

C3 System Environmental Performance

Presented by James Hart - Convener

Brisbane – 21/11/2019



cigre

For power system expertise

SC C3 Scope

Responsible for the identification and assessment of the various impacts on the natural environment arising in electric power systems and the recommendation of appropriate monitoring, management and control measures.

Impacts addressed will include greenhouse gases, air and water pollution, electromagnetic fields, noise, visual, land use and flora and fauna impacts.

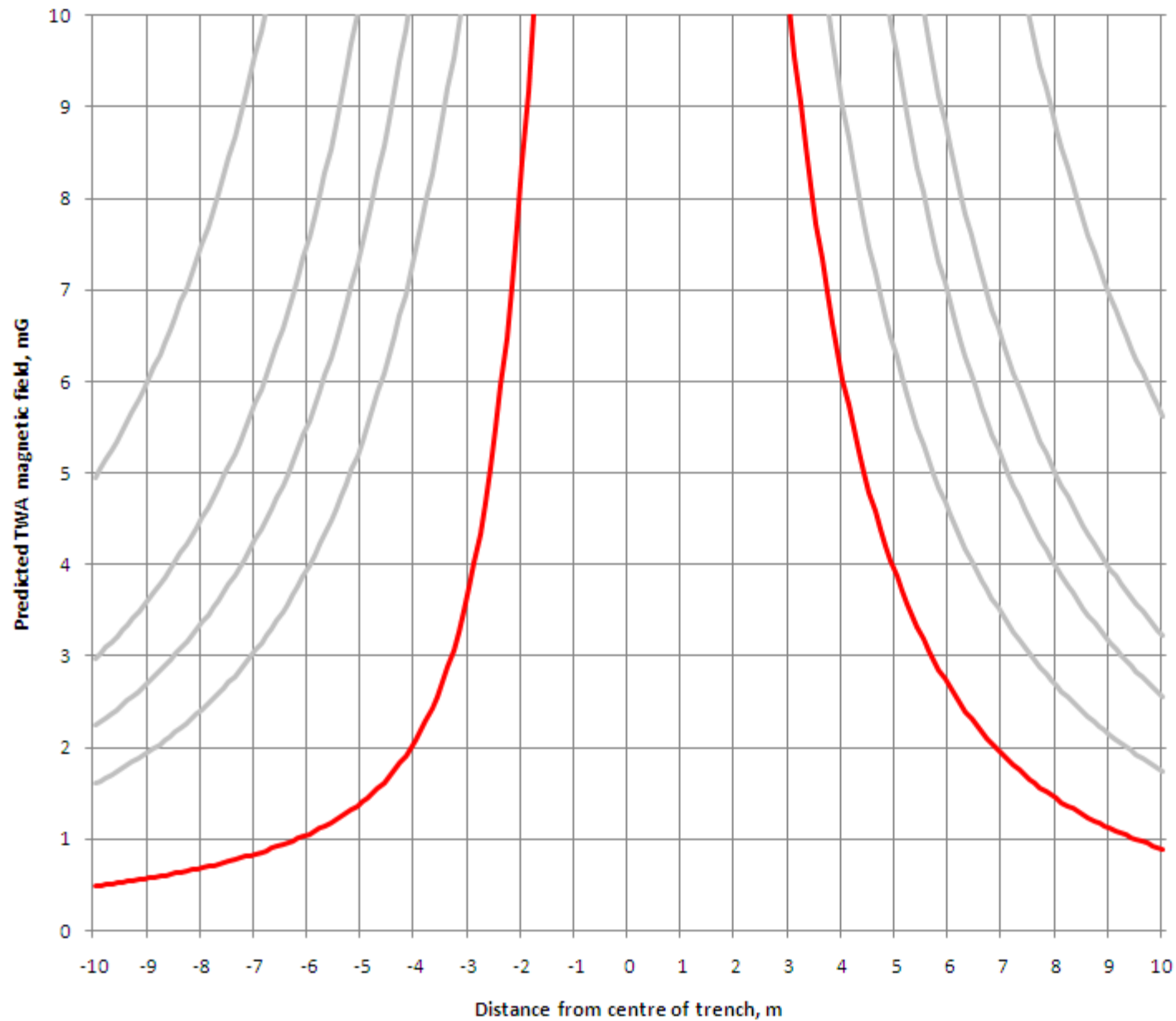
2019 International Activities

Symposium - Going offshore - Challenges of the future power grid

Active Working Groups

- RG C3.01 EMF and Health
- WG C3.09 Corridor management (Renewed)
- WG C3.12 Methodologies for GHG inventory and reporting for T&D utilities
- WG C3.14 Impact of environmental liability on transmission and distribution activities
- WG C3.15 Best environmental and socio-economic practices for improving public acceptance of high voltage substations
- WG C3.16 Interactions between electric infrastructure and wildlife
- WG C3.17 Interaction between wildlife and emerging RES and submarine cables
- WG C3.18 Eco-friendly approaches in Transmission and Distribution
- WG C3.19 Responsible management of the EMF Issue
- WG C3.20 Sustainable development goals in the electric power sector
- WG C3.21 Including stakeholders in the investment planning process (Renewed TOR of former JWGC1/C3.31)
- WG C3.22 Vegetation management in substations
- WG C3.23 Eco-design methods for TSO/DSO under environmental transition

EMF



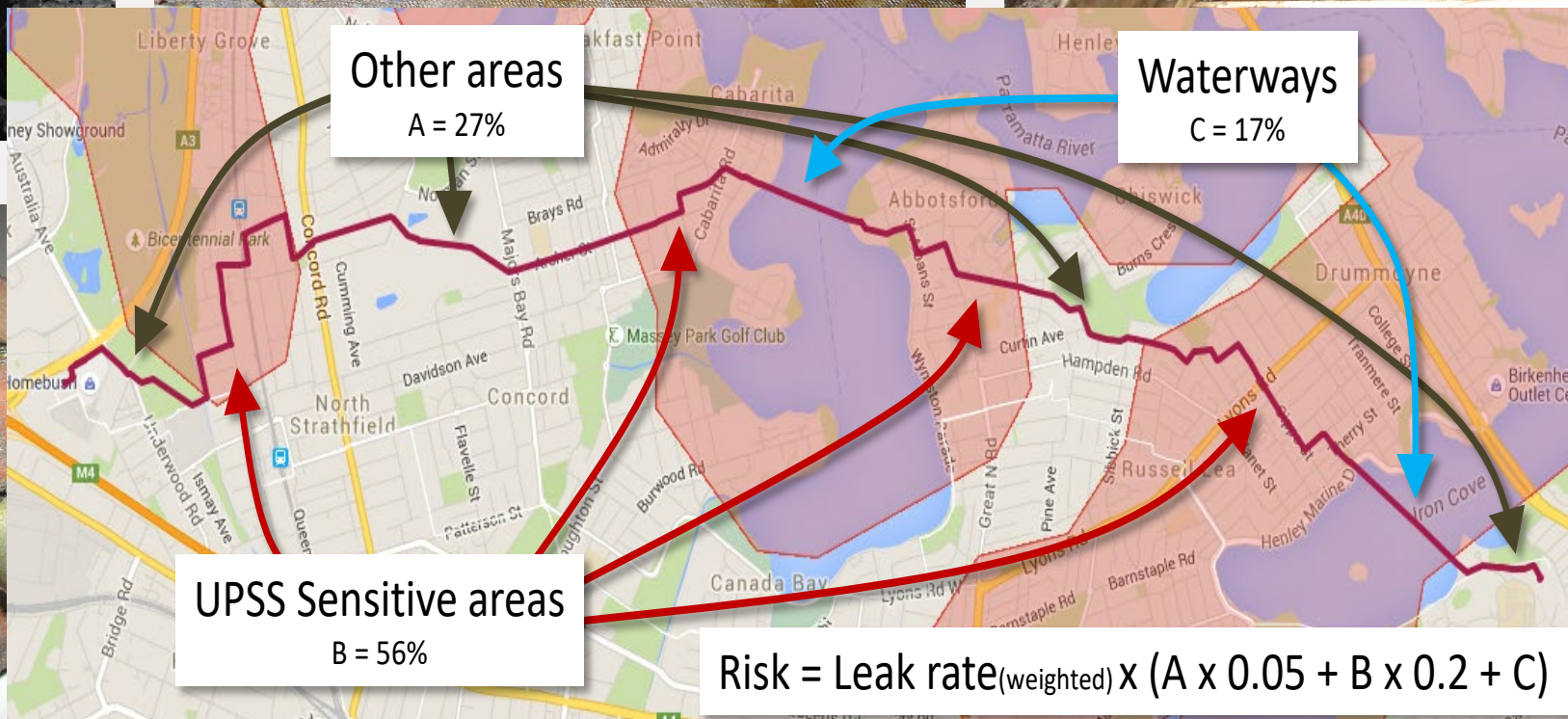
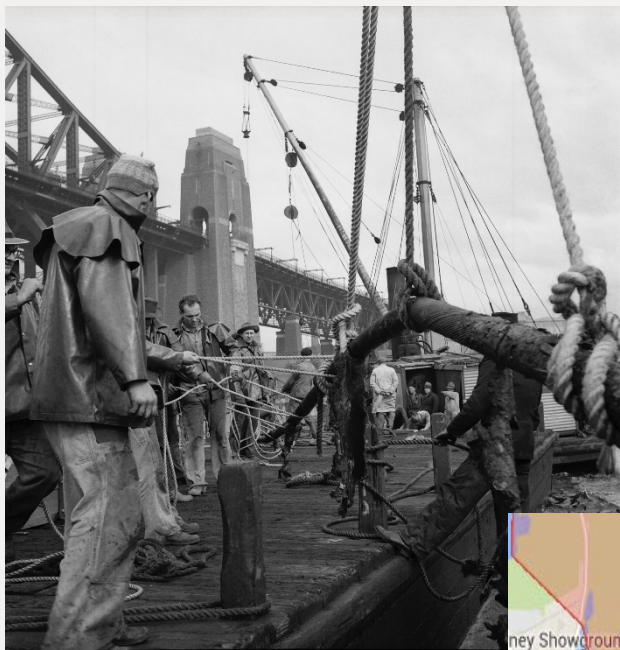
+ reconfigured
downstream
network



	353,000 01	353,000 01



Oil filled cables



Environmental planning tools

Environment x Handbook - S x List Settings x Microsoft W x Asset Engine x Environment x WebGIS x +

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Help WebGIS Actions Address Search Asset Search Layers

NECF

Details

LAYER_NAME
hazardous_materials

ASSET_NO
T.S.TS09400

ASSET
Kurnell Sts - TS9400

ASSET_TYPE
Subtransmission Sub

- View Controls
- Environmental guidance note
- View Asbestos Register

Google

Map data ©2019 Imagery ©2019, CNES / Airbus, Maxar Technologies Terms of Use



Photolog

Site: Zone Substation Kurnell - ZN9400 & Kurnell Zone Substation (New) **Project Details:** P033634.001 / C0002



Photo 7: Yard, ground floor, external, 33 kV feeders, residue to cables - Positive Asbestos Debris

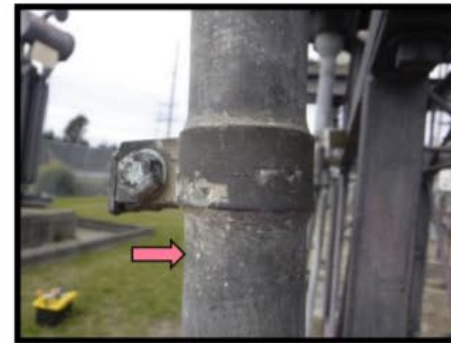


Photo 8: Yard, ground floor, external, 33 kV feeders, residue to cables - Positive Asbestos Debris

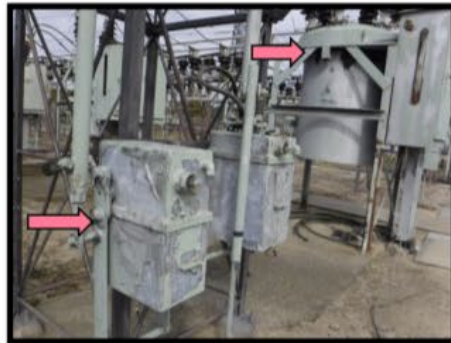


Photo 9: Yard, ground floor, external, circuit breakers and earthing switches, green paint - Lead based Paint

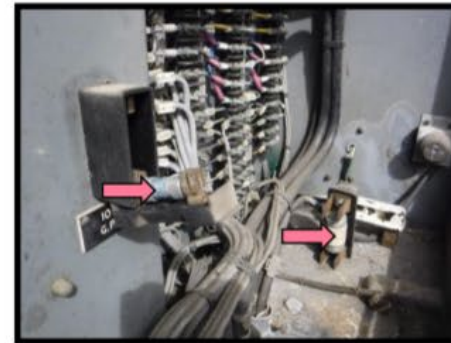


Photo 10: Yard, ground floor, external, throughout - Suspected Positive LV HRC Fuses



Environme x Handbook x List Settin x Microsoft x Asset Eng x Environme x WebGIS x T.S.TS094 x +

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Help WebGIS Actions Address Search Asset Search Layers

NECF

Cancel Area Tools

Environmental Reports

- SER ASP
- Vegetation Maintenance
- SER Ausgrid
- General Maintenance
- CRA Report

Data Extracts

- AutoCAD Extract

Supply Point Select

- Select Supply Points
- Flag Points
- Select Medical Points

120.71m (Distance last two points)
24137.2m2 (Coverage Area)

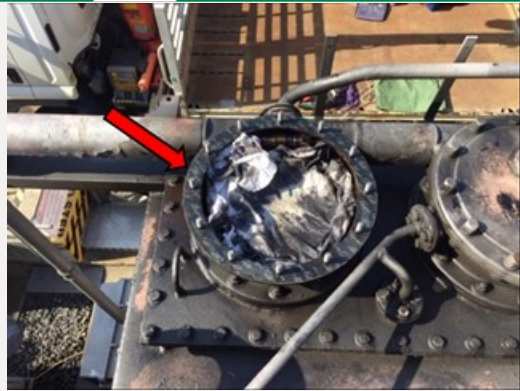
Google

Map data ©2019 Imagery ©2019, CNES / Airbus, Maxar Technologies Terms of Use

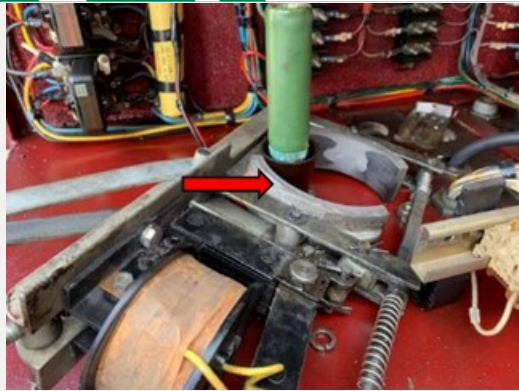
The screenshot shows a web GIS application interface. At the top, there's a browser tab bar with several open tabs including 'Environme', 'Handbook', 'List Settin', 'Microsoft', 'Asset Eng', 'Environme', 'WebGIS', and 'T.S.TS094'. The address bar shows the URL 'webgis.energy.com.au/webgis/#map|-34.01489|151.20819|17*'. Below the browser, the application header includes 'Help', 'WebGIS', 'Actions', 'Address Search', 'Asset Search', and 'Layers'. A sidebar on the left contains a 'NECF' button and a list of tools under 'Environmental Reports' (SER ASP, Vegetation Maintenance, SER Ausgrid, General Maintenance, CRA Report), 'Data Extracts' (AutoCAD Extract), and 'Supply Point Select' (Select Supply Points, Flag Points, Select Medical Points). Below these tools, it displays '120.71m (Distance last two points)' and '24137.2m2 (Coverage Area)'. The main map area shows an aerial view of an industrial site with large storage tanks and buildings. A black polygon outlines a specific area, and a red dashed line with a red 'H' marker indicates a path or boundary. The map is labeled with 'Tasman St', 'Solander St', and 'Captain Cook Dr'. A 'Google' logo is visible in the bottom left corner of the map area. At the bottom of the page, there's a footer with 'Map data ©2019 Imagery ©2019, CNES / Airbus, Maxar Technologies Terms of Use'.

Restricted Area - NSW National Park Estate	Towra Point Nature Reserve	1	<p>1. Works in ecological sensitive areas require a specialist assessment and / or approval unless all of the following controls are implemented:</p> <ul style="list-style-type: none"> • All workers to be made aware of ecological sensitive areas and the need to avoid impacts. • No works in undisturbed areas (including storing equipment, parking vehicles or accessing the site). • No disturbance of bush rock, tree hollows, wetlands, mangroves, nests, aquatic or other sensitive habitats. • Retain ground cover vegetation, excluding regularly mown or slashed areas. • Keep vehicle and plant movements to existing roadways or access tracks. • No importing mulch from other sites. • No disturbance of native vegetation unless all of the following apply: <ul style="list-style-type: none"> ◦ works are for the purpose of vegetation maintenance. ◦ works are undertaken in accordance with ISSC 3, NS179 Vegetation Management and Ausgrid's Tree Safety Management Plan. ◦ clearing is to the minimum extent necessary to maintain existing and regularly maintained clearances (ie no new clearance envelopes). • Inspect the worksite for animal occupation prior to starting work. • Where animals are present (eg birds, possums, snakes, bats) wait for the animal to relocate. • Where animals (including eggs and nests) need to be physically relocated contact a local wildlife rescue organisation or NPWS. • When undertaking inspection, maintenance and emergency works in national park estate, comply with the OEH Protocol and Consent. Conditions include: <ul style="list-style-type: none"> ◦ Provide at least 4 days' notice for inspection works (unless the inspections are undertaken by foot or passenger vehicle and do not require the use of equipment). ◦ Provide at least 2 weeks' notice and a conservation risk assessment for maintenance works. ◦ Provide notice as soon as practicable after any emergency works have been undertaken.
Restricted Area - RMS Classified Road	REGIONAL	1	<p>The area defined by this report contains RMS Classified Roads.</p> <ol style="list-style-type: none"> 1. Consents, approvals and ROLs (where required) must be in place prior to works commencing. Comply with associated conditions. 2. Ensure that affected residences / businesses are consulted in accordance with NS 174C (Section 1-6).

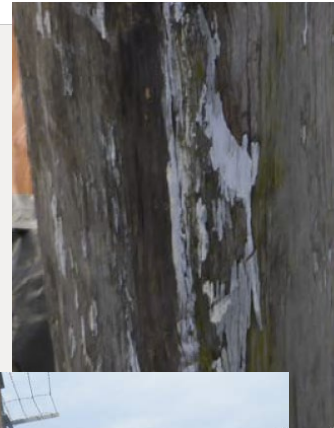
Asbestos



Reinhausen tap changer



Meters



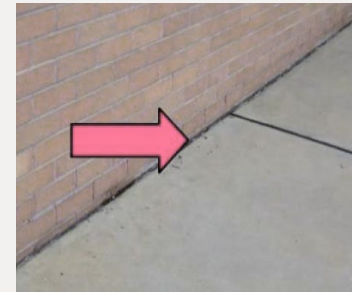
Paint



John valves



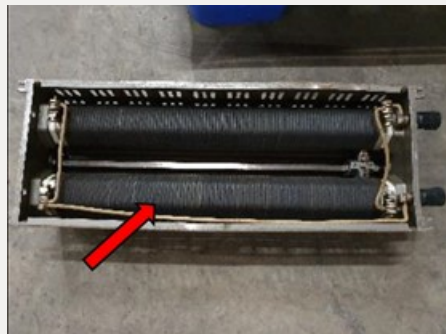
Relays



Water proofing membranes



Ripple filter resistor



Berco resistor



Westinghouse relay



Recycled spoil