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SP ENERGY NETWORKS

Contractor Health & Safety Forum

10th August 2016

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Welcome
Introduction
Objectives

Colin McNeil – IEC
Bob McGuire - SPEN

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Introductions

Bob McGuire SPEN Programme Manager

Colin McNeil IEC Delivery Manager

Sharon Nulty IEC HSEQ Manager

Members of SPEN IEC Management Team

Objective

Improve Health and Safety Performance across the portfolio.

How

- Share information
- Provide updates
- Listening to your feedback
- Working together

What are we going to cover

- Update on latest HSEQ statistics and stand-down
- Update on Setting to Work working group
- Update on Working at Heights
- Coffee
- Sharing available technology and lessons learned for Lone and Remote
- working from a contractor and supplier perspective
- Incident investigation and benefits Root Cause Analysis
- Sharing Environmental Best Practice
- Lunch
- Q and A / Close 13:30

Looking to generate interaction and participation

- Short discussions following the sessions - we will be asking questions and looking for responses
- Any questions from the floor please ask or submit via IPAD's or paper
- Questions submitted will be reviewed and where possible responded to during the day and Q & A session
- Any question that can't be answered on the day if you leave a contact we will respond after the event
-
- Survey will be sent out after the event please take the time to complete – your views are important

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Safety Contact

Sharon Nulty

Safety Contact : Telehandler Overturned July 2016

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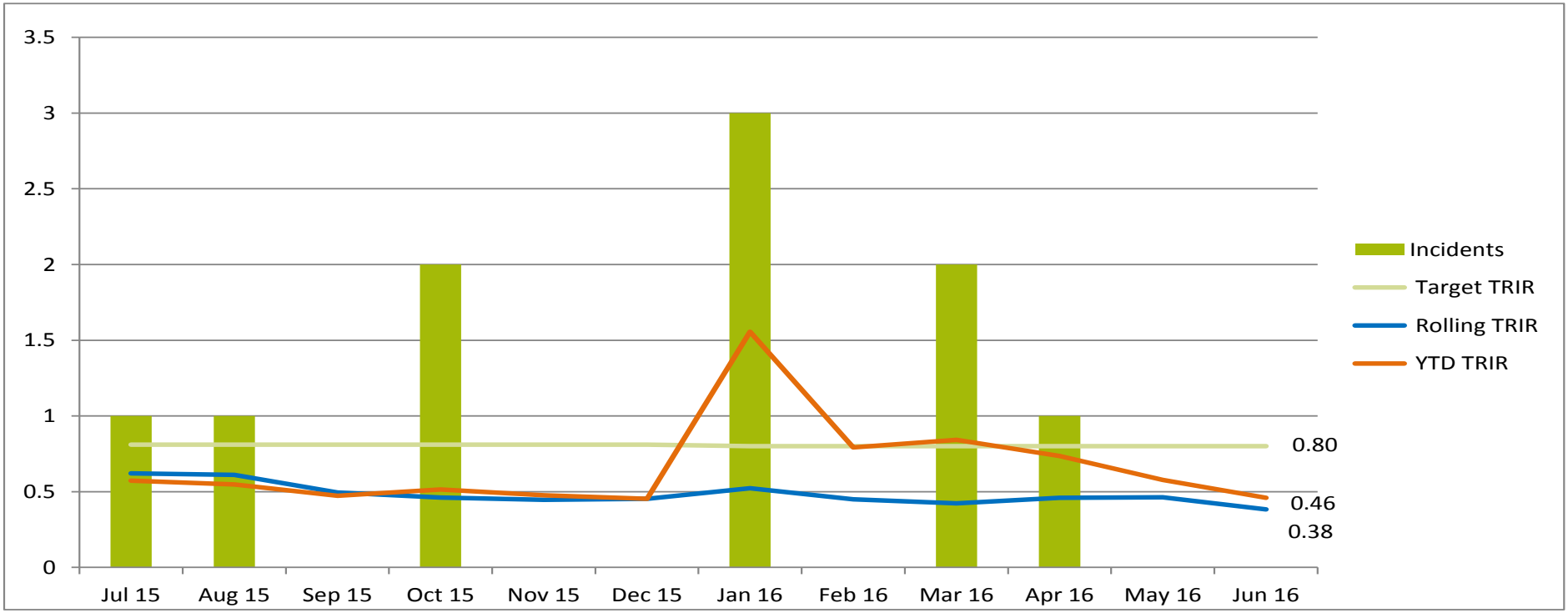
UK Networks
H&S Performance

Matt Orr
Karen Forrester

UK Networks – Incident Profile for 2016 So Far



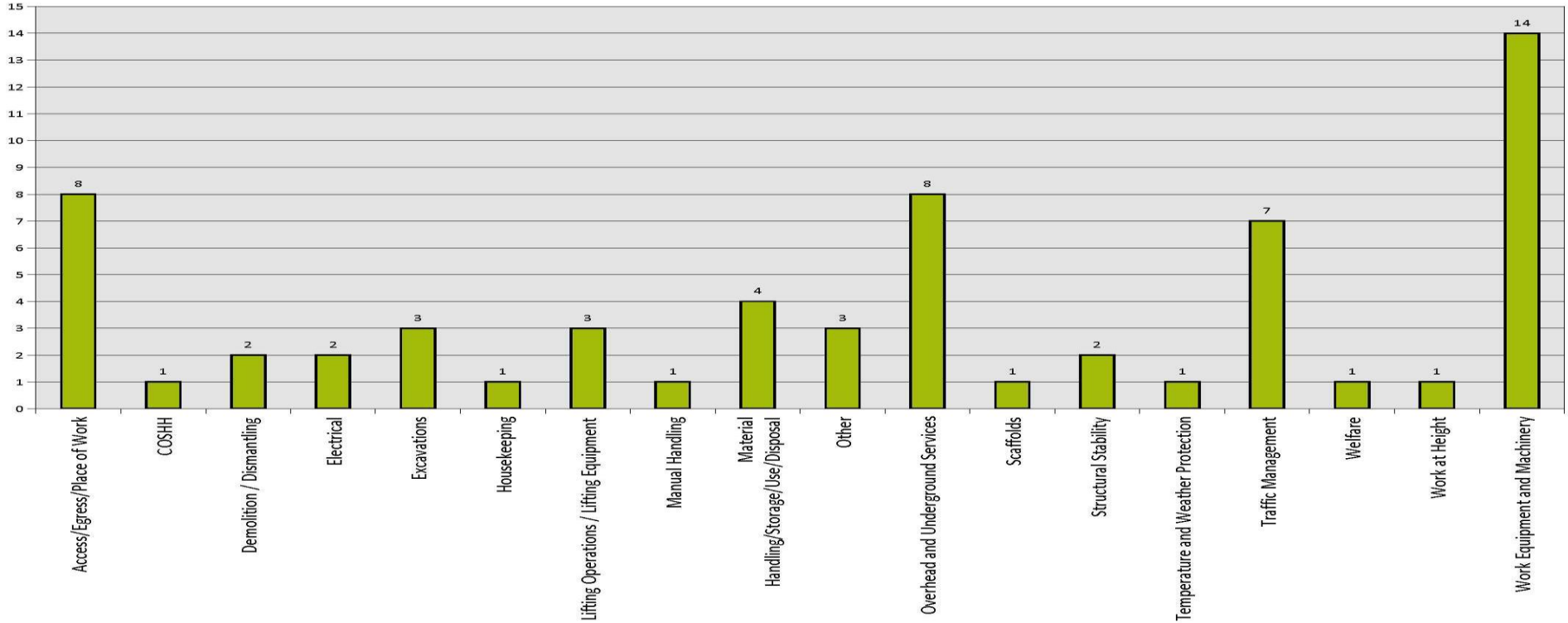
UK Networks – Incident Profile for 2016 So Far

Incident Type	Total Jan-June 2015	Total Jan-June 2016	Performance
RIDDOR Reportable	1	4	
Non-RIDDOR Reportable	63	59	
Total lost time / restricted workdays	31*	112*	
Total Number of Hours Worked	1.34m	1.36m	

UK Networks – Incident Profile for 2016 So Far

Incident Type	Total Jan-June 2015	Total Jan-June 2016	Performance
Reportable Deaths	0	0	
Reportable Specified Injuries	0	1	
Reportable over Seven Day injury	1	2	
Reportable injuries to non-workers	0	0	
Reportable Occupational Disease Reportable	0	0	
Reportable Dangerous Occurrences	0	1	
Reportable Gas Incidents	0	0	
Lost time Incapacitation non reportable	2	1	
Restricted work non-reportable	0	0	
Medical Treatment	5	2	
First Aid incl. accident book	11	13	
Material Damage	33	24	
Near Miss	12	19	
Total	64	63	

UK Networks – Incident Profile for 2016 So Far



Summary of June Stand-down

Safety Stand-down focussed primarily on recent incidents involving Work Equipment and Machinery and Traffic Management on our sites.

792 site staff briefed across locations.

We are continuing to have incidents involving Work Equipment, Machinery and Traffic Management

Consideration must be given to the following prior to commencing works;

- Setting to work
- Competence of Operators – Skills, Training and Experience
- Dynamic Assessment of environmental conditions – Weather / Ground Conditions / access / egress
- Supervision of those operating Plant and Machinery on site

IEC will continue to focus on these areas in the coming months

Are your current control measures suitable and sufficient ?

5 Minute Discussion

What is your current area of focus?

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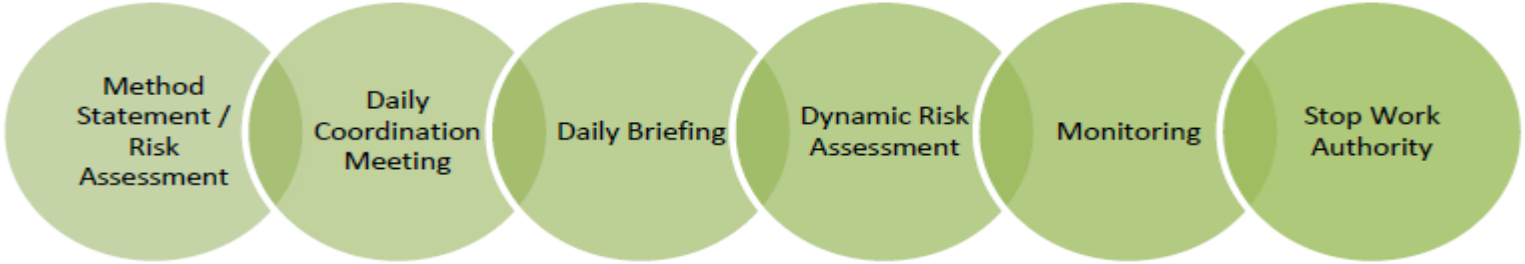
UK NETWORKS SAFETY IMPROVEMENT GROUP

Setting to Work

Matt Orr

Setting to Work – Meeting 1

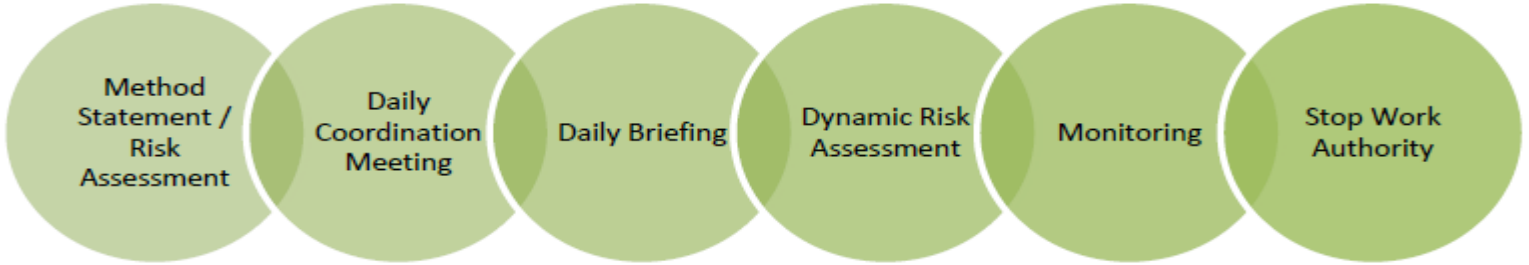


Accident / Incident Investigations using the Kelvin Top Set (KTS) Method have shown consistently that one of the underlying causes of these events is how we set our people to work.

Two working groups have been formed to look at how we set our people to work. In particular, Method statements (Pre-planning) and Setting to work procedures (Communication and Dynamic Planning) are being reviewed to try and reduce Accidents and Incidents on our projects

1st meeting held in July. The group will run until Dec 2016

Setting to Work – Meeting 1



The areas of focus identified include:

- CSPR requirement to use IEC Method Statement template
- Method Statement content and communication
- Workforce Engagement Survey on amount and usefulness of information provided during setting to work
- IEC/Contractor Induction Interface
- Daily Briefing format and content
- Behavioural Safety Initiatives

Objective 1 – Identify Opportunities for Improvement in our processes

Identified Issues

1. Individual Contractors with their own internal QMS requirements
2. One fits all solution not practical – huge variety of tasks, technical aspects, competency levels etc.
3. Roles and responsibilities for preparation, review and approval different across Contractor Groups
4. Concern at the generic nature of our MSRA – lack of attention to site specific requirements
5. Lack of consistency in review by IEC

Aims

1. Contractors all currently reviewing internal QMS requirements to identify what works well / what does not work so well. Aim is to see if we can set standards as a Contractor group as a minimum benchmark
2. Specifically reviewing existing MRSA to look at are they site specific; suitable task specific information; how well we communicate the requirements etc.
3. Identify core standards for MSRA content and review so we can increase consistency in production and review

Objective 2 – Gain Feedback from the Operatives on Opportunities to Improve

Identified Issues

1. Generally all Contractors felt that we were seeing a lack of engagement and ownership from the operatives themselves with regards to setting to work
2. Number of Contractors round the table all having a view on ways to increase the benchmark.
3. Distinct lack of representation from operatives to identify what is working well at the moment and how they think we could improve

Aims

1. Initially conduct a survey through the Contractor operative workforce specifically relating to MSRA
2. Each Contractor will also facilitate internal sessions with operatives to gain further context and understanding to survey outputs
3. Invite members of the workforce to join the setting to work group to help shape our improvements going forward

Objective 3 – Improve how we set operatives to work and the environment in which we do so

Identified Issues

1. Generally all Contractors felt there was room to improve the ways that we can set operatives to work and try different means to communicate with them
2. Strength and competency of Supervisor determined the quality of how operatives were set to work
3. Differences in approach to dynamic risk assessment / point of work risk assessment and where these are conducted

Aims

1. Review existing arrangements across the contractors to identify areas for opportunity
2. Identify a core set of minimum standards for the communication element of setting to work
3. Identify a core set of minimum standards to support the communication element – area in which we set to work, aids for setting to work etc..

Setting to Work – Contractor Engagement

The Working Group contractor representatives are:

Method Statement Group

- Keith Gordon - IEC
- Ian Roberston - RJM
- Keith McDonald – Raynesway
- Matthew Orr – IEC
- Hugh Doran- Balfour Beatty
- Michelle Brunton – IEC
- Dave MacDonald - AMEC

Setting to Work Group

- Kevin Smith - IEC
- Raymond Innes – RJM
- Ivan Conway – Roadbridge
- Francis MacCauley – Barhale
- Fraser Kay – Balfour Beatty
- Kevin Thompson – IEC
- Chris Green – Kirby
- Rob Johnson - Powell

Transmission Overhead Line Working at Heights Safety Forum

Bob McGuire


Interserve


Balfour Beatty


MORGAN
SINDALL
CONSTRUCTION
INFRASTRUCTURE


OMEXOM
POWER & GRID


MORGAN
SINDALL
MSVE
TRANSMISSION
VINCI


POWERTEAM


KTL


Actavo


NORPOWER


PLPC LTD
POWER LINE SPECIALISTS


Voltcom
GROUP


GRID
POWER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CLC
TRANSMISSION SERVICES


babcock


amec
foster
wheeler


Scottish & Southern
Electricity Networks

Transmission OHL W@H Safety Forum

- Additional OHL contractors requested to participate in forum.
- Danger zone control / tool tethering embedded. Improved reporting of near misses.
- Improved engagement and communication with site supervisors / operatives have requested further update to for clarification re climbing.
- Propose to revisit anonymous survey of UK transmission OHL in Q3.
- Exceptions to key safety critical rules / further item to be reviewed presented for consideration in Q3 2016.

Key Messages

- All construction works should be planned in advance and co-ordinated to control known risks / hazards.
- All staff shall receive a daily **Setting to Work** briefing from their nominated supervisor.
- 100% Compliance Safe System of Works (Method Statements and Risk Assessments). Follow procedures / if this is not possible **STOP**
- In the event of change **STOP** and reassess / All changes must be re-assessed and approved prior to implementation.
- All staff / supervisors have ability to intervene and challenge.
- Need to embed corrective actions into processes to prevent repeat similar incidents.

Transmission OHL W@H Safety Forum Next Focus Areas

- Safety Rules: Initiative to collate standard project briefings materials on earthing procedures in relation to major OHL works.

- Plant and vehicle movements anonymous survey undertaken by SSE with plant operators out-put to be shared at next OHL working at heights forum OHL in Q3.

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Lone and Remote Working

Lessons Learned – Update

Matt Orr - IEC
Graham Boyd - Balfour Beatty
Scott Orme - Mercer Street

UK Networks – ERP Drill at YW / YX

- ERP Drill at YW/YX gave us some food for thought regarding monitoring workers while in remote areas or lone working:

  - Communication via Satellite Phones
    - Lack of connectivity / ease of connectivity
    - Lack of user information and knowledge on use

  - Lone Working
    - Identifying activities where we are lone working
    - Use of whiteboards only and its limitations

- Satellite Phone Trial and Lone Working Device
  - YW / YX
  - Maentwrog / Trawsfynnd

UK Networks – Pearl Plus Device

- Useful for the majority of our sites and works through GPRS signal
- Ability to speak to someone on the end of the phone if there is an emergency situation
- Has an accelerometer built in so can detect when there has been a fall
- Has ability to detect where there has been no movement from an individual
- Pre set text options can be built in for the user to send back – useful for check in purposes and pre-set alerts if an individual was to be injured.
- Only limitation so far is that we are unable to deploy to remote locations due to mobile phone signal connectivity

UK Networks – Shout Device

- This device has been tested in some of our most remote locations and we found that in all occasions we had coverage
- Able to send text messages backwards and forwards to control centre
- Has the ability to be able to check in with control centre and to confirm that the user is ‘ok’
- Email and phone function back to base is exceptionally quick when the SOS button is selected. Email function has map to pinpoint exact location
- Great feedback from users – they found it easy to work and felt reassured having the device. It was lightweight and was not an issue wearing it

UK Networks – Satellite Phones

- This device has been tested in some of our most remote locations and we found that in all occasions we had coverage. Even at the top of Ben Nevis!

- Easy connectivity using the iridium satellite system

- Huge improvement on previous satellite phones used at the projects – these were based on fixed satellites

- Again great feedback from users – they found it easy to work, easy to connect, no problem with using in remote locations and maintained signal

SPOT GEN3 – Satellite GPS Messenger

Basic Features

- **S.O.S:** GEOS international emergency response coordination center provides your GPS coordinates and information to local response teams.
- **Check In:** Let family and friends know you're ok when you're out of cell phone range. Send a pre-programmed text message with GPS coordinates or an email with a link to Google Maps™ to your contacts with your location. With a push of a button, a message is sent via email or SMS to up to 10 pre-determined contacts and your waypoint is stored in your SPOT account for later reference.
- **Help/SPOT Assist:** Alert your personal contacts that you need help in non-life-threatening situations.
- **Custom Message:** Stay in touch while off the grid by sending your custom message. Set up a message before leaving to send to contacts with your GPS location. Use this feature as a secondary OK message .
- **Tracking:** Allow friends and family to follow your progress online in near real-time and save waypoints so you can review your entire route at a later date.

SPOT GEN3 – Satellite GPS Messenger

Trial Findings

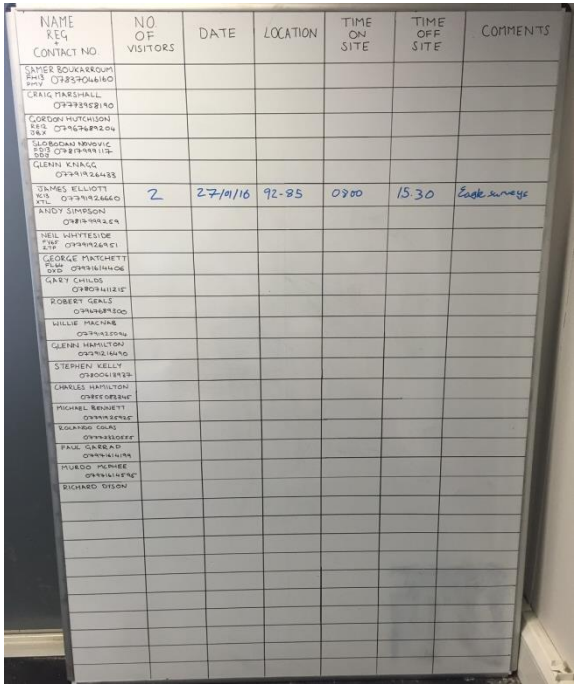
- Device signal was found to be intermittent
- No method of two way communication to confirm messages sent from device had been received or read by the recipient.
- Time delay of approximately 10 minutes when attempting to send a message from the device.
- Unable to send accurate specific information in the event of an emergency situation.
- When SOS is activated the GEOS international emergency response coordination center attempts to contact local site team. The emergency services will be contacted to respond If unable to make contact with the site team. This delay in the process could have an impact on the outcome of the event if life threatening.
- Software designed for member of public and single device use not for an organisation with multi device usage.

Project Daily Whereabouts Board

- At the start of each working day a member of the project team is assigned responsibility for the control & management of the daily whereabouts board.
- Person responsible for the board and their contact details shall be detailed on the board
- All members of the project team including the operational teams & visitors shall complete the headings below which are detailed on the board prior to leaving the project office to visit a project location.

Name, Contact No & Vehicle Registration	No Of Visitors	Date	Location	Time On Site	Time Off Site	Comments

- The whereabouts board shall be monitored by the responsible person to ensure no individuals remain on site beyond the estimated time off site
- If information on board requires to be updated or estimated time off site extended, the person responsible for the board shall be contacted.
- On completion of the site visit all information relating to the personnel attending site shall be removed from the whereabouts board. This can be done manually or by contacting the person responsible for the board by telephone.



Satellite Phone

The Iridium Extreme – Push To Talk

Personnel Safety Solutions

arco®
Experts in Safety

Scott Orme

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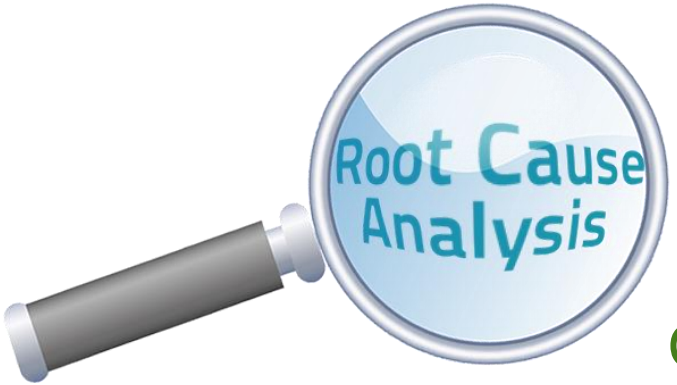
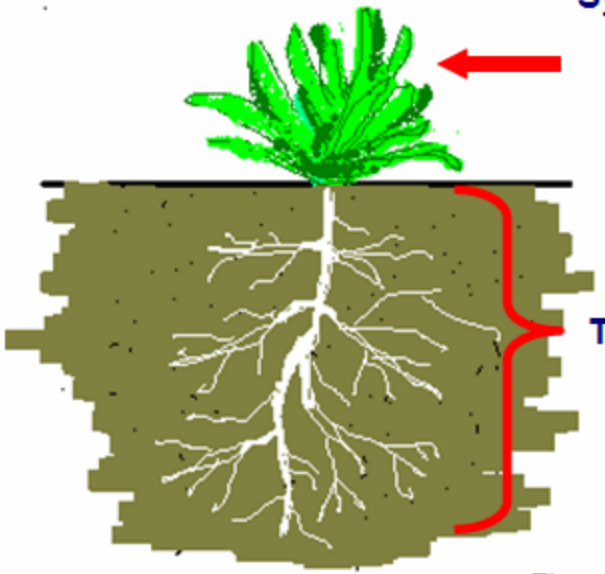


Colin McNeil- IEC

What is Root Cause?



Symptom of the problem.
"The Weed"
Above the surface
(obvious)

The <u>Underlying Causes</u>
"The Root"
Below the surface
(not obvious)

The word root, in root cause analysis, refers to the underlying causes, not the one cause.

What is Root cause analysis ?

Sample Definition

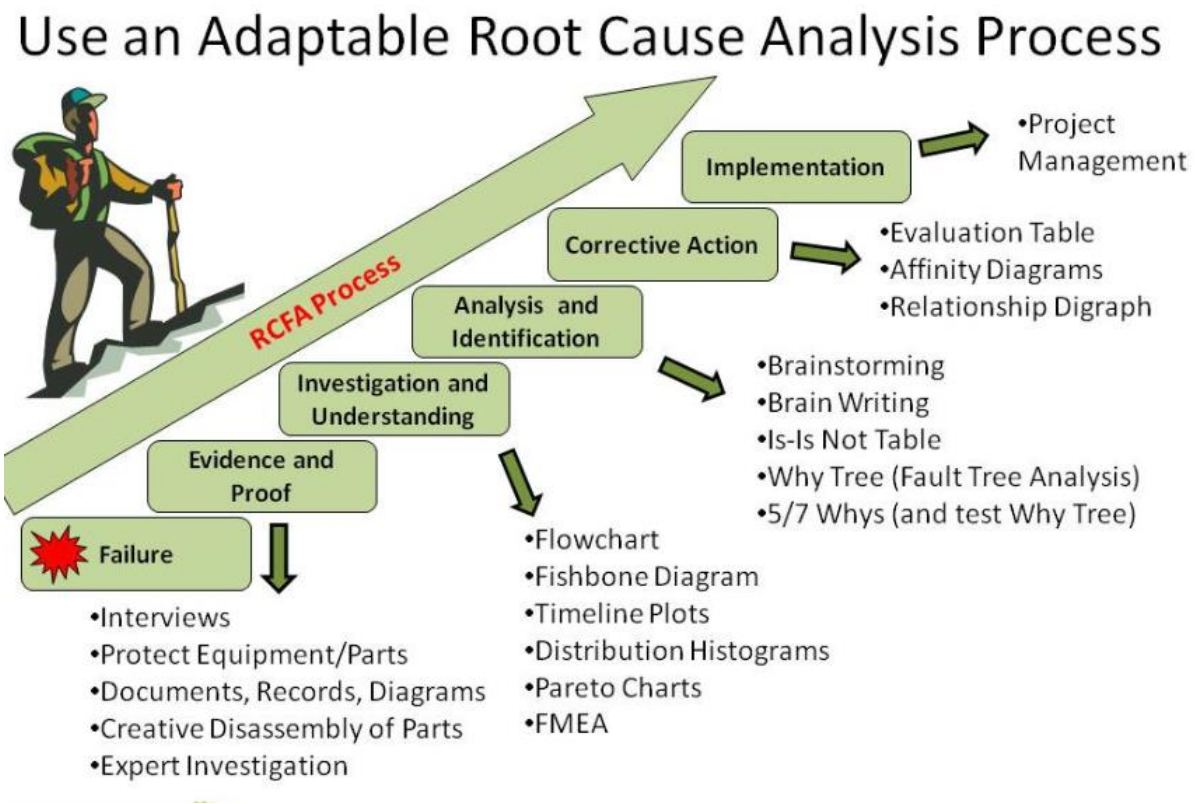
Root cause analysis is a collective term that describes a wide range of approaches, tools, and techniques used to uncover causes of problems.

When should we use Root Cause Analysis?

The fundamentals of RCA can be used to tackle any problem.

If done correctly along with effective solutions and monitoring should prevent a reoccurrence

What is Root cause analysis - The Principals ?



What are the problems with RCA ?

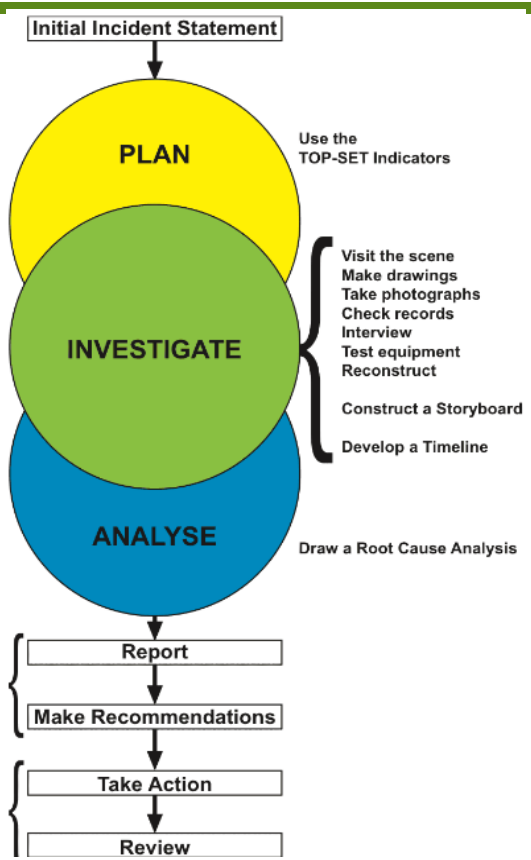
Must be done in systematic way
Can be time consuming
Identifies unwanted problems
May Identify known and unresolved issues
Tends to implicate more people or processes.
Can overly protect the individual
RCA does not solve the problem only identifies it
Solutions must correlate to CA & RCA
Implementation must be managed
Success must be continuously monitored/reviewed

Importance of Questions?

“If you don’t ask the right questions, you don’t get the right answers. A question asked in the right way often points to its own answer. Asking questions is the ABC of diagnosis. Only the inquiring mind solves problems.” – Edward Hodnett

RCA is Process driven

- **T**echnology
- **O**rganisation
- **P**eople
- **S**imilar Events
- **E**nvironment
- **T**ime



IEC - Use of Kelvin Topset

What does IEC and SP expect.

Contractor should:

- Secure evidence.
- Provide initial ‘fact based’ summary of Incident within 24hrs
- Will quickly identify responsibility for investigation and define Scope.
- Investigation lead will be trained in RCA
- There should be a clear plan and reporting protocol
- Should avoid distraction of any RTW discussions
- Strictly avoid assumptions and base analysis on facts.
- Question set will consider all possible contributors these should be logged alongside answers.
- Follow defined Rca process and ensure no early discounting of evidence as irrelevant.

What does IEC and SP expect (continued).

- Produce a detailed Timeline including all relevant historical events even if it is assumed that they are no causal effect.
- How the root cause(s) have been identified (5 WHYS)
- Clear report giving details of how information/evidence has been analysed and considered.
- Clear linkage between immediate, contributory and root cause(s) and recommendations
- Identify clear preventative deliverables which meet SMART criteria
- Agreed review periods to ensure there has been no regression.

Case History -

IEC Incident report Issued 22nd December 2015

Project Name	[illegible] Windfarm S/S	Project reference	[illegible]
Reported By	Rob Hanley		
Incident Classification	Reportable		
AIIA Category	Slip trips and falls		
Contracted Company	[illegible] Engineering Ltd		
Incident Company	Rob Hanley Building Services Ltd		
Principal Contractor	IEC		
Incident Date:	19/12/15	Time of incident	07.45
Person(s) Involved:	David Hanley		
Lead PM:	Barry Hughes		
Project Manager:	John Ward		
Construction Manager:	Andy O'neill		
Site Manager:	Hazel Webb		
Location:	Material storage area, [illegible] Substation, Ayrshire KA11 7TR		
Initial Description:	IP slipped while exiting site [illegible] and fell into side. IP worked on until 11 am then went home. Later that day he attended hospital and it was confirmed he had sustained a fractured collarbone		
Status of the IP/Worksite	Close for Xmas period		
Safety/Environmental Advisor:	John Beveridge		
Who is producing the incident report ?			
Target date for final report ?			
Has the incident affected the network ?	No		
Has the incident damaged network property ?	No		
Has any regulator been informed HSE, SEPA ?			

Incident Summary

IEC Site

Pineside W/F Substation, Ayrshire
18th December 2015
32 y.o Male slips exiting from telehandler slips and breaks collarbone

Reports in unfit for work on 19th December

Poor Incident Investigation

What is the Root cause ?

Old School approach

Simple - He should have taken more care

Solution - Tool box talk

Ongoing actions - None

Sample of Questions and answers

Q1. What was the IP Doing at the time of incident A, moving stored material following SORs regarding housekeeping.

Q2. Who else was on site A. No One he was working alone.

Q3. Has there been other similar instances in business or Project A. No

Q4. Was D & A and initiated – A. No

Q5. Was IP fit for work – A. No known contra medical history but he is big lad at 130 Kg

Q6. What was weather at time of incident A. Clear and Very Frosty

Q7. Was lighting adequate A. Site establishment had adequate light but generator had ran out of fuel

Q8. What was IP wearing A. Very old safety boots

Q9. has there been any relevant SORS A. Yes – SORS raised against IPs work colleague regarding condition of PPE – Heavy eye protection.

Q10. What was make up of laydown surface A. Type 1 Hard core with no Fines

Sample of Questions and answers

Question: How many questions do you need to ask for this incident

20…..30…..50……100 ?

Answer: As many as it takes to ensure all possible causes have been considered

For a normal IEC Investigation probably averaging around100 initial questions

Question: How many answers are normally found to be associated with Root cause

Answer: Probably only about 20%...but these cannot be determined at the onset.

Content of report

Some suggestions below –

- Try to show the depth of the investigations by detailing the breath of the questions the answers uncovered and the analysis as to why they are relevant to RCA or not.
- Check linkage between CA /RCA and recommendation,
- Provide as much supplementary evidence in the forms of appendices to avoid further questions on how
- Use diagrams and photos within main body as necessary to reduce wordiness
- Do not attempt to hide any findings.

Summary

Investigations must :

Be given Time

Be planned

Be process driven

Evidence based

Open and honest

Include SMART recommendations

Be closed out

Be monitored.

Periodically reviewed to ensure lesson have been embedded

Final thought

Remember the fundamental reason behind investigations are:

Not to apportion blame

Prevent re-occurrences of event

Improve project performance

and where safety related

Avoid harm

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Environmental Planning and Best Practice

Andrea Purvis - IEC

Agenda

- Project Planning
- Environmental Issues and Control Measures

Site Activities

- Identify legislation that applies to your project and make sure you understand how it affects your site and your responsibilities.
- Identify what permissions you may require from any third party (e.g. abstraction, discharge, section .61, temporary flood defence).
- Consult your HSEQ Advisors / Manager.
- Consult your existing HSEQ Management Systems, this will provide valuable guidance on project controls.
- All Risks should be managed but decide which risks are most significant to your project and focus on these first.

Project Planning

Contractor Resources

All contractors should provide suitably qualified persons to support the projects, this includes specialist support services like Environmental Advisors to allow them to fulfil their site responsibilities.

Project Planning

Documenting your site requirements is essential to ensure that the environmental risks are communicated to all staff on site

- In an **Environment Management Plan/Project Plan** which records how you'll manage the risks you've identified.
- Transfer each specific control measure you've defined for your site into a **Method Statement** for an activity.
- Designate a **'responsible person(s)'** who will monitor high risk activities on site and has sufficient authority to enable them to act to prevent an incident.
- Communicate your Documentation and actions to everyone working on site via induction, **training** and **tool box talks**.
- **Inspect/Audit** programme that can demonstrate you are complying with all approved documents.

Environmental Best Practice

The next section goes through the common environmental issues that the projects face and the control measures required to mitigate the risks;

Common issues are:

- Silty Water
- Oil Use, Storage & Refuelling
- Invasive Plants
- Waste Management
- Ecology
- Peat
- Traffic Management

Silt

Plan to keep clean water and dirty water separate so that you only need to deal with the smallest volume of dirty water

Plan the works to minimise the area of exposed ground that is created during construction – limit your working area!

Control Measures:

- Lagoons
- V ditches
- Settlement tanks
- Silt traps
- Grassy areas that slow water and allow solids to settle
- Sustainable Drainage Systems (SUDS).
- Plant, wheel and boot washing:

Oil Use, Storage & Refuelling

Know which legislation applies to your oil storage. The rules apply to temporary, permanent fixed and transportable / mobile oil storage facilities.

Plan for the 4 Key issues

- **Bunding in storage locations**
- **Plant Nappies for mobile plant**
- **Security from vandalism**
- **Suitable Spill Kits**

Invasive Plants

Plan to ensure the sites are surveyed and any required treatment is carried out prior to works commencing

This should be identified in the CPP/EMP but unknown contamination may be present for example;

Giant Hogweed
Approx. 2m in height
Flowers can be 1-2 m width
Sap Burns the skin

Japanese Knotweed (2 photos)
White flowers appear in June/July
Stems are hollow and snap

Waste Management

Plan your site compound layout appropriately so that the correct number of skips are present

Everyone on site must comply with the waste ‘duty of care’; this means you must:

- Appropriate skips with no holes
- Appropriate signage
- Have appropriate duty of care documentation, i.e. completed waste transfer notes or consignment notes for hazardous waste for each load of waste removed from the site
- Hazardous wastes separate from non-hazardous wastes
- Keep all waste transfer notes and consignment notes for 2 and 3 years respectively

Ecology

Wildlife is protected by law and is regulated by Scottish Natural Heritage (SNH) – we must not Disturb, Kill, Move, Obstruct or Injure.

Plan your Project and understand:

- What protected species are you likely to encounter within and around a tree or any vegetation?
- What are the protection measures?

Peat

Plan your project to understand the volume and type of habitat present
Initially identified in and EIA and transferred into an EMP for site

Notes:
Peat cannot go to landfill
Peat has many restrictions on its reuse on site
Volumes of peat are almost always underestimated
Peat Management Plans have to be accepted by the Local Authority and SEPA and sometimes even SNH.

Blanket Bog – overlies deep peat, receives all its nutrients via rainfall and water levels are near the surface
Dry Heath- Occurs on free draining areas, water table is often low
Wet Flush – more variety of plant life, richer in colour

Traffic Management

Plan and consider the following in the Traffic Management Plan (TMP)

- Abnormal Loads – Including equipment and plant
- HGV movements – including Stone/materials from Quarries
- General Site Deliveries – all deliveries of supplies, site cabins
- Site Staff - numbers of staff – starting and leaving times for sites
- Visitors – on average what visitors will be attending site and the routes they will take

TMP's are submitted to the Local Authority and may take several weeks for approval.

Summary

- Project Planning **is key to effectively managing the Environmental Issues**
- **Environmental Issues are** seasonal **and this has to be considered**
- **IEC have in house** Environmental Advisors **that can** support **the projects**