

## Cairnhill Operations 2013 – OFM Capabilities

2013

### Scope of work

- Remove main decks and tween decks from marked areas (see image below)
- Removal of low value cargo (dumped 20m of the wreck)
- Removal of copper from the wreck



Image of the Cairnhill (target holds 2, 3 &4)

### Challenging aspects of this operation

- Zero visibility-As soon as work was started within the holds there was no visibility
- Uneven structure when landing on the wreck or in cargo holds
- Weather conditions in this location were generally poor at the best of times

To ensure this operation was carried out as efficiently as possible we modified a shear grab of a 25t excavator allowing us to cut through the main deck beams.

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Shear grab fitted to the ROGE for the 1<sup>st</sup> time, the tilt frame allows for the shear to be adjusted between the horizontal and vertical position

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Shear in action cutting through deck beams



Shear taking a sample

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In addition to this we fitted an acoustic camera to the ROGE, due to the rough nature of work it was mounted on a retractable bracket to prevent damage

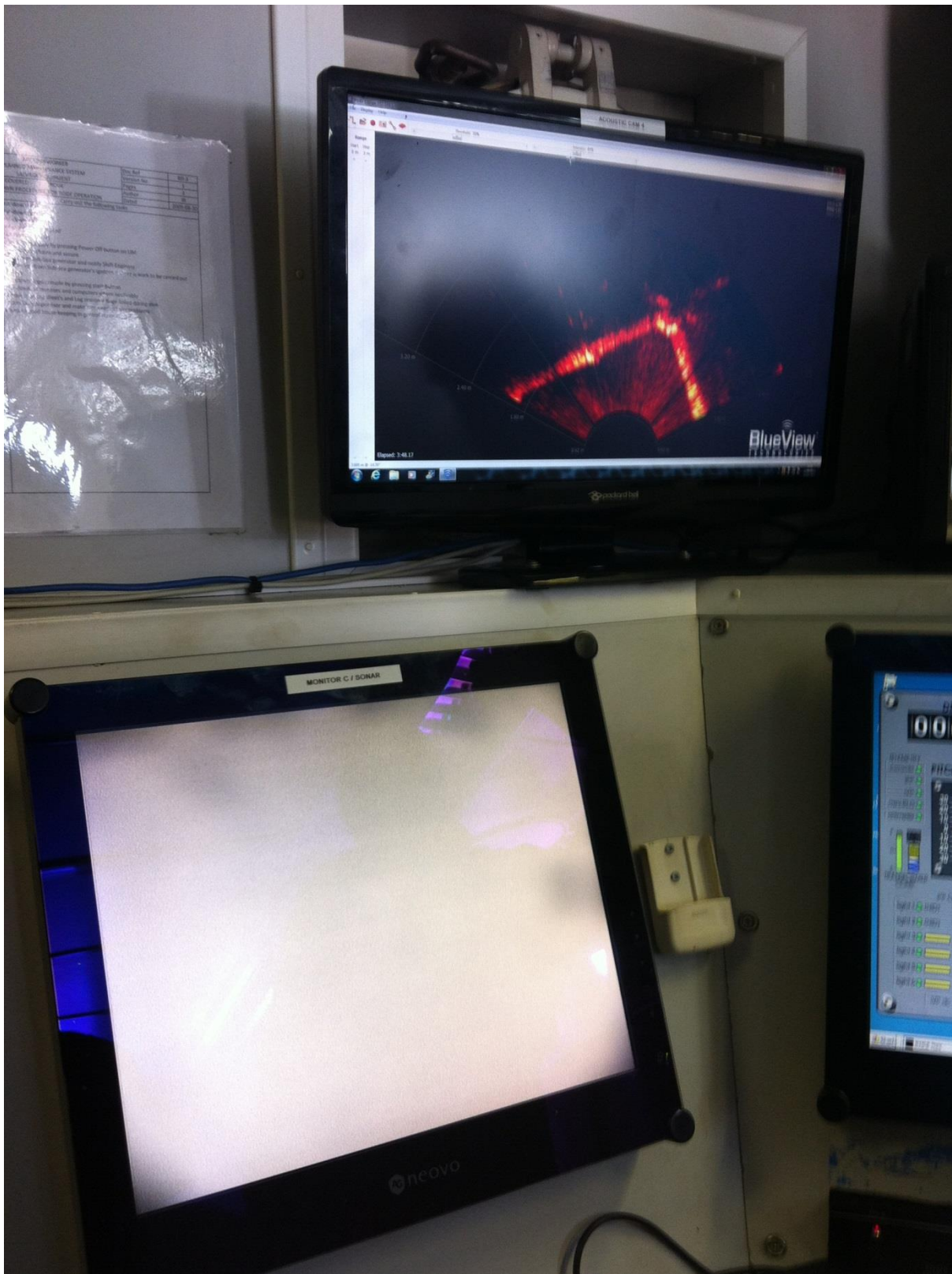


Out for operation



In for protection

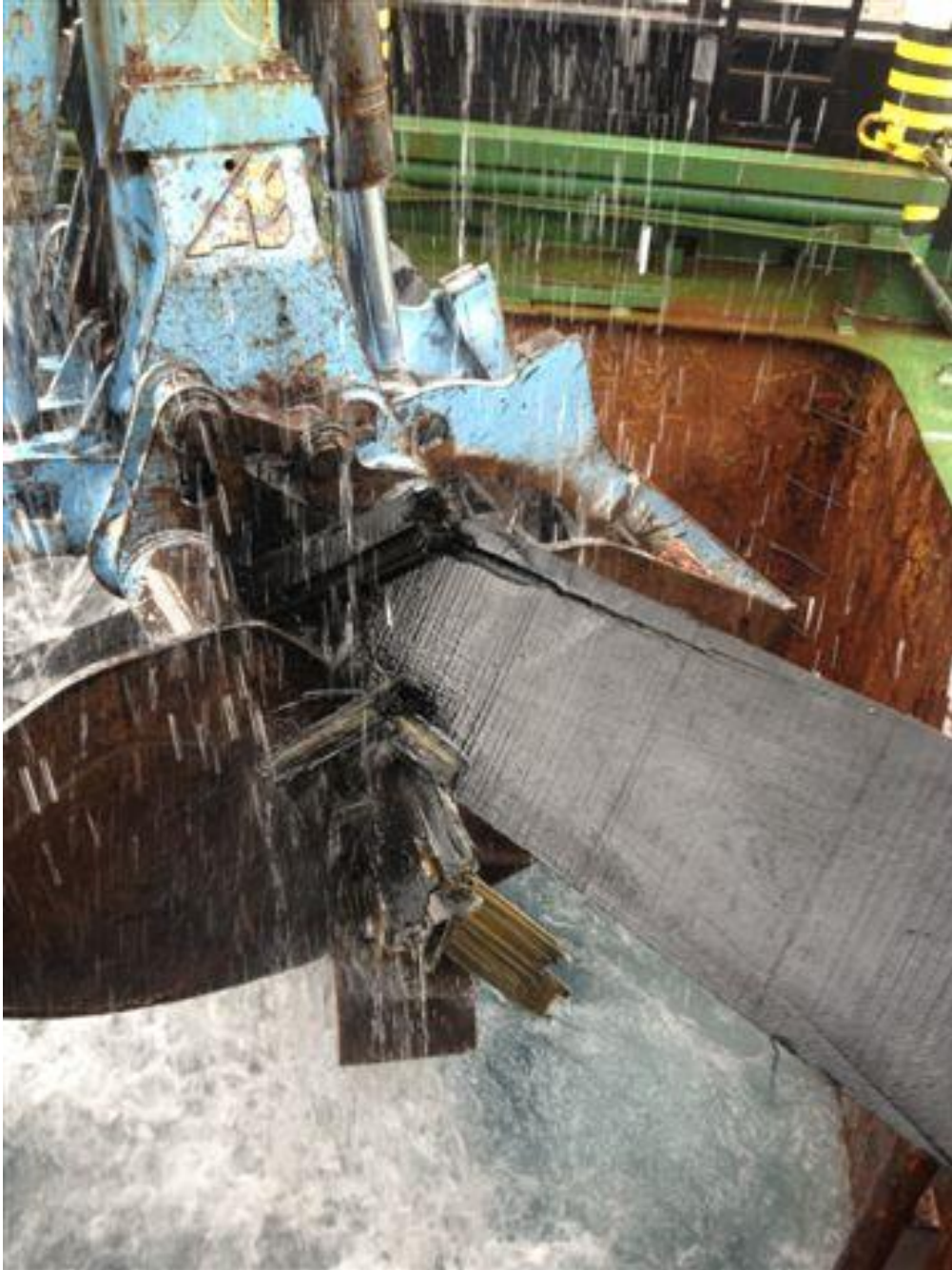
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Comparison between the standard camera and the acoustic camera with the ROGE in the moonpool  
The shear operations were successfully completed in 3 weeks.

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For removal of the bulk (zero value) cargo we modified a 2.5m<sup>3</sup> clamshell grab of a 40t excavator, with the addition of some teeth this was a very effective tool



Clamshell grab proved very effective for removal of bulk loose cargo

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For removal of the cargo itself we use a tine grab which can effectively dig through tightly packed cargo, this grab is also useful for structure removal.

