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| <b>TO</b>        | Adelaide to Tarcoola Rerail Project  |
| <b>FROM</b>      | Corporate Services and Safety, General Manager Technical Standards   |
| <b>DATE</b>      | 13/04/2018   |
| <b>SUBJECT</b>   | ETC-01-06 Rail Weld Geometry – Vertical Alignment and Match of Weld Collars<br>Technical Note for ETM-01-01- Rail Weld Geometry Standard |
| <b>Amendment</b> | First Issue  |

## References

AS 1085.20 – Welding Rail Steels

ETE-01-03 – Non-Destructive Testing of Rail (For Internal and Surface Defects)

ETM-01-01 – Rail Weld Geometry Standard

Track and Civil Code of Practice Section 1 – Rail

## Issue

The current ARTC Standards do not address vertical alignment and match of weld collars. Current approved suppliers' manuals do not provide clear requirements or where provided the inspection and acceptance requirements are difficult to enforce. Figure 1: Poor vertical alignment of a weld is a result of misaligned moulds.



Figure 1: Poor vertical alignment

Misaligned moulds do not allow pre heating to occur evenly and it causes the heat distribution of the weld to be distorted. This can lead to cold caps, lack of fusion and, in extreme cases, shrinkage defects. Figure 2 and Figure 3 show failed welds a result of poor alignment of welds on ARTC tracks.

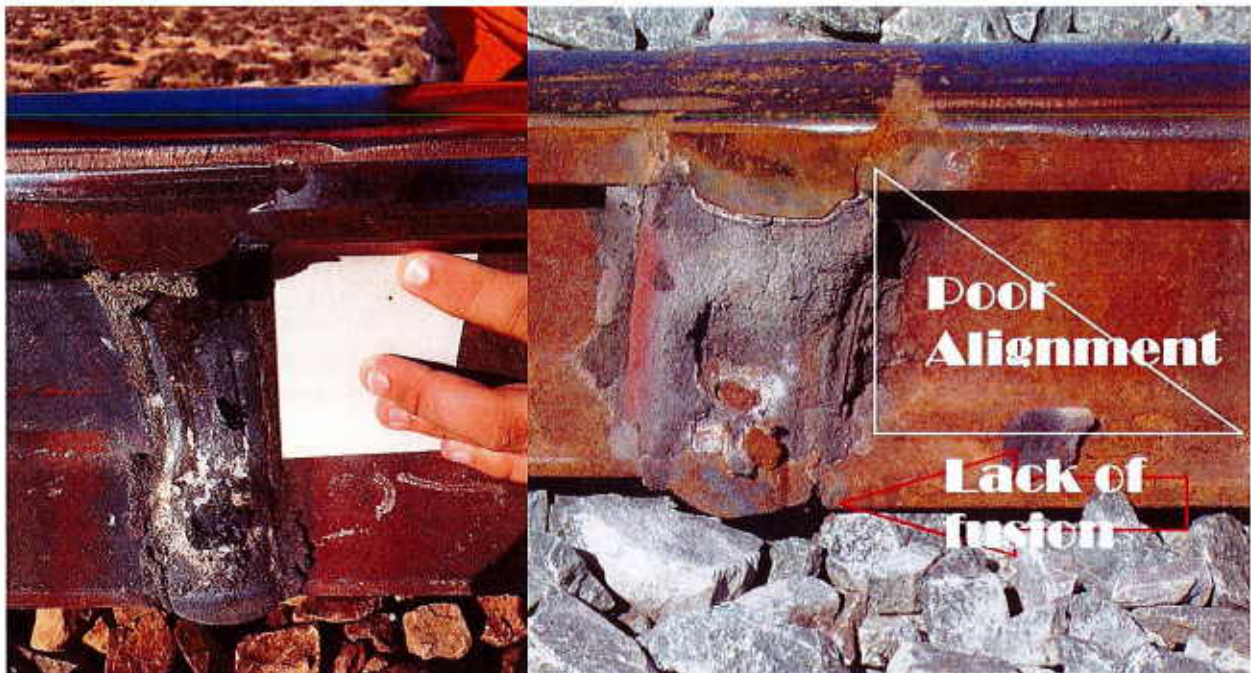


Figure 2: Poor alignment problems

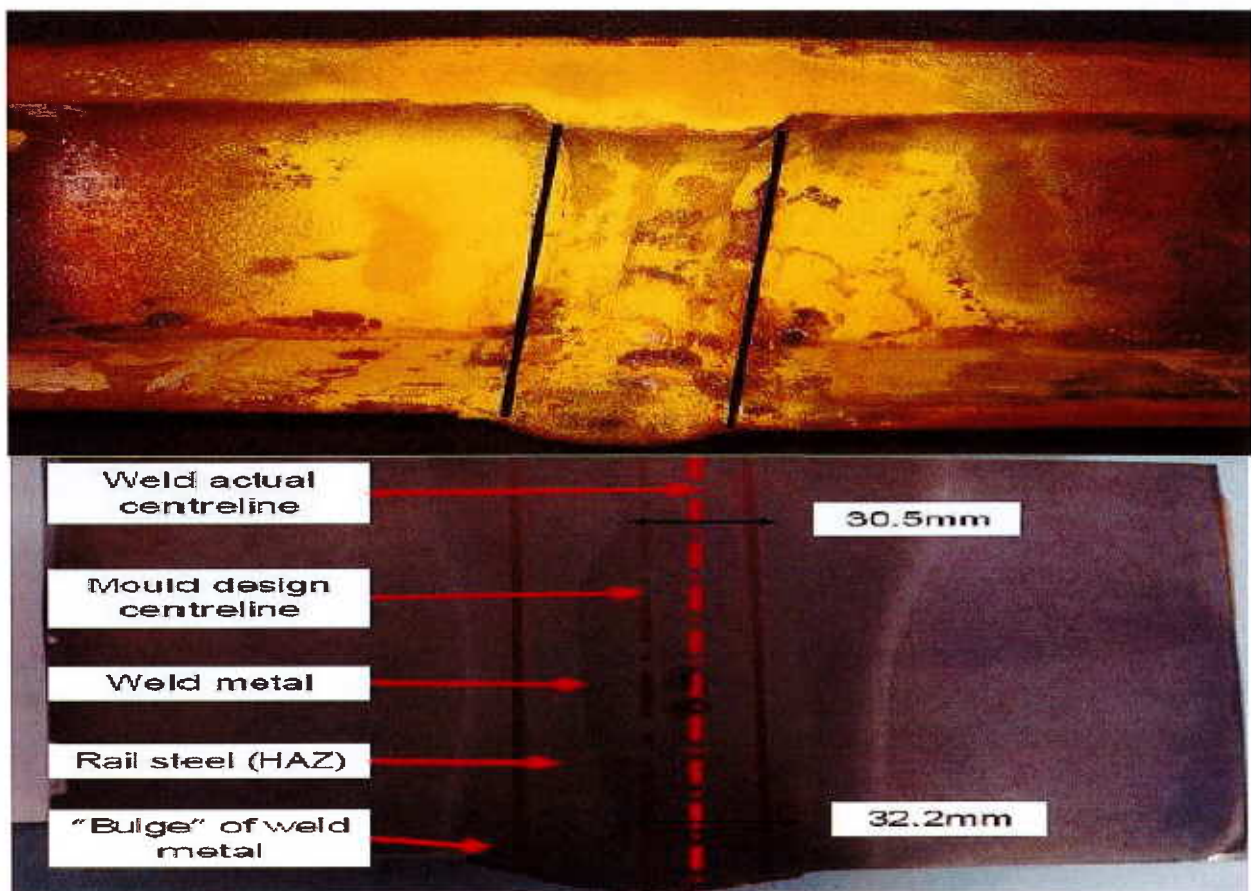


Figure 3: Poor alignment problems

## ***Compliance and acceptance criteria***

Moulds shall be aligned to achieve vertically aligned welds within 2mm. The welder must measure collar vertical alignment using either a square and steel rule or weld collar alignment gauge before leaving site.

Vertical misalignment of welds shall not exceed 4mm. Any new welds exceeding vertical alignment criteria are to be removed within 30 days.

## **Deleted or Altered Paragraphs**

None

## **Effectivity**

This Technical Note shall apply to all welding activities undertaken on the Adelaide Tarcoola Rerail project following its publication and until such time as ETM-01-01- Rail Weld Geometry Standard is updated and this Technical Note is withdrawn.

## **Updates to this Technical Note**

This Technical Note may be replaced by an updated version if so determined by the undersigned from time to time.



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