

Evolution of a question: charge team considerations regarding hull / vessel design

Nov. 10, 2016 charge team teleconference: As background, see next two pages for recap of the initial discussion; see especially the bullet point on issues associated with capturing the data.

Dec. 21, 2016 charge team teleconference and follow-up activity: The following draft BAR-form question was offered by a team member for review and modifications as other members saw fit.

Were there any features or design characteristics of the hull of this vessel that may have contributed to this accident? ___ Yes ___ No If yes, then describe and explain:

In follow-up, some alternatives were submitted for team consideration. For example, queries in lieu of requiring officer/investigator to identify features/characteristics as perhaps having “contributed” to the accident (due to concerns that such assumptions could be challenged in lawsuit/court):

Describe the bow or front half of the vessel... (Sharp strake upward, deep or shallow V bow, flat bow, pontoons, tri-toons etc.)

Describe the midships characteristics.... (Deep or shallow V, rounded, etc.)

Describe the stern or rear half of the vessel.... (flat stern, Deep v stern, Shallow v stern, tunnel hull, etc.)

Another alternative was proposed in light of the team discussions regarding the potential for improper weight loading in the vessel, trim angle of the motor, speed, operator experience or lack thereof, or engine mounting (jack plate) playing into an accident where hull design was a factor. Since speed, loading, operator experience level, and basic vessel type are already captured, the following was proposed to gather more detail on the hull or overall boat design, and engine mounting/trim information (and in lieu of freeform entry by an officer):

Question 1: "List hull design characteristics for this vessel: (check all that apply)

Flat Bottom V bottom

Tunnel Hull Stepped Hull

Pontoon 2 or 3 Tri hull

Question 2: "List outboard engine mounting/trim characteristics: (check all that apply)

Jack plate (indicate position)

Mounted directly to transom (indicate position)

Trim angle (low, medium, high)

March 31, 2017 ERAC meeting in Lexington. The charge team breakout discussion and consideration of the alternatives resulted in the following revised question for multi-year beta testing.

Were there any features or design characteristics this vessel that may have contributed to this accident? ___ Yes ___ No

If Yes, then describe thoroughly in narrative:

The primary revision was to make this non-hull specific. The team considered that there could be other features that caused an issue, such as wake boat towers. The question format would still make the result searchable, with follow-up in the narrative for additional details.

Engineering, Reporting & Analysis (ERAC) Charge E&E 2017-1 Capturing Vessel Hull Design Detail in Accident Investigations – Thurs., Nov. 10 – noon EST-1:12pm EST

Teleconference Recap

See <https://nasbla.basecamphq.com/projects/13618818-erac-e-e-2017-1-capturing-hull-design-characteristics/files> to download the audio file from this teleconference.

On the call (entire time or partial): Joe McCullough (presiding), Brian Goodwin, Gary Haupt, Cody Jones, Glenn Moates, Gene Molteni, Dick Snyder, Kenton Turner; Deb Gona

- **Introductory remarks**—Joe McCullough (ERAC Engineering/Equipment Subcommittee Chair) began by outlining some early thoughts about the charge and said that on this first call he hoped to do several things: get input from Cody Jones who submitted the charge proposal; get clearer direction on the charge and how the capture of hull design in accidents can best be done without putting more burden on the accident investigator; and have someone step up as charge leader.
- **Overview of the charge proposal intent**—Cody briefly described that there had been a series of accidents in Texas that brought to light issues with an old vessel hull design characteristic. He noted that in discussions with the Coast Guard that there was a lot of emphasis on whether or not BARD results showed it to be significant and national in scope; however, currently there are no data points toward a specific hull design in the BARD system. What he is hoping for is a system that could start with identifying five or so different hull design characteristics, and from there perhaps get into collecting more detail so that we can better understand what (about the hull design, in particular) might be affecting the stability of a vessel (this, outside the human factors realm of data). Cody cautioned that he did not have a set idea in mind as to how best to capture the information and is looking to the committee for a solution.
- **From the accident investigation training standpoint**—Gary Haupt noted that in the BAI coursework they now incorporate information specifically on the Texas flats boats, as an extenuating factor, and encourage officers to dig deeper into hull design as a potential factor in accidents. This is not to excuse operator error and possible negligence in operation. Gary agreed that it would be helpful to start capturing this information more systematically, and for there to be some prompt on accident report forms for officers to be reminded/aware of hull design as a possible contributing factor. How that should be or can be done is the question, especially as designs will be changing constantly.
- **Looking at possible approaches to capturing the data; can past work weigh in on this task?**—ERAC has developed other products that might give some information/clues. Deb Gona mentioned the vessel subtypes descriptions that were part of the Vessel Types/Subtypes list developed in the [Terms & Definitions Project](#) many of them include detail on hull types (later in the call, the Contributing Factors/Causes list developed as part of that project was also mentioned as a source for review). She also noted that the [Electric Shock Drowning guidance product](#)—with a separate checklist, not added to the BAR form— or even the [human performance investigation guidance product](#) might offer other possible

routes for guiding the collection of the information. While he said that he appreciated the use of supplemental forms and materials, Cody cautioned that given the Coast Guard perspective on data in determining whether something is a significant issue, it needs to be captured as data in the BARD system. He still believed that it would be possible to come up with something simple (perhaps accompanied by photos of different hull designs [side note: photographs of various vessels were collected for use in the reference and resource modules; the team may want to consult that product, too]).

- **Issues associated with capturing the data**—There seemed to be some agreement that the best approach would be to actually capture this data directly on the BAR form. But questions remained: If this is a separate category for hull type, how do we go about breaking that out? How does the team make the recommendation for an addition? Are there other design aspects that should be captured (e.g., jack plate, tunnel, transom angle, etc.)? Cody reminded that this is larger than just flats boats and encompasses collection of data associated with design issues more broadly (including, as he mentioned later, potential design issues regarding paddlecraft stability); he also noted that if the reliance is on a write-in box (or the narrative) instead of a checkbox, that doesn't facilitate querying. Since selection of a particular classification of a hull type might be difficult for an officer, are there certain design elements that could be included as check boxes? Maybe photos of cutaways, at minimum, with a selection of which photo is most appropriate might be a start.
- **NEXT STEPS**—Given that the Coast Guard BAR form drives the annual statistics and since the form will have to be updated to reflect the changes coming in January 2017, Deb suggested it would be prudent for the team to **have something ready to recommend to the Coast Guard when the Federal Register Notice is published**. Since there would have to be some additional guidance to go along with whatever is developed as checkboxes or for addition to the narrative, **a starting point may be for the team to create a list of the characteristics, etc. that have already been discussed on this call. Joe asked the group to consider taking the CG BAR form and suggesting three or four areas/fields where additional information would be sought (as hull types, under the accident descriptor/events on your boat section, addition of operator loss of control, improper trim of the outboard or sterndrive, etc.) and the rationale for doing so**. In the meantime, whether or not/whenever the Coast Guard moves forward with its revisions, **whatever information is valuable enough to have as a checklist still would be useful to push out to the states for capturing these characteristics as an addition to their BAR form for investigative purposes**.

Cody agreed to develop a white paper to help frame the problem and rationale for making such additions. Also, to help inform the team's work, **Deb agreed to go back through and assemble work/products that have already been done that might capture pieces of the issue**. The team can then look at what ERAC / ABYC / etc. has already done that might suggest additional fields, definitions, descriptions, etc.; settle on the specific things you would want to be able to query (via checkboxes/fields); identify where on the form those additional checkboxes/fields might be added; and develop guidance for officers in determining which/when to check off certain boxes/fields (on that latter point especially, Glenn volunteered to work with Joe (and Gary) in developing such guidance). Joe will reconvene the team in December to review progress on this preliminary work.