Referee #1:

Dear Dr Arno van Wingerde,

Thank you very much, indeed, for your very insightful and constructive comments. I agree with most of the suggestions and will implement them accordingly. I only have two additional explanations to two of your comments as listed below:

1) **Consider condensing a bit: reference to a national standard is of limited interest for people using other standards and should just be used to outline the real topic of the paper.** BS7910 is the only fracture mechanics standard applicable to all metallic structures. E.g. API579 /ASME is for pressurized equipment used in oil & gas, petrochemical, and chemical facilities and R6 is for nuclear facilities. I agree with you that in a scientific paper referencing to standards should be limited but, given uniqueness of BS7910 and the large body of conducted research which has led to creation of the standard and the well-documented references provided in the standard, It is my humble opinion that the reader will benefit from references to the standard. I myself have been a committee member of BS7910 since 2018 and have an internal insight about the extensive research carried out by research bodies particularly TWI.Ltd, that is built into the standard. DNV is also a widely used standard in assessment of offshore structures and perhaps the only standard that provides recommended continuous PoD functions.
2) **Kr against Lr which are material properties: OK for the FALD curve, but not correct for the example assessment points "safe"/"unsafe"**
   Kr is the ratio of applied crack driving force to fracture toughness, neither are material properties only even Kmat is affected by material thickness therefore a property of the structure. L_r is the ratio of applied stress to yield strength and therefore not just a material property.

Best regards,
Peyman Amirafshari

Referee #2:

Dear Referee #2,

Thank you very much, indeed, for your constructive comments. My responses to your comments are listed below:

1) Thank you and I agree with you. I will revise the manuscript and will add a list of abbreviations.
2) I fully agree that the two methods are complementary methods in design and assessment of structures with their own limitations and merits well documented in the literature and also summarised here. The main motivation for a FM based design approach, here, is the shift of paradigm towards damage-tolerant design philosophy which is best done by considering inspection and maintenance activities. To this end and to optimise design and maintenance information about fatigue and crack size is essential. This information cannot be predicated accurately by only using the S-N method.
3) I will correct this. Thank you!
4) It's "**commonly"** adopted for application in structures containing containments because of the possible sever consequences (leak or rapture), but can be used for monopiles as well. There is a debate if the structure is capable of sustaining a through thickness crack after full

penetration of crack height or the through height failure governs the overall failure. In case study section this was tried to be studied.

5) Equation 9 is Lr and line 240 refers to Lr_{Max} . For equation 10, Thank you well spotted! I will change line 240 to σ_U. (I have now deleted line 240)
6) Will address this in the proof.
7) J is J-integral as also mentioned in line 250 right after equation 16. But, perhaps, it not clear. I will make it clearer. (Now deleted)
8) Thank you. I will address these.
9) This length are proposed commonly adopted length the value is recommended to be considerably lower that predicted failure length. And you pointed out can be seen as a safety factor. (line 287-292)
10) Agree. I will remove PODs
11) I believe the figure is correct. If you take the firs figure as the probability- by considering small intervals, the third figure is probability of detected sizes as well. The equation is essentially: P(A I B)= P(A).P(B), where, P(A I B) is probability of finding crack sizes, P(A) is probability of crack sizes being present, and P(B) probability of detecting the sizes.
12) Table 1 is values of POD gives by BS7910 and figure 11 POD proposed by DNV. BS7910 gives largest flaws that can be reliably detected (Typically, 90% probability of detection with 95% confidence). But DNV provides an equation, instead. The largest missed flaw needs to be judged by the assessor- Typically, 80%-95% POD is chosen considering the consequence of possible failure.
13) Yes, those refer to material properties are. I will add the reference to those that are not given.
14) Thank you. I will add the units.
15) This is the common term used BS7910. But you are right, strictly speaking “crack growth is Air environment” is a more accurate term. I will address this.
16) I think that’s exactly what they do. Black= a, Green 2C, Red= Tolerable, for Black and Green solid is with inspection and dotted without inspection.

Thank you and Best regards

Peyman Amirafshari