Snoozing rust

subtitled

"Rust never sleeps"

Comparison of two metal stabilisation systems used by DOC

1. Vulcan steam log hauler, Sheridan Creek, Otaki Forks = Hand clean, Shell Ensis Fluid's SDC and V.
2. Davidson steam logging locomotive, Deadman Creek picnic area, Grey Valley = abrasion blasting and electro-zinc plating. Two pot epoxy coating

Vulcan steam log hauler

Built In Napier c. 1914.

Hauled itself up the incline.

The Tararua Timber Company

Mechanically sound

Sheet metal wasting

Wire rope a problem

Encroaching forest

Ponding of water

Becoming a popular destination

Nationally significant

Vulcan steam log hauler

Isolated site = hand prep of surface with chipping hammers, chisels, wire brushes and a compressed air needle gun.

James Robinson above
Mark van Huben below

Vulcan steam log hauler

- Preparation of surface = 59 hours in total.
- Hauler weighs in at approx 8 tonne.
- Used chipping hammers, wire brushes, cold chisels and nail punches, compressed air needle gun, scrapers and engineers bars.
- Flew in air compressor, generator and other equipment.
- Unable to move major parts for cleaning down.
- No dismantling of minor parts

Vulcan steam log hauler

Primer coating Shell Ensus Fluid SDC

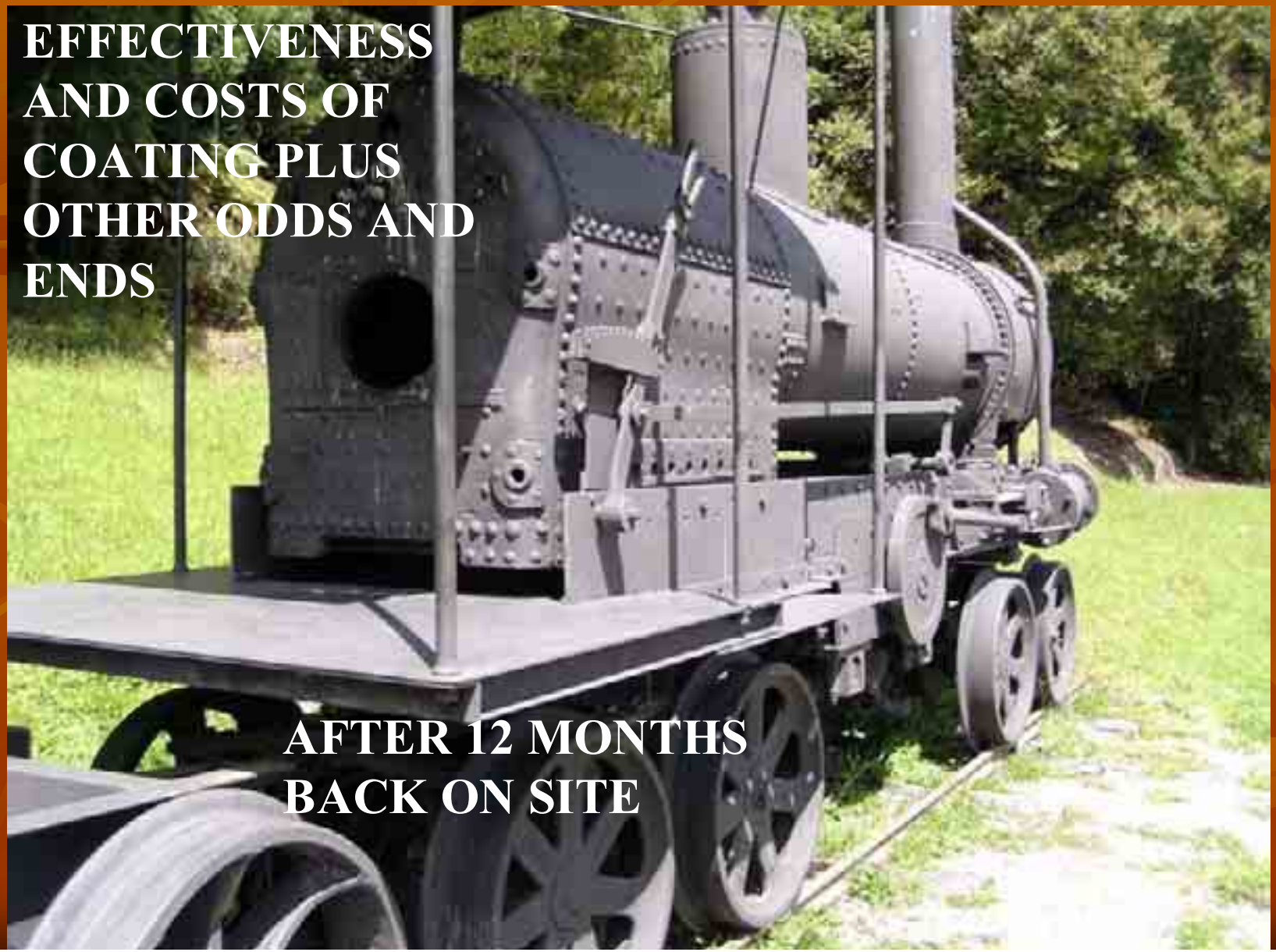
- Main use of SDC is for the internal storage of tools and gears etc
- A secondary use is the treatment of external surfaces under cover
- 
- SDC is $230/20 ltr drum which weighs approx 17kg
- Main advantage, has a water displacing solvent
- Can be used as primer for other top coat applications

Vulcan steam log hauler

Shell Ensis Fluid V

- Two top coats applied – SDC coating dry and hard after 6 hours, (best left overnight).
- Each top coat took 4 ltrs of Ensus Fluid V
- Took three person hours of work for each coat.
- Used 100mm wide paint brushes.
- Needed a stick to get the product out of the drum – highly viscous

Davidson logging locomotive



Davidson logging locomotive

- Basic costs:
- Consent for abrasion blasting, covered by the contractor but included in overall pricing.
- Removal off site to contractors yard, craneage and trucking $1240, (18km to yard)
- Dismantle, abrasion blast components to 75 microns, thermo-zinc plate to 75 microns,

  fill joints, prime with Altex Ultra Prime 450. top coat with Altex 236 = $8,000

  Total cost for replacement/repair $36,804

Abrasion blasting
How many microns did you say?

- A micron is one millionth of a metre.
- So, 1mm equals 1000 microns.
- 10 sheets of photocopy paper = 1mm.
- So, one sheet of photocopy paper = 100 microns
- That's thicker than most single DFT paint applications, most systems depend on 3 coats.
- That's what is protecting your historic sites, cars, houses etc., so ensure it is maintained!

Abrasion blasting

- Use's crushed glass as the blasting medium.
- Glass is inert and environmentally friendly.
- Current cost is $38.50/sq m – though job will take longer and cost more/sq m if all heavy flaking rust is not removed by your troops before hand. This cost includes coatings, (price will change/sq m due to coating selected).
- Old rail track will cost more due to incidence of large flaking rust patches and the need to turn them often in the blasting process.

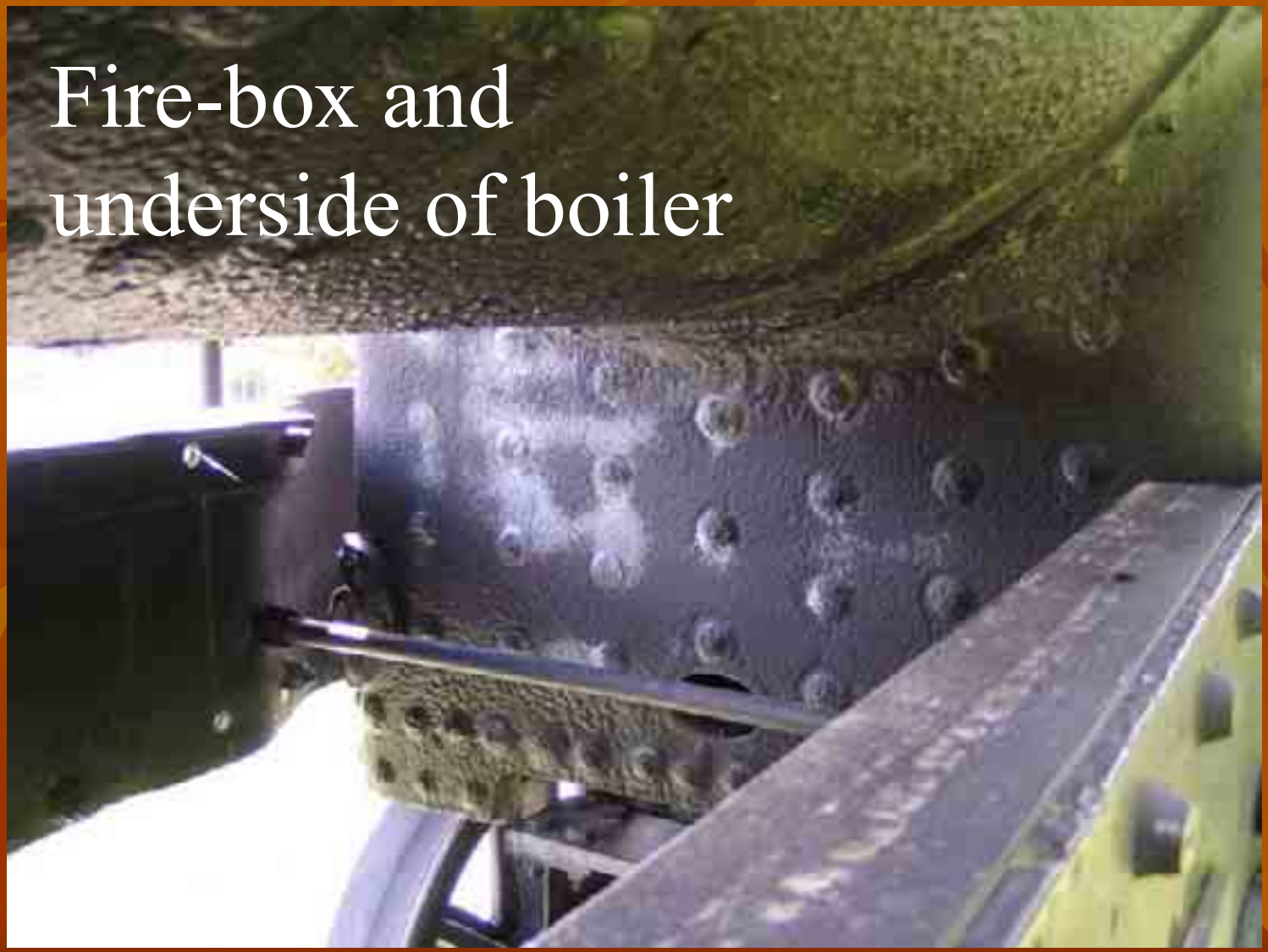
Thermo (electro) -zinc plating

- Electro-zinc plating produces a film that has air gaps in it, cannot prime immediately as some air takes time to escape from the zinc.
- The thicker the zinc/paint coats = the longer term of protection/service life.
- In harsh environments apply 100 microns zinc and 200 microns DFT top coating.
- If primed to soon the escaping air will cause blisters and eventual breakdown of the top coat.

The perfect paint scheme

- Fly/move out object to Engineering workshop
- Dismantle & abrasion blast to 75 microns
- Thermo plate with 75 microns zinc
- Prime with Altex Ultra-Prime 450
- Coat with Altex Devshield 236, (now called Bar-Rust 236) multi purpose epoxy to 120 microns DFT
- After 12 months wash down with Altex Devprep 88, rinse and when dry apply Altex E-Line 949, if a high gloss is required use Devthane 379 instead.

Other bits - Chalking

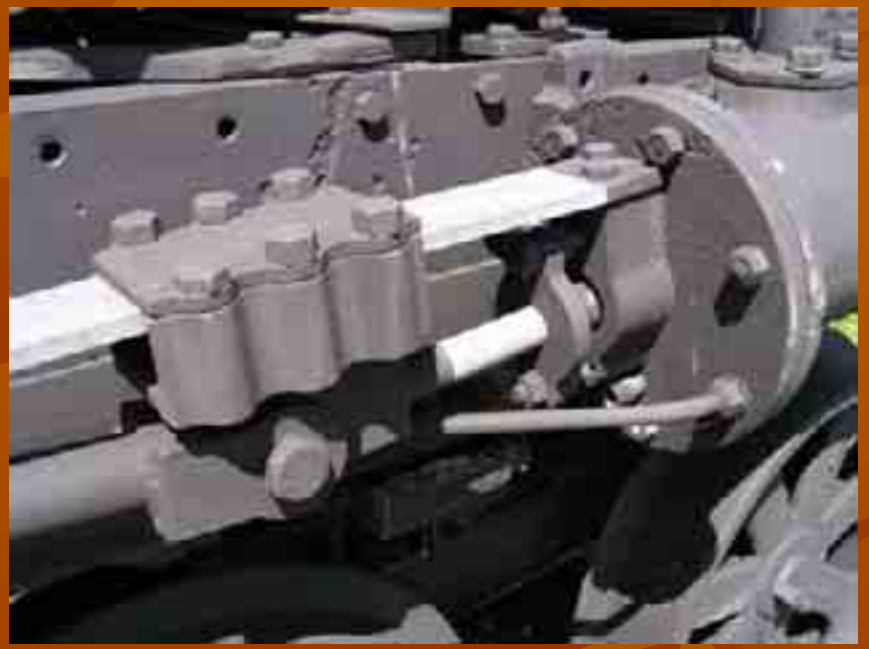


Wear and tear

The only moveable object, back to zinc surface

Shifting damage

Lifting chain
damage to coating



Shifting on truck
deck damage

Inappropriate workmanship

Damage to coating doing up nut + coating of nut at a later date

Odds and ends

Missed a bit?

Forgot about doing up the nut!

The End