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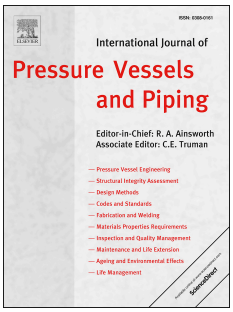

The effect of plasticity on residual stress generation and redistribution in offshore pipelines

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Paper Revision History:

No	Comments	Authors' response and changes in Rev 1
1	This is an interesting paper that derives an analytical solution for the residual stress field induced in pipes as a result of reeling in oil and gas industry. The paper includes analytical solution validated by finite element analysis and experiments which makes it particularly strong. I strongly recommend publishing it but I think there are a few points the authors need to address to make the paper even stronger:	Noted
2	1- The abbreviations used in the paper need clarification. I would suggest removing any abbreviation, even the simple ones such as OD, from abstract. Also, please ensure they are explained the first time they have been used. For example WT appears in the paper in page 5 and is not explained until the next page. Considering the large number of symbols used, I recommend including a nomenclature in the paper too.	Updated, some of the abbreviations taken out, but the authors would like to keep a few of them as it makes it easier to follow. Nomenclature added
3	2- Figure 6 needs a scale bar.	Unfortunately there was not any photo with a scale. However the pipe has an OD of 323.9 mm which can help the reader to appreciate the full scale dimensions.
4	3- I am slightly confused about the FE analyses. Am I correct in thinking that the FE simulates a bending of the pipe perpendicular to x axis in Figure 5 so the 12 o'clock position sees the maximum bending stress? IF so, surely the normal to the symmetry plane should also be the x axis and not the y-axis as suggested by figure 7? Could this explain the large difference between the DHD and FE in figure 8? The material properties used in the FE analysis should also be discussed in detail in page 8 where the elements are described. Surely a Ramberg-Osgood material model will result in zero residual stress.	The neutral axis passes 3-9 O'clock line. Figures 10 and 11 updated and stress are shown in terms of longitudinal stress (axial direction of the pipe). Hope it helps to clarify. This study used DHD method for the through thickness measurement which has its own limitation. Moreover FEA assumes a perfect round pipe which is not the case in the full scale testing. This study did not investigate the effect of ovality and out of roundness of the actual pipe. A new paragraph has been added. Material properties added. It cannot be concluded that RO materials will always generate a zero residual stress field based on the results presented in this paper.
5	4- The references are slightly lacking. For example, where different methods of measuring residual stress are summarised, they should be accompanied by references in which they are explained.	More relevant references have been added. Please note that the focus of the paper was developing an analytical solution for a parent pipe. Therefore the paper did not discuss the residual stress measurement in details.
NA		Acknowledgement section added