively, and learn from it. We implement mitigations to ensure the incident, hopefully, is not repeated.

Personally, each of us take the golden nugget of learning with us through the rest of our careers. From the new generation to the older generation, we must not forget the lessons learnt from our time spent on the Alliance.

Alliance Leadership Team

ALT

What 'Learning from Events' means to us

Darren Lockwood, HSQE Lead

I joined the team in August 2022. We have had incidents, some with more potential than others, and we recognise that we have been lucky on occasion. I constantly reflect on that, ensuring that with every event, we all learn and improve and then share that learning.

I believe we have a moral duty to ensure that everyone is safe. I am passionate about providing a safe working environment and encouraging everyone to consider my belief that safety and caring for others is not just an add-on to their duties. I firmly believe that to achieve safety, we must first consider the principles of quality, and therefore, it is crucial to look ahead and effectively plan works. Most conversations we have involve safety implications. If we get our quality and safety right, creating a safe work environment does encourage the right mindset in our people and enables a more productive team, so that we succeed.

I am proud of the steps that we have taken to ensure a safe working culture within our Alliance, including introducing simple messaging based on the basics, our Back to Basics principles, in early 2024. By getting these basics right, we believe we have created the best conditions to deliver our work safely, on time, to budget and to programme.

James Harper, Commercial Lead

Learning from events is fundamental to the Alliance's safety performance as it results in continuous improvement and a reduction of safety incidents. I have always believed that the Alliance has a very proactive attitude towards safety.

The Alliance has a complex and unique contract structure, with six project partners, ranging from client participant to design and construction partners. It also has an incredible supply chain subcontracting into the main partners, which delivers a challenging and diverse portfolio of multi-discipline works across the East Coast Main Line.

All the above creates pressures in terms of integration of works, scope certainty and general programme efficiency. The Alliance has become very effective in delivering major items of work together, underpinned by our open approach to discussing partner scope integration and risk.

Alliance Leadership Team

ALT

What 'Learning from Events' means to us

Sarah Cairns, Civils Lead

For me, learning from events is about capturing the root cause, ranging from process, culture, management or resource amongst others.

It is important to take positive steps to continually improve and share lessons across the project and the industry. Most importantly, it is key that we implement these changes in future planning to prevent reoccurrence.

Chris Thompson, CEM

Safety is number one and we are proud to possess a good culture of this across the Alliance. We have worked hard to deliver the power supply upgrade (PSU) unnoticed; delivering and commissioning close to the operational railway, always aiming for minimal disruption to the live infrastructure, passengers, and freight.

Learning from events is important. For example, we experienced repeated incidents of off-track teams working within a metre of High Voltage cables. The teams were not required to be competent in HV and initially, didn't understand the hazards. To overcome this, we utilised the strength of our delivery partners and identified a better way of working. We adopted the procedure used in Wessex and London and other third rail areas, whereby the Network Rail (NR) standard defines that you must have a safety procedure in place when working within one metre of the HV.

As a direct result of our work, we have influenced the NR standard, and it is now being introduced across the entire UK rail network. Overall, this improves safety and mitigates risk going forward for everyone working on the UK railway infrastructure.

Alliance Leadership Team

ALT

What 'Learning from Events' means to us

Steve Platts, Construction Lead

For me, learning from events is deeply important because it gives us the chance to prevent similar incidents. It's about being able to look ahead and make sure that we are doing everything we can to keep our team safe.

It's a journey of always trying to do better. By really looking at what's happened in the past, we can fine-tune how we do our OLE construction and installation, making it safer and more efficient.

It is also about being open and sharing our experiences. If something happens, we all need to learn from it. The real value is in taking what we've learned and putting it into practice. But it's not just about ticking a box or completing an investigation – it's about creating a culture where people feel empowered to speak up, where learning is encouraged, and where we turn insight into action. Every lesson learned is an opportunity to build trust, strengthen our processes and protect the people we work with. The goal isn't perfection – it's progress. And that only comes when we treat every event, big or small, as a chance to get better.

Dean Huggins, HV Discipline Lead

Working with high voltage electricity means that any safety events are serious. The outcome can be significant, life changing and create considerable risk. The process and controls around our work are critical for safe delivery. When an event happens, we thoroughly investigate the planning and delivery of the work to identify the root cause. Our number one priority is that everyone must go home safe.

When we learn from events, we identify the root cause, share the learning with the wider team and apply the mitigations. Each of us are responsible and accountable for safety, sharing and applying the learning from events is critical to prevent a repeat in future.

We identify the issues which pose a risk to safety and performance, making changes to our plans and processes if required. As outlined in our 'Back to Basics' principles, we follow the Network Rail Lifesaving Rules religiously and above all else, plan the work and work the plan.

Network Rail

Sohail Patel, Principal Portfolio Manager, East Coast, Network Rail Eastern

With accountability for the delivery of schemes across the East Coast Route for Capital Delivery, it is important that we share our learning from events with the wider rail industry. We have a responsibility to share the pain of our lessons learnt, and importantly the rest of the industry has a responsibility to act on those valuable learnings.

Put simply, if it can happen to us, it can happen to them. By taking the knowledge gained from our learning and crucially, people acting on it, we can collectively prevent further harm and close the loop for the industry going forward.

Sometimes, particularly on a project that spans over a decade, complacency can creep in. We don't always appreciate the safety risks. We almost become immune to seeing the risks. No one ever comes to work, to not return home.

The power supply upgrade project is complex, involving high voltage, working with plant and at height, all alongside working with an operational railway. We have worked closely with National Grid, and have learnt to work with their rules and standards. We have also been working in a high-street environment where appropriate, to allow for efficient delivery.

The key learning here is that when a high-street environment is adopted, everyone must be aware that third party contractors (such as non-rail contractors) may not fully understand the additional risks of a railway worksite, from working with high voltage to ACRs (automatic circuit reclosers).

REAL leaves a legacy of a complex power supply upgrade, that was delivered well and whilst the railway was still running, encompassing nearly 400 miles of mainline railway. It has also highlighted the benefits that greener, more cost-effective innovation provides to the rail network. The project has allowed the successful introduction of the new Hitachi trains in 2015 to 2017. These modern, longer, greener trains have increased capacity for our passengers and are now seen as business as usual on the East Coast Main Line.

The PSU project has also enabled innovative technology such as containerised ASG25 substations and Static Frequency Convertors to embed its solutions and in turn, wealth of benefits, across the industry.

This aide memoire supports the important work that we as Network Rail and our supply chain, have been doing to promote the use of the NR Safety Central lessons learnt resource library. I believe the initiative will further encourage our industry to move beyond acknowledgement of safety lessons, to a position of action to ensure that everyone arrives home safe, every single day.

Learning from Events

Electrical

Electrical

Life-saving rule breach (plans and permits) designated earthing point (DEP) located outside of SWP mileage

EcoOnline Ref: 248524 **Date & Time of Event:** 25/09/2022

Summary:

On Sunday 25th September 2022, the Rail Electrification Alliance (REAL) were due to undertake works at Durham within possession LNEN106. Part of these works required the Alliance to establish an engineering worksite with an accompanying isolation.

During the establishment of the engineering worksite and isolation, it was noticed that the southern Designated Earthing Point (DEP) for the isolation was outside of the published limits for the engineering worksite. The Safe Work Leader 2 (SWL2) contacted the on-call Manager responsible for Rail Operations who informed the SWL2 of the changes required in order to safely erect the isolation earths and establish the engineering worksite.

The SWL2 contacted the Person in Charge of Possession (PICOP) to request the engineering worksite be extended to cover the isolation limits, to which they agreed.

The SWL2 then contacted the project Duty Manager (DM) to authorise the proposed changes to the worksite mileages. The project DM denied this request, stating that the SWP mileages for those involved would not cover the new limits.

Attempts were then made to shorten the isolation, as to fall within the engineering worksite limits, but the request was denied by the Electrical Control Operator (ECO) who cancelled the isolation stating workload and safety concerns.

An initial investigation was conducted into the events from that night which found the project had conducted works in this area on 3 previous occasions (Week 16, 17 & 25). This initial investigation found that the AP responsible for placing the southern worksite marker boards (WSMB) and installing the isolation earths at E406/25+26 (64m 18ch) on Week 25 had worked outside of the mileages contained within their SWP (64m 20ch to 66m 62ch).

Immediate Cause:

The Authorised Person (AP) worked outside of the published limits of their SWP.

Underlying Cause:

- The document used to determine the mileage of the southern isolation limit was incorrect
- The Authorised Person (AP) failed to establish their location in relation to their site of work prior to accessing the infrastructure
- The events from previous weeks were not escalated to the Isolations Manager or reported as a Close Call
- The NP did not recognise that the southern DEP was outside of the planned worksite mileages during the NP walkout

Root Cause:

Ineffective planning - The document used to determine the location or the southern isolation limits is uncontrolled and incorrectly listed the location of the DEP. Furthermore, the Nominated Person Walkout did not identify this error.

Key Photographs:

Illustration of worksite and isolation limits

Access point information board

Earthing – Earths to be applied or removed as directed by the Nominated Person

Location (Structure Number)	Line(s) Affected	Duplicate (D) or Single (S)	OLE Earths	RC Earths	Applied	Removed	Remarks
E406/25	DOWN MAIN	D	2	2	4	4	AT ACCESS
E406/26	UP MAIN	D	2	2	4	4	RIGHT SOUTH

Switching testing earthing details (STED) form extract

Electrical

Life-saving rule breach (plans and permits) designated earthing point (DEP) located outside of SWP mileage **continued**

EcoOnline Ref:	248524	Date & Time of Event:	25/09/2022

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- The PiC/COSS must ensure that the planned works are contained within the mileages of the safe work pack
- Amendments can be made to a safe work pack following authorisation from the Responsible Manager and a dynamic risk assessment

What did we learn?

The Designated Earthing (DEP) Point Register does not provide accurate mileages for DEP's.

What are we going to do differently?

Confirm the mileages of access points and DEP locations during Nominated Person Walkouts.

Notes:

Electrical

Incorrect application of overhead line equipment earths by authorised person

EcoOnline Ref: 275686 **Date & Time of Event:** 30/04/2023 - 02:06 approx.

Summary:

Sunday 30th May 2023, the Rail Electrification Alliance (REAL) were undertaking a planned isolation at York, North Yorkshire, within Possession LNEN097 - Skelton Junction to East Cowton Crossovers. As part of the planned isolation REAL were tasked with isolating and earthing between E306/05 to E307/01 on the Down Slow, Up Slow, Down Fast and Up Fast line of the East Coast Main Line (ECML).

Whilst establishing the isolation, an Authorised Person (AP), working on behalf of the Alliance, was witnessed incorrectly applying local earths to the return conductor wires at E/306/05 (Live to Live as opposed to Earth to Live). At this point, the Earthing Assistant (EA) raised concerns to the AP regarding the configuration of the earths.

The AP then proceeded to their second Designated Earthing Point (DEP) as per their Switching Testing & Earthing Details (STED) Form to apply local earths to the Sealing End's (a connection between overhead line and lineside cables) at E/306/06A. At this location, the AP was again witnessed incorrectly applying a local earth (Live to Earth). A subsequent report was made to the Nominated Person (NP) in charge of the isolation by the EA, who confirmed the earths had been incorrectly installed at E/306/05.

The earths at this location were reconfigured by the NP at approximately 02:55 to permit the isolation to commence. Following this, the AP was relieved of their duties and requested to sign out and return home. The issue was then retrospectively escalated to the Project Duty Manager at 03:28 and VolkerRail Control Centre (VRCC) at 03:40. At this point, it was too late to commence the required evidence gathering or 'For Cause' Drug and Alcohol Screening.

Key Photographs:

Illustration of incorrectly applied earths at E/306/05

Immediate Cause:

The Authorised Person incorrectly applied overhead line earths to E/306/05 and E/306/06A.

Underlying Cause:

- The Authorised Person did not recognise the consequences of their ill-health in relation to their safety critical role
- The Authorised Person stated that their focus/decision making had been affected by their ailment and yet failed to inform the Nominated Person or stand down from their duties
- The Authorised Person did not act upon the concerns raised by the Earthing Assistant
- The Earthing Assistant challenged the Authorised Person on the application of the overhead line earths at E306/05
- The Authorised Person wrongly believed that they were protected by the test before the earthing process when applying the overhead line earth to the live spigot of the sealing end location
- The Authorised Person stated that due to testing the sealing end with their live line tester, they believed it was safe to apply the overhead line earth to the live spigot first

Root Cause:

On two occasions, the Authorised Person failed to apply the overhead line earths in line with the Authorised Person Training.

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- If you believe the task to be unsafe, stop the task and follow the work safe procedure
- It is the responsibility of the individual to raise concerns surrounding their personal fitness for duty

What did we learn?

Those acting as Single Points of Contact or Site Leads are to be familiar with the Guidance for 'For Cause' Drug and Alcohol Screening.

What are we going to do differently?

- Report incidents immediately to the Project Duty Manager or VRCC - The required incident management actions may be missed if a report is made retrospectively
- Isolations Team are to conduct a lessons learnt workshop, focusing on the key findings of the investigation

Electrical

Unassessed works undertaken on High Voltage (HV) troughing route

EcoOnline Ref:	314291	Date & Time of Event:	07/03/2024

Summary:

On Thursday 7th of March 2024, Rail Electrification Alliance (REAL) operatives undertook works on a High Voltage (HV) troughing route at Dalton, Thirsk as part of the East Coast Main Line (ECML) Power Supply Upgrade (PSU) project without the required assessment and subsequent submission to the Alliance Racecard.

As part of the overall snagging works at this location, the operatives were required to drill holes into the side of the glass reinforced plastic (GRP) troughing in order to install 'J' hangers (fixed brackets attached to posts that support the elevated route).

The HV cable contained within the trough route at this location was due to be entered into service the following weekend (Week 50) and therefore was not energised at the time of the snagging works. Although not live, controls had not been determined through a sufficient assessment that would protect the HV cable from damage during the drilling activity.

A close call was logged within the Principal Contractors (PC) reporting system on 07/03/2024, 08:30, stating that works had been undertaken by the operatives without a submission into the Alliance Racecard. Initial investigations were undertaken to determine the potential impacts of these works and further investigation instigated, to determine the underlying and root cause of the close call.

Key Photographs:

Trough route prior to snagging works

Trough route following snagging works

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

What did we learn?

The Alliance HV Process was not adhered to by those responsible for planning the works:

- Those responsible for the preparation and authorisation of the task documentation did not consult the HV CRE in order to determine the risk level and mitigations required to undertake works on the HV route

Sufficient controls were not included within the task documentation that would prevent damage occurring to the HV cable as a result of the works:

- The task documentation did not highlight the potential of damaging the HV cables and therefore does not require that protection is put in place
- The task documentation was not specific to the snagging works being undertaken and instead relates to the general installation of HV routes and cables
- The Civils CRE was not informed of the snagging works to be undertaken and was therefore unable to implement the process for reviewing the task documentation

The Alliance Racecard Process was not adhered to by those responsible for planning the works:

- Those responsible for the management of the site at Dalton were unaware of the works being undertaken and therefore were unable to undertake final assurance on site
- As a result, the works were not reviewed during the Construction Integration or Operations meetings

Workplace Pressures (perceived or actual):

- The pressure of not completing the snagging works prior to the EiS influenced the decision making of those responsible for the planning and instruction of the works

What are we going to do differently?

- Take the time to ensure the Alliance Race Card process is adhered to - late entries can be submitted following a thorough review and assessment of the risk
- Incorporate specific risk controls for works undertaken outside of the normal sequence of works, specifically in relation to works undertaken within 1m of a HV cable or route
- Reinforce the message that completing works in a controlled and safe manner is the only way to complete our works

Electrical

Electrical section tripping event – bare feeder wire separation – Dalton

EcoOnline Ref: 285031 **Date & Time of Event:** 16/07/2023

Summary:

OLE works took place at Dalton Track Section Cabin (TSC). The works included the install of 2x 11.49m Universal Column (UC) masts, including transfer plates, Aerial Earth Wire (AEW) brackets, temporary structure plates (E/334/02A and E/334/02C) bare feeder supports and clipping in (attaching) the bare feeds to the structure. The AFC design for structure E/334/02A required the existing bare feeder cables to be installed on the outside of the UC. The nature of the site made this a challenge due to the bare feeder cables being very tight. Installing the UC fully dressed with all support brackets and pots would require cables to be split and spliced. To avoid this, the team planned to install the UC undressed and once in place, support brackets and pots would be installed.

Due to time constraints and the tight bare feeder arrangements, a decision was made to focus on one UC out of the two. Once in place, the install of the brackets and insulated pots for the bare feeders proved unachievable. Medium Voltage Line Cover (MVLC), (a temporary covering designed for use where bare conductors require electrical insulation from adjacent wiring/structures), was utilised to meet isolation/possession time limits. This left the bare feeder cables tight to the UC with approximately 2 meters of MVLC fitted to insulate the bare feeder from the UC.

On Sunday 17/07/2023 at 14.52, the MVLC covering the lower bare feeder cable appears to have burnt and parted, such that the bare feeder cable became electrically connected to the UC causing a short-circuit to earth, tripping the OLE supply. The lower bare feeder parted at the UC with the North end falling outside the Network Rail boundary. A section of this cable came to rest with a loop suspended over a public right of way at under-bridge 37, ECM5, Isle Beck Road, thereby creating a public hazard. The hanging cable was spotted by a member of public and reported to the police who closed the public right of way and reported this to Network Rail control.

All four lines were electrically isolated and closed to traffic. One train came to a stand in the neutral section at Thirsk, with passengers being de-trained to an alternative service. 11 trains were cancelled, with 17 part-cancelled, and 128 other services being affected with a total delay impact of 4,326 minutes.

Conclusion:

Whilst physical fatigue has not been identified as an issue in the incident, it should be noted that workload does appear to be a potential factor with a small number of individuals being required to not only undertake multiple roles during the same shift, but also to undertake various significant activities in the preparation for future shifts. There is also the risk of the continuous delivery of repeat tasks creating a mental fatigue where people start to 'do what they have always done' rather than do what is planned - see §8.7.

Access to the railway (possession and isolation granted) was given circa 10-minutes later than planned, and there was a request from the ECRO to give the isolation up 40-minutes earlier than planned. This reduction in work time will have added pressure to the construction team - see §8.7.

The MVLC wrapped bare feeders were left tight to the UC. A short circuit to earth between the bare feeder and the UC developed causing the OLE to trip. It is not possible to determine whether the MVLC parted and exposed the bare feeder to direct contact with the UC or melted due to heat buildup at the point where there was direct pressure between the wire and the UC. This short circuit resulted in the OLE tripping and failure of the section to re-energise when attempted by the ECRO. This is the first of two root causes.

It is clear that the use of MVLC was made with the best intention and an incorrect assumption that the required air-gap insulation between bare feeder and UC could be measured along the length of the MVLC to its end, rather that the physical airgap between MVLC and the UC. It should also be noted that the team confirmed they did not use the product approved crimping tool for the MVLC as this may also have had an impact on the effectiveness of the application of MVLC - see §8.7.

The TBS and ITP documents were focused on work-type rather than specific shift/site requirements. Had these documents been written shift/site specific, it is likely that better-informed decisions would have been made on the most effective way to undertake the works. Not at least, the optimal on-tracking order of the OTP would have been identified in the task brief surgery, facilitating a tandem lift or the bare feed supports using two MEWP's. Improved construction planning would have influenced this documentation and is the second root cause – see §8.3, §8.4 and §8.5.

The AFC design was issued and accepted by the client with non-compliant positioning of the bare feeders on the outside of the UC - see §8.12. The as-built status at Dalton was configured this way, but where there is risk of wiring falling outside of NR boundaries, the current standard requirement is for ATF to be positioned inside the NR operational land boundary, and where reasonably practicable, ATF conductors shall be positioned where a broken conductor will not fall outside the NR boundary (NR/L2/ELP/27715 Mod 3, Section 3.2). Aside from the non-compliance, this arrangement made constructability difficult, resulting in the UC being installed undressed.

Electrical section tripping event – bare feeder wire separation – Dalton **continued**

EcoOnline Ref:	285031	Date & Time of Event:	16/07/2023

Conclusion continued:

A TQ was raised proposing repositioning of the bare feeders to the inside if the UC, but this TQ was not progressed or responded to. It is the opinion of the construction team that had the bare feeders been mounted inside the UC via a design update, the UC could have been installed fully dressed - see §8.12.

While there is a weekly plan that includes contingency measure, the entries for Dalton were generic and OTP focused with little regard to the actual works and any site-specific hazards. Within this document there is no evidence of hold points or escalation routes to follow when the plan had to change - see §8.11.

Underlying Cause:

§8.7 - Planned work time reduced by c13% due to late form C and ECRO request for the isolation to be handed back early. Addressed by correction action no. 5, 6

§8.1.2 - Site supervisor had multiple roles to fulfil on shift as well as undertaking a COSS assessment, resulting in a broad spread of his attention. Addressed by correction action no. 3

§8.8 - On tracking of machines in sub optimal order and unable to facilitate the dual basket lift required to dress the structure. Addressed by correction action no. 2

§8.5 - The Alliance duty manger escalation procedure was not followed when planned work had to be amended (this includes the reduced volume delivered and the decision to deviate from AFC design by fitting MVLC). Addressed by correction action no. 4, 6

§8.2 - Poor communication between the OLEC4 and OLEC5 (in different locations on the shift) with incomplete information passed from site supervisor to the OLE engineer resulting in the decision to use MVLC. Addressed by correction action no. 4

§8.12 - AFC design was non-compliant to current standards with the bare feeds positioned on the outside of the structure resulting in difficult UC install. Addressed by correction action no. 9

§8.12 - Lack of robust management of technical queries. Addressed by correction action no. 9

§8.3, §8.4, §8.5 - Lack of robust work type and site-specific contingency planning. Addressed by correction action no. 5

Notes:

Electrical

Grantham - Installation of long blue earths caused feeder to trip

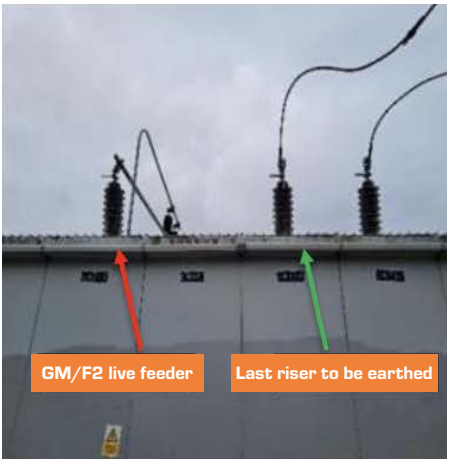
EcoOnline Ref: 314291

Summary:

OLE works were planned to take place at Grantham on Twin Track Cantilevers (TTC) and as part of the isolation it was planned to apply earths within the Grantham Feeder station.

The Nominated Person (NP) authorised the Appointed Persons (AP)'s to apply their earths as per the STED Form after receiving the Form B from the ECRO. After a short while the NP received a call from the ECRO asking if any of the AP's had tripped the incoming feed at the Grantham North Feeder Station. The AP had stumbled while applying the earth onto GM/62 and his pole crown and the P&B head had come into close proximity of the incoming feeder GM/F2 and it had arced across.

Key Photographs:



View looking at the Risers and incoming feed on the left

Side or rear of the Feeder Station and poor underfoot conditions

Immediate Cause:

Whilst installing Long Blue earths at the Grantham Feeder station, the AP came into contact with the live feed, causing the feeder to trip out.

Underlying Cause:

- The site visit undertaken by the AP failed to identify the poor underfoot conditions when working in and around the Feeder Stations
- The Long Blue earths are longer than they needed to be and can become a tripping hazard by potentially contacting other risers or feeders
- The Sentinel Training and Assessment package for NP / AP does not cover the specific methodology of Lifting, raising, or swinging the Long Blue Earths in a Feeder Station
- Pre-existing injury (shoulder) meaning the earthing pole was swung from the left side, whereas the right side may have been the safer option. Alternatively, raising the poles straight up is the preferred method

Root Cause:

No site-specific Risk Assessment had been carried out to cover the on-site risks and access restrictions.

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- A site-specific Risk Assessment must be carried out for each feeder station ensuring it covers access, underfoot conditions, methodology for applying and removing earths and security at site
- There needs to be a structured workshop to explain and demonstrate to NP's & AP's how to correctly and safely use isolation poles to apply and remove Long Blue earths correctly when working in Feeder Stations
- Employees need to demonstrate that they are capable of erecting earths safely for all situations and with a full set of poles; this could form part of the biannual assessment for NP/AP
- The procurement of Long Blue earths that are suitable for the function they are intended and not a 'one size fits all' approach adding to hazardous underfoot conditions

What did we learn?

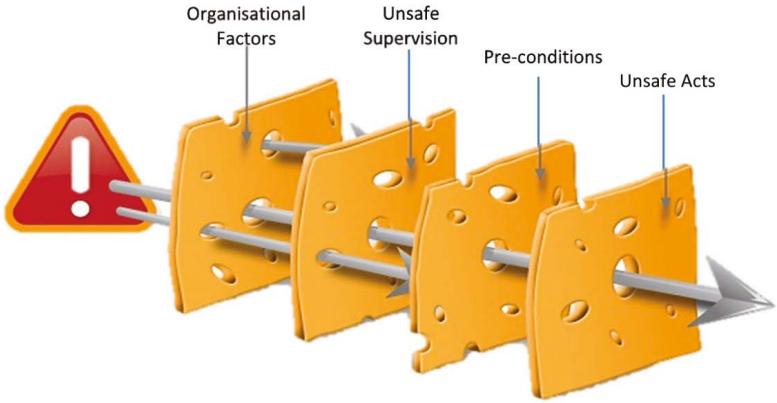
- Site walkouts must be carried out, risk assessed and some on site action is to be taken to clear the hazards in readiness for the work at night
- We cannot assume that everyone is trained to the right level of competence. Checks carried out through demonstrations or discussions are required to ensure that people understand the risks and talk through the methodology of their application of the earths prior to undertaking the role / duty
- Put more thought into the procurement of Long Blue earths so that we have the correct length for the task at hand and do not have several metres of unused earth on the floor

Grantham - Installation of long blue earths caused feeder to trip **continued**

EcoOnline Ref: 314291

What are we going to do differently?

- Create a site-specific template to allow for photographs to be taken before and after the site visit to demonstrate that the area has been tidied up if it needs it. Capture and provide specific detail on the access, location and lighting linking it with a Site-specific Risk Assessment capturing all the risks, control measures and the methodology of how to apply earths within a Feeder Station
- The provision of specific training on the correct methodology of applying earths within Feeder Stations and keeping a record of who has had the training to support the allocation of NP's to the specific task
- Once the exact measurement for Long Blue earths is determined within Feeder Stations we will procure enough earths at that length to allow the teams to work more safely and with less risk to come into contact with other risers or feeders or have tripping hazards from our own equipment



'Reasons' Swiss Cheese Model

Notes:

Electrical

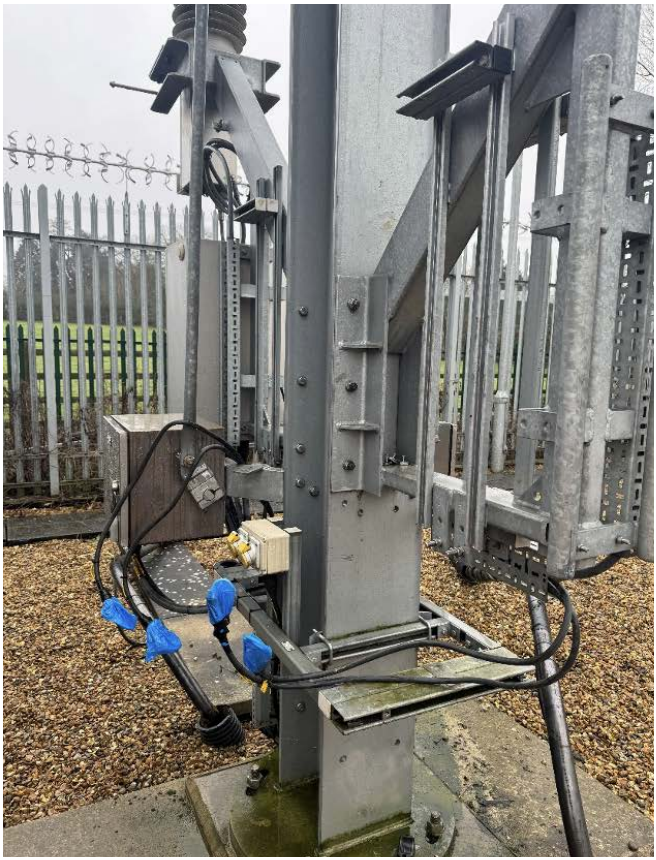
Circuit breaker mass trip prior to bench testing of current transformers

EcoOnline Ref:	310273	Date & Time of Event:	08/02/2024 08:00

Summary:

While preparing the testing of Current Transformers (CTs), at 08:00 on 8th February 2025, a circuit breaker mass trip event occurred at Corey's Mill Auto Transformer Feeder Station (ATFS). The mass trip was initiated by a Circuit Breaker (CB) Fail of circuit breaker CSMA/AT2. Immediately following the event all work was stopped on site and the staff stood down. No one was injured during the incident but there was 530 minutes of train delays.

Key Photographs:



CT secondary wiring removed and bagged/taped

What did we learn?

- The incident was caused by one of the CT secondary wiring cores, associated with IA current input, being shorted to earth. Due to having multiple paths to earth in the circuit there was a potential difference between the two earths which caused the current to flow in the secondary wiring. Because the secondary wiring was connected to the relay and the protection elements within the relay were active, the relay operated as designed and sent a CB Trip, but because the relay did not see a CB Trip (CSMA/AT2 was already in the open position), a CB Fail signal was sent to other circuit breakers causing the mass trip
- During the works to disconnect the CT Secondary wiring, rainy weather allowed water to gather in the bag. Staff did not see the weather conditions as a reason to stop the works and reassess how they were being carried out
- The risk of protection trip had not been identified within the WPP & TBS. Appropriate mitigations were not put in place to avoid this risk
- No specific Design Specific Risk Assessment was produced by the design team for the CSMA/AT2 staged design. The works were led by the construction team and the associated risks controlled by the site team
- Protection elements were still active within the CSMA/AT2 MiCOM P143 protection relay
- Although not deemed contributory to the incident, two TBS's were in use for this shift with the TBS used for the removal of the CT secondary wiring being 4 days out of date

What are we going to do differently?

- A 'Site Step-Up' briefing is to be undertaken within the Testing & Commissioning discipline, focusing on the requirement to reassess works following changes to site conditions. These shall include but are not limited to, rain, high wind, lighting conditions, excess noise. This site step-up briefing is a requirement before site works recommence on site at Corey's Mill
- All outstanding HV activities, including staging works shall undergo a risk review session with representatives from the Design Team, Construction Team and T&C Team. Any risks identified shall have appropriate mitigations identified. The Risk Assessment for this Work Package shall be updated to reflect identified risks. These risks and mitigations shall then be included within the relevant WPP & TBS and briefed to the site team so that they can be implemented on site
- It is recommended that the risk review for all remaining stages of construction are reviewed along with the staged design at an IDC
- When carrying out work on the protection system, the circuit being worked on shall, where possible, be planned to be switched into circuit earth. This action results in all protection elements becoming blocked. Where the circuit cannot be placed into circuit earth, the protection elements shall be disabled. Which elements are to be disabled shall be agreed with the P&C design engineer
- Review task documentation with the aim of rationalising the TBS's, so that all activities involved with a task are contained in one TBS

Electrical

MEWP snapped aerial earth wire

EcoOnline Ref: 337712 **Date & Time of Event:** 15/09/2024 02:30

Summary:

At approximately 02:30 on 15th September 2024, the PSU2 project and OLE MEWP were supporting the undertaking of the switch work at Aycliffe in readiness for entry into service, encountered the aerial earth wire. As a result, the earth wire snapped.

A rail mounted OLE Mobile Elevated Work Platform (MEWP) was being used to install OLE back link cables to a newly installed OLE structure on the REAL project. The cables to the North side of the structure were installed without any incident. When re-positioning the MEWP on the South side of the structure with the basket between the contact wire and aerial earth wire (AEW), the knuckle of the MEWP boom came into contact with the AEW snapping it, with one half remaining attached to the structure and the other half falling to the ground, into the exclusion zone near the cess. There were no injuries.

The operator and machine controller were immediately stood down for for-cause D&A testing. The engineer/OLEC5 on site agreed a local repair using additional wire and clamps with a plan to revisit to affect a permanent repair.

The wire was repaired and signed off by Network Rail Maintainer as sufficient and there was no disruption to the operational railway.

Key Photographs:

MEWP snapped aerial earth wire

Key Message:

- Does the task have sufficient lighting and has this been assessed as part of the planning for the works?
- Take time to do the tasks right, ensuring everyone is aware of their roles and expectations of behaviour and performance whilst undertaking their duties
- When escalation is done on time and right, priorities can be set, and the principles of incident management can be appropriately implemented. As a result, the infrastructure can be effectively repaired without impacting the operational railway and the required site information can be gathered in preparedness for the investigation and important learning

Immediate action required:

Ensure all arrangements are considered and in place, including:

- Provision of adequate and suitable site and machine lighting
- Consider positioning of lighting. Is it causing glare or impairing visibility for the operatives or machine/crane controllers?
- Take time to brief and set expectations of performance and behaviours

An investigation into this event is currently taking place and its findings will be cascaded through shared learning upon completion.

What did we learn?

The operator positioned the boom so that the boom knuckle was bent, limiting the clearance and bringing it close to the AEW. The operator continued the movement of the boom over the AEW thinking it was clear on instruction from the MC. The MC did not stop the movement, despite the MC not having a clear view of the boom and AEW. The MC didn't stand in a position to obtain a clear view prior to instructing the operator to start the movement.

What are we going to do differently?

The movement of machinery in the vicinity of vulnerable equipment, especially near overhead wires and structures, requires careful and coordinated control:

- Other persons on site must keep clear of the exclusion zone to ensure their safety and to avoid unnecessary distraction to the MC and operator
- The MC and operator must set up and test the comms arrangements using duplex comms
- The MC and operator must be aware of areas of potential high risk in close proximity to equipment and structures, agree how safest to proceed and set expectations as to how communications will be given/received
- The MC must stand in a safe position to give a clear view of the MEWP and equipment
- If the view of the MC is obscured for any reason, the MC tell the Operator to stop
- If the Operator loses communications with the MC, the movement must stop
- Only re-start the movement once a clear and safe instruction is given/received
- As the movement proceeds, the communications must be clear and constant giving assurances between the MC and Operator that the movement is safe to continue

Electrical

Snagging works reported by PSU1 contractors

EcoOnline Ref: 248524 **Date & Time of Event:** 09/06/2020

Summary:

On the 9th June 2020, the PSU1 Contractors Engineering Manager (CEM) received an email with photos from Essendine of the snagging works completed on the 3rd June 2020. The CEM raised this to the Alliance Leadership Team (ALT) and the Civils Contractors Responsible Engineer (CRE) as there were concerns over the quality of the works undertaken.

Key Photographs:

Damaged troughing route before repairs

Troughing route after repair

Immediate Cause:

Carrying out unplanned works without authority.

Underlying Cause:

- Failure to request a HV Permit
- Task Briefing Sheet did not cover the risks and control measures of working in/around live HV
- Failure to request a HV Assessment
- Failure to escalate to the Civils CRE for clarification on what action was to be taken
- Failure to update the Task Briefing Sheet following the walkout, meaning it was too generic and didn't cover the snagging activities to be undertaken

Root Cause:

- Failure to plan activities in and around high voltage equipment robustly, leading to deficiencies in control measures.
- Failure to manage the additional damage identified, works should have been stopped and a HV assessment carried out to determine the appropriate risk controls.

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- Do not undertake any works without the correct permits
- Always ensure you have all the correct paperwork before starting work
- Invoke the worksafe procedure
  1. Challenge a potentially unsafe system of work or behaviour
  2. Escalate to Site Supervisor/Person in charge
  3. If the persons raising the concern is unsatisfied by the outcome, then this can be escalated to VRCC using the Close Call system, and to the Alliance Leadership Team
  4. Review of the Close Call system by the HSQE Team, issues will be investigated as appropriate

Notes:

Learning from Events

People Plant Interface

People Plant Interface

Hambleton junction excavation unsuitably managed

Date & Time of Event: 16/06/2020

Summary:

At approximately 09:50 on Tuesday 16th June 2020, a Network Rail Senior Construction Manager (SCM) made an unscheduled visit to the Hambleton Junction construction site to use a meeting room. Whilst driving down the main access road onsite, they observed REAL staff working within an excavation that wasn't being suitably managed.

The purpose of the excavation was to install a precast concrete culvert headwall within Bayles Dyke. The SCM stopped at the excavation and discussed concerns.

Immediate Cause:

Failing to manage excavation works and tasks associated with the activity.

Root Cause:

- Details within the methodology of the works was not proportionate in providing sufficient information for controlling the risks associated with the task
- The design of the 30° batter/slope could not be achieved due to the constraints of the working environment (Hawthorn bush / access road).
- There was no inclusion within the documentation associated to the Bayles Dyke culvert headwall installation for managing and monitoring temporary works effectively as per the disciplines Temporary Works Procedure
- The excavator used for the task was not adequate to reach areas of the Bayles Dyke culvert
- There wasn't a review of training and competency to assess suitability of undertaking the task

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- Ensure the level of detail available to the site team is proportionate to the complexity of the task
- A review of training and competence for lifting tasks in compliance with The Lifting Operations and Lifting Equipment Regulations 1998
- A review of Temporary Works has been undertaken to ensure that any works is sufficiently detailed within the methodology
- The inspection process for managing / monitoring Temporary Works is to be undertaken by a trained and competent Temporary Works Supervisor
- REAL Alliance staff have been briefed on the Worksafe procedure that is intended for any member of staff to invoke, should they feel that the task in question is considered unsafe

People Plant Interface

Road Rail Vehicle (RRV) contacting VolkerRail operative

Date & Time of Event: 19/05/2024

Summary:

On 19th May 2024, a VolkerRail Beaver Tamper operative was struck and knocked to the ground by a Road Rail Vehicle (RRV) trailer, undertaking ballast profiling works on the adjacent line. Eye-witness statements allege that RRV trailer made contact with the individual when positioned in the six-foot, dragging him alongside the machine for approximately five metres.

A second VolkerRail Beaver Operative captured the attention of the RRV operator and communicated the requirement to cease all machine movements. The individual was escorted to hospital where he was subject to a physical assessment prior to being discharged the same evening, with minor cosmetic cuts and bruising to his face, arm, and torso.

What did we learn?

The investigation was led by SPL Powerlines and concluded several factors that were contributory to the incident:

- The RRV Machine Controller (RRV MC) was not situated in a suitable physical position to effectively manage the exclusion zones at the time of the incident. As the RRV MC was positioned in the cess there was potential of blind spot areas
- Lack of control and management of the worksite area in order to enable a swift and prompt reaction and ensure necessary control measures were agreed and instigated via safety critical communications, in order to ensure that OTM/OTP exclusion zones were not compromised
- There was no written evidence to prove that CRSA delivered a Task Brief on the night. This is a requirement in NR Standard NR/L2/OHS/019 and forms part of the requirements of Lifesaving Rules. From existing documents and POS briefings, the VR Beaver Tamper staff who were under the impression that the RRV and trailer was in the distance away from where they were working
- The investigation evidence revealed there was a lack of on-site safety critical communication between the POS rep of Quattro and Volker Rail
- No evidence was provided of a Safe Work Pack for the CRSA works, the panel had to conclude there were none in existence.
- The Principal Contractor (PC) delegated PC responsibility to CRSA as Network Rail Nominated Contractor, in respect of the management of the project works. Consequently, SPL failed to retain visibility of On Track Plant (OTP) operations and coordinate activities in compliance with NR/L2/OHS/CP0070 section 9.5.

People Plant Interface

Dismantling and removing a redundant Track Sectioning Cabin (TSC) at Potters Bar

EcoOnline Ref: 170754 **Date & Time of Event:** 02/07/2020

Summary:

On Thursday 2nd July 2020, a REAL Alliance site team was tasked with dismantling and removing a redundant Track Sectioning Cabin (TSC) at Potters Bar. The sequence of works were to unbolt sections of the TSC panels and cut them into manageable pieces with a disc cutter ready for disposal. When the panels were being cut, a member of the site team had raised concerns about the possibility of the paint on the structure containing lead.

This was escalated within the project and the task was stopped, samples of the paint were then sent for analysis and it was later proven that there were low traces of lead within the paint.

Key Photographs:

Part dismantled Potters Bar TSC

Side view of Potters Bar TSC

Immediate Cause:

Potential exposure to hazardous substances/ cutting TSC panels with disc cutter.

Underlying Cause:

- The Pre-Construction information that was provided to the Principal Contractor in January 2013 does not provide sufficient information on risks that would be encountered
- Those responsible for planning and carrying out the task did not possess the appropriate skills, knowledge or experience
- Although CM had undertaken a site walkout in October 2019, SM1 who had prepared the site documentation had not visited site
- There were no risk assessments undertaken for the dismantling and removal of the TSC structure
- The site documentation did not provide sufficient detail for the sequence of works selected
- Advice was provided for testing of paint samples although this was not acted upon

Root Cause:

- Detail within the methodology of works was not proportionate in providing sufficient information for controlling the risks associated to the task

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- All structures on the project are to have a suitable assessment for consideration to hazardous substances prior to any alteration or dismantling

What did we learn?

- The project did not account for possible hazardous substances to be found within the structures along the railway infrastructure

What are we going to do differently?

- Those that are responsible for planning works that are related to alterations / dismantling of structures are to liaise with the project HSQE team for guidance and support

People Plant Interface

Contact between MEWP and structural installed steelwork

EcoOnline Ref: 236113 **Date & Time of Event:** 14/06/2022 09:30

Summary:

At approximately 09:30 on Tuesday 14th June 2022, a Mobile Elevated Working Platform (MEWP) came into contact with, and significantly damaged, steelwork within the Static Frequency Convertor (SFC1) pump room area of the Hambleton compound.

Key Photographs:

Damage to steel upright within SFC building

Hambleton SFC buildings

Immediate Cause:

Inadvertent contact between MEWP and steelwork.

Root Cause:

Ineffective communication and control

- REAL failed to adequately inform sub-contractors working on their behalf of the required safety critical controls necessary to safely complete the planned works
- REAL failed to ensure that the required level of supervision was in place for sub-contractors completing works on their behalf

Underlying Cause:

Planning:

- The required resource was not fully understood and properly considered by the sub-contractor during the planning stage of the works
- The review of the sub-contractor's methodology did not identify the lack of resource required to undertake the activity

Implementation:

- The MO did not ensure that the area was clear of obstructions prior to commencing the movement of the MEWP
- The steelwork was within the path to be taken by the MEWP and had not been suitably considered by the MO prior to the movement
- The MO had operated without a banksman and supervision on previous shifts without being challenged

Site Documentation:

- The TBS did not contain the required controls to mitigate against the associated task risks
- The TBS does not specify the required method of communication as per project rules and procedures
- The planned works were not contained with the Work Package Plan (WPP) and therefore not sufficiently reviewed by the project team
- Additions had been made to the Task Briefing Sheet (TBS) without inclusion into the WPP
- A suitable and sufficient risk assessment had not been completed for the planned works

Supervision:

- The MO commenced works without the required supervision of a banksman
- The works commenced without the required level of supervision. The requirement for a site supervisor is detailed within the Method statement
- There was a lack of control of handover of responsibilities between the site management team and sub-contractors, which resulted from no clear roles and responsibilities within the SFC Team

What are we going to do differently?

REAL to adequately inform sub-contractors working on their behalf of the required safety critical controls and supervision necessary to safely complete the planned works:

- Review existing process for appointing sub-contractors
- Agree with Siemens the information that is to be provided to the subcontractor at tender stage
- Brief sub-contractors that are already appointed on REAL
- REAL are to inform their sub-contractor on the requirement to complete a risk assessment for all activities
- REAL are to undertake a review of site management roles and agree roles and responsibilities with key site management roles
- REAL are to implement a 'Command and Control' process to support the Site Management team in discharging their duties

People Plant Interface

Doncaster point run through

EcoOnline Ref: 256318 **Date & Time of Event:** 27/11/2022 04:15

Summary:

On Sunday 27th November 2022, overhead line equipment (OLE) works were taking place at Doncaster, South Yorkshire, within Possession LNES WON 35, item 6 as part of the Power Supply Upgrade Project for the East Coast Mainline.

In order to complete the planned works, the OLE team on tracked a Doosan Crane, Road Rail Vehicle (FR698) with a propelling Rail Trailer, a Doosan Crane, Road Rail Vehicle (TRS1027) with a propelling Rail Trailer (TRS1371), a Mobile Elevated Working Platform, Road Rail Vehicle (MEWP13407) and a Mobile Elevated Working Platform, Road Rail Vehicle (MEWP13408) at Marshgate Sidings.

At approximately 03:17, whilst in transit to work location, E/252/01A&B, TRS1027 with propelling trailer TRS1371 made a wrong directional movement over 2472B points at Marshgate Junction.

Arrangements were made to remove Rail Trailer TRS1371 from the line utilising RRV FR698 to enable Signaling & Telecoms (S&T) and Permanent Way (P.Way) teams to undertake testing of the points. The S&T and P.Way teams determined that no damage had been caused to 2472B points and possession of the lines was handed back at 07:45 without disruption to operational railway.

Key Photographs:

Illustration of the 'Switch Diamond' at Marshgate Junction

Immediate Cause:

The propelled rail trailer made a wrong directional movement over 2472B points.

Underlying Cause:

- The Overhead Line Equipment team failed to sufficiently plan and risk assess the route in which Road Rail Vehicle 1027 would travel in order to arrive at the site of work
- The Crane Controller did not hold the required level of experience to effectively manage the risks associated with the control of On-Track Plant
- The Overhead Line Equipment team failed to provide adequate and appropriate supervision for the Crane Controller following notification that they held no previous experience in controlling On-Track Plant
- The Plant Operation Scheme Representative and Points Operator failed to ensure that Point Stop Equipment (PSE) had been placed on the approach to 2472B points following the change to the planned route

Root Cause:

Planning and implementing

- The Planning team allowed for ad hoc decision making on the night, due to an over reliance on the delivery team, without adequate controls

What did we learn?

- Complex switch layouts can pose additional risks and must be identified in the planning stages to ensure the delivery team are familiar with the arrangements required. 'Switch Diamonds' can be identified within line diagrams, as shown below:

What are we going to do differently?

- Clearly document the route in which Road Rail Vehicles must take in order to arrive at their respective sites of work within our 'Parts 1-4' (PE326F01)
- Provide evidence of completed Record of Point Movement Forms (SAF31F01) at readiness reviews (Whiteboard Meetings)
- Develop internal processes to track and record the experience held by safety critical staff and document with the Training and Competence department
- Identify complex switch layouts, including but not limited to Switch Diamonds, Double and Single Slips, and distribute to those responsible for the planning and documenting of Road Rail Vehicle movements

People Plant Interface

Til dawn lamps placed on incorrect side of level crossing

EcoOnline Ref: 203961 **Date & Time of Event:** 17/07/2021

Summary:

On Saturday 17th July 2021 a VolkerRail Authorised Person (AP) applied earth straps to the Designated Earthing Points (DEPs) and placed blue Til-Dawn lamps to identify the isolation limits on the incorrect side of a Level Crossing.

The AP also acting as the SWL2 Assistant placed the Worksite Marker Boards at this location. The error was by others waiting off track. There was no damage or injury, however, due to the error in the placing of the protection, works involving on-tracking Of RRV MEWPs and a ground inspection team could not access the track at the crossing as planned.

The AP was also responsible for Level Crossing Attendant (LXA) duties, which were completed correctly.

Key Photographs:

The incorrect positioning of the isolation limits and Worksite Marker Boards. Red arrow indicates the VolkerRail work location North of the Level Crossing.

The correct positioning of the isolation limits. Red arrow indicates the ground inspection work location South of the Level Crossing and the correct position of Worksite Boards (400yds off the bottom of the photo).

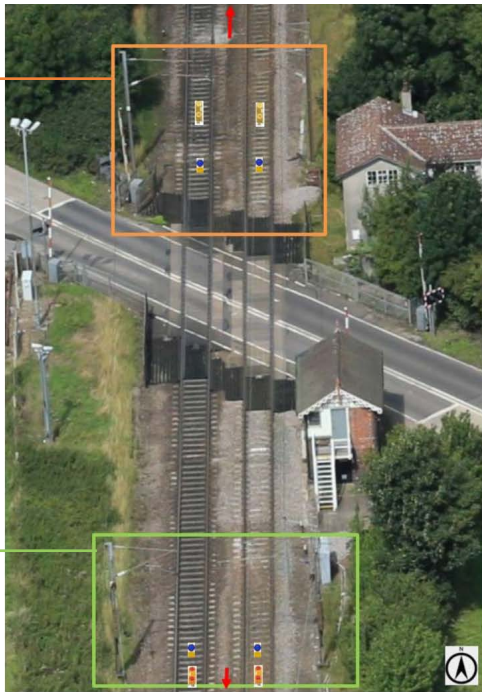


Illustration of the 'Switch Diamond' at Marshgate Junction

Immediate Cause:

The AP applied earth straps to an incorrect structure and positioned Worksite Marker Boards at the same location

Underlying Cause:

- The AP was complacent and incorrectly assumed a DEP plate confirmed the structure to be the correct one for earthing
- The AP did not visually check the OLE structure plates to identify the correct structure numbers as stated in the STED Form
- The AP was inexperienced in LXA duties, this caused concern and became a distraction

Root Cause:

- The assessments that determine whether a person is capable to undertake the duties required was not followed and did not take account of the APs lack of practical experience after LXA training and any supervision that may be required

What did we learn?

- Where a task or duty is new or infrequently undertaken, the person may be trained but not confident or have the necessary experience required. This can increase the risk of error, either in that task or other tasks the person is responsible for
- Level Crossings and structures such as bridges can have DEPS on adjacent structures, this is to facilitate earthing for the specific task location
- Checking against the plan or permit is important

What are we going to do differently?

- Where a newly trained or infrequent task is to be undertaken, the person should be supervised until suitable experience is demonstrated and confidence is gained
- When identifying persons for specific roles, we will assess the need for supervision and in consultation with the person VolkerRail procedure CMSOI — Competence Management System has more detail on this process
- We will all speak up if we are not confident, this is a strength, and we will support our colleagues
- We will never assume that a DEP is the only one in that area, we will check the STED and compare with the structure number plates
- We will always check the physical conditions on site with those stated in the plans and permits provided

People Plant Interface

Low loading vehicle reversed onto RRAP open to railway traffic

EcoOnline Ref: 183785 **Date & Time of Event:** 28/10/2020 22:50

Summary:

At 22:50hrs on Saturday 28th November 2020, a low-loading road vehicle had entered Tollerton Maintenance Yard to collect a Road Rail Vehicle (RRV) and transport it to Raskelf Station Yard Road Rail Access Point (RRAP) for the REAL Alliance project.

Whilst the vehicle was turning around in the yard the vehicle reversed onto the Up Sidings RRAP that was open to railway traffic. This manoeuvre was observed by the REAL Alliance Isolation Manager.

The Isolation Manager approached the driver and informed him that the Up Sidings was still open to railway traffic.

Key Photographs:

UP Sidings RRAP

Vehicle involved in the incident

Immediate Cause:

The low loading road vehicle had reversed onto the Up Sidings RRAP that was open to railway traffic

Underlying Cause:

- The previous week the RRV had been taken back to Tollerton Maintenance Yard, this was contradictory to the instruction given by the REAL Alliance project. This was due to miscommunication between the external Plant hire Supervisor and the haulage driver
- The project hadn't informed the plant hire company about the sidings when previous deliveries to Tollerton Maintenance Yard were arranged

Root Cause:

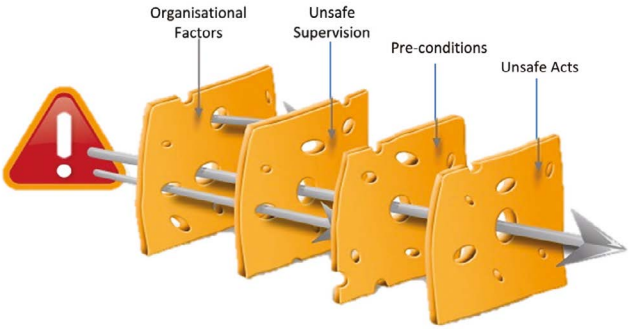
- The collection of the RRV was not adequately assessed for controlling risks associated to the railway infrastructure at Tollerton Maintenance Yard

What did we learn?

- From a previous visit to Tollerton Maintenance Yard the driver was incorrectly informed by a Network Rail staff member that the Up Sidings were no longer in use
- There was no suitable assessment in place that considered the possibility of vehicle incursion on the Up Sidings
- REAL Alliance business partners had not been providing sufficient information to plant and delivery suppliers that related to site specific hazards

What are we going to do differently?

- All plant and material deliveries and collections are to comply with the Principal Contractor's Management of Site Deliveries and Collections (SAF 23), this procedure applies to all business partners on the REAL Alliance project and their suppliers



'Reasons' Swiss Cheese Model

People Plant Interface

Unsafe movements of on-track plant Grantham

EcoOnline Ref: 202888 **Date & Time of Event:** 04/07/2021 06:00

Summary:

On Sunday 4th July 2021, at 06:00hrs a Network Rail Supervisor (N.S) approached the REAL Alliance Overhead Line Equipment (OLE) Supervisor (S.S) who was parked at Springfield Road Rail Access Point (RRAP) storage area. The S.S had just arrived at the storage area to meet his OLE team who had also arrived at the RRAP and were off-tracking their On-Track Plant (OTP). The OLE team had dismantled and removed two Twin Track Cantilever (TTC) structures that was 2.5 miles north of Springfield RRAP earlier that morning.

The S.S was informed that a Mobile Elevated Working Platform (MEWP) that belonged to the REAL Alliances OLE team had been observed travelling through the same work site as the Network Rail (NR) OLE team with the Machine Controller travelling in the MEWP basket.

Additionally, the N.S received further allegations about the OLE teams SRS HIAB (RRV) had travelled within approximately 30 metres of NRs OTP at 105m 69ch in reverse without being controlled from the ground by a Crane Controller (C.C) or any warning method given. The Network Rail OLE team had been installing new contact wire from 106miles(m) 30chain(ch) to 106m 20ch earlier that morning.

Key Photographs:

Machine Controller and Crane Controller walking in the four foot between the MEWP and RRV which is travelling in reverse back to Springfield RRAP

NR OTP in the distance. The RRV is travelling in reverse back to Springfield using onboard CCTV whilst the Crane Controller is in the cab

Immediate Cause:

Ineffective control of On-Track Plant led to unsafe movements within the work site.

Underlying Cause:

- The REAL Alliance POS Representative did not liaise with any external POS Representative during the shift at Grantham
- The SWL 2 was not formally introduced to the READYPOWER POS Representative
- The Crane Operator was not aware of the instructions contained within ALT428 - On-Track Plant Machine/Crane Controllers
- The use of Dect.Comms was not compliant with GERT8000-HB15 during OTP movements when returning back to Springfield RRAP
- The distance between OTP, when travelling, was not compliant with GERT8000-HB15
- The RRV Operator had adopted the use of internal CCTV when reversing - this was not planned

Root Cause:

- The investigation had established that members of the OLE team had knowingly deviated from rules, standards and procedures on the morning of the incident. These behaviours remained dormant until witnessed by Network Rail.

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- A safety session is to be scheduled with those that operate and control OTP within the REAL Alliance using animated footage that demonstrates the correct way of controlling OTP within a work site
- REAL Alliance project to discuss the importance of incident reporting during the REAL Alliance Safety Team Day
- Carry out unscheduled compliance audits within accordance of VolkerRail's PE326 - Vehicular Plant and Crane Operations procedure
- The REAL Alliance project to ensure that POS Representatives working within their worksite liaise with the SWL2
- VolkerRail's procurement department to ensure that safety alerts / instructions are cascaded to the relevant companies that they engage with

People Plant Interface

Derailment of road rail vehicle during the installation of a pile foundation

EcoOnline Ref: 238038 **Date & Time of Event:** 03/07/2022 02:06

Summary:

On Sunday 3rd of July 2022, pile installation works were taking place at Fenham substation within an engineering worksite as part of the Power Supply Upgrade Project for the East Coast Main Line. The planned works for that night required the team to on-track a Doosan™ Ultimate 270 Road Rail Vehicle (RRV) at Beal Level Crossing (ECM7 58m 52ch) on the Down Main line and proceed south, approximately 2200m, to the site of work.

Once at the site of work (Fenham substation) the team began to install the first pile with the use of a Movax™ RRV attachment (a side grip vibratory-type pile driver). The pile had been vibrated approximately 2 meters into the ground when the RRV became derailed, dropping from the rail head and landing in the 4ft and the CESS.

The RRV was re-railed at 03:40 utilising the dipper arm and jacking legs. The track was inspected by a Hand back Engineer (HBE) who deemed the Down Main safe for the passage of trains. The pile was inspected by the on-site engineer (ENG) who deemed the pile safe to be left in situ. The incident was reported to Project Duty Manager (DM) and escalated to the Principal Contractor at 04:07. The RRV egressed the infrastructure at Beal Level Crossing and the team left site.

Key Photographs:

Derailed RRV 1042

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- A safety session is to be scheduled with those that operate and control OTP within the REAL Alliance using animated footage that demonstrates the correct way of controlling OTP within a work site
- REAL Alliance project to discuss the importance of incident reporting during the REAL Alliance Safety Team Day
- Carry out unscheduled compliance audits within accordance of VolkerRail's PE326 - Vehicular Plant and Crane Operations procedure
- The REAL Alliance project to ensure that POS Representatives working within their worksite liaise with the SWL2
- VolkerRail's procurement department to ensure that safety alerts / instructions are cascaded to the relevant companies that they engage with

What did we learn?

- The Plant Operation Scheme Licence holders Responsibilities and Requirements policy did not provide guidance on the steps to be taken in the event of a derailment
- The planned methodology used by the piling team did not consider the cant at the site of work as a risk to derailment

What are we going to do differently?

- Those with Operational / Safety concerns must be empowered to enforce the Worksafe procedure if they feel that the planned works are not safe
- The planned methodology for the installation of pile foundations will be reviewed

People Plant Interface

MEWP derailed whilst on-tracking & subsequent re-railing without authority

EcoOnline Ref: 238788 **Date & Time of Event:** 10/07/2022 02:50

Summary:

On Sunday 10th July at approximately 02:50 a Mobile Elevated Working Platform (MEWP) derailed whilst in the process of on-tracking on a temporary Road Rail Access Point (RRAP). The MEWP was subsequently re-railed without the permission of the Safe Work Leader 2 (SWL2).

The MEWP was to be on-tracked on the up main and was positioned onto the RRAP under the control of the Machine Controller (MC), the fixed axle end rail wheels were lowered by the Machine Operator (MO). The Machine Controller then walked to the steering axle end and repeated the process. The Machine Operator then commenced the rolling brake test, as the MEWP was driven a short distance forward, there was a loud bang, which was confirmed to be the fixed axle rail wheels being derailed. The steering axle end rail wheels remained in contact with the rail. The Machine Operator then lowered the machines' road wheels and re-railed the machine under the supervision of the POS Rep.

The SWL2 arrived on site and immediately stood works down and arranged for another MC & MO to off track the machine. The project duty manager then instigated 'For Cause' drugs & alcohol screening for those involved.

Key Photographs:

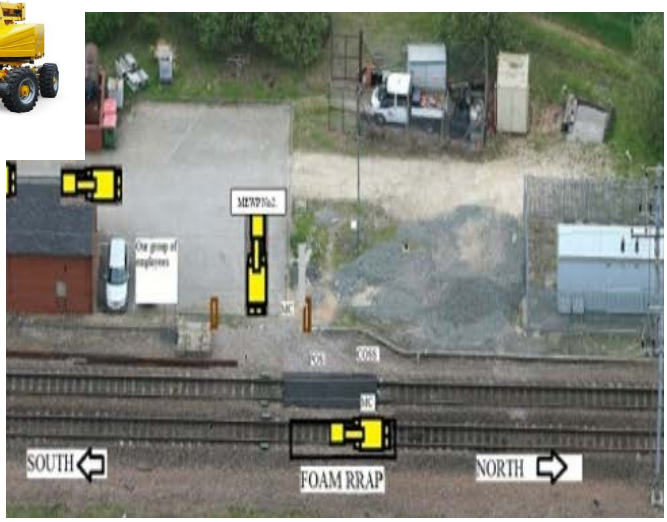


Illustration of MWEP position

Immediate Cause:

Derailment of fixed axle wheels whilst on-tracking.

Underlying Cause:

- The Machine Controller did not ensure that the fixed end rail wheels were properly engaged with the rail after engaging the steering end rail wheels
- The Machine Controller instructed the MEWP Operator to carry out the brake test with the fixed end rail wheels not properly engaged
- The Machine Controller was relatively inexperienced and there is no record of him receiving mentorship following training
- The project resource team were unaware of the Machine Controller's relative inexperience and lack of evidence relating to mentoring
- The VR Plant Operation Scheme policy does not define the actions required in the event of a derailment

Root Cause:

- Failure to effectively manage the on tracking process for EVO 14 MEWP

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- As a project, certain safety critical roles are outsourced to approved suppliers. The project regularly uses agency supplied Machine Controllers
- Due to an industry shortage of Machine Controllers, relatively inexperienced staff are occasionally supplied, and in the case of this event the individual did not hold a Controller of Site Safety (COSS) competence. As a result of this, an additional person acting as a COSS was required. There is no evidence of the Machine Controller receiving any mentoring following his training

What did we learn?

- Due to lack of awareness and adequate procedures the rerailing of the MEWP was authorised without authority from the SWL2 and without assessment from a competent person

What are we going to do differently?

- The Resource Manager will ensure that inexperienced safety critical staff are identified during the planning stages giving considerations to the complexity of the planned works
- The Plant Operation Scheme Manager will document the necessary controls and actions required in the event of an On-Track Plant derailment to which will be briefed to all Plant Operation Scheme Representatives accordingly

People Plant Interface

Vegetation clearance works on the Biggleswade site, struck and damaged a 10-core cable

EcoOnline Ref: 292966 **Date & Time of Event:** 19/09/2023 08:55

Summary:

Whilst a subcontractor team were carrying out vegetation clearance works on the Biggleswade site, they struck and damaged a 10-core cable that was feeding 2282a Points. The subcontractor was unaware of the damage and continued working past this area for approximately another 50m. At approximately 09:39 hrs the Network Rail MOM and S&T arrived on site, and they eventually secured the points in normal to allow the passage of trains at 10:14 hrs. The works were subsequently suspended, and Drugs & Alcohol Testing was arranged for the two Treefellers vegetation clearance operatives and a Rail Electrification Alliance (REAL) Operative, returning negative results.

Plant and Equipment/Train/Vehicles involved

A bushcutter and two stroke petrol hedge trimmer were used to clear vegetation. At the time of the incident the bushcutter was being used and is suspected of causing the damage. This was fitted with a metal blade as the plastic cutting head with nylon blades that was being used had broken and a replacement was not available.

The incident was caused due to damage to a 10-core cable that was feeding 2282a Points, believed to have been damaged by the bushcutter. The cable was adjacent to Location Cases and outside of the concrete trough routes. There are no photographs available that identify the exact position of the cables at the time of the incident, the general location is shown below.

Injuries sustained/Damage incurred

A 10-core cable was damaged on site, as shown below, leading to 2282 points at Biggleswade failing with no detection, affecting the Up Fast to Up Slow line, preventing any services travelling in the up direction from Biggleswade. Trains were held, as required, incurring 2507 number of delay minutes, whilst repairs were made.

Key Photographs:

Damage incurred

Immediate Cause:

The 10 core cable that was feeding 2282a points was damaged by a bushcutter, operated by a Treefellers operative under the supervision of a REAL Supervisor. The immediate causes of this were:

1. Following damage to the plastic cutting head with nylon blades, a metal blade was used to undertake the vegetation clearance
2. Cables were not identified prior to or during the works to enable them to be avoided
3. Vegetation removal for the earth tape was undertaken in close proximity to rail infrastructure and cable troughs

Underlying Cause:

- No replacement plastic/nylon cutting head was available
- The methodology to remove the vegetation in layers was not followed, which would have avoided the plastic/nylon cutting head being damaged and could have led to the detection of the cable
- There was no site walkover which could have been used to plan the route that was to be cleared and could have led to the detection of the cable
- There was inadequate knowledge amongst the site team of the restriction on metal blades

Root Cause:

- The Treefellers operative undertaking the works was not adequately briefed on all of the controls required to safeguard the operational railway. This was a combination of the lack of clarity, detail and accuracy in the TBS and the lack of appreciation by the site manager for the importance of each of the controls that was included in the TBS.

People Plant Interface

MMT train came through the Sessay worksite, with MC/CCs & COSS unaware of movement

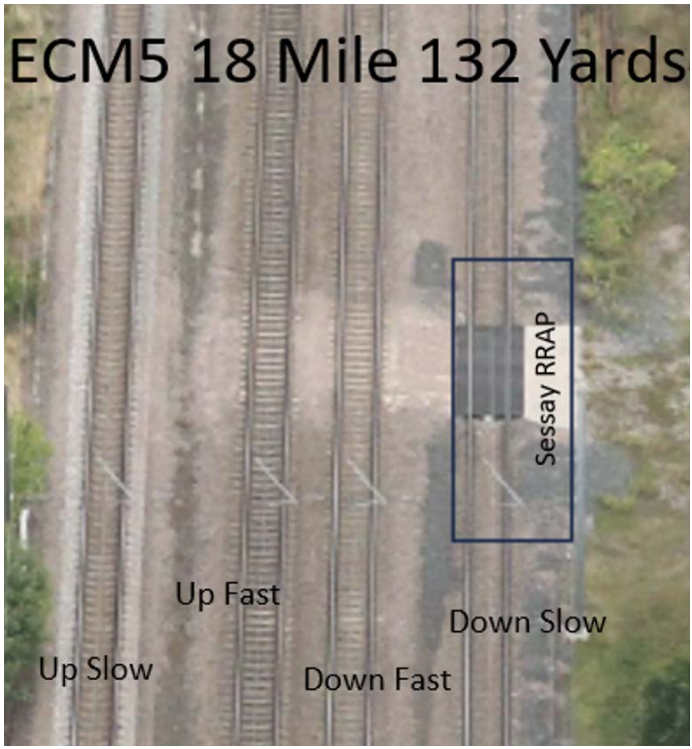
EcoOnline Ref: 301144 **Date & Time of Event:** 26/11/2023 01:20

Summary:

On 26th of November 2023 at approximately 01:20, whilst a team were undertaking on tracking of a Mobile Elevated Work Platform (MEWP) it was alleged that a Mobile Maintenance Train (MMT) was travelling towards the team at speed. At the time the team claimed they were unaware of the MMT and that the Engineering Supervisor (ES) had not included this information as part of the worksite briefing.

This was escalated to the Duty Manager (DM) and OLE on call who advised this should be raised as a Close Call. This was reviewed by the VolkerRail Control Centre (VRCC) and then escalated to an incident on site, 'For Cause' testing was arranged for the ES returning negative results.

Key Photographs:



Immediate Cause:

The immediate cause identified by the investigation was the questions raised by the work party as to their awareness of the train in the work site.

Underlying Cause:

- The briefing area allocated for the ES was not suitable and sufficient to allow a conducive briefing
- VolkerRail Rep to the PICOP meeting taking on lead responsibility for the worksite without consulting the Alliance senior leadership team (change in risk profile for the PC)

Root Cause:

- The COSS in control of the MMT movement, for reasons that this investigation has been unable to determine due to being a third party and not connected to VolkerRail works, failed to ensure the correct speed of the OTM for travelling through a worksite possession

What did we learn?

- **Potential severity of event -** High
- **Actual severity of event -** Low
- **Environmental impact category -** Not applicable
- **Commentary to support how the severity was determined** - While the investigation concludes that the team were aware of the MMT, the speed it was travelling at exceeded the maximum permissable speed within a worksite

People Plant Interface

Low voltage (LV) cable damaged during grading works at Grantham North Compound

EcoOnline Ref: 202877 **Date & Time of Event:** 01/12/2023 13:00

Summary:

At approximately 13:00 on Friday 1st December 2023, an unprotected low voltage (LV) cable became unearthed and damaged during grading works to an embankment at Grantham North Feeder Station, as part of the East Coast Main Line Power Supply Upgrade (ECML PSU) project. As a result, the LV power to the feeder station was disrupted.

The site team reported, prior to the grading works commencing, the working area was scanned with a CAT4+ scanner which did not detect any cables. Upon realisation of the damage caused, the site team escalated the incident internally to the project and VolkerRail Control Centre (VRCC).

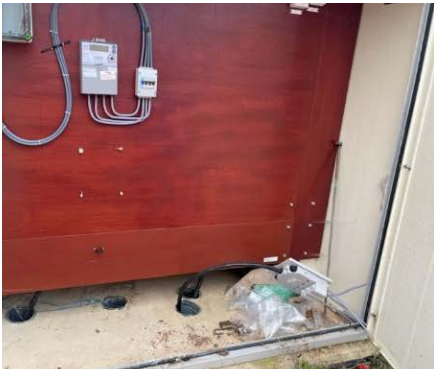
Network Rail Fault Control and the Distribution Network Operator (DNO) were informed and arrangements were made to maintain the low voltage supply to Grantham Feeder via a generator.

At approximately 18:00 the damaged cable was repaired by the ONO and the LV supply to Grantham Feeder was upheld.

Key Photographs:

Damaged LV cable

Key Photographs:



Damaged consumer unit

Damaged LV cable

What did we learn?

- Legacy buried service information was referred to in the creation of the task documentation that did not highlight the presence of the underground service - this allowed for mechanical excavation in close proximity to the service
- The Site Supervisor had not undergone a formal assessment to be deemed competent to issue a Permit to Break Ground
- The LV cable was installed by third parties and not physically protected by ducting, sand or warning tape
- The Signal Generator (Genny) was not used when surveying the area. Some cables do not radiate detectable power or radio signals and therefore a Genny must be used every time prior to breaking ground.
- Those responsible for the safe completion of the planned works did not challenge the working methodology, despite having a clear understanding of the risks associated with mechanically excavating near to electrical assets

What are we going to do differently? (*REAL Alliance, working to John Murphy and Sons procedure)*

- Review existing buried service records and remove all legacy information (Greater than 12 month old)
- Shift the responsibility of requesting buried service information to those responsible for planning and managing the planned works. For VR, CIV508 will be followed
- Undertake competence assessments for all Permit Issuers to ensure understanding of the Avoiding Danger from Underground Services Procedure (John Murphy and Sons REF-0000-JMS-ZZ-XX-PD-Z-0289)
- Ensure all Operatives trained in the use of Cable Avoidance Tools are utilising the Signal Generator in line with the manufacturer's instructions
- Further promote the need to challenge unsafe working practices

People Plant Interface

RRV came into contact with Network Rail access gate at Chester-le-Street

EcoOnline Ref: 307086 **Date & Time of Event:** 21/01/2024 02:30

Summary:

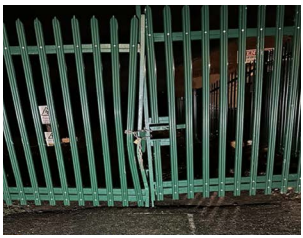
Whilst egressing from site, a Road Rail Vehicle (RRV) came into contact with the Network Rail access gate causing damage to the gate and cosmetic damage to the RRV. This was caused when a gust of wind blew the gate inwards as the RRV was travelling through the gate.

The gate was manipulated on site so it could be closed and locked. VolkerRail Control Centre (VRCC) were contacted and H&S on call made aware. The incident escalated within the business, project and to route control.

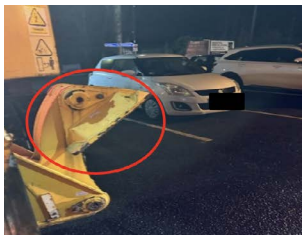
At the time of the incident, the CC had positioned themselves next to a parked vehicle, as this was in close proximity to the path of the RRV. The POS Rep was located at the Road Rail Access Point (RRAP) overseeing the remaining vehicles egress the infrastructure.

Key Photographs:

Chester-le-Street station - Station Rd, Chester-le-Street DH3 3EE
Access point ECM5 72m O1Ch



Damage to the Network Rail Access point gate,
this was pulled back into place on the night of the event



There was paint damage
to the RRV outrigger

Immediate Cause:

The Road Rail Vehicle came into contact with the gate causing damage.

Underlying Cause:

- Supervision on the night by the POS Rep — POS Rep was on track supervising the egress of other machines at the time of the incident
- Crane controller not constantly supervising the RRV as he was looking at the route to be taken and focusing on a parked vehicle to be travelled past
- The gate was not secured in position to keep it from swinging
- SAF23 F13 template does not identify varying risks at different points of the delivery/collection and risk is overall for the delivery/collection. Template does not require risk score for each aspect of the delivery/collection
- SAF23 F13 template does not ask for details around access gates in respect to vehicle/load size

Root Cause:

Planning & Implementation

- SAF23 checklist was not completed on site by the POS/Supervisor
- The risk assessment process (SAF23) did not suitably control the risks on site

People Plant Interface

Planned to undertake a cable changeover that supplied the protecting signals of the line blockage safe system of work

EcoOnline Ref: 306230 **Date & Time of Event:** 07/01/2024 04:00

Summary:

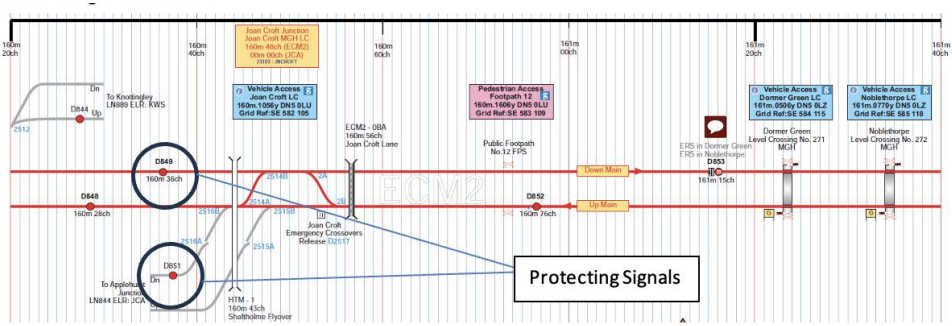
In connection with the East Coast Mainline (ECML) Power Supply Upgrade (PSU) Project, VolkerRail Specialist Business Signalling division were tasked with the changeover of a 37-core cable at Joan Croft, South Yorkshire.

Part of the Signalling Immunisation works were to test the existing cables, at this time it was identified that the existing 37-core cable had failed when testing spare cores and therefore renewal works were agreed to be undertaken. The Tester in Charge (TIC) identified prior to the commencement of the works (on shift) that two of the circuits that were planned to be changed over and tested were non compatible with the planned line blockage (linked to the protecting signals) and as a result were descoped from the works.

A Close Call was reported on 11/01/2024 at 17:13 regarding the descoping of the works to which stated “2 x circuits not tested due to clashing with the protecting signal of the line blockage - test log 3 deferred for the outstanding circuits above”.

Following the report of the Close Call, an investigation was undertaken to establish the underlying and root cause of the planning anomaly.

Key image:



What did we learn?

- The planned sequence of works was not thoroughly reviewed following the downgrading of the safe system from an engineering worksite to a line blockage
- The mileage provided as a result of the engineering worksite being downgraded to a line blockage was 28ch less than requested
- A lapse (human factors) occurred at the time of planning that allowed the conflict between the safe system of work and planned sequence of work to go unchecked
- The individual who requested the engineering worksite had not been assessed and deemed competent to undertake the role of Responsible Manager or undertake duties in relation to 'Safety of People On or Near the Line (SAF19)'

What are we going to do differently?

- Ensure that those responsible for instructing works on Network Rail managed infrastructure are assessed and deemed competent to do so
- Roles and responsibilities must be regularly reviewed, considering workload and available resources
- Following changes to Safe System of Work, thorough reviews are to take place by those responsible for planning and implementing the safe system. Readiness review checklists are useful tools to ensure all aspects of the planned works have been suitably considered

People Plant Interface

Partial derailment during on-tracking of road rail vehicle

EcoOnline Ref: 316974 **Date & Time of Event:** 31/03/2024 02:15

Summary:

As part of the East Coast Main Line (ECML) Power Supply Upgrade (PSU) project, the Rail Electrification Alliance (REAL) were undertaking the removal of Twin Track Cantilever (TTC) structures and a short circuit actuator at Retford, Nottinghamshire.

In order to undertake these works, the Overhead Line Equipment (OLE) discipline were required to access the infrastructure at Retford West vehicle access point (138m 65ch ECMI) with 2x Mobile Elevated Working Platforms (MEWPs) Road Rail Vehicles (RRV) and 1x GOS Doosan Friction RRV.

At approximately 02:15, following authorisation of the Engineering Supervisor (ES) and Nominated Person (NP), the OLE team began to track the first of the two MEWPs, utilising a TAMS V-RAM temporary Road Rail Access Point (RRAP). During the on-tracking process, under the guidance of a Machine Controller (MC), the MEWP Operator (MEWP Op) aligned the rear (fixed end) axle of the vehicle with the rail heads of the Down Main line. Once the rear axle was positioned and lowered into gauge, the MEWP Op began to align the front (floating) axle of the MEWP into position.

Aligning the front axle required the MEWP Op to steer the road wheels that remained in contact with the VRAM RRAP, and in doing so, caused the centre section of the RRAP to move out of position. At this time, the front left road wheel dropped into the 4ft (the centre of the track between both running rails), causing the rear axle to lift and descend into the 4ft. As a result of the partial derailment, damage was sustained to the hydraulic cover of the rear left axle.

Following the partial derailment, under instruction from the MC and Site Supervisor/Plant Operation Scheme Representative (SS/POS), the MEWP Op raised the rear axle, repositioned the vehicle and successfully tracked.

The SS/POS briefly inspected the MEWP and after believing to have not identified any damage, instructed the vehicle to progress towards the site of work (139m 41ch ECM1). Upon arrival at the site of work, the on-site Fitter requested that the vehicle be stood down in order to undertake a thorough inspection. During this inspection, the damage caused to the MEWP was discovered and escalated to the project Duty Manager (DM) at 03:09.

Following the escalation, those responsible for the operation and control of the MEWP (MC, MEWP OP, SS/POS) were stood down and requested to undertake a 'For Cause' drug and alcohol (D&A) screening.

Key Photographs:

Temporary TAMS V-RAM RRAP

Damage caused to MEWP RRV

What did we learn?

- The temporary road rail access point (TAMS V-RAM RRAP) used to on-track the MEWP RRV was not supplied with plastic protective cover. Furthermore, the site teams did not challenge that the temporary RRAP was missing this item upon delivery. For further clarification, the absence of this cover provided an increase in friction between the RRAP and the road wheels of the MEWP RRV — therefore causing the centre section to move during dry steering (turning of the wheels whilst the vehicle is stationary)
- It is probable that the plastic protective cover would reduce friction between the road wheels of the MEWP RRV and the TAMS V-RAM RRAP, therefore minimising the potential for the RRAP to move whilst on tracking
- The temporary road rail access point (TAMS V-RAM RRAP) used to on-track the MEWP RRV was not sufficiently installed as to prevent movement of the centre sections during the on-tracking process
- It is probable that the reduced number of staff present during the installation of the TAMS V-RAM RRAP and the total weight of the system itself led to an installation that was not sufficient for the on-tracking of the MEWP RRV

What are we going to do differently?

- Ensure that appropriate resources are allocated to planned works as per documented risk assessments and in line with manufacturer's instructions
- Complete pre-use checks and escalate any discrepancies found to the person in charge of the works
- Escalate and assess any issues that may affect the safe on-tracking of On-Track Plant (OTP) to the Plant Operation Scheme Representative (POS Rep) and the person in charge of the works

People Plant Interface

'A' frame and cable drum fell off rail trailer

EcoOnline Ref: 316978 **Date & Time of Event:** 31/03/2024 03:17

Summary:

During a night shift an 'A' Frame with cable drum had been loaded on the rear rail trailer of the Road Rail Vehicle (RRV) at the level crossing with a Telehandler. The RRV moved backwards to allow for the Telehandler to manoeuvre on the level crossing to retrieve a winch from the laydown area. The RRV then moved back to the level crossing to allow for the materials to be secured to the rail trailer bed at the level crossing. As the RRV moved back into position the boom came into contact with the rail trailer and caused the 'A' Frame and cable drum to be dislodged off the rail trailer causing it to fall to the ground.

No injuries were sustained and there was no damage to the infrastructure.

Key Photographs:

RV Boom contacts rail trailer (from video of lorry on the site)

Position of the 'A' Frame after falling from the rail trailer

What did we learn?

- The 'A' Frame/Cable Drum was loaded on the rear trailer of the RRV and not secured to the trailer
- The sudden movement towards the left from the driver of the RRV caused the arm of the RRV to come into contact with the trailer or 'A' Frame
- The risk assessment for the task was generic and did not assess the actual site-specific risks at the location, such as rail cant
- The Work Package Plan (WPP) and Lift Plan lacked descriptive detail on how the process was to be undertaken safely and with what plant, i.e. the lift plan required two separate lifts ('A' Frame and Cable Drum)
- The Supervisor on site at the time of the incident was ineffective, with the Supervisor having numerous roles

What are we going to do differently?

- Trial new 'A' frames on the market or modify existing frames with feet on each corner or look at alternative industry leading plant (a JMS initiative action)
- Engaging with the workforce at an early stage to get their involvement in developing plans in the future and assist with safety documentation plan
- WPP Improvement Workshops — fit for purpose and represent activities to be undertaken
- Develop Civils Plant request form for Lift Plans similar to the RRV request Lift Plan form (a JMS procedure action)
- Review of rostering procedures to reduce or eliminate activities being rostered with operatives/staff conducting dual roles
- Training courses for more personnel to train as a POS Rep, to avoid people with dual roles such as the supervisor and Site Manager both conducting POS Rep roles (a JMS POS license holder action)

People Plant Interface

On-track plant under the control of the machine controller passed a red Til-Dawn light protecting the level crossing without permission

EcoOnline Ref: 325218 **Date & Time of Event:** 09/06/2024 05:13

Summary:

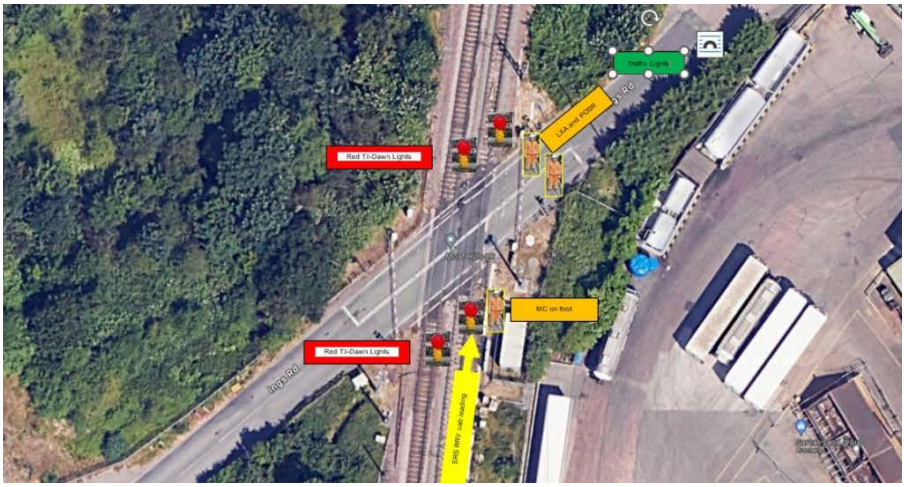
At 02:31 on Sunday 9th June 2024, the Worksite was granted/set up, Test Before Touch completed and Form Cs issued. Moat Hills Level Crossing was taken into local control by the Level Crossing Attendant (LXA) and road traffic signals and operatives were in place to manage road traffic.

The POS Rep briefed the Machine Controller (MC) on the work arrangements and hazards. A SRS Road Rail Vehicle (SRS RRV) was on-tracked under the control of the MC at the Level Crossing to undertake cable laying further down the track at the work area.

Upon completion of the works at around 04:50, the MC telephoned the POS Rep to advise the SRS RRV was returning to Moat Hills Level Crossing to egress the infrastructure. Upon arriving at the Level Crossing at around 05:08, the SRS RRV under the control of the MC stopped at the red Til-Dawn light in the 4ft and then under the instruction of the MC, passed the red Til-Dawn light over the level crossing and started to off-track on to the road.

The LXA had not given permission to pass the red Til-Dawn light and the road traffic signals were not set to the road to road traffic. When the LXA and POS Rep noticed the off-tracking had started without permission, a Close Call was raised. There were no injuries or damage as a result of the event.

Key Photographs:



Overview of the event, showing the position of people and equipment involved

What did we learn?

The investigation concluded that the traffic management and level crossing management arrangements were not clear to those involved:

- The MC believed from the conversation with the POS Rep informing that the SRS RRV was returning to the level crossing meant that the road traffic would be stopped before arriving at the level crossing
- The MC saw the POS Rep at the level crossing, further enforcing the belief to the MC that the level crossing was closed
- The MC did not think to obtain verbal permission from the LXA to pass the red Til-Dawn lights on the approach to the level crossing
- The POS Rep did not think they were responsible for informing the traffic management (TM) operatives to set the traffic lights to stop in both directions
- The LXA did not think they were responsible for informing the traffic management (TM) operatives to set the traffic lights to stop in both directions
- The MO followed the instructions from the MC to pass the red Til-Dawn light without question
- Pre-work briefings to the key roles involved (MC, POS Rep and LXA) did not provide suitable information on who was responsible for the interface with the traffic management supplier
- The risk control measures to manage the level crossing and road traffic management interface arrangements were not identified in the work planning documents

What are we going to do differently?

The investigation identified a number of corrective actions to prevent re-occurrence of similar incidents and included the following actions and recommendations:

- Project organisations are to assess the risks when On-Track Plant (OTP) are required to on/off track at level crossings, and document the roles and responsibilities required to manage the interface between road and rail protection at level crossings
- The roles and responsibilities for liaison with road traffic management operatives (TM) and level crossing protection operatives (LXAs) should be documented in the work planning, i.e. Task Brief and Whiteboard
- Implement assurance activities to ensure the embedment of the above

People Plant Interface

Finger injury

EcoOnline Ref: 336714 **Date & Time of Event:** 03/09/2024 08:30

Summary:

On the morning of 3rd September 2024, soon after commencing work on the timber shuttering for the air insulated switch gear (ASG) access steps at King Edward Bridge compound on PSU2 project, a joiner severed the tip of a finger and cut another finger of the left hand, whilst cutting wood shuttering using a circular saw.

The on-site colleagues worked quickly with the Injured Person (IP) and managed to wrap and secure the severed finger and transport the IP and the fingertip to hospital where the IP underwent surgery. Unfortunately the tip of the finger could not be reattached. This event also features in CLIC116.

What did we learn?

The use of a circular saw was not planned:

- The risks from the use of a circular saw were not considered when the Task Brief and risk assessments were prepared
- A suitable bench to support and hold the wood to be cut was not planned and not provided
- The tool manufacturer's safety instructions were not consulted and not implemented
- Alternative and a safer method of cutting the wood i.e. hand saw were not considered

Training in tool use alone cannot be the only risk control measure

- The Safe System of Work/methodology of the the task was to be undertaken, was reliant upon the IP being trained and competent, no other risk controls had been considered

Discussion points:

Does the Task Brief need to specify all risk controls for plant and materials?
Yes, clarity on the risk assessment controls is always required – where necessary, taking guidance from manufacturer's instructions

Does the briefing have to be on all the risk controls?
The person giving the brief must be clear on the content of the Task Brief and ensure that clear communication is given

How do we know if someone has understood the briefing?
Test the understanding of risks and controls by asking open questions

What should we do if the plan changes?
If anything has changed from the Task Brief, then it must be assessed and validated

People Plant Interface

Incorrect MEWP check sheet

EcoOnline Ref: 352192 **Date & Time of Event:** 03/09/2024 08:30

Summary:

During an investigation, it has become apparent that OTP MEWP Operators had been using the wrong pre- use checklist, for documenting their OTP MEWP pre use checks when utilising VolkerRail owned MEWPs.

Discussion points:

Which version of the form should I be using?
HPE02F01 Issue 1

Is this for VR OTP only
Yes, VR owned OTP

Where can I get the correct form?
From the project lead for the work item

What about other civils type plant from suppliers?
Use the plant check form provided by the supplier or an equivalent form provided by your employer

Notes:

Learning from Events

Operational

Operational

Incorrect information detailed within the Safe Work Pack resulting in cancellation of works

EcoOnline Ref: 225396 **Date & Time of Event:** 20/03/2022 00:14

Summary:

At approximately 00:14hrs on the morning of Sunday 20th March 2022, a REAL Alliance Safe Work Leader 1 (SWL 1) was contacted by the REAL Alliance Duty Manager (DM) enquiring if he had arrived at site, which the SWL 1 confirmed he had. During the conversation the SWL 1 raised concerns about his shift times stated on his Safe Work Pack (SMP 70003), as he thought his end of shift time was 08:15, not 05:15. The DM asked the SWL 1 if he had become confused with his Sunday night-time SWP and said he would look into the issue and he should wait for him to call back.

At 00:33hrs the DM contacted the SWL 1 and informed him not to proceed with the shift. The information detailed within the SWP was different to what had been submitted within the safe work pack request form, which was completed by the Responsible Manager (RM) earlier that week.

Immediate Cause:

- The SWL 1 had accepted SWP 70003 which did not contain the correct information as stated within the safe work pack request form (evidence log 1,3,4).

Underlying Cause:

- There was no communication between the Responsible Manager, Planner and SWL 1
- The Responsible Manager did not give his full attention when reviewing, authorising SWP 70003
- No involvement of the SWL 1 during the planning of SWP 70003
- The project was not made aware of the planners' personal circumstances
- The workload of signaller and route had put pressure on the telecommunications team programme

Root Cause:

- The investigation has established that there is a systemic culture within the project of not embracing full compliance with the Principal Contractors SAF19 - Safety Of People Working On Or Near The Line procedure.

What did we learn?

- There was ineffective communication throughout the SWP creation / cycle for the Dalton activity. However, this was not an isolated event within the project for non-compliance with SAF19, a recent audit had found similarities and additional areas that required improvements.

What are we going to do differently?

- Suitability and assessments of those involved in the event was carried out
- A training session was conducted for the Responsible Managers. Planners and SWLs / PICs on their responsibilities within the SAF19 'Safety Of People On or Near The Line' procedure
- VolkerRail's Human Resources Manager to notify VolkerRail's Health & Safety department to complete an individual risk assessment as part of managing employees medical fitness requirements
- Projects are to be notified of where individuals are actively engaging in safety critical roles to raise awareness of situations that could affect or become distracting to their workload
- The findings of the independent audit referenced within the report is to be shared with the project

'Reasons' Swiss Cheese Model

Operational

Fixed temporary barriers (00130) repositioned closer to an open sidings line

EcoOnline Ref: 292853 **Date & Time of Event:** 06/09/2023

Summary:

During a Health & Safety Inspection of a Rail Electrification Alliance (REAL) compound, located at Tollerton, it was found that the fixed temporary physical barrier used to segregate the site from the operational railway had been repositioned closer to the adjacent sidings (approximately 2m from the nearest running line as opposed to 3m as required).

Initial findings established that the segregation had been moved by the site team on 6th September to enable concrete works to be undertaken to the access steps of the adjacent track sectioning cabin. Further review found that no site specific risk assessment had been undertaken in order to establish the site segregation as required under the 'Creating a Site of Work Segregated from the Railway (NR-L2-OHS-00130-02)' standard.

Key Photographs:

Fixed temporary barrier with demarcation

What did we learn?

- The site layout had not been suitably considered in relation to the planned works, changes on site meant that the concrete wagon could no longer fit alongside the access steps
- The site team were unaware of the requirement to escalate and risk assess any changes to the site segregation to the Responsible Manager for the works
- The site team believed that the segregation had been installed over 3m from the nearest running rail, therefore leaving room to adjust as needed
- The Principal Contractor & Primary Sponsor had not provided instruction of the new 'Creating a Site of Work Segregated from the Railway' standard in a timely manner to allow for sufficient understanding and implementation
- The works that were to be undertaken at Tollerton were not sufficiently planned in accordance with the 'Creating a Site of Work Segregated from the Railway (00130)' standard

What are we going to do differently?

- Ensure that sites of work segregated from the railway are sufficiently risk assessed and instructed by a Responsible Manager
- Regular reviews and assurance checks are to be undertaken for segregated sites of work
- Train and assess additional Managers to be the establishment of segregated sites of work
- Provide detailed briefings in a timely manner for specific documentation/standards which may be issued as a requirement for a persons' role or competence. The process for identifying change to new/updated standards has been reviewed for effectiveness
- Provide and make detailed briefing recordings for the Creating a Segregated Site of Work standard and modules

Operational

Controllers of site safety not signed onto engineering worksite certificate (RT3199) – Hambleton

EcoOnline Ref: 290820 **Date & Time of Event:** 27/08/2023 06:00

Summary:

The Rail Electrification Alliance (REAL) were undertaking works at Hambleton within possession LNEN 88 - Balne LC to Colton Jn as part of the Power Supply Upgrade (PSU) project for the East Coast Main Line.

These works required the project to set up an engineering worksite from 167m Och to 174m 66ch (ECM3) with a subsequent isolation of the overhead line from E273/11&12 to E/281/11&12. Following the completion of the planned works it was found that 2x Controllers of Site Safety (COSS)/Authorised Persons (AP) working on behalf of REAL undertook isolation works within the engineering worksite without signing the Worksite Certificate (RT3199).

The anomaly was only discovered once the staff were clear of the line and the worksite had been handed back to the person in charge of the possession. The ES was located at Hambleton SFC Compound when they undertook their initial briefings and recording of COSS's signing into the engineering worksite on the Worksite Certificate (RT3199). Both COSS / AP 1 & 2 accessed the infrastructure following text message authorisation from the NP at Temple Hurst Junction 169m 16ch.

STED Forms detailed that COSS/API was allocated to structures E275/01,02 and E275/09,10. COSS/AP2 was allocated to E274/07,08 and E274/19,20.

Key Photographs:

Hambleton Compound (ES + NP location)

Summary of Investigation Findings:

The investigation concluded that both ES and COSS roles hold responsibilities to sign RT3199 as per the Handbook GERT8000-HB12 Iss 9.

Both COSS/AP1 and COSS/AP2 failed to sign into the RT3199 Worksite Certificate, this is in contravention of the handbook GERT8000-HB12 Iss 9.

After providing the brief to the COSS/APs the ES failed to ensure all COSS's had signed into the RT3199 Worksite Certificate Appendix A. The ES was reliant on the pre-populated RT3199 when signing the COSSs into the worksite, the ES didn't recognise the additional two COSS/APs as they were not included within the PICOP pack.

The NP incorrectly instructed the APs via a text message that signal only protection had been granted. This is in contravention of the handbook GERT8000-HB12 Iss 9. Also, by instructing the APs via text message this caused confusion. This is not a method of communication that is acceptable.

The investigation could not locate the record of briefing for the Isolations Management TBS.

It has been identified that Appendix B of RT3199 was not in use on site due to the ES using an old version of the RT3199 Worksite Certificate. The new RT3199 Worksite Certificate, Appendix A & B are available on the VolkerRail IMS. During an interview it was clear that the ES had limited knowledge of Appendix B and associated processes, however there is evidence of the ES using Appendix B on a previous shift.

The ES/NP have worked together for approximately 6 months within the Rail Operations division. Through interviews, the NP confirmed that it was not unusual for the NP to assist the ES by contacting the APs to advise of signal only protection. This conflicted with rule book requirements.

Notes:

Operational

Unauthorised access to the infrastructure via a landowners property

EcoOnline Ref: 312965 **Date & Time of Event:** 14/02/2024 11:00

Summary:

On the morning of Tuesday 13th February 2024, a workgroup arrived at Tollerton, North Yorkshire to complete planned sealing end work for the ECML PSU-2 Week 46 works. A line blockage was required for the group to pass under Bridge 20 from the Tollerton access point.

The signals that the COSS quoted were different to what the Signaller had; therefore, it was rejected. A decision was made to approach a nearby landowner who had previously allowed railway workers from the civils team to access the rail infrastructure via their land in the weeks prior. The previous access was used for cable pulling work where devegetation of brambles was also completed on the shift. Subsequently, the landowner approved the access. The following day, at approximately 08:00hrs, the workgroup arrived at the property and used the unauthorised access point on the landowner's ground to the infrastructure. Shortly after the group left the property to have lunch, the landowner told the workgroup they would not be allowed back onto the property until the individual received compensation.

Key Photographs:

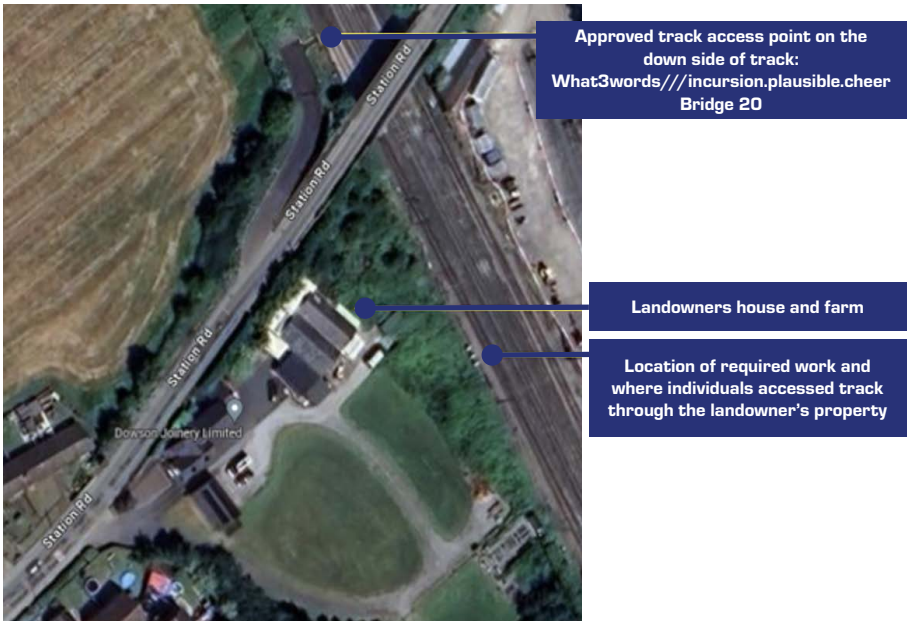


Diagram of track access points and the work group's actual access point through the landowner's property

Operational

Unauthorised access to the infrastructure via a landowners property **continued**

EcoOnline Ref:	312965	**Date & Time of Event:**	14/02/2024 11:00

Key Photographs:

Looking into the rail infrastructure from the landowner's yard, allegedly with a damaged fence

Root Cause:

- The project planning team had been allegedly experiencing issues securing line block access which was causing time and financial losses; therefore, an alternative system review instant access to planning information and scheduled access was explored

What did we learn?

- A previous incident occurred on 20th July 2023 on the REAL project when cows escaped through a damaged boundary fence. Six corrective actions resulting from a local investigation addressed issues with the project's consent process document and temporary access points. The corrective actions were not actioned or closed as they were not entered into EcoOnline
- An alternative Signal Box Special Instruction (SBSI) system was used in the planning stage to organise line blockages, which subsequently resulted in the Signaller having different mileage signals from that of the COSS; therefore, the Signaller rejected the line blocks
- The PIC suitability form was partially completed for the COSS allocated to the shift; however, its status was not finalised or approved
- Previous access was agreed with a landowner to utilise their property on approximately 23.01.2024. The individuals worked for the civils group and were tasked with completing high voltage cable works planned at the Tollerton New Substation. The access was utilised as work involved two four-tonne cable drums, parked in the landowner's yard to make the job easier
- There was an overall lack of adherence to several SAF19M003 procedural requirements

EcoOnline Ref: 312965 **Date & Time of Event:** 14/02/2024 11:00

What did we learn? continued

- The project did not have a designated Senior Project Manager, so the responsibility of SAF19's Line Blockage Review Meeting requirement was discharged into Monday Construction Integration Meetings
- The COSS was not aware of the SAF19M003F03 Line Blockage Access Assessment form requirement due to not having allegedly taken a line block in 18 months
- It is probable that individuals involved in the incident and workload due to projects timeframes impacted the decision to utilise the landowner's property for access to the infrastructure when the line blockages were rejected, a SAFI 9M003F04 Targeted Assurance activity has not been previously completed on the PSU project, which could have identified a lack of adherence to the procedural requirements

What are we going to do differently?

- The PSU project will determine if the use of SBSI is fit for purpose and determine a process to communicate the protecting signals submitted via this process to the planner for addition into the SWP
- The PIC Suitability for the COSS in the incident will be reviewed and subsequently approved
- The project will be conducting an anonymous survey to gain feedback from PSU members to understand the alleged pressure individuals are experiencing. After the survey results are received, Alliance Leadership Team (ALT) will review the feedback. The concerns raised from the feedback will be addressed in the newly enacted 4 week lookahead and the project's workplace pressure improvement plan
- A safety forum is then to be held to communicate the issues, actions taken to encourage a culture that reduces the risk of safety related incidents related to workload pressures. The outputs from the feedback and survey results are to be documented and where any issues are identified, they are to be addressed and resolved
- A SAF19M003F04 Targeted Assurance Activity will be completed on the PSU project with any findings tracked through to completion
- A review of the RACI table on REAL regarding SAF19 will be conducted to identify who the Senior Project Manager responsibilities will be delegated to, including the Line Blockage Review Meetings. The outcome of the REAL RACI review will be communicated to the individual and wider PSU team regarding SAF19 responsibilities
- A separate investigation will be initiated to understand the event that occurred surrounding the previous use of the landowner's property
- A SAF19 audit will be conducted on the PSU project to understand the current compliance with required procedures

Operational

Passenger train struck possession limit board installed on operational railway line

EcoOnline Ref: 321251 **Date & Time of Event:** 05/05/2024 00:00

Summary:

At around 00:00 hrs on Sunday 5th May 2024, the 23:45 Goole to Doncaster passenger service, travelling at 19mph, made contact with a Possession Limit Board while travelling on the Down Thorne / Slow line and came to a stop 80 meters from where the Possession Limit Board was installed. A Crane Controller, working on behalf of the REAL Alliance Engineering Discipline, had placed a Possession Limit Board on the approach to the 2478B points leading into Marshgate Sidings, which are located at the exit of the Sidings and connect to the Down Thorne / Slow line.

As the train travelled on the Down Thorne / Slow line, it made contact with the board, causing it to detach from the rail head. While the passenger train did not suffer any damage, the board's locking mechanism was damaged when struck by the train. When the incident occurred, the Crane Controller was approximately two meters away from the Down Thorne / Slow line, walking in the cess of the Marshgate Sidings, around four meters away from 2478B points, returning to the Road Rail Access Point where the wider workgroup of the REAL Alliance civil engineering team was convening.

Key Photographs:

The green circle is the Crane Controller's head torch illuminating their position. The yellow circle is the PLB at 2478B points. The red dotted line is the Marshgate Sidings line, and the blue dotted line is the Thorne Down / Slow line that Train SC02 was travelling on prior to contacting the PLB

What did we learn?

- The team that the Crane Controller was working with on the night did not attend the REAL Alliance whiteboard briefing to understand that the work was interdisciplinary with another Alliance partner (not uncommon). Moreover, the Crane Controller was not on the distribution list to receive the final version of the REAL Alliance Whiteboard pack
- When an individual from the Crane Controller's team informed them that they were not PICOS, the Crane Controller continued to take possession of the sidings. The designated PICOS attended a separate briefing while the Crane Controller signed in with the Network Rail Engineering Supervisor and took possession of Marshgate Sidings from the Network Rail Trainee Signaller. However, when the Crane Controller contacted the PICOS to acquire their Possession Limit Board, the PICOS did not challenge them and handed over the Possession Limit Board. This was because the Crane Controller held the competency to undertake the role
- When the Crane Controller signed in with the Engineering Supervisor to take possession of Marshgate Sidings, there was no requirement to validate that the individual was not the designated PICOS as prescribed in the organisation's planning processes, as this is not a rulebook requirement
- Although the Crane Controller's Supervisor engaged with team members during that shift, they did not take effective control or leadership. It is probable that their confidence and ability to lead effectively were affected because they did not work regularly with the team
- Lastly, during the call with the Network Rail Trainee Signaller, no clear understanding was reached regarding the actual positioning of the Possession Limit Board

What are we going to do differently?

- Instructions within the whiteboard briefing pack are being improved to include the locations of pre-shift briefings, specified times, and clearly stating when the works are interdisciplinary with other Alliance partners. Additionally, the distribution of the whiteboard briefing pack is being improved
- Changes have been made to the process of appointing individuals as Single Points of Contact for site works. This assessment is now based on the complexity of the tasks and interfaces, and those appointed are evaluated on their coordination and management skills
- Site monitoring and safety tour mechanisms are being refined to provide a more realistic assessment of how effectively safety leaders control site activities and how their staff collaborate
- The REAL Alliance Civil Engineering Discipline mandates that personnel rostered for safety-critical roles attend the REAL Alliance Whiteboard briefing. If individuals in safety-critical roles cannot attend, an assessment must be completed to evaluate how they will be informed of its contents
- The Alliance is instructing all contracting organisations engaged in the project to provide evidence of their processes for monitoring and assessing safety-critical communications for their safety-critical staff. Furthermore, Network Rail is addressing the quality of safety-critical communications of the Network Rail trainee signaller and their mentoring on the night shift
- Lastly, the investigation report will be reviewed with the Rail Safety and Standards Board to explore the feasibility of enhancing the rules stated in Handbook 13, 'Duties of the person in Charge of the Siding Possession'

Notes:

Learning from Events

Working at Height

Working at Height

Damage to mobile elevated working platform during overhead line equipment works

EcoOnline Ref: 284121 **Date & Time of Event:** 02/07/2023 05:30

Summary:

On Sunday 2nd July 2023, Overhead Line Equipment (OLE) works were taking place at Shilbottle, Northumberland, within possession LNEN 87 (Morpeth to Regional Boundary) as part of the Power Supply Upgrade Project for the East Coast Main Line. At approximately 05:30, a hydraulic hose of an EVO 14 Mobile Elevated Working Platform (MEWP) Road Rail Vehicle (RRV) became damaged when the MEWP Operator attempted to adjust the position of the basket, briefly trapping the hydraulic hose between the boom of the MEWP and the underside of an OLE structure.

The MEWP Operator inspected the area of impact briefly and believed at the time that no significant damage had been caused to the MEWP as a result, so therefore proceeded to complete the remainder of their task. The site supervisor inspected the structure with no damage observed. Upon completion of the works the MEWP Operator proceeded to lower the basket to ground level with the MEWP basket being locked, as a result of the damage to the self-levelling mechanism (see photo below). The incident was escalated to the Project Duty Manager and in turn VolkerRail Control Centre. The details of the event were logged via the EcoOnline reporting system as an environmental incident due to the lost hydraulic oil. Further enquiries were made into the cause of the lost oil on the 6th of July where it was found that a safety related incident had occurred.

Key Photographs:

MEWP basket final position

Immediate Cause:

- The knuckle of the MEWP contacted the underside of the OLE structure, damaging the hydraulic hoses and causing superficial damage to the paintwork

Underlying Cause:

- The Operator did not adequately account for the additional sensitivity in the controls when the telescopic boom was extended
- The Operator did not sufficiently consider their environment prior to the final movement

Root Cause:

General work distraction

- The requirement to act as both MEWP Operator and Overhead Linesman resulted in a slip of action through general work distraction

Learning Points:

Learning points are intended to disseminate learning and good practice that is not covered by recommendations or actions in the table above. They are included in a report to reinforce the importance of compliance with existing requirements and the consequences of failing to do so.

- Requesting 'For Cause' Drug and Alcohol screening is not solely dependent on an exhibiting signs of being under the screening must be undertaken following an incident for all individuals directly involved
- Workplace distractions lead to unintended consequences such as damage or injury, the severity of these consequences increases when mobile plant is involved

What did we learn?

- Acting as both an overhead linesman and MEWP Operator can cause operators to become distracted and overly focused on the physical works as opposed to operating duties

What did we learn?

- Acting as both an overhead linesman and MEWP Operator can cause operators to become distracted and overly focused on the physical works, as opposed to operating duties

What are we going to do differently?

- The project is to develop and trial a 'Lead Linesman' process that will aim to remove work related distractions from MEWP Operators who undertake both Operator and Linesman roles

Working at Height

TOOLBOX TALK Mobile Elevating Work Platforms (MEWPs)

Background:

MEWPs of various types are used extensively to gain access. They are very useful items of plant if used correctly but can be very dangerous if not used in a safe manner.

Hazards:

- Operatives falling from height due to unsafe work practices
- Overturning of the machine due to poor operating technique or unsatisfactory ground conditions
- Collision with other vehicles (knuckle or elbow of boom moving into the path of other traffic)
- Tools and materials, etc. falling from height
- Contact with high level, live electrical cables and other obstructions
- Exhaust fumes, if using in a confined area
- High wind speeds and other adverse weather conditions

Precautions:

- Only suitably trained operators can use MEWPs (must be trained for that specific item of plant)
- A person that can safely use the ground controls must be present on the ground, to lower the platform in the event of an emergency
- Always check that the machine is stable before use, deploy outriggers or stabilisers, where necessary
- Ensure the Safe Working Load (SWL), the safe wind speed and safe gradient are displayed on the machine and adhered to

How can you determine the safe working load of any machine?

- Except for scissor lifts, users should wear a safety harness clipped to the machine
- Ensure that the ground conditions are suitable for the type of machine in use
- If your work involves removing equipment or materials from a structure, don't forget to allow for the extra weight
- When manoeuvring in a confined area or where members of the public are at risk, always use a banksman
- Be prepared to stop work and return to ground level if the wind speed or weather conditions deteriorate to an unacceptable level

Refuelling:

- Always turn the engine off before refuelling. It is good practice to carry out refuelling of all machines in the open air
- LPG-powered machines must be refuelled in open spaces where any spillage can easily and quickly disperse
- Avoid skin contact if refuelling diesel oil and clean up any spillage to avoid a slipping hazard

For further information on the Toolbox Talk, please contact your H&S Advisor / Manager

Working at Height

Work on site commenced before the principles of prevention had been demonstrated for the planned work at height

Date & Time of Event: November 2024

Summary:

A prefabricated switch-room was delivered to Stannington on the REAL project during April 2024.

On inspection some failing of the protective paint coating to the pitched roof was evident. The Project Team in discussion with the supplier compiled a Work Package Plan (WPP) and a Task Briefing Sheet (TBS) for the work including a work at height risk assessment and ladder permit.

On Friday 2nd August, as part of the WPP/TBS review and approval process, the client requested evidence that section 4.2 of NR/L2/OHS/022, Working Safely at Height, had been complied with. Section 4.2 states, 'as part of the hazard elimination and risk reduction process for equipment and structures that might require work at height, designers and specifiers shall apply the principles of prevention: a) eliminate; b) reduce; c) inform/isolate; d) control. They (the REAL Alliance) shall demonstrate how they have applied these principles'.

The project team were in the process of meeting this request, however, before the principles of prevention had been demonstrated and agreed with the Client, the workforce were briefed on the TBS and instructed by the Construction Manager to start work at height. When this became apparent, work at height was suspended and a Close Call was raised.

What did we learn?

- The WPP, TBS, risk assessment and ladder permit had been prepared and were available at site, however there was no formal demonstration or agreement that the hierarchy of the principles of prevention had been applied
- If the paint repairs were identified some time prior to the date of the planned works, earlier planning for the work at height would have given opportunity to complete the documentation process
- Network Rail standard NR/L2/OHS/022 - Working Safely at Height has a specific requirement to be applied

Notes:

Learning from Events

FAST FACTS

FAST FACTS

Infrastructure damage (points run through)

Date & Time of Event: 27/11/2022 04:42

Description:

REAL Alliance staff reported a points run through had occurred at Doncaster. A Road Rail Vehicle (RRV), propelling a trailer across Marshgate Junction, ran through No.2472C points. The points had been incorrectly set for the movement.

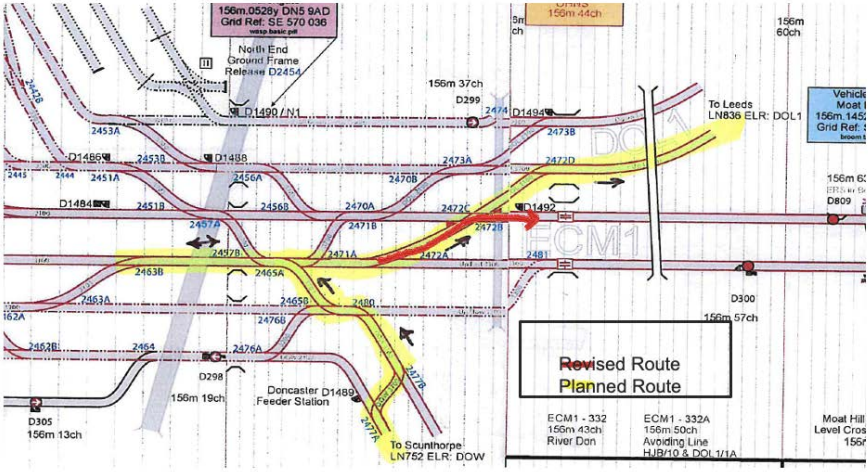
A Mobile Operations Manager, S&T and P.Way staff were mobilised to site and arrangements made for the loaded trailer and RRV to be removed. The members of staff involved were stood down and 'For Cause' screening arranged. S&T and P.Way staff inspected the points/track and reported that all testing had been completed on the points with no damage found. The possession was cancelled at 07:45.

Immediate Cause:

- The revised planned movement was not possible over the Switch Diamond layout

Actions:

- Supervisors/Managers are to ensure that staff are suitably trained and experienced to complete the planned works
- Complex worksites - Late changes to key safety critical staff are not permitted (Unless authorised and recorded)
- Plant movements and operation of points are only to proceed following the correct authorisation as per RSSB GERT8000-HB4 ISS 2



FAST FACTS

Section tripping event

EcoOnline Ref: 285031 **Date & Time of Event:** 16/07/2023

Description:

Overhead Line Equipment (OLE) works took place adjacent to Dalton Track Sectioning Cabin (TSC) as part of the East Coast Main Line (ECML) Power Supply Upgrade (PSU) project. The works required the installation of an 11.49m OLE mast, transfer plate, Aerial Earth Wire (AEW) bracket, temporary structure I.D plate (E/334/02A) and bare feeder wire insulated supports.

The site supervisor stated that due to time pressures a decision was made to descope part of the works, utilising Medium Voltage Line Covers (MVLC) as a temporary cover to the bare feeder wire, rather than the insulator pot assembly.

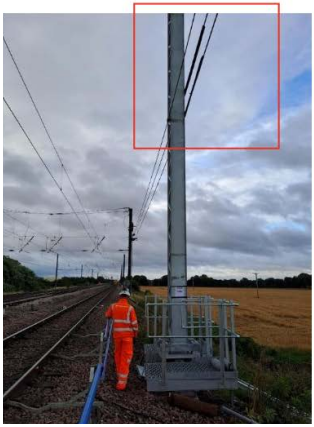
At approximately 14:52, electrical section 127 tripped when the Bare Feeder Wire shorted, breaking the wire and leaving it hanging below the adjacent road bridge. Network Rail and the ECML PSU Project were mobilised to site and rectified the fault by 05:02 17/7/23

Key Message:

- As per its Certificate of Acceptance, MVLC's are NOT to be used to infringe minimum static and passing electrical clearances and must not be used as primary insulation
- MVLC must be used in accordance with an approved Network Rail Overhead Equipment Master Index (OLEMI) drawing or work instruction
- MVLC must be installed to the manufacturer's instructions using approved tools and equipment

Immediate action required:

- OLE construction CREs are to review any existing installations of MVLC to ensure they comply with the Certificate of Acceptance and any accompanying OLEMI drawings or work instructions



FAST FACTS

Damage to 10-core cable during de-veg works

EcoOnline Ref: 292966 **Date & Time of Event:** 10/10/2023

Description:

On 19th September 2023 at approximately 08:55 hours, a team of operatives working on the Biggleswade site were carrying out de-veg works using a brush cutter and hedge trimmer, when they struck and damaged a 10-core cable in two places; the operatives were unaware they had damaged the cable. A Network Rail fault team and Mobile Operations Manager attended site to manage the situation, but the damage had already caused trains to be delayed and cancelled, with many passengers along the route affected.

Key Message:

- Always ensure you have an appropriate Safe System of Work for work on or near the line
- Task Briefs must cover the works being undertaken
- Never work without an appropriate Task Brief in place
- Tools and equipment must be appropriate for the task and detailed in the Task Brief
- All works must be recorded on the Racecard

Actions:

- Ensure that SAF28 - Restricted Tools is checked if you are unsure if a tool can be used or not or contact your H&S Advisor / Manager
- Review of vegetation clearance methodology in Works Package Plans / Task Briefs, to ensure the risks of striking cables is identified, and mitigation measures are suitable and sufficient
- Ensure a walk though is done prior to undertaking any vegetation management works to identify any potential hazards

FAST FACTS

Durham life saving rule breach

Description:

A Close Call logged at Durham highlighted that a Designated Earthing Point (DEP) was located outside of the planned engineering worksite and Safe Work Pack mileage. A request was made to reduce the isolation limits, to fall within the Safe Work Pack mileage and within the engineering worksite limits, to the Electrical Control Operator (ECO). The request was declined due to ECO workload and the planned isolation subsequently cancelled due to safety concerns.

Immediate Cause:

- The information used to plan the isolation was obtained from an uncontrolled DEP register which showed the DEP as within the limits of the engineering worksite
- Those undertaking site walkouts prior to the works did not identify that the DEP was located outside of the planned worksite mileages
- The escalation protocols were not followed and as such the works requiring isolation were cancelled
- The Omnicom TrackLocator App was relied upon to establish the location of the engineering worksite limits and DEP

Actions:

- The DEP Register is not a controlled document and should not be relied upon as definitive information for the purpose of planning / undertaking isolations
- Only the below-approved methods are to be used to determine your location when on or about the line: access point information boards, sectional appendix, mile posts
- Reinforce project escalation processes / protocols

FAST FACTS

Damage to cable during excavation works

Date & Time of Event: 01/12/2023

Description:

At approximately 13:00 on Friday 1st December 2023, an unprotected Low Voltage (LV) cable became unearthed and damaged during grading works to an embankment at Grantham North Feeder Station. As a result, the LV power to the feeder station was lost.

The site team reported, prior to the grading works commencing, the working area was scanned with a CAT4+ scanner which did not detect any cables. Upon realisation of the damage caused, the site team escalated the incident internally to the project and VolkerRail Control Centre (VRCC).

Network Rail Fault Control and the Distribution Network Operator (DNO) were informed and arrangements made to maintain the low voltage supply to Grantham Feeder via a generator.

Key Message:

- Always ensure that equipment is calibrated and fit for use
- Any equipment found to be defective or past its calibration/testing date must be quarantined and reported to the person in charge
- Damaged cables pose a serious safety risk - protect yourself and others and report immediately

FAST FACTS

Vehicle load failure resulting in third party damage

Date & Time of Event: 15/01/2024

Description:

On Sunday 15th of January 2024, a cable drum of overhead line contact wire, weighing approximately 200kg, broke loose from the back of a VolkerRail Flatbed pickup whilst in transit to the Unipart Depot in Hexthorpe.

The ratchet straps securing the load failed when the vehicle attempted to set off from a set of traffic lights on a gradient, located on Carr Hill, Balby.

The cable drum broke through the rear hatch of the pickup, striking another vehicle that was also waiting at the traffic lights. The cable drum came to a stop after hitting the vehicle and no further damage was sustained. The incident was escalated within the business and arrangements made to recover the cable drum from the highway.

Key Message:

- Plan your route - consider the load that you are transporting and decide what is the safest route - the inertia of a vehicle stopping or accelerating can have significant impacts on straps/slings
- Always ensure that any load being transported is adequately secured with suitable straps and chocks - refer to the straps Safe Working Load and the weight of the items you are carrying, as well as ensuring chocks are secured
- Means of securing loads, such as ratchet straps, should be visually inspected prior to use to ensure they are fit for use
- Some loads may have sharp edges - strap protection sleeves must be used where the strap meets the edges to prevent wear
- It is essential to utilise a 'secondary fail safe' i.e. a secondary strap in case the load shifts or becomes unsecure

FAST FACTS

Road rail vehicle contact damage

Date & Time of Event: 21/01/2024

Description:

On 21st January 2024 whilst egressing from site, a Road Rail Vehicle (RRV) came into contact with a Network Rail access gate, causing damage to the gate and cosmetic damage to the RRV.

The gate was manipulated on site so it could be closed and locked. VRCC were contacted and H&S on call were made aware. The incident was escalated within the business, the project and to route control.

Key Message:

- Assess access routes to ensure that no hazards are present; gates and other narrow openings can require additional attention or supervision from the Crane Controller / Machine Controller / Banks Person
- Lighting levels must be assessed within the planning stages and suitable task / site lighting be available. Always consider access /egress points as well as the site of work
- Site Delivery and Collection Risk Assessments must be in place and briefed to nominated 'Meet & Greet' operatives. The risk assessment must document how the item of plant is to arrive to / from the delivery / collection point, along with any known hazards

FAST FACTS

Coreys Mill tripping event

Date & Time of Event: 09/02/2024

Description:

Whilst undertaking planned works at Coreys Mill, Switch Mounted Outdoor Switchgear (SMOS) site on the morning of 8th February 2024, there was a tripping event that resulted in power being lost to the infrastructure.

The circuit breaker related to these works was isolated, and the trip / loss of power was likely due to the 'fail' function being enabled on the circuit breaker relay, at the time of the trip event. The team were working on the last of the 4 Circuit Transformers (CT), with the previous three being removed successfully.

When power was lost, the ECR implemented alternate feeding from Welwyn (10:31) and Little Barford (10:34). There were some anomalies in voltages on some of the relays, however the cause of this is unknown at this time.

Investigations were undertaken all through the remaining shift. The power was switched back into normal feeding from Coreys Mill at approximately 11:15. In order to further prevent a further tripping event the relays of AT2 and AT1 have been inhibited. The AT2 Circuit Breaker is still isolated.

Key Message:

- Investigations are on-going into the cause of the fault

FAST FACTS

ENVIRONMENTAL TOOLBOX TALK - Noble False Widow spider

Facts:

Adults are 7 - 14mm in size and have shiny dark brown bodies with a distinctive creamy white half-moon at the front edge of the abdomen.

Noble False Widow Steatoda Nobilis spiders are found in southern England but recently started to spread northwards and have potentially been spotted on some of our sites; numbers generally peak between July and November, however they can be seen at any time of year.

Usually found in dark corners around buildings and in gardens or open spaces, they are shy and rather sluggish. They build a messy, often large, tangled web of non-sticky (but very strong) silk, usually built in a corner or partly hidden in a deep crack or hole.

They bite! The Noble False Widow Spider bite has been compared to a wasp sting, but it poses a limited threat to humans or domestic animals. Though their bite is more toxic than any native British spider, there are few confirmed cases of human injury and no records of a serious wound. The only risk of being bitten comes from putting your hand into a web, handling a spider roughly or sitting or lying on one by mistake.

Do:

- In the unlikely event of being bitten by this spider, call NHS111 or seek medical advice if you have a serious allergic reaction, swelling or ulceration of the bite
- Monitor for infection or ulceration

Don't:

- Be overly concerned – the chances of being bitten are extremely small
- Don't handle these spiders or put your hand into their webs
- Don't scratch any wound

FAST FACTS

A-frame overturn – Moat Hills

Date & Time of Event: 31/03/2024

Description:

On the 31st March 2024, Alliance operatives loaded an A-Frame and cable drum onto an RRV trailer. Whilst completing the first element of the loading task, the A-Frame and drum tipped and fell from the trailer and onto the road.

The activity was being carried out utilising an exclusion zone, and no members of the team were inside the zone where the drum fell. Although the plan was in place it seems the cant at the Level Crossing and the low adhesion were not factored in, in the planning or execution of the works.

Key Message:

- Exclusion zones must be always maintained
- Care must be given when lifting abnormal loads and the conditions present during the works

FAST FACTS

MEWP derailment – Retford West

Date & Time of Event: 02/04/2024

Description:

On the 31st March 2024, Alliance OLE teams were accessing MEWP RRV's using a TAMS V-RAM temporary RRAP at Retford West Junction.

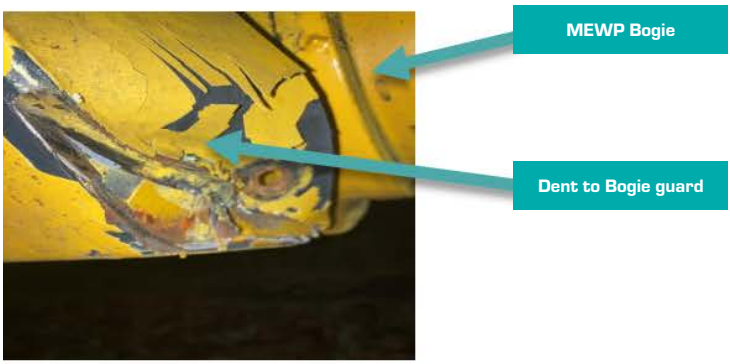
During positioning of the MEWP from the RRAP onto the Rail, the back bogies were engaged onto the rail first. Then, when lowering the front bogies onto the rail, they "slipped" between the RRAP and the rail, causing the back bogies to also "jump" off the rail.

The MEWP was re-positioned and fully accessed onto the rail - it completed the required brake test to ensure safe operation and then travelled to it's place of work.

Upon inspecting the MEWP, it was found that when the MEWP slipped from the rail it had potentially damaged the bogie guard. Work was stopped, the MEWP egressed, and all involved were "For Cause" screened and statements taken.

Key Message:

- Exclusion zones must be always maintained
- Ensure adequate lighting is provided at all RRV access points
- Ensure bogies are engaged properly with the rail before fully lowering and moving the machine
- Never engage the bogies to rail using forward or backward movement of the RRV



FAST FACTS

Overhead linesman minor injury

Date & Time of Event: 07/04/2024

Description:

On Sunday the 7th April 2024, overhead line works were being undertaken at Northallerton TSC as part of the East Coast Mainline (ECML) Power Supply Upgrade (PSU) Project.

At approximately 03:45, an Overhead Linesman working within a Mobile Elevated Working Platform (MEWP) was undertaking the removal of an across track feed within a head-span arrangement.

In order to remove the feed, the Linesman cut into the wire at one end and then moved across track to make the final cut. Upon making the final cut, the loose wire (CESS side) retracted backwards, contacting the bridge of the linesman's nose and left eye lid. Despite wearing safety glasses at the time, the incident resulted in minor lacerations across the affected area with a deeper cut to the nose and eye lid.

The linesman received first aid treatment on site but was accompanied to the local Accident & Emergency as a precaution. They were treated with wound closure strips on both lacerations and released the same day.

Key Message:

- Conductor wires retain load and will retract if not sufficiently secured or held - always ensure both ends of the conductor are secure prior to cutting or moving

FAST FACTS

SRS uncontrolled movement

Date & Time of Event: 09/06/2024

Description:

On Sunday 9th June 2024. The Rail Electrification Alliance (REAL) were undertaking High Voltage (HV) cable installation prep works at Doncaster, South Yorkshire as part of the East Coast Mainline (ECML) Power Supply Upgrade (PSU) Project. Part of these works required the use of an SRS Road Rail Vehicle, which was accessed at Moat Hills Level Crossing (156m 65ch ECM1) under the protection of traffic management.

Upon completion of the works, the SRS returned to Moat Hills Level Crossing to egress the infrastructure. Upon arriving at the crossing, it was reported that the SRS passed the Til-dawns lights and egressed the infrastructure without authority from the Engineering Supervisor (ES) or Level Crossing Attendant (LXA) and subsequently, without traffic management in place.

No injuries or damages were reported as a result of the event. The event was reported as a Close Call via the Principal Contractors (PC) reporting system at 05:32 and subsequently escalated to the Project Duty Manager (DM) at 06:20 approx. "For Cause" Drug & Alcohol (D&A) screening was requested to be undertaken by the project for all roles involved but due to the delay in reporting, the SRS Operator and Plant Operation Scheme Representative had already left site.

Discussion points:

- How do MC & POS communicate with operators?
- Were exclusion zones in place?
- What could have happened?
- RTA incident?
- Injury to member of public?
- Damaged infrastructure - LX?
- What can we learn from this?

FAST FACTS

Work at Height TBS approvals process

Date & Time of Event: 06/08/2024

Description:

During some recent remedial painting works to a containerised switch-room at Stannington, work at height commenced before approval of the Task Briefing by the CRE had been gained.

The WPP and safe system of work had been approved internally and by Network Rail, as it covered high-risk activities. When the Site Management Team became aware of the absence of the CRE's formal approval, the works were immediately stood down.

This is currently the subject of an investigation.

Discussion points:

- The process failing regarding the Task Briefing approval is related to an apparent lack of understanding of the application of the hierarchy of control and selection justification, when applied to work at height controls
- All necessary permits and approvals shall be signed-off and in place prior to these works recommencing
- The relevant life-saving rule is: Always be sure that the required plans and permits are in place before you start a job or go on or near the line

FAST FACTS

Staff intervention when a HGV lorry obstructed a level crossing

Date & Time of Event: 20/09/2024 11:00

Summary:

At approximately 11:00 on the morning of 20th September 2024, an OLE team were waiting to access the track at Dock Hills level crossing for the HV cable checks, when it was noticed that an HGV lorry came over the level crossing while the alarm was going off.

There was not enough roadway to fully clear the crossing as traffic had stopped in front, leaving the rear of the HGV still on the crossing fouling the Up Leeds line. The barrier then came down on top of the lorry. There was very little time, so the OLE team immediately told the driver and got the car in front to move into the next lane so the lorry could pull forward, just enough to clear the crossing and allow the barrier to come down fully before the train came through.

Quick thinking and action ensured avoidance of a serious accident on the infrastructure and potentially saved a number of lives.

Emergency response:

RSSB HB1 8.2 Reporting the hazard and stopping trains

- If you become aware of any of hazards that may put trains in danger, you must immediately tell the Person in Charge, the Signaller or Operations Control
- As well as reporting the hazard, you must take any necessary action, such as stopping trains yourself. If you have to stop a train in an emergency, you must show a hand danger signal clearly to the driver

Highway Code 299 Incidents and breakdowns

- If your vehicle breaks down, or if you have an incident on a crossing, you should get everyone out of the vehicle and clear of the crossing immediately
- Use a railway telephone if available to tell the signal operator. Follow the instructions you are given
- Move the vehicle clear of the crossing if there is time before a train arrives. If the alarm sounds, or the amber light comes on, leave the vehicle and get clear of the crossing immediately

FAST FACTS

Late reporting of damaged drainpipe

Date & Time of Event: 19/01/2025 03:10

Description:

On January 19th 2025, at 03:10, during preparatory work for the continuation of a UTX (Underground Trunk Crossing), a clay drainage pipe was uncovered. It was observed that water was entering the excavation, and the excavator bucket had damaged the pipe.

Discussion points:

What is an INCIDENT?
An unplanned, uncontrolled event resulting in damage, spill or other loss

What is an ACCIDENT?
An unplanned, uncontrolled event resulting in injury

What is a Close Call?
An unsafe act or condition that could (but did not) result in injury or damage

What is a NEAR MISS?
An unplanned, uncontrolled event involving a train or rail-mounted plant that could have resulted in injury

Report all events to the site Supervisor for escalation to Duty Mgr and VRCC

FAST FACTS

UK weather warnings

Summary:

Yellow wind warnings Met Office 'weather bomb' moving into the UK early on Friday morning this week. The 'powerful' weather system, which is known as a 'weather bomb', will bring heavy rain and strong winds.

Discussion points:

What should we expect?

The Met Office says there will be strong winds and heavy rainfall initially in southwestern parts of the UK, which will quickly spread northeast to the rest of the UK. These strong winds could lead to flying debris and falling trees, posing a danger to life.

How can we stay safe?

When lifting or using MEWPs, sites should measure wind speed at working height with an Anemometer, taking into account the risks from wind gusts and stay within the safe wind speed as stated on the machine data plate. Remember if its not safe, stop/pause and raise with the site Supervisor.

For further information:

Weather and climate change - Met Office
BBC Weather - Home

FAST FACTS

Aycliffe MPTSC

Date & Time of Event: 11/02/2025 08:30

Description:

On 11th February 2025 at 08:30 it was reported from York ECR that maintenance activities at Aycliffe TSC had to be cancelled due to the bus section disconnectors AYCA/BS1/A1, AYCA/BS1/2, AYCA/BS1/B1, AYCA/BS1/B2 (X4) being identified incorrectly on the SCADA Screen.

Discussion points:

- Design integration between disciplines IDC/ IDR attendance / maturity of designs reviewed
- Validation / Verification of design / Testing
- Appointment of lead test engineer during test activities
- Communication between interface parties
- Record of test
- An investigation has commenced to establish the full facts surrounding the incorrect identification

FAST FACTS

Road traffic collision Bretton A15

Summary:

Whilst commuting from place of rest (local hotel) the VR vehicle approached the roundabout on the A15, a MoP's vehicle on the roundabout approached from the right, the VR driver did not stop/slow down sufficiently and the front of the VR vehicle struck the rear of the MoP's vehicle as it passed. Minor scuff damage was caused to both vehicles, no injuries, details exchanged. VRCC were advised. No report was made to the project team.

Discussion points:

When should I report an incident and who to?

You must always inform the site lead as soon as possible, usually the site Supervisor, arrangements can then be made to support, assess and escalate to on-call Duty Manager and VRCC.

What needs reporting?

Any injury, damage, incidents such as contact with infrastructure, road traffic incidents, points issues, level crossing issues, worksite and line block issues, basically all unintentional events, report and then we can evaluate further.

FAST FACTS

Langley cable fire in trough - 3rd April 2025

Summary:

On Thursday 3rd April 2025 at around 10:00 Network Rail IDM South reported smoke emitting from the trackside in Knebworth area. An emergency switch off of power for the affected sections was implemented by the Electrical Control Room (ECR).

P&D and OHL teams were dispatched to the site to investigate and mitigate the issue. It was confirmed that the fire originated from the troughing of LYJA/WEWA/AF1 auto-transformer feeder cable, specifically involving copper wire cable screen at the joint location, where the screen of the ATF cable was bonded to track. These were removed to eliminate any further current flow/overheating.

Discussion points:

- Has the installation been completed as designed and tested in accordance with the requirements?
- Are any further or ongoing checks or inspections needed?
- Have you reviewed the checks or inspections, are there any actions required?
- Have these actions been implemented on site?

An investigation has commenced to establish lessons to be learned and implement permanent solutions.

BACK TO BASICS

Planning

- Escalate and validate

Behaviours

- Report Close Calls

Command & Control

- Validate decisions on change, is it safe, is it the right thing to do?

Safety Leadership

- Encourage engagement

FAST FACTS

Langley cable fire in trough - 17th April 2025

Summary:

On Thursday 17th April 2025 at around 18:45 Hertfordshire Fire & Rescue Services were called to a lineside fire in the Knebworth Area. An emergency switch off of power for the affected sections was implemented by the Electrical Control Room (ECR).

It was confirmed that the fire originated from the troughing of LYJA/WEWA/AF2 auto-transformer feeder cable, specifically involving copper wire cable screen at the joint location, where the screen of the ATF cable was bonded to track. These were removed to eliminate any further current flow / overheating.

The intensity of the fire damaged operational track feeder cables LYJA23, LYJA24, LYJA85 & LYJA86. There is a plan to reinstate these cables in week 6.

Discussion points:

- Has the installation been completed as designed and tested in accordance with the requirements?
- Are any further or ongoing checks or inspections needed i.e. track bonding?
- Have you reviewed the checks, technical reports or inspections. Are there any actions required?
- Have these actions been implemented on site?

An investigation has commenced to establish lessons to be learned and implement permanent solutions.

BACK TO BASICS

Command & Control

- Validate decisions on change, is it safe, is it the right thing to do?

Learning from Events

Safety Alerts

Safety Alerts

Live line indicator (Issue 2)

Description:

The HVD03/2D (PADs Number 094/007055) live line indicator shall be withdrawn from use by all Network Rail staff from 14th August.

Contractors and third parties are still permitted to use the HVD03/2D after 14th August 2020 until a future date. Although where alternate live line indicators are available, they shall be used in preference to the HVD03/2D.

Until the HVD03/2D live line indicators have been completely withdrawn, the 3-metre rule will remain in place as in the Safety Advice NRA20-05.

For devices that do not have a proving unit, a weekly check on a known live 25kV supply must be carried out as stated in the briefs.

If an alternative LLI is available (from the list below) they should be used in preference to the HVD03/2D

- Westminster D3 resistive
- Cotec C31 resistive
- Pfisterer KP-Test 5HL Capacitive live line tester
- Arthur Flury AG 25kV Capacitive live line indicator
- High voltage indicators and live line
- Testers - LLT 33kV - HVI
- London Midland type resistive
- Eastern Region type resistive
- HVD03/2B - HS1 only

The lifesaving rules and associated guidance for Test Before Earth and test Before Touch on 25kV OLE must still be followed as in the Safety Advice NRA18-12.

Key Message:

- HVD03/2D until confirmed otherwise HVD03/2D live line indicators must be quarantined and not used by Network Rail staff after14th August 2020. REAL can still use the HVD03/2D until confirmed otherwise
- Always use live line indicators as instructed
- If at any point staff feel unsafe with any aspect of working on or about the 25kV OLE infrastructure and associated electrical risks they should discuss their concern with their supervisor

Attitude – Never assume that the electrical equipment that you are working on or near is dead. ALWAYS witness the Test Before Touch process being carried out

Influence – Always insist on witnessing the Test Before Touch process, including the testing of the LLI on the proving unit first

Management – Ensure all staff engaged on work on or near electrical equipment have been trained and assessed as competent and that permits are in place to cover the work

Safety Alerts

Road rail vehicle derailment during piling works

Date & Time of Event: 03/07/2022

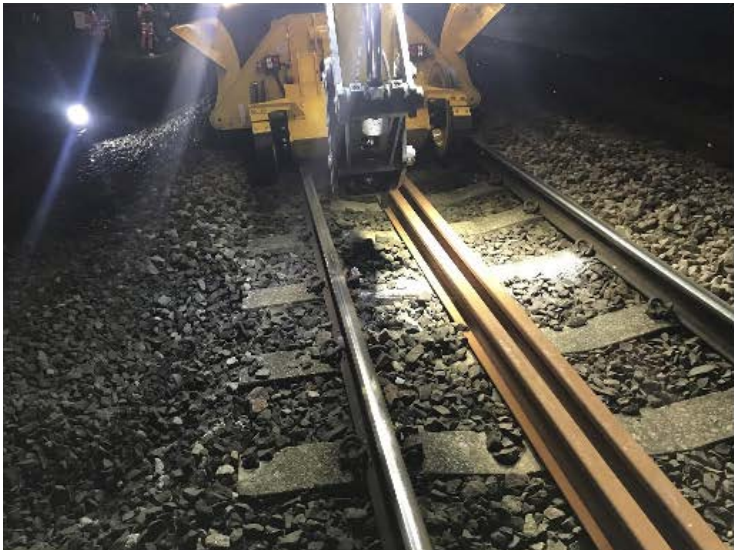
Description:

On Sunday 3rd July 2022, pile foundation installation works were taking place at Fenham as part of the East Coast Mainline Power Supply Upgrade Project. During the installation of a pile, at approximately 03:05, a road rail vehicle (RRV) became derailed from the down main when the operator increased the power to account for the hardening ground conditions. The increase in power is reported to have caused the derailment.

The derailed RRV was reinstated onto the down main and the tracks inspected by a competent engineer prior to handing back possession of the lines.

Key Message:

- All activities relating to the operation of on track plant must be suitably risk assessed, detailed and controlled by competent persons



Safety Alerts

Working at Height (MEWP's and ladders)

Description:

Work at height means work in any place where, if precautions were not taken, a person could fall a distance liable to cause personal injury. You are working at height if you work above ground or floor level.

Working in a MEWP:

- The platform is used on level, firm ground only
- Outriggers or stabilisers are used in accordance with the manufacturer's manual and Lift Plan
- A trained operator is at ground level
- Safety harnesses are worn at all times while on the platform, unless there is a risk of falling into water
- The platform is kept within safe working limits and radius, taking account of wind
- Exclusion zones are enforced around the working radius of the MEWP by a competent banksman
- Banksmen and Operators must wear DECT Comm Duplex Communications at all times

Working from a ladder:

- Work of short duration (15-30 minutes maximum)
- Given a unique number and recorded on a ladder register
- Erected at correct angle (4 up to 1 out)
- Tied to secure locations where possible to prevent movement
- Erected on a firm level surface only
- Rested against a firm solid surface
- Secured (preferably at top) and at the base with suitable nonslip device to foot
- Positioned close to the work to avoid over-reaching
- The top 3 rungs shall not be used
- A pre-use check is to be completed prior to the task to ensure the ladder is safe to use

No person shall engage in any activity relating to work at height, including planning, organisation or supervision, unless they are competent to do so.

Safety Alerts

Safe Work Pack authorisation

Description:

VolkerRail procedure, Safety of People Working on or Near the line (SAF19), describes how planning of work 'on or near the Line', or which could affect the area 'on or near the line' on Network Rail Managed Infrastructure must be carried out by the Responsible Manager, Planner and Person in Charge. The procedure prescribes specific timescales to allow for sufficient planning of the works, including the request of the Safe Work Pack.

The procedure also details an authorisation process that must be followed if timescales cannot be met due to unforeseen circumstances as follows:

- All Safe Work Pack requests must be made a minimum of 5 working days in advance of the planned works
- Any requests submitted less than 5 working days before work commences must be authorised by the relevant Senior Project Manager / Project Manager and reported as a close call to VRCC
- Requests that are submitted 2 days or less prior to works commencing must be authorised by a HSQEs Leadership Group member and reported as a close call to VRCC
- Late requests that are not signed by a HSQEs Leadership Group member must be rejected by the Planner and reported as a close call to VRCC

Key Message:

- Project Managers should instruct works in sufficient time to allow Safe Work Pack requests in line with the timescales detailed in SAF19 above
- Late requests can lead to insufficient time to plan the works and involvement of the Person in Charge in the planning phase
- Late requests for Safe Work Packs must be authorised in line with SAF19 above. Once authorised, the Safe Work Pack requester must raise a close call with VRCC
- Close calls in relation to late Safe Work Pack requests must be called through to VRCC
- Only VRCC Duty Controllers are permitted to input close calls associated to late requests directly to EcoOnline

Safety Alerts

Drug and alcohol test refusals

Description:

Over the past 10 months there has been a disproportionate rise in the number of individuals leaving the work site immediately after being told that they were going to be tested for drugs and alcohol.

The Sentinel Scheme Rules are clear that if an individual leaves site to avoid a drug and alcohol (D&A) test 'post incident' or 'for cause' that it is classed as a refusal.

This refusal should result in a 5-year suspension from Sentinel, in line with Network Rail's zero tolerance policy.

From December 2022 to February 2023 ten people have left NR sites following an incident without being tested for drugs and alcohol (D&A) by the medical provider.

Unfortunately, in all ten cases the medical provider was not called to site. This means that a D&A refusal could not be registered. The testing provider cannot add a refusal if not called or only informed at a later date. The 10 cases were referred to the Sentinel Review Panel to review and the panel applied the 5-year ban in all cases.

It is essential for all individuals that are involved in managing 'for cause' screening on site that a D&A test is requested via VRCC and wherever possible, it is advisable to do this prior to telling the individual(s) as this reduces the chances of the individual leaving site.

Key Message:

The NR Drug and Alcohol Standard contains the following clause, applicable to all staff working on the Network Rail Managed Infrastructure:

9 For-cause testing

- 9.1 Where the behaviour of an employee or contractor gives cause to suspect that they are unfit to work due to drugs or alcohol misuse, the responsible manager shall suspend the employee or contractor from all duties and escort them to a safe waiting area. They shall be continuously supervised until the test sample collection is completed. The employee shall remain suspended until a negative result is received.

Safety Alerts

Mobile phone use whilst driving

Description:

The usage of Microsoft Teams for conducting a large portion of our daily meetings, although ultimately beneficial, has incurred a number of unintended consequences.
These include but are not limited to:

- Increased pressures to confirm acceptance of all meeting invites; even in an optional capacity
- Conflicts between electronic calendar commitments and commuting for work; this may lead individuals to feel under pressure to dial into calls whilst travelling between locations

Key Message:

- Ensure compliance with Network Rail Life Saving Rules at all times
- Review meeting commitments to ensure that there is no conflict between driving commutes and meetings. Where this cannot be avoided, the meeting should be declined or re-arranged
- Meeting organisers to review attendee list to ensure that invites are extended only to mandatory personnel where practicable
- If you suspect someone is operating a vehicle whilst on a call or meeting, you should ask them to hang up immediately and log the event via the Close Call reporting system

**Never use a hand-held or hands-free phone,
or programme any other mobile device, while driving**

Safety Alerts

Breach of earthing process by authorised person

Date & Time of Event: 30/04/2023 02:30

Description:

An Authorised Person (AP) was witnessed applying a local earth (orange) in the incorrect manner (Live to Earth) to a sealing end as part of a planned isolation at York. The individual was challenged at the time and a report was made to the Nominated Person (NP) for the isolation.

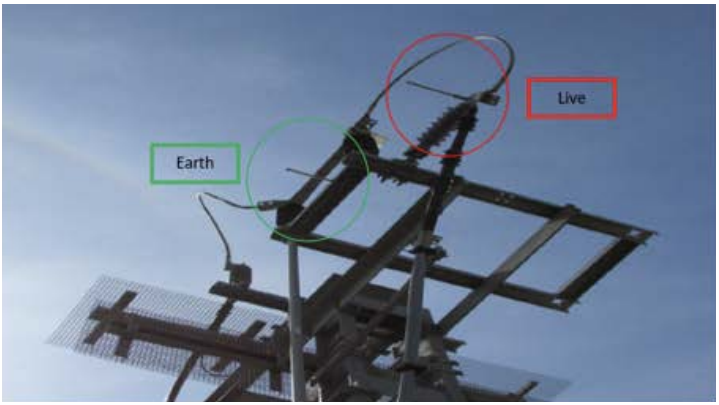
The AP then proceeded to their next Designated Earthing Point (DEP) to apply earths to four lines and adjacent Return Conductors (RC). Upon applying their earths to the RC, the Earthing Assistant (EA) tasked with assisting the AP questioned if the earths had been applied correctly.

The EA raised their concerns to the NP who attended the location and confirmed the earths at this location had been installed incorrectly on the RC wires.

The AP was stood down from duties whilst the earths were rectified by the NP to allow the isolation to commence. The AP was requested to sign out and return home. The issue was then retrospectively escalated to VolkerRail Control Centre (VRCC) and the Project Duty Manager. At this point, it was too late to instigate the required escalation process, evidence gathering and 'For Cause' Drug and Alcohol Screening.

Key Message:

- Overhead Line Earths must be installed on the earth spigot first, and then to the live spigot
- If you are unsure on how a earths are applied, stop work and inform the Nominated Person
- If a person is found to have breached a policy or procedure, works must stop, the area made safe, and the events escalated to the Project On-Call and VRCC prior to taking further action on site



Safety Alerts

Points run through – Morpeth North Junction

Date & Time of Event: 29/05/2022 02:26

Description:

- Morpeth North Junction approx. 17m 26ch. Planned works consisted of 500m cable pulling and the delivery of materials utilising 2x RRV's & Trailers (civils)
- Following the establishment of the worksite the SWL2 permitted the RRV to travel from the Up Main to the Up Passenger Loop. Whilst travelling across the junction the RRV then derailed at 552 points on Up Passenger Loop
- The RRV Operator, Crane Controller, SWL2 were stood down for 'For Cause' drug & alcohol testing. Following arrival on site the Network Rail Mobile Ops Manager (MOM) also arranged for the signaller to be D&A screened
- The Operator and Crane Controller of the second RRV within the worksite were then used to recover and off-track the derailed RRV. Initial inspection suspected damage to a stretcher bar. Network Rail fault team attended site and are planning for any necessary repairs
- The Nominated Person has assisted by overseeing D&A screenings. Photos and statements also taken

Key Message:

Rule Book GERM8000 Handbook 15 Duties of The Machine Controller and OTP Operator clearly states:
"Before any movement is made over points, the MC/CC must check them to ensure they are in the correct position for the move".

An investigation into this event is currently taking place and its findings will be cascaded through shared learning upon completion.

Safety Alerts

Cows on the line

Date & Time of Event: 20/07/2023

Description:

Operatives working on behalf of the Rail Electrification Alliance (REAL) observed multiple cows in the CESS of the East Coast Mainline (ECML) adjacent to Dalton Track Sectioning Cabin. The operatives contacted the Signaller who had already been made aware by a passing train. A Mobile Operations Manager (MOM) attended the site and found that the cows had been lured back into their field by the landowner.

Initial enquiries found that the cows had escaped through a damaged boundary fence and therefore, repairs were made to make the fence safe.

Wednesday 26th July, communications were received from Network Rail that stated how upon further inspection to the damaged boundary fence, it was evidenced that the fence had been cut by unknown persons. An investigation will seek to establish how fence was damaged, allowing the cows to gain access.

Key Message:

- Under no circumstances must boundary fences be damaged. If you observe a damaged fence, you must report it to Network Rail and VRCC

Safety Alerts

Controllers of Site Safety not signed onto ES Certificate (RT3199)

Date & Time of Event: 27/08/2023

Description:

The Rail Electrification Alliance (REAL) were undertaking works at Hambleton. Following the completion of the planned works, it was found that two Authorised Persons (AP's) / Controllers of Site Safety (COSS) working on behalf of REAL, undertook isolation works within the engineering worksite without signing onto the Engineering Supervisor's Certificate (RT3199).

Key Message:

Authority to access an Engineering Worksite must only be granted by the Engineering Supervisor (ES). This must only be done following a worksite briefing and the relevant Engineering Supervisor's Certificate and appendix, signed by all COSS's. The Engineering Supervisor's Certificate is an integral document that ensures those working within the worksite have been briefed and are recorded within the safe system of work.

Engineering Supervisor's Certificate RT3199

This certificate is in addition to any required in connection with the isolation or re-energisation of the traction current. A separate certificate must be completed for each line affected by the work.

Section 1 Possession and work site details

Name of ES		Employer	
MOM Hare No.		Possession limits (mileage)	Start
Line affected			End
Work site limits (mileage)	Start	End	

Details of level crossings within the work site

Level Crossing	M	Arranged	Withdrawn	Level Crossing	M	Arranged	Withdrawn
		Time / Date	Time / Date			Time / Date	Time / Date

In the M column enter -

N		A		E		G	
W				C			

Authority given by PICOP to set up work site	Signature or name of PICOP	PICOP phone number	Work site set up PICOP advised
Time / Date			Time / Date

PICOP's authority to allow work to start at: Time / Date PICOP's initials

If you are also acting as COSS you must additionally complete an entry in Appendix A.

Section 2 Change of ES

Name of new ES	Employer	Changeover at	PICOP advised at
		Time / Date	Time / Date
		Time / Date	Time / Date
		Time / Date	Time / Date
		Time / Date	Time / Date

If you are also acting as COSS you must additionally complete an entry in Appendix A.

Section 3 Giving up the work site

Signature of ES	Work completed, portion of line clear and safe for trains to pass	Certificate to be handed to PICOP or PICOP advised at
	Time / Date	Time / Date

Safety Alerts

Introduction of Balises: Welwyn to Hitchin

Date & Time of Event: 20/07/2023

Description:

As part of the East Coast Digital Programme (ECDP), Eurobalises will be progressively introduced to the Welwyn to Hitchin ETCS scheme area between Christmas 2023 and February 2024, in readiness for the project to commence system proving which is planned for early 2024.

These Balises will be installed within the 4-foot. Staff should not walk on or place anything on these assets and be aware of the potential trip hazard introduced.

These assets should not be removed or relocated without the Siemens Welwyn to Hitchin project team being advised, as they are geographically sensitive pieces of kit.

Any issues relating to the Balises, advising of any damage caused to them or if there is a need for removal / interaction with them should be directed to Kerry Arrowsmith on +44 (0)7710 940764 or at kerry.arrowsmith@siemens.com

ELR	Start Mileage	Finish Mileage	Location
ECM1	18M 45chains (near Hatfield Station)	38M 30ch (near Arlesey Station)	East Coast Main Line, Kings Cross to Shaftholm Jn
HDB	28M 01chains (near Langley Jn. South)	28M 15ch (near Langley Jn. North)	Hertford Branch, Wood Green North Jn. to Langley Jn. via Hertford
SBR	32M 11chains (near Cambridge Jn.)	34M 40ch (near Letchworth Garden City Station)	Shepreth Branch, Hitchin Cambridge Jn. to Cambridge
DCF	32M 11chains (near Hitchin North Jn.)	34M 05ch (near Hitchin East Jn.)	Down Cambridge Flyover, Hitchin North Jn. to Hitchin East Junction

Key Message:

- Eurobalises are part of the European train control system (ETCS)
- Balises are pre-programmed, and contain information that is read by train antennas
- One of their many functions is to allow a train to determine its location
- No materials to be stored within 1000mm of any Balise. This includes lengths of new / old running rail. Plan all work to avoid them
- Do not step on the Balise or Vortoc beam mounting for the Balise

Safety Alerts

Mobile phone use whilst driving

Date & Time of Event: 22/01/2024

Key Message:

- In recent weeks, we have observed an increasing number of events relating to driver behaviour and the use of hand-held devices
- It is important to remind all drivers that the use of hand-held devices is strictly prohibited whilst in control of a vehicle, even if you are stopped at traffic lights or queuing in traffic
- You can only legally use a handheld device if you are safely parked with the ignition switched off or you need to call 999 or 112 in an emergency, and it is unsafe or impractical to stop
- You can receive **6 penalty points** and a **£200 fine** if you use a hand-held phone. You can also be taken to court where you can be banned from driving and receive a **maximum fine of £1,000**
- If you passed your driving test in the last 2 years, you would automatically lose your licence
- Being on your phone is not worth potentially putting your job at risk, causing an accident or losing your own life

**Never use a hand-held or hands-free phone,
or programme any other mobile device, while driving**

Safety Alerts

Welwyn access restriction

Date & Time of Event: 13/03/2024

Key Message:

With immediate effect, access to Welwyn B ATFS is to be restricted and should NOT be accessed.

Following test results received from the Network Rail Maintenance Team an increased level of partial discharge has been recorded with the SADTEM Voltage Transformers VT21 and VT22 at Welwyn B ATFS.

A monitoring plan was put in place from August 2020 to monitor the partial discharge levels on all SADTEM VT's located on the NR infrastructure due to failures which have occurred on other parts of the route.

Along with the access being restricted with immediate effect, staff are not to be within 30 meters of the SMOS equipment while the HV equipment is LIVE.

Fencing is to be erected to demarcate the exclusion zone with suitable warning signs to warn members of the public / Network Rail of the potential risks while the equipment is LIVE.

An overview of the components comprising the VT

Safety Alerts

Urgent safety notice affecting Heartsine AED's (Defibs)

Date & Time of Event: 20/05/2024

Key Message:

Manufacturers have issued a field safety notice affecting Heartsine Samaritan PAD and Omron HDF-3500 AED's (April 2024).

Stryker have determined that a manufacturing related issue may impair device audio prompts in some affected units. Stryker is issuing a customer notification to remind customers to follow the User Manual and power the device upon receipt to ensure the audio voice prompts function as intended.

In addition, there may be risk of shock to the user due to the absence of the "stand clear" voice prompt. There has been one reported serious incident to date in which the device failed to deliver audio prompts. Serious incidents or quality problems experienced with the use of this product may be reported to the Stryker Representative.

Affected products: HeartSine® Samaritan® PAD 350P/360P/450P/500P, Omron HDF-3500

All sites must check their AEDs against the models detailed above and contact Alan Fallows should a matching serial number be found: alan.fallows@volkerrail.co.uk

Safety Alerts

Mandatory use of duplex comms

Date & Time of Event: 20/07/2023

Description:

This alert is aimed at all persons involved in the planning, operation, supervision or management of Plant specifically OLE CM's, OLE Supervisors, POS's, MC's, Lineman and MEWP Operators, when the MEWP is either on or off track.

Key message:

The operation and control of MEWPs is a safety critical role. Reliable communication between the MC and the MEWP Operator is vital to the safe use of the MEWP to avoid serious injury or damage. The use of approved full Duplex comms systems (DECT comms) is mandatory when the MEWP is in use. The use of Duplex comms can only be suspended when the MEWP basket is at ground level and the engine has been stopped, ensuring no movement of the MEWP is possible.

Network Rail standards that apply: NR/L2/RMVP/0200/P505 - Safe working with plant and NR/L2/RMVP0200/P300 Plant Approval and Design

BACK TO BASICS:

Planning:

- Plan the work – work the plan
- No freestyling

Behaviours:

- Look after your mates
- Standard you walk by is the standard you accept
- Create a safe environment and then put people to work
- Keep everyone safe like family

Command & Control:

- Take time to brief
- Test understanding, brief everything, test understanding

Safety Leadership:

- Close Call reporting
- Make time for safety tours and engagement
- Clear communication, follow the Lifesaving Rules

Safety Alerts

Unsecure cable drum – loss of load

What good looks like - cable drum loading

Loading/unloading guidance

- Loads should be spread as evenly as possible, during both loading and unloading. Uneven loads can make the vehicle unstable
- Multiple fixing points/sets of securing equipment are to be used to ensure the load is not susceptible to a single point of failure
- Cable drums must be sufficiently chocked, on both sides of the drum, as to prevent forward and backward movement
- Strap protectors must be used where the sling/strap comes into contact with a sharp or square edge
- The fixing equipment must be placed through the centre of the drum (with strap protectors)

If you do not have the right equipment to secure a load - **do not take the risk.**

Drivers are responsible for ensuring that the load they are transporting is secure and that it does not pose a risk to others.

The load does not have to have fallen from the vehicle for there to be an offence. **The existence of danger is key. The penalty for this offence carries a maximum fine of £2500 but if it involves a goods vehicle (or a vehicle adapted to carry more than eight passengers) it is now an unlimited fine.**

Safety Alerts

Close Calls make a difference

Discussion points:

Every time you make our workplaces safer, every time you encourage someone to avoid a hazard, you make a real difference. By sharing our Close Call performance across the project and with our client, we demonstrate our unwavering commitment to safety. **Remember, every Close Call counts.**

Key message:

When you are working, are you identifying hazards and raising a close call? If not, why not?
When you raise a close call, you make your workplace safer for you and your workmates.

Where can you find the close call QR code?
Close call reporting posters are in welfare cabins, in your site induction, on your site access register and in this HSE weekly Pack.

How do I get feedback on a close call I raised?
If you record your email address when submitting the close call, feedback will be provided via email. We also choose the top five close calls highlighted in this HSE Pack.

Safety Alerts

Cable damage and theft

Overview:

Cables were damaged by criminals setting fire to a motorbike on cable routes. The criminals returned the following day to steal around 1km of newly commissioned cable, causing significant train delays and cancellations. NR Works Delivery and REAL Alliance Teams are working together to repair the damage.

Take action:

Check fences and gates are secure, look out for suspicious activity. Report any suspicions, trespass, break-ins or thefts to VRCC on 01302 791 187, Police (obtain a crime reference number) and REAL on-call manager.

Remove temptation by securing items out of view in a secure place. Ensure laptops and mobile phones are kept secure and locked when not in use. Remove keys from plant and vehicles when not in use. Remember we have a legal and moral duty to prevent trespass to our sites and the railway.

BACK TO BASICS:

Planning:
- Stop and assess the risks, escalate

Welfare:
- Look after it

Behaviours:
- Report Close Calls and incidents

Command & Control:
- Escalate issues

Safety Leadership:
- Make time for safety tours

Safety Alerts

Close Calls make a difference (2)

Overview:

During the festive period, historical trends indicate a reduction in Close Call reporting, even when accounting for fewer site hours. However, our focus must remain strong. Currently, we are seeing a significant increase in Close Calls in Period 9, thanks to the efforts of every Close Call reporter. Let's remind everyone that we are fully committed to working safely and will continue to prioritise safety at all times. **Remember, every Close Call counts.**

Take action:

Make a personal commitment to raise Close Calls with your supervisor, take action and record your Close Calls.

Project leads, managers and supervisors must encourage site and office teams to identify, take action and report Close Calls.

BACK TO BASICS:

Planning:

- Escalate and validate

Behaviours:

- Report Close Calls and look after your mates

Command & Control:

- Escalate issues

Safety Leadership:

- Encourage engagement and leadership from the ground up

Safety Alerts

Close Call target areas - January 2025

Overview:

During December you raised Close Calls and took action. Below are the top six areas we need to continue to focus on to keep everyone safe like family:

1. Trespass - continue to be vigilant for potential intruders, continue site tours/reports, continue Temp Works checks
2. Equipment maintenance - issues with equipment maintenance identified during site tours and addressed at site
3. Implementation of plan - issues raised are addressed at site, continue to check plans prior to starting work
4. Briefings - good briefings continue to be positively reported
5. Site tidiness - ensure suitable facilities provided for waste
6. Slip/trip/fall - ensure prep for safety tours completed and issues addressed

Discussion points:

Are Close Calls important?
Yes, every Close Call is an opportunity to keep everyone safe like family.

Will I get personal feedback?
Yes, if you provide your email address when submitting the close call, you will get an email from EcoOnline when the Close Call is closed.

What about all other Close Calls?
Every week we select the top 5 Close Call highlights in this pack. We also use the Close Call trends to focus our attention and check our processes are working as we expect.

Safety Alerts

Close Calls make a difference (3)

Discussion points:

Recent periods have shown an encouraging increase in the number and quality of Close Calls raised at sites. Keep up the good work. **Remember, every Close Call counts.**

When reporting Close Calls that need action by Network Rail e.g. existing infrastructure Close Calls, please ensure you report the location name, ELR and mileage, so we can escalate accurately to NR Route Control.

Take action:

Make a personal commitment to raise Close Calls with your supervisor, take action and record your Close Calls.

Project leads, managers and supervisors must encourage site and office teams to identify, take action and report Close Calls.

When reporting Close Calls that need action by Network Rail e.g. existing infrastructure Close Calls, do I need to include location details?

Yes, please ensure you report location name, ELR and mileage, so we can escalate accurately to NR Route Control.

BACK TO BASICS:
Planning:
- Escalate and validate

Behaviours:
- Report Close Calls and look after your mates

Command & Control:
- Escalate issues

Safety Leadership:
- Encourage engagement and leadership from the ground up


Our
REAL
Legacy

Our REAL Legacy

Al Pattison, Alliance Director

We hope that you will find this booklet a useful resource as you go forward in your career. As I mentioned at the beginning, the project has been complex, challenging but above all else, rewarding.

As we near the end of the project, it is vital that we circulate our lessons learnt with the wider industry to ensure that we avoid the same mistakes, expand on our knowledge and continue to evolve. We hope that this document encapsulates this.

Thank you to every single person who has played a part in the project. Your dedication and hard work will ensure that we will have a rail network fit for the future, for many generations to come.

Good luck to you all and I look forward to hearing how our learning from events will help you continue to build a stronger safety culture in rail.

Al Pattison, Alliance Director

REAL
Rail Electrification Alliance

Partner Alliance Board

PAB

What the REAL Legacy means to us

Ben Brooks, Network Rail

The ECML Power Supply Upgrade had to evolve its knowledge and capability to meet its ambitious goals by driving innovation, developing skills, and strengthening long-term industry capability in Electrification & Plant (E&P). This legacy of expertise transcends the REAL project. As the project demobilises, its knowledge and experience are being transferred to other major programmes, such as the Transpennine Route Upgrade.

From a client [Network Rail] perspective, REAL delivers a lasting legacy to both the railway and its people. This is not only physical — such as the installation of new Static Frequency Converters that provide a greener, more efficient, and reliable power supply for passenger and freight services — but also digital. The ability to remotely monitor and maintain E&P assets means that maintenance teams no longer need to be on-site to assess asset condition, therefore improving safety and efficiency.

Lessons learnt will not simply sit within the minds of REAL team. This booklet and other methods of sharing, from knowledge gleaned from events and a shared legacy, will be spread across other projects, but also more widely with our maintenance and operations teams.

Beth Newton, Jacobs

What has impressed me is the geographical scale and breadth of the work alongside what has been achieved. Each region along the East Coast Main Line (ECML) has different stakeholders and distinct client teams, crossing alternative Network Rail routes, and different communities, all with cultural differences, accents, dialects and preferences.

REAL has worked on multiple, multi disciplined sites across the entirety of ECML and a key success from the project is the fact that one identity has been forged across the vast geography, multiple worksites and workforce. Sometimes large projects gain lots of attention, for example HS2 and Crossrail. PSU is quietly achieving in the background without grand celebration or mass attention, yet it has improved, and future proofed the backbone of the eastern railway infrastructure in the UK. Finally, everyone on the project identifies as the REAL Alliance, not just their partner company. This is testament to a high-achieving team with a fantastic culture.

Partner Alliance Board

PAB

What the REAL Legacy means to us

Sekoura Benissad, SYSTRA

From my perspective, the legacy of the REAL project is that of a successful Alliance that has safely delivered a huge route-wide programme, to enhance the network and provide a reliable and resilient railway fit for the future. I feel privileged to have played a part in that.

What is clear to all involved is that the project has created a team that has a shared ethos of collaboration, teamwork and challenge. It must also be highlighted that there has been some outstanding innovation developed in the project, for example the use of Static Frequency Converters (SFC), and a commitment to safety and sustainability.

Finally, I have had the opportunity to work with some fantastic colleagues during my time on the project and I look forward to seeing everyone continue to thrive and grow.

Chris Cayton, J Murphy & Sons

The sheer scale of the REAL project, the work delivered, and the distance covered has been impressive. The strength of the Alliance comes from bringing together specialist skill sets from the Alliance partners, to deliver as one team.

Civils has played a pivotal role within the project, and our success from this has transferred to the Transpennine Route Upgrade (TRU).

We are seeing a maturity of the health and safety culture in the rail industry. I believe it is a good thing that we are now more willing to share lessons learnt, collectively learning from them and continuously improving.

Partner Alliance Board

PAB

What the REAL Legacy means to us

Stuart Birch, VolkerRail

As the longest standing Alliance leadership team member and sponsor, I believe that we have been successful in our mission and closed out the project safely. We have not only achieved, but surpassed our customers' expectations while continuously developing skills, talent and ambition through strong collaboration.

Working in a collaborative environment enhances personal and professional growth, fosters innovation, and provides greater job satisfaction. It enables individuals to work on meaningful projects, develop a strong professional network, and continuously learn and advance in their careers.

The people leaving the Alliance are more skilled and competent than when they first joined the organisation. We believe that the REAL legacy will be one of positivity, achievement and accomplishment and is a project that everyone should be proud of.

Jon Humpherson, Siemens

We set off on a journey to deliver the ECML power supply upgrade and deliver it well. It took a long time to get the right contract in place and to secure the funding to enable us to do that. However, once this was in place, we were able to deliver better engineering and technological solutions.

From a technical perspective, we have introduced ASG 25kV containerised substations (installed from Hitchin to Marshall Meadows), which are easier to maintain and reduce the risk of failure. The ASG 25kV is a much safer system than SMOS and the previous electrification system. It protects assets and is safer for people because it disconnects from the power in a fraction of the time of the old system, in turn reducing incident impact and saving lives.

Delivering a power supply upgrade of this scale, with minimal impact to the operational railway, is in effect like doing open heart surgery. We have created PSU assets with a legacy that will last 40 years, therefore increasing the reliability of the power supply to the ECML. I am proud to have played a part in this.

Alliance Leadership Team

What the REAL Legacy means to us

Al Pattison, Alliance Director

The REAL legacy shows the value of the journey, whether it is six months or six years. I was here at the start of the project and will be here until the very end, taking the REAL legacy and learnings into my future. It has been a cycle of planning and delivering safely; we still get things wrong, but we get more things right.

The REAL Power Supply Upgrade will allow more trains to run more frequently on the East Coast Main Line. The train path capacity will be increased, providing an opportunity for more passenger trains and rail freight traffic in the future. Moreover, REAL has created the potential to run the electric freight trains of the future, moving more freight off the roads and onto rail.

The SFC (Static Frequency Convertor) at Hambleton has paved the way for the next level of technology and the potential to utilise cleaner, greener renewable energy.

Shane Watson, Alliance Manager

I sum up the legacy of the REAL project in four words – scale, people, innovation and award winning. From the sheer scale of the project, to the fact that over the course of the past decade we have delivered a power supply upgrade across 393 miles of railway, the project is something that everyone involved should be proud they have played a part in.

The upskilling on the project has also been impressive. In its entirety, 300 to 400 people have worked on REAL. For some, this was their first experience in rail. Now as the project ends, each team member will leave with new skills and knowledge.

Collaboration has been key at the Alliance. Through the duration of the project, we have worked collaboratively like a family, across the project. Multidisciplinary companies partner and work as one team, willing to help each other and share open and honest communication across the partner teams. I am proud of what we have achieved within the Alliance.

Alliance Leadership Team

What the REAL Legacy means to us

Darren Lockwood, HSQE Lead

The REAL project has been a big job, and it has been challenging to deliver a programme on such a vast scale. However, we have worked hard to improve the infrastructure on the East Coast Main Line (ECML), never compromising on safety.

The project, as it should be, is underpinned by safety. We live and breathe this ethos and, sought to base our safety culture on that of VolkerRail's successful model. A particularly proud moment for me was the introduction of 'Back to Basics' in early 2024, after identifying the need to improve health and safety on the project. It has been fantastic to see the 'Back to Basics' principles embedded within the Alliance. They continue to guide everyday actions to help keep everyone safe and ensure that everyone arrives home safe, every day. Focusing on safety and quality have been key to delivering the later parts of the PSU on programme well.

It is the impact on people that will remain our significant legacy. Our REAL people have grown professionally, and I am proud to have helped create an environment, underpinned by quality and safety, for them to thrive and develop the next generation in rail.

James Harper, Commercial Lead

The Alliance has been an incredible source of development in the past decade, in terms of people, process, safety, efficiency, and more. Not only has it provided people with a wealth of experience across a diverse range of disciplines, but it has also supported long term career growth for its people.

The Alliance has developed project management and governance processes that have supported overall performance, gaining a positive reputation within the industry. Any project must demonstrate continuous improvement towards safety, but the Alliance has stood out in its forward-thinking improvement, whiteboard meetings and predict and prevent workshops. It also consistently raises a high volume of close calls across our sites and conducts frequent safety tours. The Alliance is driven by its best for project decisions and contractual pledge to offer value for money across all works delivered. It assesses mitigations and efficiencies across all programmed works and has scored green for its key result areas on forecast performance, value of opportunities realised, and percentage of risk mitigated. I am proud to have been a part of it and believe that the project will leave a legacy for future rail alliances.

Alliance Leadership Team

What the REAL Legacy means to us

Sarah Cairns, Civils Lead

The REAL legacy for me is all about the people who have given this programme their time and energy to make it a success, despite its challenges.

It has been a great opportunity for collaboration across disciplines and organisations. Developing skills and knowledge, for the benefit of the industry and facilitating individuals to develop their careers and progress in directions they might not have thought possible.

More than that, I hope people look back with pride on their contribution to supporting the introduction of IEP intercity fleet and improving performance and reliability of service on the East Coast for its passengers.

Chris Thompson, CEM

A lot has changed from a delivery point of view regarding our mindset. Back in 2016, the project was admittedly struggling, not achieving its milestones and goals. Then we moved to a place of understanding, identified obstacles, created a clear plan, and started to deliver against that plan.

Once partners and disciplines began to collaborate more closely, we began achieving key milestones. I am proud to have played a part in that success.

People development has been another strength of the project. We have created a better project structure and problem solving, in turn effectively finding engineering or operational solutions. We have also introduced innovative technology that is more reliable and inherently safer than traditional alternatives, rolling it out wider across other projects.

Alliance Leadership Team

What the REAL Legacy means to us

Steve Platts, Construction Lead

The REAL legacy to me is one where safety isn't just a rule, it's a deeply held value. It's about creating a project culture where learning from events is just part of how we do things and ensuring everyone's well-being.

It's testament that the close collaboration and excellent teamwork within the REAL alliance has led to better safety outcomes through sharing knowledge and our experiences. We believe we have delivered our work to the highest possible standards of safety and quality, leaving behind a legacy of excellence on the East Coast Main Line (ECML). This includes a right-first-time approach to construction and a mindset aimed at seamless handback to the client.

The PSU project has also made a positive difference to the reliability and efficiency of the ECML, contributing to a safer and smoother journey for passengers and freight, achieved through working efficiently and collaboratively. Ultimately, the legacy is about creating a safer work environment and establishing strong safety practices, that will continue to benefit the rail industry long into the future by passing on lessons learned to future projects.

Dean Huggins, HV Discipline Lead

The REAL project delivers a far more resilient and reliable railway. We have future proofed the power supply on the East Coast Main Line for the next 30 years or so, replacing substations that have reached the end of their workable life.

Part of the REAL legacy is innovative technology. First of its kind, Static Frequency Convertor (SFC) 50Hz means that local power can be used from the National Grid much more efficiently, converting it to the requirements of the railway and the newer rolling stock. The new SFCs significantly reduce the power demand from the local DNO (Distribution Network Operator).

It has been a once in a career opportunity to work on an electrification project of such scale and value. Vast numbers of people have been involved throughout, and we have had the chance to develop careers, in turn increasing engineering and project management skills. It has been really rewarding to see young engineers coming through the project.

REAL's Legacy

The final word goes to our emerging talent, REAL's new generation in rail. The following contribution is from some of the graduates who have recently joined the REAL team.

We are proud to have supported and developed lots of great talent over the years, and you do not have to go far to find someone on the team, or in the wider industry, who started their rail career on REAL.

What the REAL Legacy means to me

Mac Medlock, Project Manager (Telecoms)

I am proud to have been part of such a large-scale project; one of the largest point to point projects in the UK. It is good that it is on the East Coast Main Line, in the region that I am from.

I enjoy the fast pace of the project. There can be up to 40 activities each week. I have had the opportunity to work as a duty manager on site during our Saturday night shifts when 8, 10 or 12 worksites are operating.

I also enjoy the exposure to the different disciplines on the project, including Civils, E&P, OLE and Telecoms. I have met so many different people from partner organisations, which if I had worked solely for my parent company, I would not have had the opportunity to experience. Through this, I have the chance to witness varying perspectives and meet different personalities.

The cultures across the partner companies are different, but we work as one Alliance team with one culture. There are new challenges at times, and we must manage multidisciplinary priorities as one team.

REAL's Legacy

What the REAL Legacy means to me

Dylan Tonks, Planner

After graduating from University with a Business Management Degree, I joined Siemens in August 2022 as a Graduate Planner. From there, I joined the REAL team in November 2023, where I worked my way up to my current Planner role.

I have had the opportunity to gain experience and develop my craft. I have been fully supported throughout and have had the chance to work across a range of projects within the Alliance. My work is varied and now involves more disciplines such as OLE and Telecoms. I have also had the chance to collaborate with more Alliance partners, including Jacobs, Systra and VolkerRail.

I really enjoy how everything comes together in rail. I enjoyed being on PSU - it opened my mind as to how different companies operate and allowed me to see up close how the various disciplines work together seamlessly. It has also been great to find work in York, a true rail hotspot. I look forward to taking the knowledge I have gained forward in my career.

George Smith, Assistant Quantity Surveyor

Working on the Alliance has given me the opportunity to work on a large-scale project, which has in turn helped me to develop both personally and professionally in the rail industry.

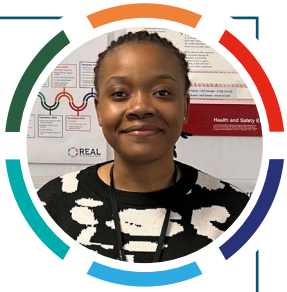
I have had the chance to work with a diverse range of people across the Alliance, gaining in-depth knowledge that will support me going forward. I want to say thank you to my colleagues for welcoming me and supporting me with the initial opportunity of the degree apprenticeship.

I also want to say thank you to the team for providing me with the responsibility to do things on the project that I wouldn't normally have been allowed to do or had exposure to. It has been a unique and highly rewarding experience.

REAL's Legacy

What the REAL Legacy means to me

Natalie Tinotenda, H&S Administrator



My experience on the project has been quite broad. For somebody from the outside looking in, regulations can be fascinating. I really enjoyed working on improving close calls and interacting with the data, discovering what has been going well and areas that require more focus.

I really enjoyed exploring historic close calls, many of which are still happening today. It was a good experience to analyse why these are still happening and what solutions can be created to overcome them. From a safety perspective, I also liked the fact that we have been working hard to ensure that everyone coming into the business and those that use the railway daily, can arrive at their destination and get home safely. This is reflected in a personal highlight, where we saw 1,000 days of no injuries.

Reflecting on my time on the project, I was presented with a big opportunity to grow in a vast industry. I really enjoyed working with Alan Fallows, gaining new knowledge and developing my skills. Looking ahead, I imagine that I will continue to climb the ladder, taking all that I have learnt on to my next chapter.

Myles Palmer, Design Engineer

The REAL Alliance is a unique project where six large companies, including Siemens, collaborate to design, construct, and commission new substations along the East Coast Main Line.

For me, the legacy is being part of an improved power supply on such a vast area of railway infrastructure, with most of the project's substations now in service.

When traveling down the ECML, you can see all the new substations in operation, successfully supplying the overhead line on the railway. It's good to know that I played a part in the project's success.

Notes:

REAL
Rail Electrification Alliance

Learning from Events

The REAL way of life is keeping Everyone safe like family

REAL is a partnership between:

NetworkRail SIEMENS MURPHY VolkerRail SYSTRA Jacobs