General

This paper contains the German comments on the input of other participants of the SDC2 CG on Evacuation Analysess.

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1 TOR 1, Amendments to the Guideline

1.1 Finland

1.1.1 Narrow Response Time Distribution

We support Finlands proposition to use a more narrow response time distribution. We are of the opinion, that the guideline should be focused on benchmark cases instead of creating the impression of realism, which she definitely cannot. Narrowing the distribution will generate more results regarding bottlenecks creating congestions which will not become visible. A wide distributed response time distribution will probably create a longer overall travel duration, but congestions will disappear.

We encourage Finland to propose a distribution.

1.2 Japan

1.2.1 Walking Speed Consistency

We support Japans proposal to establish consistency regarding the walking distribution on flat terrain and on stairs.

1.2.2 Additional Scenarios: Blocking each MVZ

Although we understand the motivation behind Japans proposal, we should keep in mind, that the work load for analyzing the proposed scenarios will rise significantly for large cruise vessels (6 or more main vertical zones → 12 new cases). Since the additional value of the proposed cases is not yet shown, we do not support this proposal. However, the current cases 3 and 4 represent the idea behind this proposal.

1.2.3 Use of Secondary Escape Routes

We support Japans proposal for this point.

1.3 UK

1.3.1 New Response Time Distribution

We do not support the proposed distributions due to the following reasons:

1. The way in which the proposed response time distributions are derived seems questionable. The amount of tests does not allow for a statistically sound evaluation.
2. Since no data was gathered for e.g. the night case on cruise ships, a response time distribution was generated, based on assumptions and tests with other vessel types. The assumptions are scientifically questionable.
3. If a response time distribution for cruise ships is introduced, this ship type should be clearly defined by IMO, which we are not aware of. So the distinction of the mentioned vessel types is not sound.
4. The proposed response time distributions are very widely spread, so eventually, no significant congestions will occur. Instead, the overall evacuation duration is artificially increased, in case of cruise ships up to 20%. Germany believes, that this artificially creates the image of a more realistic analysis, without a real benefit. We prefer the approach of clearly analyzing a benchmark scenarios in combination with a more strict evaluation criterion.
5. The influence on the simplified method is not documented.

1.3.2 New Validation Case

We do not support this proposal due to the following reasons:

1. The data provided is not sufficient for modelling the scenario.
2. The sole result of the proposed test case is, that a given result can deterministically be achieved with the exact definition of the initial parameters. This does not account for any statistics which have a major impact on the result and it does not give any information about the dynamics of a model and its robustness.
3. With regard to the effort needed, the value of the results is very small. The current validation cases give a much better insight into how a simulation model copes with certain scenarios. Simulating a complete ship only means multiplying these scenarios.

2 TOR 2, Operational Procedures

2.1 CESA

2.1.1 Well Trained Crew

Since we think, the analyses should only deal with benchmark scenarios instead of artificially creating the impression of realism, we support CESAs proposal to assume a well trained crew. It should be a basic assumption, that all IMO guidelines are met by the vessel and its crew.

3 TOR 3, Open Decks

We are awaiting comments regarding our proposal for the analysis of open decks, before giving more input.

4 TOR 4, Additional Scenarios

4.1 CESA

4.1.1 Harmonizing with SRTP

We are in favor of harmonizing the guideline with SRTP and would like to encourage CESA to submit an adequate proposal. Maybe with regard to adapting the current cases 3 and 4.

4.2 CLIA

4.2.1 Cost-Benefit

We strongly support CLIAs reminder to keep a good cost benefit ratio for the analyses.

4.3 Japan

4.3.1 Case with Trim and Heel

Since it is the goal of the guideline to analyze benchmark scenarios and since the scientific discussions on how to take inclinations into account are not solved and since simulation programs use very different approaches in how to take inclinations into account, we are not in favor of introducing any scenarios with trim, heel or motion. Research has shown, that until about 20° of inclination, the overall durations are mainly increased due to a slower walking speed. Inclinations beyond this point will most certainly lead to a failure of evacuating all persons in time. So introducing an inclination mainly leads to the impression of more realism, but effectively, only the walking speeds are reduced.

4.4 UK

4.4.1 Trim and Heel Scenarios

For the reasons mentioned in 4.3.1, we do not support this proposal. These extreme angles resemble catastrophic scenarios which the guideline does not aim to analyze. Furthermore, a static heel or trim could favor

or penalize asymmetric geometries, so eventually, additional scenarios with static heel and trim in the opposite angle would be necessary.

4.4.2 Absolute Congestion Criterion

It was the aim of the current definition for significant congestions to create information about congestions from the analyses. This information is vital to inform the crew about potential bottlenecks, so they can react appropriately. However, when changing the reference value to an absolute number (as proposed), this information will disappear for most vessels. A vessel with a relatively good evacuation performance (=short duration) can still have congestions along the evacuation routes which can statistically lead to scenarios with long durations. However, when the reference value is set to e.g. 60 min instead of the vessels own evacuation duration, the information about these potentially critical bottlenecks is lost.

This is why Germany does not support the proposed change.