Appendix 1

The Investigator, The Investigative Team and Teamwork

The Investigator

Marine accident investigation is a highly specialized task which should ***ideally*** only be undertaken by highly trained personnel possessing many qualities, not the least important of which are an inquisitive nature, dedication to this kind of work, diligence and patience. The investigator must have a good sound working knowledge of ship operations. Technical skill, perseverance and logic are the tools of the profession; humility, integrity, and respect for human dignity his guiding rules.

Ideally, it is not sufficient to nominate, as the occasion arises, a person with specialist marine knowledge to be the investigator, however, many administrations are unable to maintain a large staff of trained investigators so they must depend on contracted investigators. The standard of the investigator assigned to an accident inquiry determines the thoroughness and class of results obtained and the longer a well-qualified investigator serves, the more expert he becomes. Wherever possible, therefore, at least one experienced investigator should be assigned to each inquiry so that a continuing thread of experience may maintain the standards of accident investigation and reporting.

It is desirable that an accident investigator have, as a foundation on which to develop his skills, a professional mariner's background, either as a deck officer or as an engineering officer. Depending upon the particulars of the accident and the needs of the investigation, it may also be important to employ specific subject matter experts in the investigation, such as human performance specialists, metallurgists, naval architects, etc.

In order to discharge effectively their duties, it is essential that marine accident investigators are provided with suitable statutory powers which should, nonetheless, be used with discretion. The investigator will come in contact with many kinds of people, the majority of whom recognize the investigator's status, and who will, more often than not, feel obliged to offer all assistance they can without the investigator reminding them of the official powers which are vested in him. He will also encounter others who are less well acquainted with his activity and who may show reticence to be forthcoming with evidence, stemming from a natural desire not to become involved. It may, in these latter circumstances, be necessary for the investigator to explain his function and to elicit their willing cooperation.

When called to the scene of the accident the investigator should endeavor to arrive as soon as possible; similarly, in his dealings with witnesses and other people concerned in the accident, he should be prompt in attending appointments and correct in his manner, regardless of how he may feel personally. Above all, the investigator must be accurate and factual; he must observe, interpret and record clearly and accurately at all times because his record of what is seen, heard and done, may well prove to be the only record available, the analysis of which may have far-reaching effects on individual people, companies, and marine safety as a whole.

The Investigative Team

Marine accidents, especially accidents of serious consequences, are typically very complicated events, often having safety issues in several areas of technical expertise. It is unrealistic to believe that any one person will have all of the knowledge, experience, and ability necessary to investigate all aspects of an accident in the depth that they deserve. Therefore, whenever possible a team approach to marine accident investigation should be taken, especially for major accidents involving multiple fatalities, great environmental harm, or wide public interest.

The make up of the team may be subject to some variation due to the unique issues involved in the accident under investigation. A team investigating the capsizing of a ferry, for instance, would probably have no need for a fire expert as a member. Nevertheless, a "basic" team that should be able to cover *most* areas involved in *most* accidents would ***ideally*** consist of:

- The Lead Investigator – the investigator assigned to be in overall charge of the investigation process. The lead investigator manages the investigation and directs the efforts of the team. In addition, the lead investigator assumes responsibility for on scene safety of his team during the investigation.

- Engineering Investigator – who is tasked with documenting all aspects of the investigation related to engineering operations, procedures, systems, and equipment.

- Human Performance Investigator –who is responsible for looking into the human factors aspects of the accident. Statistics show that at least 80% of all marine accidents are a result of human error.

- Survival Factors Investigator – who is responsible for documenting the injuries and/or deaths resultant from the accident and for assessing the post-accident amelioration efforts by the crew and by emergency response agencies. The Survival Factors Investigator is also tasked with the responsibility to assess the performance of emergency systems during the accident.

Promoting Teamwork

The investigative team must work together to finish the investigation within the timeframe established by the appointing official. To make this happen, the lead investigator should ensure that strong-willed personalities do not dominate and influence the objectivity of the investigation and that all viewpoints are heard and analyzed.

The lead investigator must capitalize on the synergy of the team's collective skills and talents (i.e., the team is likely to make better decisions and provide a higher quality investigation than the same group working individually) while allowing individual actions and decisions. It is important that the lead investigator set the ground rules and provide guidance to the team members and other participants in:

- **Member relationships:** Friendship is not required, but poor relationships can impede the team's ability to conduct a high-quality investigation. The lead investigator can encourage positive relationships by focusing attention on each member's strengths and downplaying weaknesses. The lead investigator can facilitate this by arranging time to allow team members to get to know one another and learn about each other's credentials, strengths, and preferences. Effective interpersonal relationships can save time and promote high-quality performance.

- **Communication processes:** It is the lead investigator's responsibility to make sure that all members get a chance to speak and that no one member dominates conversations. The chairperson should establish communication guidelines and serve as an effective role model in terms of the following:

    - Be clear and concise; minimize the tendency to think out loud or tell "war stories"

    - Be direct and make your perspective clear

    - Use active listening techniques, such as focusing attention on the speaker, paraphrasing, questioning, and refraining from interrupting

    - Pay attention to non-verbal messages and attempt to verbalize what you observe

    - Attempt to understand each speaker's perspective

    - Seek information and opinions from others, especially the less talkative members

    - Postpone evaluation until all ideas and arguments have been heard

    - Encourage diverse ideas and opinions

    - Suggest ideas, approaches, and compromises

    - Help keep discussions on track when they start to wander.

- **Decision processes:** The lead investigator should gain agreement in advance

regarding how particular decisions will be made. Decisions can be made by consensus, by vote, by the lead investigator, or by an expert. Each method has strengths and weaknesses, and the method used should be the one that makes the most sense for the particular decision and situation, Team members should be aware of which method will be used.

- **Role and responsibilities:** Team members should clearly understand both the formal and informal roles and responsibilities of each member, consultant, and support person involved in the investigation. Clarifying these roles helps avoid duplication of effort and omission of critical tasks, and reduces power struggles and other conflicts. The appointing authority should always consider the opinion of the lead investigator but remains the final arbitor when reassigning team member tasks if they encounter problems.

- **Group processes:** For an effective investigation, group processes must be efficient. Time and energy may be needed to develop these processes. The lead investigator should pay attention to and note processes that seem to work well, and ask the group to suggest alternatives to processes that are unsatisfactory.

TIP

Teams are more than *individuals, because team members have a clear purpose, capitalize on each other's strengths, coordinate their efforts, and help each other. Teamwork promotes a higher quality investigation.*

To control team dynamics, the appointing authority needs to be aware that groups go through predictable stages as they progress from meeting one another to becoming a high-performance team:

- **Forming:** At this stage, team members get acquainted, understand their purposes, and define their roles and responsibilities. Members are typically very polite at this stage, and conflict is rare. Little work is accomplished during this stage, as the team is still in the planning phase. The lead investigator can speed this stage by formally organizing the group; by defining goals, roles, and responsibilities; and by encouraging members to become comfortable with one another.

- **Storming:** Team members begin to realize the sheer amount of work to be done and may get into conflict regarding roles, planned tasks, and processes for accomplishing the work. There may be power struggles. The team focuses energy on redefining work processes. The lead investigator can speed this phase by encouraging open discussion of methods and responsibilities and promoting non-defensive, solution-focused communication.

- **Norming:** The team develops norms about roles, planned tasks, and processes for working together. Power issues are settled. Team members start to become productive and assist one another. The lead investigator can speed this stage by formalizing new

norms, methods, and responsibilities and by encouraging relationship development.

- **Performing:** The team settles into clear roles, understands the strengths of different members, and begins to work together effectively. The lead investigator can help maintain this stage by encouraging open communication, a "learning from mistakes" philosophy, and recognizing progress.

TIP

Understanding the four typical stages of team development can help the lead investigator manage team interactions and promote team processes throughout the accident investigation.

The lead investigator sets the stage for effective teamwork at the very first team meeting. At this meeting, the lead investigator should encourage the team to define their goals and tasks, clarify their roles and responsibilities, agree on team processes, and become acquainted with each other's strengths.

TIP

Many team members may have never worked on an effective team. The lead investigator needs to focus on effective team activities, because the members may not immediately see the value of teamwork or may be caught up in their own tasks to the exclusion of the team.