Case Study

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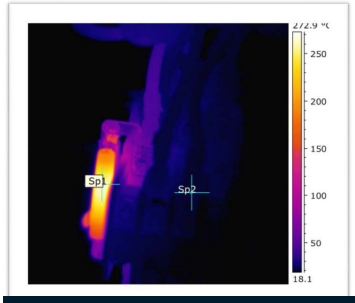
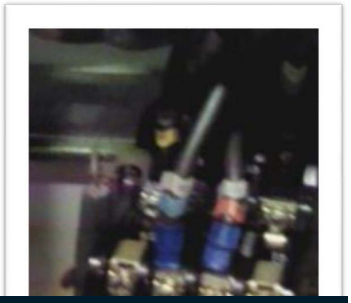
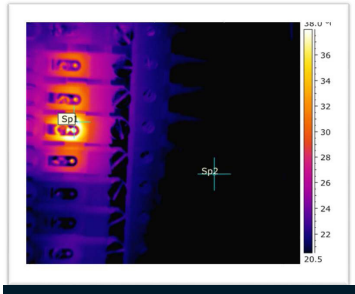
Integrity Monitoring

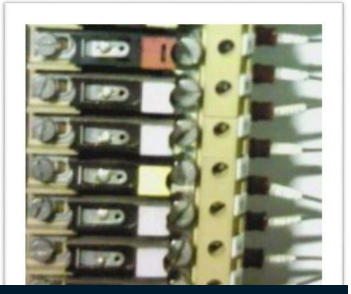
Identifying Faults with Electrical Boards Offshore



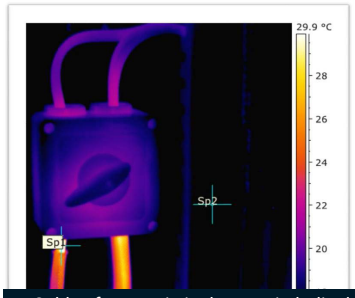


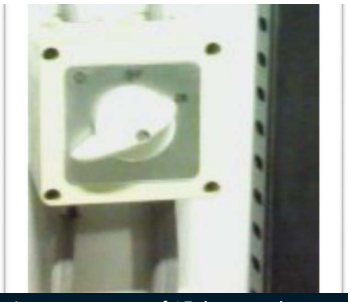
Resistor displaying temperature of 250 degrees which is significantly above ambient and operating temperature. This was classed as a serious priority.





Fuse displaying temperature of 20 degrees above ambient and operating temperature.





Cables from main isolator switch displaying temperature of 15 degrees above ambient and operating temperature. There is also damage noted to one of the cables.

Location	Equipment	Description	Recommended Priority	Picture Number
LER	J1860 Board – R4	Resistor	TBC	1
LER	W23 47R	Resistor	TBC	2
LER	Board J1426 – R2	Resistor	TBC	3
LER	Board J1215C – R2	Resistor	TBC	4
LER	AR2A 61 / 63	Resistor	Critical	5
LER	Fuse 4209	Connection	Serious	6
LER	Fuse 1 - 7197	Connection	Minor	7
LER	Fuse 15 - 7837	Connection	Minor	8
LER	Main Isolator	Switch	Serious	9
LER	UPS Supply	Connection	Minor	10

Scope

ICR were requested by an Oil and Gas Operator to conduct a non-intrusive thermal imaging survey on an offshore un-manned platform. The main aim of the workscope was to survey electrical switchboards, distribution boards, control panels, busbars, transformers etc and identify, if any, hotspots that were above the normal operating temperature for the equipment. The risk with electrical components overheating is that they can cause the platform system to trip/shutdown or pose spark potential/fire risk in worse case scenario. The work was carried out while the plant was online using the FLIR T320 thermal imaging camera.

Solution

All electrical components noted to have “hot spots” or found to be above ambient or operating temperature were recorded in accordance with the BSRIA standard of LV Electrical Installations FMS 5/99 (see table). During the survey it was noted that several components displayed temperatures significantly above ambient and, potentially, operating temperature.

Recommended Proirity	Temp Rise	Recommendations
Minor	0 - 5°C	Routine. May require inspection by platform personnel. Little chance of physical damage.
Alert	6 - 10°C	Medium temperature difference. Watch load and Inspect for physical damage.
Serous	11 - 35°C	High temperature difference. Platform personnel to Inspect surrounding components for physical damage.
Critical	> 35°C	Very high temperature difference. Inspection by platform personnel required immediately. Danger may exist.

Table 1

Results & Benefits

- All results were populated in a table (example left) and rated accordingly using the BSRIA standard. A full report was also issued to the client so they could review the findings and act accordingly.
- Following review of the final report the client was able to arrange repair and replacement of the components. The client believed that the survey was of great value as they would not have been able to identify these issues otherwise. As they were able to rectify the issues it reduced the risk of any unplanned shutdowns and outages caused by faulty electrical components which is of great benefit to unmanned platforms and can provide significant cost saving benefits long term. Routine thermography inspections have now been planned on a yearly basis across all of the clients assets.

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