REPUBLIC OF THE MARSHALL ISLANDS

Maritime Administrator

HALLAM CASUALTY INVESTIGATION REPORT

Enclosed Space Entry with Fatalities

Onne, Nigeria | 13 August 2018

Official Number: 5043

IMO Number: 9351749

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AUTHORITY

An investigation under the authority of Republic of the Marshall Islands laws and regulations, including all international instruments to which the Republic of the Marshall Islands is a Party, was conducted to determine the cause of the casualty.

Maritime Administrator

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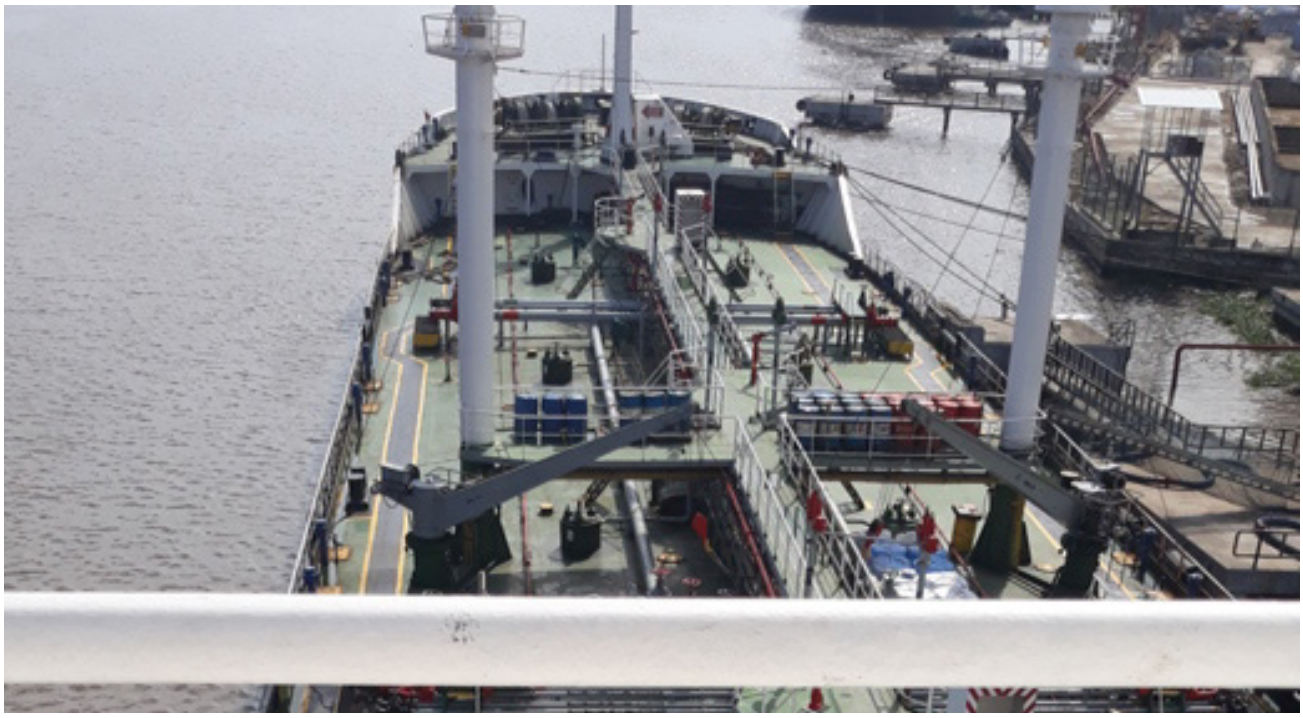

PART 1: EXECUTIVE SUMMARY

On 13 August 2018, between 0515 and 0530[1], the Republic of the Marshall Islands registered product tanker *Hallam*, managed by V.Ships Ship Management (India) Private Limited (the "Company"), was safely berthed port side in the port of Onne, Nigeria, discharging slops to a truck ashore using a portable discharge pump. During the discharge operation, the Second Officer (2/O) ordered the on-duty Able Seafarer-Deck (AS-D) to enter the vessel's port slop tank to check why the portable discharge pump was not working. When the AS-D refused, citing that it was not safe, the 2/O entered the tank. The Pumpman, who was also standing at the tank entrance, saw that the 2/O appeared to be in trouble and required assistance. He then entered the tank to assist the 2/O.

The AS-D directed the on-duty Ordinary Seafarer (OS) 1,[2] who was standing close by, to go into the accommodation to raise the alarm. The AS-D then ran to get a flashlight and a breathing apparatus (BA) set. The OS2, who had gone on deck after being alerted by the OS1, found that the Pumpman had collapsed on the upper platform and entered the tank to render assistance. On his return, the AS-D found the OS2 lying on top of the Pumpman.

Once the General Alarm had been raised and the remainder of the crew mustered, the Master took charge of the enclosed space rescue operation. The Pumpman and OS2 were the first to be removed from the tank and were both found to be still breathing, but unconscious. The OS2 was bleeding from a head injury. Resuscitation efforts were conducted on both individuals and both were taken to a local on-shore hospital for medical treatment. The Pumpman was pronounced dead on arrival at the hospital.

1 Unless otherwise stated, all times are ship's local time (UTC +1).

2 There were three AS-Ds and two OSs on board. In keeping with the Administrator's policy of not including names in reports of marine safety investigations unless necessary, the OSs are referred to as OS1 and OS2. All references to an AS-D are to the on-duty AS-D.

The 2/O could not be sighted within the tank, and it was assumed he fell down the ladder to the level of the oil sludge. While shore assistance was arriving, the port tank's contents were transferred to the starboard slop tank. The 2/O was subsequently found at the bottom of the tank by a shore rescue team member. He was removed from the tank and taken to the local hospital where he, too, was pronounced dead on arrival.

The Administrator's marine safety investigation determined that the direct causes of the deaths of the 2/O and Pumpman, and the serious injury to the OS2, was improper supervision and decision making by the 2/O, non-compliance with the Company's "Stop the Job" policy, and improper decision making by the Pumpman and the OS2. The basic causes that were identified include inadequate pre-task planning, ineffective onboard implementation of safe work procedures, and ineffective onboard training for crewmembers regarding the Company's "Stop the Job" policy.

PART 2: FINDINGS OF FACT

The following Findings of Fact are based upon the information obtained by the Maritime Administrator.

1. Vessel Particulars: see chart to right.

2. On the evening of 10 August 2018, *Hallam* arrived at the port of Onne, Nigeria to discharge a cargo of 9,996 metric tons (MT) of Automotive Gas Oil. The operation began at 0042 on 11 August 2018. The cargo discharge was completed without incident at 1748 on 12 August 2018. Due to port restrictions prohibiting ships from getting underway at night, *Hallam's* pilot was ordered for 0700 on 13 August 2018.

3. On 12 August 2018, during the cargo discharge, a surveyor from the American Bureau of Shipping (ABS) attended *Hallam* to complete external audits to renew the vessel's International Safety Management (ISM) and International Ship and Port Facility Security (ISPS) certificates. The opening meeting for the ISM audit was held at 0840 and was completed at 2000, after which the ABS surveyor disembarked. No non-conformities or observations were raised.

4. It was reported that prior to disembarking, the ABS surveyor asked the 2/O to print and distribute copies of the enclosed space entry procedures in the Company's Safety Management System (SMS) to the crew. Based on available information,

VESSEL PARTICULARS

Vessel Name
Hallam

Registered Owner
Oblue, Ltd.

ISM Ship Management
V.Ships Ship Management (India) Private Limited

Flag State
Republic of the Marshall Islands

IMO No.	Official No.	Call Sign
9351749	5043	V7AP7

Length x Breadth x Depth
126.8 x 22 x 10.6 meters

Year of Build	Gross Tonnage
2005	8,482

Net Tonnage	Deadweight Tonnage
3,722	11,999

Vessel Type
Product Tanker

Document of Compliance Recognized Organization
Lloyd's Register

Safety Management Certificate Recognized Organization
American Bureau of Shipping

Classification Society
American Bureau of Shipping

Persons on Board
22

the apparent reason for this was the increase in enclosed space entry incidents worldwide. The 2/O completed this task prior to completing his watch.

5. Because *Hallam* was required to remain in port overnight, based on advice received from the Owner's agents, the Master decided to discharge sludge and cargo slops. He informed the Chief Officer (C/O) of this decision at 2030. The C/O then contacted the terminal and was advised that sludge and slops could be discharged into trucks located on the pier. The cargo slops operation began at 2148. The starboard slop tank was discharged ashore to a truck located on the pier using *Hallam*'s fixed pump, dedicated piping, and a hose connected to the port side of the manifold. The discharge was conducted under the control of the Third Officer (3/O), who along with the C/O was in the Cargo Control Room. It was expected that the discharge of the starboard slop tank would be completed around 0300 on 13 August 2018.

6. At 2200, the C/O issued Night Orders, which included instructions that he be called when the cargo slops discharge was completed. It was reported that the Master had also verbally told the 3/O to inform him when the change over from the starboard slop tank to the port slop tank occurred. The 3/O passed the Master's and C/O's instructions to the 2/0 during the watch handover. The generic risk assessment for discharging sludge that was included in the Company's ShipSure Risk Assessment Database was not reviewed as part of the planning for this operation.[3]

7. The relieving watch consisted of an AS-D and the OS1, supervised by the 2/0. Discharge of the starboard slop tank was completed at 0510 on 13 August 2018. Based on the available information, it is not known why the tank discharge took approximately two hours longer than planned, nor is there any record that either the Master or C/O were informed of the delay or when the discharge was completed.[4]

8. As the starboard slops discharge neared completion, the Pumpman, who had been called by the 2/O, together with the AS-D and the OS1, rigged a portable, air-driven, double-diaphragm pump (commonly known as a Wilden pump), and flexible hoses in preparation for discharging the port slop tank sludge.[5] At approximately 0515, the pump was lowered into the tank and started, but it was not taking suction.

9. After checking with the engine room watch that the supplied on-deck air pressure was adequate to operate the pump, the 2/O instructed the AS-D to enter the tank to check the pump. The AS-D refused, citing that the tank was not gas-free and it would be dangerous to enter. Based on statements from the AS-D and OS1, the Pumpman was present when the AS-D refused to enter the tank and then attempted to "Stop the Job" as permitted by the Company's SMS.

10. At approximately 0520, the 2/O entered the tank himself to check the pump. It was reported that he could not see beyond the upper platform and he climbed back up the vertical ladder leading from the platform to the tank entrance in the tank dome to get the AS-D's flashlight *(see Figure 1)*. The AS-D and Pumpman, standing at the tank entrance, observed the 2/O beginning to descend the inclined ladder leading from

3 The use of the port slop tank to store engine room sludge and related operations had previously been identified as critical and generic risk assessments for handling sludge had been completed. The applicable generic risk assessment is supposed to be reviewed and updated as necessary when planning sludge handling operations.

4 It was reported that five trucks were required to receive the 137 cubic meters (m^3) of discharged slops. It is likely that the delay was due to the time required to disconnect and reconnect the discharge hose each time the trucks were changed.

5 To prevent contaminating the vessel's cargo system with engine room sludge, the suctions for the cargo lines in this tank were blanked. This necessitated using portable pumps and hoses when discharging this tank's contents.

the upper platform to the tank bottom. The 2/O, who had been in the tank for about five minutes, apparently realized that something was wrong, returned to the upper platform and then started to climb the vertical ladder leading to the tank dome. When the 2/O was several rungs below the tank entrance, the Pumpman attempted unsuccessfully to grab his hand. The 2/O collapsed and fell into the tank. The Pumpman and AS-D called out to him but did not hear a response.

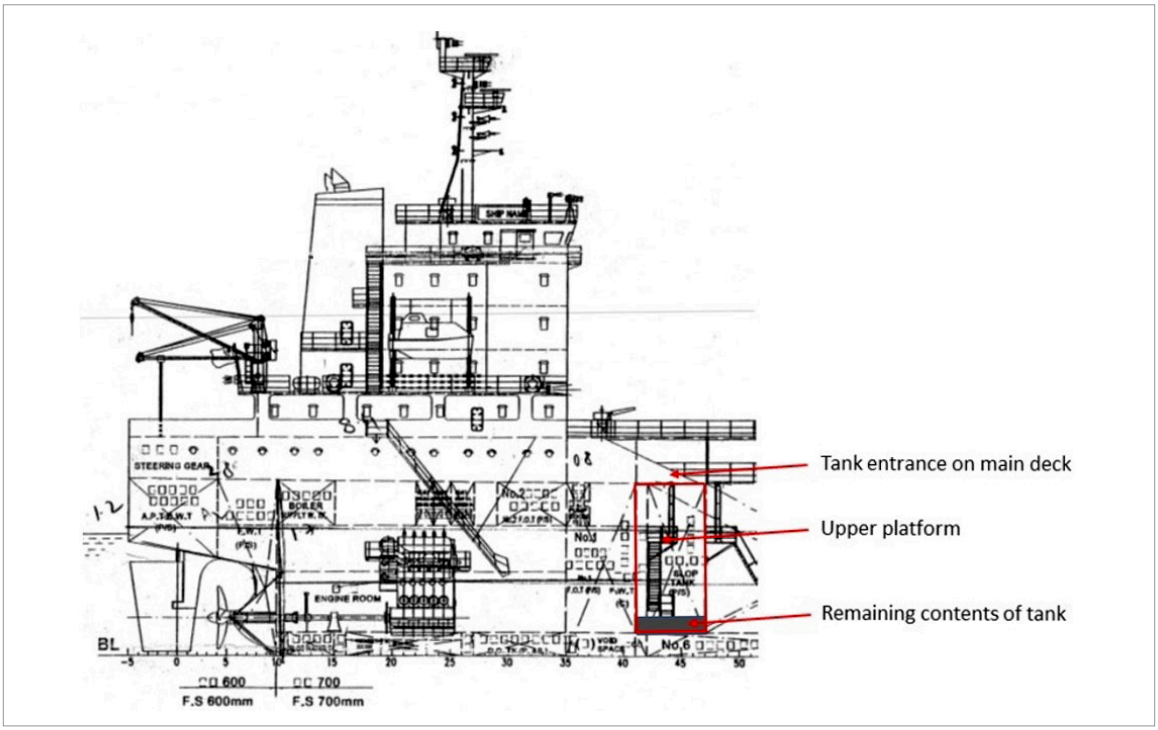

Figure 1: The slop tank is outlined in red.

11. The Pumpman then entered the tank to render assistance to the 2/O. The Pumpman ignored the AS-D's efforts to stop him and he entered without a BA set. The AS-D reported that he saw the Pumpman having difficulty and collapsing on the upper platform.

12. The AS-D immediately instructed the OS1, who was standing by the portside life rail monitoring the discharge hose, to alert the Master and C/O that two crewmembers were inside the tank. At the same time, the AS-D left the tank dome and went into the accommodation to get a flashlight and BA set.[6] While he was going to get these items, he yelled to wake up the vessel's crew. On his return to the tank, he found that the OS2 had also entered the tank, presumably to render assistance to the Pumpman. The OS2 was lying on top of the Pumpman and breathing heavily.

13. The Master and C/O, who had been resting, were woken by the OS1 and told of the situation. The Master went to the bridge to sound the General Alarm, then went to the port slop tank with the C/O and the remaining crewmembers.

6 *Hallam* had four BA sets. Two were in the forepeak stores and two in the safety locker located in the accommodation on the boat deck starboard side.

14. The Master took charge of the rescue operation, and the vessel's Fitter volunteered to don a BA set and enter the tank. At the same time, local shore assistance was requested via VHF radio.

15. The OS2 was rescued from the tank at 0545 and the Pumpman was rescued at 0552. There was no sign of the 2/O. It was assumed that he must have fallen into the oil at the bottom of the tank. The Pumpman and OS2 were noted to be unconscious, but breathing, and resuscitation efforts were carried out on both crewmembers. An ambulance arrived on the pier at 0915 and transported the unconscious crewmembers to a local hospital.[7] The Pumpman was pronounced dead on arrival at the hospital. The OS2 was treated and subsequently discharged.

16. The crew began transferring the 94.40 m^3 of engine room sludge that was in the port tank to the starboard tank using portable pumps and hoses in order to locate the 2/O in the slop tank. A shore rescue worker, who was on board assisting the crew, entered the tank and located the 2/O lying on the tank bottom between the ladder and forward bulkhead. There was 4.17 m^3 of sludge remaining in the tank when the 2/O was located *(see Figure 1)*. At 1548 the 2/O was removed from the tank and taken to the hospital by a second ambulance. He was pronounced dead on arrival at the hospital.

Crew Experience

17. *Hallam* had a crew of 22. The officers were Indian nationals and the ratings were Nigerians.

18. The Master had been sailing for 48 years. He had 34 years with the Company, 19 as a Master. He had been on board *Hallam* since 31 March 2018. His sea service was mainly on board chemical tankers, oil tankers, and bulk carriers. A third-party assessment of *Hallam's* safety culture was conducted as part of the Company's investigation. It was reported that there was a perception among the vessel's officers that the Master was not approachable and that he would apply pressure to complete a job. The Master denied this assessment.

19. The C/O had ten years of experience at sea with eight months' experience in the rank of C/O from his previous vessel. *Hallam* was his first contract with the Company. He joined the vessel on 14 July 2018. Junior deck officers and ratings reported that the C/O was the driver of safety.

20. The 2/0 had been employed by the Company since joining as a Deck Cadet in 2007 and had sailed in his current rank for over three years. He joined *Hallam* on 20 April 2018. The 2/0 held a Certificate of Competence for C/O and was being considered for promotion. He completed an enclosed space entry training course in August 2017. He was reported to be well-respected by the vessel's crewmembers.

21. The Pumpman had 15 years of sea experience on vessels in the Company's fleet. He was promoted to AS-D in 2010 and completed a Pumpman training course in 2017. The course included training in enclosed space entry procedures and using gas detection instruments. He was promoted to Pumpman when he joined *Hallam* on 20 January 2018.

7 It was not reported why the ambulance did not arrive until 0915.

22. The AS-D had about seven years of sea service, of which two years were in rank. He joined *Hallam* on 20 January 2018 and was on his second contract with the Company. He had not received any enclosed space entry training other than that received during participation in enclosed space rescue drills.

23. The OS1 had been sailing on tankers since 2010, but it is not stated in the available documents in what capacity he served prior to this current contract. He joined *Hallam* on 20 January 2018.

24. The OS2 had approximately 11 months of sea service before joining *Hallam* on 20 January 2018. He was on his first contract with the Company.

25. The Master, C/O, and the crewmembers involved with this task had received the amount of rest mandated by the International Maritime Organization's (IMO's) Seafarers Training, Certification and Watchkeeping (STCW) Code,[8] Section A-VIII/1, paragraphs 2 and 3 and the International Labour Organization's (ILO) Maritime Labour Convention, 2006 (MLC, 2006), regulation 2.3, prior to the incident.

Safe Work Procedures and Emergency Readiness

26. As required by the IMO's ISM Code, the Company's SMS included detailed procedures for shipboard tasks that included requirements for enclosed space entry, the use of personal protective equipment (PPE), the use of a tagging system to ensure proper accounting of crewmembers working in an enclosed space, conducting a pre-task hazards assessment or Toolbox Talk using guidance provided in staff notebooks carried by all crewmembers, and issuing a permit to work when conducting various shipboard tasks. The Company's procedures also include a "Stop the Job" policy, which allows any member of the crew, regardless of rank, to demand that work on a particular job be stopped if they observe an unsafe action or perceive that something is unsafe.

27. As part of their familiarization training, each seafarer on board *Hallam*, including those who entered the port slop tank, were made aware that a permit to work was required before entering an enclosed space.

28. In accordance with the Company's drill matrix, enclosed space entry and rescue drills are required to be conducted every two months.[9] The most recent drill was conducted on board *Hallam* on 13 July 2018. The 2/O, Pumpman, AS-D, and each OS participated in this drill.

PART 3: ANALYSIS

The following analysis is based on the Findings of Fact.

Onboard Management of Risk

The Company has a detailed SMS in place as required under the ISM Code. It is apparent that the procedures for precautions to be taken prior to and during enclosed space entry and enclosed space rescue were not followed

8 As amended by STCW/CONF.2/34, The Manila Amendments to the Seafarers' Training, Certification and Watchkeeping (STCW) Code.

9 On 21 June 2013, the IMO adopted amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, Chapter III, Regulation 19, to require that confined space entry and rescue drills are performed at least once every two months. This amendment entered into force on 1 January 2015. IMO Resolution MSC.350(92). These drills are to take into account guidance provided in the IMO Resolution A.1050(27) – Revised Recommendations for Entering Enclosed Spaces Aboard Ships. It is noted that these recommendations do not address the well-documented reaction by seafarers to immediately enter a confined space to assist a fellow crewmember.

by the three personnel who entered the tank. It is also noted that both the 2/O and Pumpman were experienced seafarers and both had received enclosed space entry training.

Although the AS-D refused to enter the tank because he knew it would be unsafe, he was either not forceful enough to "Stop the Job," as permitted in the Company's procedures or was ignored by the 2/O, who himself entered the tank. The Pumpman and OS1 also had the authority to "Stop the Job" but failed to do so before the 2/O entered the tank. Additionally, the Pumpman ignored the AS-D's attempt to "Stop the Job" and entered the tank. There were no witnesses to the OS2 entering the tank.

In statements recorded during the investigation, the "Stop the Job" policy was discussed. The crewmembers interviewed, including the Master, all stated that they were familiar with the policy.

Notably the only mention of a situation where a job was stopped during their time onboard was when there was a bunker spill on deck. In that incident, the C/O ordered bunkering operations stopped while the spill was cleaned up. This is not the philosophy behind the "Stop the Job" policy as it occurred post-incident, meaning after the oil spill had taken place. The policy's purpose is to help prevent an incident from occurring by stopping a job if someone is seen carrying out a task unsafely or an unsafe situation is perceived to be developing.

This may be an indication that the crewmembers involved in this case did not fully understand the reasons for the "Stop the Job" policy, or their authority to act within that policy. It also indicates crewmembers did not understand their obligations to "Stop the Job" regardless of how junior or senior the seafarer is who exercises this authority.

Pre-task Procedures

The generic risk assessment for discharging sludge that was included in the Company's risk assessment database was not reviewed by the C/O when the operation was planned or by the 2/O prior to starting the discharge operation. Further, there is nothing in the available documents to indicate whether a pre-task hazards assessment or Toolbox Talk took place prior to commencing discharge of the port slop tank. In the C/O's discussions with the investigator, it is documented that he discussed the job with the 2/O. However, there is no mention of any pre-task meeting with the other involved crew. In addition, both the Master and C/O stated that the planning for cargo slops and sludge discharge did not include any consideration that these operations would require entry into an enclosed space.

Human Factors

There is little known about the reasons why the 2/O, an experienced deck officer, acted as he did. He did not call either the Master or the C/O when the cargo slops discharge was completed. He directed the AS-D to enter the port slop tank, and after the AS-D refused to do so, he entered the tank himself. Based on statements from the Master and C/O, there was no apparent urgency to complete the sludge discharge operation, and the problem with the pump could have been rectified without anyone entering the tank. Based on his experience and training, the 2/O should have been well aware of the dangers involved in entering any enclosed space, and particularly one where there was, or had been, oil inside. He should also have been well aware of the Company's SMS procedures for enclosed space entry.

The response of both the Pumpman and OS2 entering the tank to render assistance is not unique.[10] Unfortunately, all too often seafarers have rushed into an enclosed space to assist their fellow crewmember(s) in distress, sometimes with fatal consequences. Both the Pumpman and OS2 had received training regarding the dangers associated with enclosed spaces, the procedures that should be followed to enter them safely, and the vessel's enclosed space rescue procedures. It is likely, however, that this natural response to assist a crewmember overcame their professional training.

IMO Recommendations

In 2011, the IMO adopted Revised Recommendations for Entering Enclosed Spaces Aboard Ships (IMO Resolution A.1050(27)). These recommendations focus on identifying hazards associated with enclosed spaces and the development of procedures for enclosed spaces to be entered safely. These recommendations are referenced as the basis for ensuring that the enclosed space entry and enclosed space rescue drills required by SOLAS Regulation III/19.3.6 are conducted safely. A danger not identified in the IMO recommendations is the natural response of seafarers to rush into an enclosed space without following proper procedures.

PART 4: CONCLUSIONS

The following conclusions are based on the above Findings of Fact and Analysis.

1. The direct causes of the deaths of the 2/O and Pumpman, and the serious injury to the OS2 include:
   (a) improper supervision and decision making by the 2/O; he failed to stop and consider the risks to personal safety and ignored his professional training by instructing the AS-D to enter the port slop tank; then he entered the tank himself after the AS-D refused to do so on the basis that it was unsafe;
   (b) failure of the 2/O to "Stop the Job" when asked to;
   (c) failure of the Pumpman to "Stop the Job" as soon as he recognized that the 2/O intended to enter the tank;
   (d) improper decision making, firstly by the Pumpman, and then the OS2, by failing to consider the risks to personal safety and ignore their professional training to enter the tank without any protective equipment to try to assist a fellow crewmember; and
   (e) the 2/O, Pumpman, and the OS2 each being overcome with toxic or poisonous fumes within an enclosed space.

2. Basic causes of the loss of life and serious injury include:
   (a) inadequate pre-task planning, particularly with respect to addressing what must and must not be done in the event of equipment failure;
   (b) ineffective onboard implementation of the safe work procedures contained in the Company's SMS by not conducting a pre-task hazards assessment or Toolbox Talk with the team assigned to the sludge discharge operation; and
   (c) ineffective onboard training for crewmembers regarding the Company's "Stop the Job" policy.

10 It is noted there were similar incidents on board two other Republic of the Marshall Islands registered vessels in 2017 and 2018. Similar incidents are known to have also occurred on vessels registered under other flags.

3. An additional issue identified was that the guidance issued by the IMO regarding enclosed space entry does not, but should, address the dangers associated with the natural urge to assist a fellow seafarer in distress inside an enclosed space.

PART 5: PREVENTATIVE ACTIONS

The Company took the following immediate preventative actions based on their preliminary review of this very serious marine casualty.

1. A Circular Letter was distributed throughout the fleet detailing an account of the incident and instructing all vessels to suspend all non-critical activities on board each vessel until a special safety meeting is convened to:
   (a) brief the crew on board of the incident;
   (b) reinforce enclosed space entry procedures;
   (c) highlight the dangers of entering a confined space without proper protection; and
   (d) reinforce the "Stop the Job" authority if an activity is perceived as unsafe or of concern.

2. Masters were directed to conduct an enclosed space entry and enclosed space rescue drill at the earliest opportunity, and to not allow any enclosed space entry until after this had taken place.

3. Masters were directed to confirm to their respective management offices when the safety meeting and drill had been completed.

4. The Company contracted a third party to assess the safety culture on board *Hallam* and in the Company's office.[11] On completing their own investigation into the incident and the third-party's assessment of the onboard safety culture, the Company undertook several additional preventative actions related to:
   (a) enclosed space entry;
   (b) human factors;
   (c) onboard safety culture;
   (d) seafarer appraisals and promotions; and
   (e) management of engine room sludge.

5. Preventative actions taken related to enclosed space entry include amending the applicable SMS procedures to:
   (a) require that additional fixed barricading or additional physical restriction be put in place to deter unauthorized entry into an enclosed space when such entry has not been planned and prepared for through a Toolbox Talk or other pre-task meeting;
   (b) enhance the procedures for conducting enclosed space entry drills to include practical exercises;
   (c) review and discuss a podcast addressing enclosed space entry that was produced by the Company;

11 The Company provided a copy of this assessment to the Administrator. The assessment, which was based on interviews of *Hallam's* officers and crew, raised several issues, including how the Master, the C/O, and the 2/O were perceived by the crew.

(d) require that superintendents' visits include surprise enclosed space entry and enclosed space rescue drills and report crew performance to the Company's shore staff; and

(e) require that all crew joining vessels in the Company's fleet undergo enclosed space entry computer-based training (CBT) during their pre-joining briefing.

6. A Safety Coach attended *Hallam* to conduct training on risk assessments and enclosed space entry to review and, as deemed appropriate, revise generic risk assessments related to enclosed space entry.

7. Preventative actions taken related to human factors include:

(a) requiring psychometric assessment for all new seafarers joining the Company, and the testing to be carried out once every five years to assess the "suitability of an individual to operate safely in a dynamic and high-risk environment by complying with all rules and regulations;"

(b) efforts to improve seafarer and shore staff awareness regarding the adverse impact that the absence of social events can have on crew moral; and

(c) efforts to improve sea and shore staff awareness regarding how different national cultures interpret and respond to interventions.

8. Preventative actions taken related to safety culture include:

(a) providing additional one-to-one training on the "Stop the Job" policy to all pre-joiners, followed by additional reinforcement of the policy by Masters when the seafarer joins a vessel;

(b) requiring strict implementation of the Company's "Just Culture Policy" for minor non-compliances with established procedures for near-misses due to violations of established procedures;

(c) advising Masters and other senior officers of the importance of ensuring safety circulars and safety campaigns to all seafarers;

(d) initiating a "Come Home Safe" campaign where personal messages from seafarers' family members will be shared with fleet vessels for discussion in safety meetings in the hope that these messages will have more impact on crews;

(e) providing training to superintendents with special emphasis on pre-task planning and use of tools such as risk assessments and change management based on the lessons learned from the enclosed space incident that occurred on board *Hallam*; and

(f) initiating monthly Safety Culture Committee meeting to follow up on the Safety Climate Assessment outputs.

9. Preventative actions taken related to the procedures for assessing and promoting seafarers include:

(a) amending procedures for evaluating and training senior officers;

(b) amending the performance appraisal to include aspects related to the onboard safety culture; and

(c) providing training to superintendents and senior officers to improve their competence for conducting more effective performance appraisals.

10. Preventative actions being taken to improve the management of engine room sludge on board *Hallam* include:

(a) removing piping connections used to transfer engine room sludge to the port slop tanks and updating the applicable drawings; and

(b) having the vessel's Supplement to the International Oil Pollution Prevention Certificate amended to not include the port slop as being accepted for the storage of engine room sludge.

11. Additional preventive actions being taken by the Company include:
    (a) developing and implementing tools to facilitate the completion of psychological and competence assessments;
    (b) reviewing appraisals of Masters to verify that identified areas requiring improvement or required training have been completed;
    (c) reviewing operational risks for vessels operating in West Africa and Venezuela, with particular emphasis on issues related to supply chain management and completing the required training for seafarers; and
    (d) revising the Company's job-planning module to help seafarers better ensure that the risks associated with a task are assessed and that existing assessments are reviewed.

The Administrator agrees with these actions.

The Administrator has taken the following action:

1. Issued Marine Safety Advisory (MSA) 23-18 on 30 August 2018 reporting preliminary findings based on the Administrator's marine safety investigation of the enclosed space entry incident that occurred on board *Hallam* and ones that occurred on board other Republic of the Marshall Islands registered vessels. The MSA also included recommendations for ship managers and Masters regarding enclosed space entry and enclosed space rescue procedures.

PART 6: RECOMMENDATIONS

Safety recommendations from the Administrator shall in no way create a presumption of blame or liability.

Taking into consideration the preventative actions that have been taken by the Company and the Administrator, it is recommended that the Administrator consider submitting a proposal to the IMO to amend resolution A.1050(27) to include a recommendation that shipboard enclosed space entry training addresses that the best way for a seafarer to assist a fellow seafarer inside an enclosed space is not to enter the space, but to immediately raise the alarm so that an organized rescue can be conducted in accordance with established procedure.

The Administrator's marine safety investigation is closed. It will be reopened if additional information is received that would warrant further review.