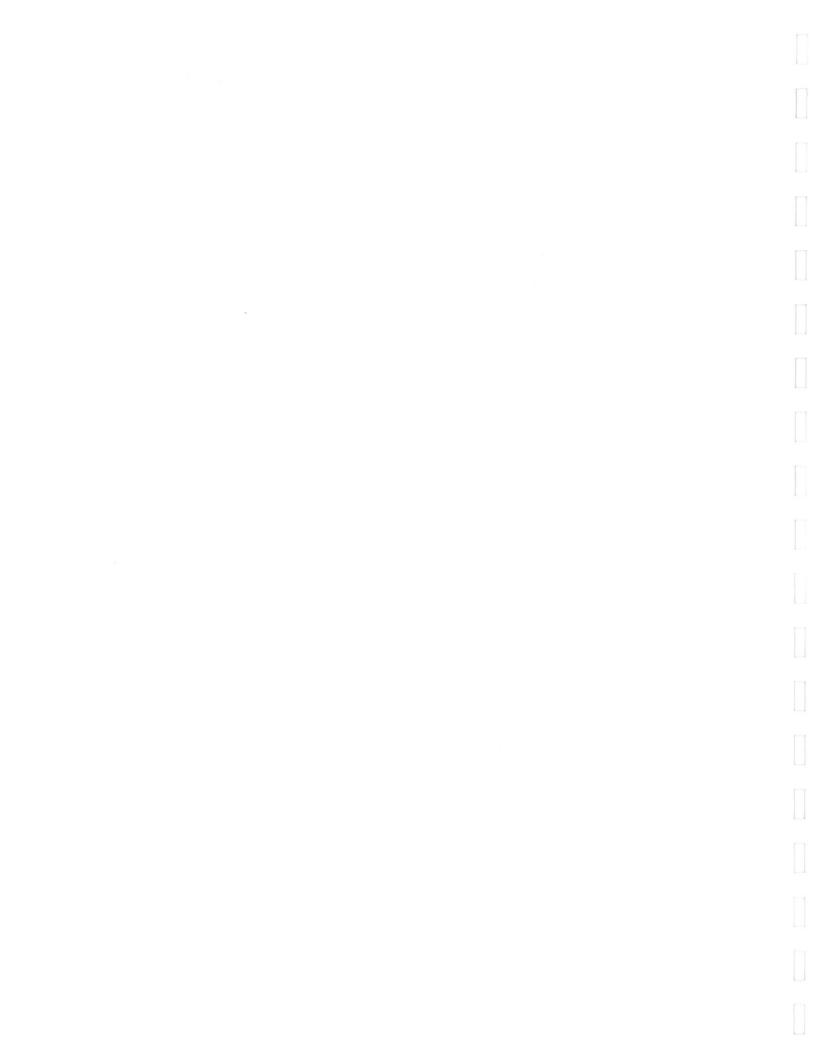


COMMISSION OF ENQUIRY

appointed to enquire into the tragic incidents which occurred on 25th February 2022 at facilities owned by Paria Fuel Trading Co. Ltd located at No. 36 Sealine Riser on Berth No. 6, Pointe-à-Pierre

REPORT







COMMISSION OF ENQUIRY

appointed to enquire into the tragic incidents which occurred on 25th February 2022 at facilities owned by Paria Fuel Trading Co. Ltd located at No. 36 Scaline Riser on Berth No. 6, Pointe-à-Pierre

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30th November 2023

Her Excellency Christine Kangaloo, ORTT President of the Republic of Trinidad and Tobago Office of the President Circular Road St. Ann's Port of Spain

Dear Madam President,

Thank you for your forbearance in awaiting the delivery of this Report. When you appointed me to take over from retired judge Mr Justice C. Dennis Morrison, OJ CD KC on the 6th July 2022 I did so with equal measure of humility and trepidation. Within a few weeks of reading into the papers, I took the view that this could and should be done within the short timeframe you had imposed ie 6 months of our first sitting. That was 7th September 2022. I apologise for having failed you in that regard, as the burden of the material to be considered burgeoned well beyond what I had anticipated. Today, somewhat later than planned I have the honour to present you with our Report.

Leaving aside any blame one cannot help but be deeply moved by the tragedy of it all. I for one cannot forget the words of 11 year old Aliyah Henry;

When I got word of my father stuck in a pipe at Paria, I froze to know that, but I prayed and prayed that my father and his friends will be safe,

Mr. Jerome Lynch KC: Chairman of the Commission Mr. Gregory Vöjoz Commissioner

I went down to Paria with my mother ... praying for a miracle, for my father and his friends. However, same didn't happen.

We trust that the government will choose to publish this Report promptly and that it will thereby provide some solace to the stoicism of the victims and their families.

It is right that I should single out Christopher Boodram for his undoubted commitment in doing all he could to help his friends and colleagues on that fateful day in the pipeline and then in coming before us to give his evidence. That was not easy. He is a credit to his family, the people and the country of Trinidad and Tobago.

This Report would have been hampered and delayed yet further but for the commitment to it from the Hon Stuart Young MP, our resolute commission secretary Sarah Sinanan, an extraordinary legal team headed by Ramesh Maharaj SC and my stalwart co-commissioner Gregory Wilson.

I save the highest praise for the public, their patience, diligence and the way they have embraced me in their midst. Thank you all.

Your servant,

Jerome Lynch KC Chairman of the Commission of Enquiry

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EXECUTIVE SUMMARY

This summary is necessarily very brief and seeks to set out only the material findings and the approach taken to the task.

PRE-INCIDENT

1. The Report examines the Tender, Contract and HSE documents in respect of the project:

(a) The Invitation to Bid dated 10 February 2021

This document sets out the detail required to permit interested parties to formulate a view as to whether they could undertake the works. It permitted enquiries for further information in writing within 6 days and required the final response to be submitted by 23 February 2021. It included a reference to Paria's general working procedures and required a large number of documents to be provided by the potential bidder. Nothing of importance turns on this document.

(b) Scope of Works - SOW:

This is the contract between the parties providing the basis for their relationship; importantly it incorporates the Permit to Work System employed by Paria as a control on the works to be done.

The following are the main conclusions of the Commissioners in relation to the Scope of Works:

- (1) The removal of hydrocarbons from the section of the isolated pipeline was a prerequisite for the carrying out of the works. The isolated section was between Berths #5 and #6. Clause 2.1 describes the elements of the project as including but not limited to the removal of fuel oil from the line with Zero Spill and requires the Bidder to submit a detailed Method Statement (MS) identifying elements of the project showing the contractor's procedures for the carrying out of the work. The amount of material to be removed from the pipeline is not specified.
- (2) The estimated volume of product between isolation points at berths #5 & #6 is identified in clause 3 as 2000bls. This is

the volume of material which existed in the underwater line. If it is supposed that LMCS is to remove the entirety of the material to "clear the line", it is highly relevant. However, if all that needs to be done is the removal of sufficient of the material to create an ullage below the water line, then it is of no moment.

- (3) The Contractor was required to submit a MS setting out the method for carrying out the job as a step-by-step guide to the works and that it is for Paria to reject, amend, delete and/or re-order those steps (clause 2.1).
- (4) (i) The Scope of Works incorporates the Permit to Work system imposed by Paria which in turn makes the "Applicant" under the system responsible for supervising or maintaining oversight of the works. Clause 3.0 – Basic HSE principles, Clause 8.0 – Permit to Work/Standard Work Instructions/Safety Rules and 8.9 – HSE Requirements for Contractors, all require the contractor to follow the Permit to Work System.

(ii) We are in no doubt that the PTW system is incorporated into the contract as a term of the contract and was intended to be so. The use of imperative language does not suggest that it is no more than a "general guide" as suggested by Mohammed and Archbald of Paria.

(iii) Contrary to the submissions of Paria and Kenson, we are of the view that there is nothing inconsistent in the working or clear intent behind the PTW system. The SOW is replete with references to Paria's role and requirements that PTW be followed by all contractors, in particular that everyone working at the facility must be trained in the POW system first.

(iv)The central purpose of the PTW system is to control risk at a plant owned and operated by Paria. The idea that Paria can unilaterally derogate from it (as submitted by Paria) because in the mind of one of the parties (Paria), unbeknown to the other, there is an apparent conflict between the clauses of the SOW and the PTW, is as foolish as that sounds.

- (5) In addition to the clauses incorporating the PTW System, the following clauses demonstrate that Paria's responsibilities included contemporaneous oversight:
 - Clause 3 refers to the requirement of a video stream to be provided top side during work activity for Paria's representative. It is our view it is reasonable to assume that Paria's representative could and would monitor the work and have a video record of it.
 - Clause 4 sets out Paria's responsibilities which bespeak of contemporaneous oversight and acceptance of works.
- (6) Clause 5 sets out the Contractor's responsibility which includes the supply of full-time supervision, in addition to Paria's responsibility of contemporaneous oversight. The responsibilities of the Contractor included the maintaining of permits to execute the entire job. The Contractor was required to become familiar with and conform to Paria's PTW Procedures.
- (7) Suitable and sufficient risk assessments or job hazard analysis for review by Paria for all activities and for all work permits, were required (Clauses 4 and 5.16). In none of these documents which passed between Paria and LMCS was the issue of Differential Pressure or Delta P (Δ P) ever raised. This was a primary failure and as identified in the expert report, a root cause of the accident.
- (c) <u>Addendum to the SOW dated 10 May 2021</u>- which refers to the Contractor being responsible for the safe removal of hydrocarbon from the line and to ensure that the line is "*clear and dry*". When Mr Wei was asked about the meaning of "clear and dry", in evidence he agreed with the suggestion that the words were "at best ambiguous" after having said that he conceded that it could mean the entire line was to be drained.

(d) <u>Health, Safety and Environment, HSE, Risk Assessments, JHAs</u> and the Dive Plan.

- Notwithstanding that both Paria and LMCS have claimed to give some consideration to ΔP the fact is it is simply absent from any HSE document at all.
- Both LMCS and Paria claim that at the tendering stage an ullage of 30" was stated to be the desired quantity of material to be removed from the pipeline and no more.
- ΔP is not a heading in a HSE document as an issue to be considered? It is not part of a Risk Assessment prepared by LMCS, even if only to be rejected. Such is the nature of this hazard for divers (not just commercial), that it simply must not only be a consideration taken into account by HSE but must be seen to be so.
- For instance, the Dive Plan is designed to force the dive supervisor to see the potential risks that might exist and either reject it or mitigate it. It is simply not enough to say "we considered it and rejected it or eliminated it." Without that being demonstrable.
- Similarly, the job safety analysis or JSA produced by LMCS is a proforma with headings "Work Tasks", "Potential Hazards" and "Control Measures". No mention of ΔP no matter how remote is identified. It should be. As a consequence, the Emergency Response Plan made no reference as to what to do in the event that there was a ΔP event and the employees of both Paria and LMCS were ignorant of the risks.

(e) The Permit to Work Procedure (POW):

- The PTW procedure is dated 1 October 2019 and does not appear to have been revised since. The next review was to be on 30 September 2020 but there was no evidence that it had been reviewed.
- It is a documented, formalized procedure for the control of risks associated with the works being undertaken at the site. It places

the burden of considering the risks associated with the works on both the Contractor and the Company.

- It identifies who makes the application to do a job, who authorizes the job, who develops the necessary precautions and who gives approval for work to commence.
- It clearly identifies the high hazard work and the requirements/ precautions to be followed.
- The document defines a Method Statement (MS) as a document that details the step-by-step approach to a task or process or procedure is to be executed. It outlines the hazards associated with each step.
- The MS is intended to provide a clear statement of the work to be done, how it is to be done and crucially, the order in which it is to be done. It must identify the hazards associated with those steps. It is a matter for the company to determine if it is in accordance with their understanding of the works to be done and to change it if not content.
- PTW 3.0 The whole procedure is under the remit of the General Manager, Colin Piper.
- PTW 5.0 Sets out the roles and responsibilities of various designated parties. Irrespective of your designation, there was a power to STOP the job and consult with the supervisor if there is any doubt on the job, steps or safety precautions or if conditions change.
- PTW 5.1 The "Applicant" who was Marjadsingh (a Kenson employee working for Paria). He had been working for just 6 months as a maintenance technician under the daily direction of Rampersadsingh (Paria). The Applicant initiates the job by completing Section A of the PTW form. He must have the "necessary competence to execute the job or supervise the execution of the job". He shall be knowledgeable of the hazards associated with the job and the necessary controls for those

hazards. He is responsible for the job and the safety of the people who work on the job.

- PTW 5.3 "Site Authority". This was Ramdhan. (Paria) His responsibility included the issuing of the Work Permit and to "periodically monitor". In the view of the Commissioners, this is in addition to the responsibility of the Applicant and ought not to be delegated to him.
- PTW 5.6 "Contractor Official". This was Rudolph Gonzales. He was also required among other things to have a clear understanding of the job, have knowledge of the hazards and be responsible for the work and remain on the site at all times.
- The Commissioners have struggled with Paria and Kenson's lawyers' interpretation of the contract by which they reject parts of the PTW system as being active because they say the SOW trumps it. They argue that there is no point in both Paria and LMCS "supervising" the works. However we find that LMCS having a supervisor on hand at all times together with Paria overseeing the work makes completes sense where hazardous work is being undertaken having a belt-and-braces approach.
- (f) The Project Execution Plan dated 6 May 2021
 - This was submitted as part of the tendering package.
 - Contains a Section for the Procedure and removal of line content. It refers to removal of liquid content from sealine 36 of sufficient content to allow for section of pipe to be replaced. That was to be achieved by using an air driven pump to remove 300 barrels of line content into slop barge. Once the level in riser dropped to 35 feet line plugs were to be installed.

LINE CLEARING

 The Report also establishes the facts and circumstances of the line clearing process which ultimately led to creation of the latent hazardous ΔP condition which became active when the men removed the inflatable plug:

- Line clearing was done in two phases. Phase 1 involves the removal of content from the topside and phase 2 involved the removal of content from the subsea line. The originally proposed method of air pumping was changed to air blowing.
- LMCS prepared two method statements containing a step-by-step guide for the line clearing MS 108 and MS 115.
- Paria also created a Work Instruction "Clearing of 36SL Section between Berths #5 and #6. This Work Instruction was sent to LMCS.
- The Commissioners accept that the Work Instruction contains matters that only Paria employees can carry out but equally it contains matters which only the contractor can carry out. It is plain to the Commissioners that the Work Instruction was used both by Paria and LMCS personnel even if it could reasonably be argued that this was not Paria's intent.
- The Commissioners are satisfied that the Work Instruction was in fact used (whether intended or otherwise) by those responsible for line clearing that is LMCS personnel, and overseen by Paria personnel.
- Even though nothing in the Work Instruction or MS's suggest that only an ullage was to be achieved, the Commissioners are forced to accept that both Paria and LMCS personnel say that they only intended to remove sufficient material from the line to create a 30' – 40' ullage.
- However, what in fact occurred based on the contemporaneous daily reports was that at least 331 barrels of hydrocarbon was removed from the underwater Sealine 36 between berths#5 & #6 during the Phase 2 air blowing.
- Whilst there may have been an initial view taken by LMCS to drain only that part of the line that was necessary to create the desired ullage that is not how the work was finally conceived or performed. If that were the position, it is remarkable in the extreme that both

LMCS' Method Statement and Paria's Work Instruction omitted such an important fact, not least because it would have saved on time and money.

- There was on its face a completely different approach taken to the clearing of Sealine 36 by Paria than originally conceived by LMCS (if it were ever so).
- With respect to use of the words "*clear and dry*" in the Paria's 10 May 21 SOW addendum and "*clearing*" in Paria's Work Instruction, the Commissioners conclude that clearing to them means just that - clear the line. If it was to mean something else, it is essential that it is spelt out in the most explicit of terms so that everyone knows what is intended and what is expected. It is at best ambiguous.
- The Commissioners accept the evidence of Zaid Khan (expert evidence) that it was the removal of the content of the line both with respect to the quantity and method that was the underlying factor which led to the incident. The technique deployed definitely removed an excessive quantity of material from the Sealine and changing the method from using an air driven pump to suck the material out, to forced air-blowing to push the material out resulted in a dramatic increase in the risk profile of the job.
- Whilst it may have been Ali Snr's initial intent to only remove the necessary amount of material from the pipeline prior to installing the barriers (the 30'/35' ullage), no one examining LMCS' Method Statements or Paria's Work Instruction said, "do not clear/drain the line", or "drain only sufficient to the require ullage", no apparent consideration was given to the topography of the pipeline, no regard was given to the implications of changing the methodology from pumping to air-blowing and worse of all no one had any regard to the actual amount of fluid that was being blown out of the pipeline.
- The Commissioners are forced to accept that both Paria and LMCS personnel both say that they only intended to remove sufficient material from the line to create the necessary ullage even though that is not what was the contemporaneous documents suggest. In truth this was a shared responsibility between Paria and LMCS.

During the evidence a number of witnesses conceded that the language used was ambiguous. It is our view that it was plain misleading.

 Given the serious implications of getting this wrong, it is nothing short of irresponsible to use language such as the parties did. Had an expert been brought in by Paria or LMCS to independently review the MS and play a hand in the Work Instruction this would almost certainly have been spotted as a potential hazard and been eliminated.

REMOVAL OF THE PLUGS

- 3. There is a dispute between Paria and LMCS on the issue of whether the plugs were to be removed on 25 February 2022. LMCS says it was part of the work plan for that day whereas Paria says it was not and that the removal of the plugs constituted a serious breach of its PTW procedure and constitutes work which was not authorized. Wei says that the removal of the migration barriers by LMCS also opened the differential pressure between the pipeline and the chamber, which is likely to have caused a powerful and immediate suction affect which pulled and entrapped the divers inside the pipeline and ultimately caused the death of the four of the men.
- 4. In considering this issue the report examines the following and comes to the following conclusions:
 - (a) <u>Method Statement 116</u> (dated 4 January 2022) the substantive works on berth #6:
 - We are of the view, having heard and read all the evidence on the subject that the purpose of this document was to provide a stepby-step guide to the works that needed to be done.
 - It is the most recent document setting out the work to be done and the order in which it is to be done. It was signed as accepted by Paria's Technical team.
 - Paria's own PTW system describes it as a "step-by-step approach".

- Section IV of the MS involves the removal of the leaking section of the riser with no less than 28 separate steps. On analysis it is selfevidently intended to be a methodical approach to the work.
- Steps 56 and 57 were the removal of the plugs. This was to be done before the new section of the riser was to be installed. The men clearly believed that they were required to be carry out the work as set out in the MS but in any event, they had to remove the barriers at this time.
- Paria was aware of the steps and no one saw a problem. ΔP was not considered by any party before the works began and tragedy struck.
- That there may have been other, no doubt, good reasons for not removing the barriers, should of itself have ensured that when the barriers were being removed someone would have stopped the job, as was within their remit.
- Clearly the barriers had to be removed at some point because the MS identifies the re-installation of them at Part VI of the LMCS MS 116 step 86.

(b) Toolbox Meeting on 25 February 2023:

- There was a toolbox meeting on the morning of 25 February at Berth #6. LMCS says that the removal of the plugs was discussed and Paria says it was not.
- We are quite certain that the dive Team believed the job on that day entailed the removal of the plugs. Why else would they have removed them?
- In order for them to believe that, there simply must have been some instruction from someone to do so, the only person present with that authority was Ali Jnr.
- On the 4 January 2022 LMCS produced its MS in anticipation of the resumption of the remaining works. It was passed through

many hands at Paria. No one ever said there was anything wrong with it.

- The Commissioners are unpersuaded of the value, much relied upon by Paria, that the Toolbox Meeting Form fails to mention the removal of the migration barriers. The Form does not mention the jobs for the day at all. Yet no one seriously suggests that there was to be no work done, or that Ali Jnr did not address the tasks for the day.
- The removal of the barrier at this juncture whilst not desired by Paria predicated on not dropping anything into the line and not allowing gases to escape. It was not predicated on a fear of creating a ΔP crisis.

(c) Work Permit No. 9320

- The Permit to Work did not expressly list the removal of the barriers and indicates that the barriers are to be used.
- The Permit to Work system is important it is the most powerful control document. It is the penultimate point of contact between the contractor and company that identifies specific tasks to be completed.
- It does not set out the work for that day only. It can last up to 7 days and can be used for all of the works set out in it and as many days of the week as it necessary to complete the works provided it is surrendered at the end of each 12 hour shift.
- There are problems in the layout of the document, for eg. there are only 3 lines to list the specific tasks to be completed.
- Section A was filled out by Marjadsingh (Kenson for Paria) from information he got from Rampersadsingh (Paria). The works listed on the document were not all the work to be done on Friday 25. It is clear that the works were to the conclusion of the job as a whole. The tasks are not listed in the right order.

- The method statement is attached for a reason. In our view it sets out the work to be done, the order in which those works are to take place, and crucially the HOW.
- The wording suggests that the line was drained.
- The documents identified in Section B are attached for a reason. The works identified in Section A can be no substitute for the more detailed Method Statement.
- 5. The Report also analyses the evidence to determine whether there were failings on the part of designated parties under the **PTW procedure** including:
 - <u>Dopson</u>, the Competent Person, under the scheme would have identified the deficiencies in the Method Statement and the potential adverse consequences – there's no evidence he even read it.
 - <u>Ramdhan</u>, the Site Authority, under the scheme, he was required to "periodically monitor ongoing work either in person or through his team to determine whether the site conditions and precautions have been maintained". It is doubted this was achieved through Dopson or Scott.
 - Marjadsingh, the Applicant, under Paria's PTW system the role of Applicant is crucial to the safety of the persons engaged on the project. Marjadsingh was clearly incapable of performing that task. His experience was in pipe fitting, fabricating and "mechanical wise". He had no experience in offshore subsea maintenance. Why on earth he was appointed as Applicant to undertake this hazardous work remains a mystery?

Since it is Paria's task to pick a suitable person to carry out the tasks of the applicant, and theirs alone, it rather begs the question as to how the contractor, LMCS were to know anything of the Applicant's capabilities or background, be it good or bad.

 Marjadsingh agreed that he did not attend the toolbox meeting at Berth #6. He agreed that he was wholly unaware of whether the barriers in the pipeline were to be removed or not. It follows that even if he had been monitoring the works and seen the barriers being removed it would have been unlikely to have trigged him to stop the works.

- Any contractor, and in particular his employee, is entitled to believe from his reading the PTW procedure that they would been overseen by either someone competent to do the job themselves or competent to supervise the job. This would, provide a basis in the mind of the potential contractor for there to be professional, competent, independent scrutiny of the execution of the job providing reassurance that their MS and planned work is safe. This is irrespective of the contractor's requirement to supervise their own staff and the works.
- The Applicant has very considerable power over the job and those carrying it out, but necessarily be needs to be competent to be able to exercise that power. In the commissioners' view, Marjadsingh was not. However, whilst he did as he was bid by Rampersadsingh from Paria, this does not mean that he cannot exercise his own judgement. He had been trained in the use of the PTW and must have known his role and that he was not able to perform that task.
- This is largely a failing of Paria and in particular Rampersadsingh and by extension Wei for appointing him when they must have appreciated he was not capable of supervising the works under their own policy.
- Marjadsingh did not attend Berth #6 at all until 2:30 on the afternoon of the 25th just minutes before the incident occurred neither did he attend the Toolbox meeting that morning even though the signed it as having been present.
- One of the reasons for Paria to "continually monitor" was to ensure that nothing was done that should not have been done so that they could exercise their "stop all works" rights. If Marjadsingh was not at the toolbox meeting, or at Berth #6, how could he possibly do his job?
- Paria's appointment of Marjadsingh to the role of Applicant was highly questionable. This was complicated and dangerous work.

Their POW System required Marjadsingh to be competent to execute the job or to supervise its execution. He could do neither, but he should not have been asked. There is no doubt that this was the kind of job where in the absence of having in-house expertise an outside expert independent contractor should have been brought in as the Applicant. There was room in Paria's own budget for the works to do so.

THE INCIDENT

- 6. The Report also addresses the evidence of what occurred on 25 February and also of the incident itself:
 - The mechanical plug was removed shortly before lunch. This was done by Boodram. The entire process from the time of the removal of the mechanical plug to when the ΔP was trigged took approximately 1½ to 2 hours according to Boodram.
 - Boodram, Henry, Kurban, Nagassar were in the Chamber as the inflatable plug was being removed after lunch. Ali Jnr brought a spanner to assist in the release.
 - Moments later the sea level began to rise. According to Boodram within a second it felt like a tornado and all the men were pulled into the pipe.
 - On the monitor Farah saw a splash on the screen and it went blank.
 - The report sets out the evidence of Boodram and concludes as follows:
 - (a) While it is true that no one knew for sure that the men were sucked into the pipe it was a real possibility as neither they nor any equipment was found anywhere around the seabed.
 - (b) That there was no one waiting in the Habitat at all to monitor the pipe is lamentable. As a bare minimum fresh communications, a camera and lights should have been positioned in the chamber. It was effectively abandoned.

- (c) Boodram may not have been in the best state of mind when he emerged but no one at that time asked him anything about the men, the conditions of the pipe or anything pertaining to the event.
- (d) There is no reason to doubt the veracity of what Boodram told the enquiry.
- 7 The report also addresses the role played by Farah and Ali Jr. The following are the conclusions on this issue:
 - There is no way, Farah, as supervisor, should have undertaken the additional role of stand-by diver.
 - Nowhere in the Dive Plan dated 10 May 2020, is there any check of the issue of ΔP and there should be.
 - The Commissioners have not identified any qualification that he holds in order to be a dive supervisor. The Commissioners would have expected to have seen some training in that regard and an understanding of his responsibilities but that was not demonstrated.
 - It was improper to appoint Farah as the Dive Supervisor at that time. He was not a trained Dive Supervisor.
 - It is questionable whether having four divers in that habitat at any one time given the limited space to work, and the need to swap the divers for rest periods was a proper or wise use of the personnel to carry out the work.
 - Unless especially justified there should not have been 4 men in that habitat at any one time, but we do not conclude that it was wrong in principle.
 - Kazim Ali Jr's. roles on the day was Operations Manager/Supervisor, dive attendant and standby diver. Once again these are not roles that can properly be combined. The proper application of any recognized dive standards would not have permitted any one person to hold all three roles.

INCIDENT COMMAND SYSTEM

PARIA

- 7. In relation to Paria, the report addresses the following:
 - (a) The Incident Command System operated by Paria.
 - (b) The Incident Command Team Log as this a contemporaneous record of the events as they unfolded and what was being planned. It provides insight into the activities of the ICT.
 - (c) A workable timeline for rescue efforts as it was clear from the evidence that no one ever considered or applied any time-line to the work of the ICS.
 - (d) The failure of Paria to have enquired into the amount of material which was removed from the sealine before substantive works began.

Failure to apply a Workable timeline

- 8. A major flaw in its effectiveness of the ICS was a failure to have a timeline.
- 9. No one considered or applied any timeline to the work of the ICT and what that entailed at the time. Much had been said about the need for urgency but that failed to be translated into a coherent plan as to what could realistically be achieved in the time realistically available. This was Piper's primary responsibility.
- 10. What this could achieve is a guide to the work and plans of the ICS. At 2.45 they knew the men have gone missing. The head of the ICS should have been asking the following questions and then applying the crucial answers:
 - 1. Where are they? What are the possibilities?
 - 2. What caused their disappearance?
 - 3. If they are out to sea how long have they got before drowning?
 - 4. If they were in the pipeline what possible air supply could they have?
 - 5. At what point in time would they become saturated?
- 11. And then the asking by the ICS of what can be achieved in the first hour, in the second and so on. Whilst there is some evidence that the

first two of those questions were being asked, the remainder were not. Decision making must be driven by what can realistically be achieved in the time available.

- 12. If the primary responsibility of the ICS and any emergency plan is to preserve life. It follows that the faster one acts the more likely the victims can be saved. As time ebbs away so too will the possibility of saving life. This was to prove important as the possible rescuers would have wanted some realistic prospect of successfully recovering live divers from the pipeline before risking their own lives.
- 13. The ICT prohibited diving and never revisited that ban even when it had some camera footage. It never came up with a rescue plan at all even if the criteria could not have been fulfilled, assuming it considered at the time any of LMCS' plans it rejected them all as inadequate without offering any alternative. It failed to utilize any of the diving resources that were available by around 7pm that night and ultimately gave a disproportionately greater responsibility to the rescuers health than the lives of the divers in the pipeline especially given that no one was being ordered into the pipeline, it was only ever going to be voluntary.

Failure to discover the Pipeline Contents

- 14. No one in the ICS asked the department responsible for recording the amount of material removed from the line to provide the records that we have seen and were readily available at Paria's offices. No one enquired as to whether the line was "clear and dry", partially filled with hydrocarbons and now seawater as well or even what was in the pipeline before any works were undertaken to remove the material.
- 15. A common refrain of those in the ICS was "we do not know the condition of the pipeline". This is it seems was the starting point.
- 16. The men got sucked into the pipeline as a result of the ΔP but even if they were ignorant of the process the likelihood was that the hydrocarbons were going to be on the other side of the barrier and sea water on the people side.

17. It was Piper who was apparently determined to discover the conditions in the pipeline. Much of the line content was a matter that he could ascertain without the need for a camera. Once the line was isolated and its contents exposed, it was possible to know how much was needed to be removed to obtain the required ullage. Only Paria had these records but no one sought them when trying to discover the condition of the pipeline.

What was achieved in those early first hours?

- 18. The Commissioners believe that by midnight on 25 February 2023, the men would have been dead and therefore what was done in those hours up to midnight was crucial.
- 19. The Commissioners are unable to accept Piper's account that he or the ICS acted urgently or reasonably for the following reasons:
 - (a) The evidence of when professionals were contacted by Paria and arrived on site:
 - i. Mitchells arrived at 8.40 p.m.
 - ii. Eastern Divers were not contacted until 11.40 p.m.
 - iii. OTSL arrived at 8.00 p.m. with their ROV and camera but it didn't fit in the pipe and the light was not working.
 - iv. Hull Support Services was contacted at 4.30 pm but never went on the site.
 - v. Hummingbird was not contacted until 10.50 p.m.
 - vi. Atlantic LNG arrived at 9 pm with a pushrod camera but it was not inserted until midnight.
 - vii. Professional Inspection Service Ltd came with their borescope camera at midnight but was not deployed until 1.00 am,
 - viii. A crawler was inserted into the pipe at 3.00 am and the same was done at Berth 5 at 6.00 am.
 - (b) Apart from failed attempts to deploy cameras during the latter part of Friday evening the dive teams contacted by Paria and Heritage were placed on standby and were not consulted until the early hours of Saturday morning. This on

the basis of a rational, objective assessment would have been too late.

- (c) Piper lost sight of the information he already had and could garner without the need for a camera and lost sight of the urgency needed. This was due to what we have determined as his preoccupation with the conditions in the pipeline only utilising a camera. The conditions of the pipeline whilst desirable were not a prerequisite to carrying out a rescue or at least devising a plan. There were already considerable number of "knowns" about the pipeline and its condition such as its length, depth, age, material it had housed, shape and topography, how much was pumped out (as itemized in the report). Additionally, information could have been obtained from Boodram and Kurban.
- (d) Piper failed to calculate how much air each man needed to survive in the pipeline and to apply a timeline to the work of the ICS, which would have made him better informed. He could and should have been asking each professional dive team when contacted, what is your ETA? And how long before you can deploy, whether camera or diver? Had he done so he would have been able to assess whether it was even worth getting them before actioning alterative strategies.
- (e) The ICT never sought to satisfy themselves that they had (a) rescue diving plan, (b) a reliable regular air supply, (c) an emergency air supply, (d) communications and (e) means of extraction (all of which Paria's Archbald advised were necessary for an effective rescue attempt). All of those features on site save the rescue plan itself own one abandoned by Yearwood and Flemming-Holder. LMCS had some of the best divers and equipment available on site by 7.30 p.m. None were consulted by the ICT.
- (f) Balkissoon was dispatched to the berth #6 and was said by Piper to be "performing a critical technical role in the assessment of the pipeline conditions and the execution of the recovery efforts". The Commissioners are of the view

that she too failed in this endeavour. Balkissoon was unable to stamp her authority on the site and that in turn had a detrimental effect on coordinating any kind of rescue between the Company and the Contractor. Each appear to be acting in silo and to a degree blaming each other for the failure to rescue.

- (g) There was no revisiting of the no dive policy:
 - i. The Commissioners are not filled with confidence as to the accuracy of Piper's account that the no dive instruction was given at 18:25. LMCS says that they were told no diving before Boodram emerged from the pipeline. Piper in his witness statement says that at 18.26. He asked Paria's security to secure the incident site and to stop divers from entering the pipeline. At paragraph 109, he refers to asking the TTCG to take control of the site. This accords with a similar entry in the log at 18.24.
 - ii. A blanket declaration by Paria that there was to be no diving and TTCG seemingly authorized to enforce it was hardly going to lead to a spirit of cooperation. All the more reason for a direct intervention by the most senior men on each side Piper as the Commander of the ICS and Ali Snr as the owner of LMCS.
 - iii. Farah says he repeatedly asked Balkissoon to communicate the plans to Piper but was met with a no dive policy.
- (h) There was no Plan B:
 - Piper knew all the Etas for the various equipment. It made no difference as there was no Plan B to effect a rescue of the men from the pipeline.
 - ii. As a result of the wrong cameras being either without light or too big or delayed arrival/deployment and the various blockages in the line the ICT never got what they sought, but it was entirely predictable that they would not

have it, even assuming all went well, until after midnight. Piper's absolute outer limit as to the life expectancy of the men. Yet this never seems to have featured in the thinking of the ICT. There was no plan B for a rescue into the pipeline.

- (i) Piper agreed that he would only sanction a rescue if he knew the conditions in the pipe and that could only be achieved with a camera. Therefore, until, he had such footage there was no rescue. The limited footage that was obtained did not arrive until well after midnight. Too much time was lost trying to get the camera footage. No consideration was given to any alternative.
- (j) To give no consideration at all to any alternative was irresponsible. All realistic options should have been considered. Even if the camera revealed that which they sought, no plan to carry out a rescue had as been put in place. No attempt was made to engage with the country's best experts in commercial diving which had arrived on site.
- (k) Piper closed his mind to any alternatives without even hearing them. We regard that as a serious breach of Paria's duties under the ICS.
- (I) This is not to suggest that a rescue must inevitably be sanctioned but to recklessly close one's mind to alternatives carries the hallmark of a serious breach of duty, but which on the evidence we had heard, falls shorts of criminal liability in relation to Piper as an individual.
- 20. The following were lost opportunities:
 - (a) Rolph Seales, an experienced commercial diver assigned to Heritage from Kenson arrived at Paria at 8.20 p.m. Piper did not speak to him until after 9.30 p.m.
 - (b) Paria and Heritage personnel commenced a risk assessment after 9.00 pm but that was abandoned according to Flemming-Holder because he was called back to the ICT to

listen to what Boodram had to say. The fact that the Risk Assessment was not finished when Paria clearly determined it was both necessary and possible. This was another wasted opportunity for the ICT to have a proper risk assessment in front of them prepared by their own people.

- (c) Balkissoon did not speak to Kurban and she did not take steps to view the GoPro which the log reveals was recovered by Michael Kurban, she did not seek to ascertain any detail of the method of rescue proposed by LMCS personnel after the support divers had arrived and who had expressed a willingness to effect a rescue, she gave little or any advice or opinion to the ICS bearing in mind her role as stated by Piper.
- (d) LMCS or Subsea Global Diving Solutions were not brought into the picture. They were not utilized, consulted or even put on standby. Subsea Global Solutions arrived at Berth #6 at 7.15 p.m. They waited until 3 am when they asked for permission to leave but they were held on standby in case needed. This was a wasted opportunity to utilize their equipment if not their divers. No one from Paria's ICT spoke to them at all.
- (e) The ICT through Seales and HSE should have engaged directly with divers, oil men and HSE officers on the site. If a timeous, safe conscious plan could not be formulated and executed then, it never could. The upshot of the evidence is that it is difficult to conceive of any other equipment that might have been obtained to attempt a rescue. There appeared to be a clear lack of understanding between the ICS and the men on the berth who were willing to carry out a rescue.

LMCS

- 21. With respect to LMCS, the Commissioners are of the view that there should have been better communication:
 - (a) It would have been wise for Mr. Ali Snr to attend to ICT sooner than he did, if not by invitation by inveigling himself in to explain how he

wanted to rescue the men and to persuade them to permit diving on the pipeline. Having no one at the ICP was not going to help the members of the ICT understand the issues.

(b) LMCS rescue plan was not shared with the ICT. It should have been.

COAST GUARD

- 22. It is concluded that the TTCG had been requested to take control and had instructed the divers not to dive on (at least) the pipeline. It is also concluded that no TTCG personnel pointed his weapon at anyone in order to prevent any divers from entering the water, however, their mere armed presence may be enough to act as a deterrent to those who might have defied the general order not to dive in the pipeline.
- 23. Hargreaves failed to obtain all of the known salient facts before concluding that he could not carry out a rescue, although it is accepted that really all he needed to know was that these men were stuck in the 30 inch pipeline, but more particularly failed to communicate with the ICT in making it clear that he believed it may have been possible to carry out a rescue with commercial divers and equipment. The ICS did not appreciate that he was saying it was his men that were not able to carry out a rescue rather than no men should carry it out.

<u>OSHA</u>

- 24. The evidence of the officers of the OSH Agency are examined and in particular the evidence of the deletion of words from an Incident Brief Form which recorded the view of Dion Lawrence, an OSH Inspector present on 25 February, that there were no clear personnel in charge of the rescue efforts being conducted and no ICS in place.
- 25. The Commissioners are also of the view that it is concerning that nearly 20 years after the establishment of the Agency and Authority, there are still no compulsory guidelines for the commercial diving industry in Trinidad and Tobago.
- 26. Revised voluntary standards are unlikely to be achieved (due to the lack of consensus) and the only sensible route is to impose

compulsory regulations if lives are to be saved in the future. This will necessitate the use of powers provided under the OSH Act.

TREATMENT OF THE FAMILIES

27. In the view of the Commission, the way in which the families were treated was insensitive and uncivilized. The failure to keep them informed especially in the first 12-24 hours was shocking as was their failure to look after them. They should have been provided with basic shelter, toilet facilities and water and food ought to have been provided by Paria to comfortably accommodate them.

GENERAL DUTY OF CARE.

- 28. There is no doubt that LMCS had a duty of care towards its workers. LMCS breached that duty of care.
- 29. Paria also had a common law duty of care given the inherently dangerous nature of the work. That non-delegable duty of care arises in addition to LMCS duty of care. Paria was in breach of their non-delegable duty of care.

DUTY OF CARE TO RESCUE AND BY RESCUERS

- 30. Whilst there is no duty of care owed by a mere bystander in common law to rescue a person, the evidence established that Paria had a duty of care to rescue for the following reasons:
 - (a) As identified in the Report, there are additional features sufficient in this case to have imposed on Paria duty for it to take steps which would or might have avoided the death of LMCS divers in the pipelines.
 - (b) Paria as well as LMCS created the danger which resulted in the divers being sucked into the pipeline during the clearing of the pipeline. Given that they were both responsible for the hazard, they both had a consequent duty to attempt to rescue the divers.
 - (c) Paria assumed a duty of care to rescue the divers.
- 31. Paria made little or no attempt to rescue in that they failed to manage and coordinate the resources that were available. Whilst LMCS

divers willing and prepared to attempt a rescue they lacked coordination but were prevented from doing so in any event.

PROSECUTIONS

VOLUNTARY MANSLAUGHTER

32. There is not a strong enough case to recommend the prosecution of any one individual, however the law permits a corporation to be charged with manslaughter.

33. The Commissioners are minded to recommend to the DPP that on the evidence, they find that there are sufficient grounds to conclude that Paria's negligence could be characterized as gross negligence and consequently criminal. They recommend that the DPP consider charging Paria with what is commonly known as Corporate Manslaughter.

OFFENCES UNDER OSH Act.

- 34. The Report concludes that there is evidence to justify the prosecution of Piper and Ali Snr individually, Paria and LMCS as employers for a number of offences under the OSH Act.
- 35. However, at the time of writing this Report, the OSH Act requires that any such proceedings before the Industrial Court must be filed within 2 years of the incident becoming known in other words 24th February 2024.

THE EXPERT EVIDENCE

- 36. This Report examines the expert evidence of Mr. Zaid Khan and his recommendations, which the Commissioners reply upon and adopt.
- 37. In summary Mr. Khan concluded:
 - (a) that the root cause of the accident was the failure by both Paria and LMCS to recognize that a latent delta P condition, would have been created by the methodology used in the execution of the works with particular reference to the removal of fuel oil from SL36.

- (b) The removal of fuel oil from the line and the installation of the migration barrier created a large, gaseous void in SL36. This void served as the prerequisite for the latent delta P hazard ΔP that was created when the habitat was installed and the pressurized to facilitate work within the habitat.
- (c) The hazard was overlooked by both LMCS and Paria.
- (d) The latent delta P hazard existed at the onset of the works within the habitat and became active when the divers were attempting to remove the primary seal (inflatable plug) from within the riser.

OPENING OF THE COMMISSION OF ENQUIRY – 7 September 2022 CHAIRMAN'S STATEMENT

Today is our first day of this Enquiry and it is a Commission of Enquiry into all of the circumstances which led to the tragic incidents which occurred on Friday the 25th of February of this year at the facilities owned by Paria Fuel Trading Company Limited, located at 36 sealine riser on Berth #6 at Pointe-a-Pierre which led to the deaths of four employees of LMCS Limited. As I say, this is the formal opening by me, the Chairman, on behalf of the Commission. So welcome.

This is the formal opening into the deaths of those four divers and such an incident in a modern country, used to dealing with the extraction of oil and gas and the maintenance of machinery necessary to effect such extraction is both surprising and tragic in the 21st Century.

A hundred and ninety-four days ago, four men died when something happened that caused them to be sucked into а 30-inch pipe, stretching across the seabed from Berth #6 to Berth #5. It is right that we should remember them with sorrow and compassion, not just them but their families and friends who grieve for them. I would ask you please to join with me and observe a minute's silence as a mark of our respect for those men who have died and for those whose lives have been changed forever.

It is right that at the very outset of this Enquiry that I should express on my own behalf and on behalf of all, fellow Commissioner, Mr. my Gregory Wilson, Counsel to the Commission of Enquiry and the members of the Enquiry team, our heartfelt sadness at the suffering and despair caused by this loss of life. We are acutely aware that these men were fathers and sons, brothers and cousins, friends and colleagues. were breadwinners They and confidants who provided joy and succour to many. This Enquiry cannot bring them back but it can and it will provide answers to the

inevitable questions of how a tragedy of this kind could occur in today's society. In that, I hope that we will be able to provide some small measure of solace to all.

The facts are undoubtedly tragic and there are bound to be moments when emotion will get the better of some. Let us be understanding and caring. Similarly, there are bound to be lighter moments of levity and humour which creeps into everyone's daily routine. That does not mean that we do not take it very seriously indeed or that we lack empathy. Nothing could be further from the truth.

It is also right to observe that a disaster of this kind provided a unique challenge to the emergency services as well as to those charged with direct responsibility for those divers. There are many aspects of the response to the tragedy that the Commission of Enquiry will wish to examine but it is right that we should pay tribute to those people who were ready to risk their lives to attempt a rescue of these men. As you know, a fifth diver did manage to escape with the help of at least one other on the site.

In response to that terrible event on the 25th of February 2022, the President of the Republic of Trinidad and Tobago, at the behest of the government and with no small contribution from members of the public, called for a Commission of Enquiry. Initially, the Chairman of the Commission was to be the very experienced retired judge C. Dennis Morrison Queen's Counsel but he had to withdraw creating something of a hiatus and consequent delay in getting the Enquiry up and running. We've lost four months. I regret to say that the delay has been compounded. I was appointed by the President to take over on the 6th of July of this year. Mr. Wilson is still here with me, thankfully. Let me say something please about the timing of this Enquiry.

This Commission of Enquiry, as with all such Commissions, requires staff and facilities to carry out its work. I made clear at a short press

conference on the 7th of July that I, nay we, would do all we could to expedite the matter whilst at the same time ensuring thoroughness. Sadly, apart from the stalwart Secretary, Ms. Sarah Sinanan who sits in front of us, we had no administrative support until Monday of this week, the 5th of September when we were joined by our new manager, a Mr. Russell Seebaran together with some IT and technical support. The office structure at SAPA which was determined to be the place where we would have our offices, was only completed on Friday the 26th of August, and, but for the considerable efforts of Mr. Noel Garcia and his staff at UDeCOTT, we would still have an empty shell.

It's no part of my responsibility or any of us here to blame anyone for this rather slow provision of the basics to carry out our work. And I know that the Honourable Minister Stuart Young MP has been doing all he can to push this along. Happily, as a consequence, I understand he plundered the offices of the Prime Minister in order to provide us with some chairs and desks and the basics of office furniture over the last weekend.

I do not know if the Honourable Keith Rowley PM is now sitting on the floor as a result of having his offices plundered, but the fact is we now have somewhere to sit. I await with some considerable concern for pens to write with, paper to write on, printers to print on, scanners to scan with, the Internet to connect to. The upshot is that we are falling behind and I wish to emphasize that it is not the responsibility of any of those who are sitting here on this side that we have had this slip in timing. I want to assure everyone that we will do everything we can to make-up that time.

То date. have received we something in the order of 40 separate statements from witnesses, 30 over separate documents resulting in a total of some four and a half thousand pages of material. videos. photographs and a plethora of correspondence. We have no one to process it. There's a limit to what one lady can do. I hope that we will be able to hear early legal submissions, either at this particular hearing or at some future stage which might have affected the witnesses fixing time, directions and all of the other things that you would have expected of us, that might have been achieved today, but it can't be.

And so, it falls for me to tell you that whilst we stand ready to do that which we are charged to do we cannot do so without the basic tools to carry it out. To those whose responsibility it is to equip, I ask publicly, please, help us do our job. Go the extra mile to provide us with the necessary tools to carry out this Enquiry without further delay. With your help, we can get to the bottom of this tragedy in timely order. To those who had complied with our request to provide evidence and documents in support in timely fashion, you have our thanks and I regret that we've been unable to progress the matter beyond reading and collating.

To those who await answers as to how and why their loved ones died, and to the general public, you have our unreserved apology that this Commission of Enquiry has been delayed yet again. It's not fair, it's not right. However, as I say, I want to ensure, and I know that I have the support of those around me, that we will make up that lost time. Anyway, enough of my complaints because you'll understand the sense of frustration that we have felt over here.

You'll appreciate that as the Chairman of this Enquiry the responsibility is mine and you can find out about me on the website. But I do want to say something about the others.

Gregory Wilson, who sits to my left, has spent 25 years in the subsea and construction industry at sea. His considerable experience in crisis management and safety in the oil industry, and his knowledge of processes, procedures and compliance within the energy sector has already proved to be extremely valuable to all of us. He is a great asset to this Commission of Enquiry and I'm very pleased to have him as my co-Commissioner. Whilst I am a recreational diver, that is a far cry from understanding some of the specialist work that those engaged in the oil industry are required to undertake. It is his expertise that I rely upon and that which no doubt will be provided to us in the course of evidence.

We are assisted by a legal team headed by Mr. Ramesh Maharaj SC who probably takes little introduction. He's Senior Counsel, we are fortunate to have him, such experienced practitioner, а an veteran of a number of other public enquiries around the Caribbean. He was called to the Bar by the Inner Temple in 1966. Since then, he's been in legal practice, served as a Member of Parliament, Minister for Legal Affairs and as the Attorney General. He has been more important-more importantly, should say that he used to be associated with my chambers in

London in Cloisters.

He is in turn assisted by Mr. Ronnie Bissessar (now also SC) also a very experienced lawyer and a member of my Inn in the United Kingdom, Lincoln's Inn. He is head of his own chambers here in Trinidad and Tobago and he practices in the field of commercial law, both in litigation and advisory. He also sits as an His charitable work arbitrator. wide cross-section covers а involving not just the promotion of law and training but also in the medical field.

Mrs. Vijaya Maharaj, unrelated to Mr. Ramesh Maharaj SC, she is a highly qualified lawyer, with over 18 years' experience in civil and public law. They are an extremely good team. Anybody who needs their assistance in the course of this Enquiry need but ask.

Our administrative staff is headed by the Secretary to the Commission, Ms. Sarah Sinanan. She has taken up her appointment to this Commission. She was senior legal counsel to the Attorney General's chambers and had advised various government departments. She has been the one sole constant ensuring that such work as could be done has been done. As I say, I'm so grateful to have such a competent team working with me and Wilson on this very serious Enquiry.

The Commission of Enquiry's Terms of Reference have been widely published and can be found on its website, but it may be useful if I just read them out for the benefit of everyone or anyone who has not seen them. They are as follows so forgive me, it takes a moment or two to read them.

> 1 To enquire into the circumstances which led to the tragic incidents which occurred on Friday February the 25th, 2022 at facilities owned by Paria Fuel Trading Company Limited. Paria. located at the address I've already given, and which led the deaths of four to employees of the company, LMCS Limited.

The scope of works issued by

Paria for the underwater maintenance exercise on a 30-inch pipeline in which LMCS divers were carrying out works on Friday the 25th within a hyperbaric chamber on the said number 36 Sealine Riser at Berth #6;

And to ascertain the proposals and plans submitted bv LMCS to conduct the works at the said number 36 Sealine Riser; And to examine generally the policies. procedures, practices and conduct relating to Paria and LMCS' employees, organized and contracted labour for those types of maintenance exercises;

And to identify the precise facts and circumstances which led up to and resulted in the loss of life and whether that was reasonable and justifiable in the circumstances appertaining; And to examine all of the decisions and actions taken after it became clear that the LMCS divers five went missing;

And to investigate the nature, extent and application of any Standing Orders, policy considerations, legislation or other instructions in dealing with the situation which gave rise to these incidents;

identify whether And to Paria/LMCS had in place any life-saving contingency plans the event that life in threatening incidents occurred and, if so, whether such or any plans were employed in response to those incidents.

Further, whether they employed sufficient safeguards and measures to ensure the safety of their contracted employees properly and to prevent—the prevention of those incidents and to rescue the five LMCS divers;

And to determine adequacy and mechanical integrity of equipment utilized by LMCS; And to determine the adequacy of LMCS plans utilized for the operation of the maintenance exercise; And to identify whether by act or omission any identified or

unidentified person or entity directly or indirectly caused the loss of life;

And to examine the role played by Paria/LMCS through their respective units individually and collectively in dealing with those incidents and to examine all other material circumstances leading up to and surrounding the incidents which took place on February the 25th which led to the tragic deaths of the four LMCS divers and continuing up to the recovery of their bodies.

2 To make such findings, observations and recommendations arising out of its deliberations as may be deemed appropriate in relation to:

Whether there has been any breach of duty by any persons or entities;

Whether there are any grounds for criminal proceedings to be initiated against any persons or entities;

Whether criminal proceedings should be recommended to Public the Director of Prosecutions for his consideration and the appropriate and best practices and/or policies and/or procedures to be utilized by companies such as Paria and LMCS for the conduct of these types of

maintenance exercises and in response to these types of incidents;

The policies. measures. mechanisms and systems that should be implemented to prevent the recurrence of the which tragic incidents occurred on Friday, February the 25th this year and continuing up to the recovery of the four bodies;

And, making any other recommendations that may be deemed necessary in the circumstances in accordance with the provisions of section 6 of the Commissions of Enquiry Act.

The Terms of Reference are deliberately cast in very broad terms in order for us to have the scope to pursue whatever lines of enquiry seem likely to be fruitful to us. It is I think worth emphasizing that the specific areas of investigation to which they refer are intended to identify the main subjects of this Commission of Enquiry, and whilst it might appear that they're fairly exhaustive, it's not necessarily intended to be so nor constricted. It is for us to determine and interpret what those Terms of Reference refer to. We shall not be deflected from pursuing lines of enquiry which may lead to information of value.

It is important to understand the nature of the task ahead. It will require hard work, especially given the short timeline in obtaining and analyzing thousands of documents and in the preparation of statements from those who may be able to give valuable evidence. It is not simply a case of John Smith providing a statement and we proceed on that basis. No, it is the task of my team, where necessary. to take statements or augment them and ask appropriate questions so that we have a complete picture. With the help of my team, I intend to make sure, with Wilson, that the work proceeds as speedily as possible, as without foregoing say, thoroughness.

Let me say something briefly about legal representation. We have received some correspondence from a number of different lawyers asking for financial assistance to represent the families in particular of the deceased and the sole survivor. I have made it clear that I support counsel being instructed on their behalf and this Commission of Enquiry has conveyed that much to them and the Attorney General and the Minister, the Honourable Stuart Young MP, and just about anybody else who would listen.

We are governed by the Commissions of Enguiry Act. It does not empower us to grant any kind of legal aid or legal assistance or to quantify any legal aid or assistance that may be given. That is the responsibility of others. It is not a question of us abrogating any responsibility. I've made it clear that as far as we're concerned, those who represent the families of the deceased and the sole survivor could and should be represented but I do not have, in our power, the wherewithal to provide it. Seek it elsewhere, please?

But I want to be quite clear. Those who are directly involved with the issues that concern this Enquiry cannot and will not be permitted to thwart the Enquiry by making their cooperation with it contingent upon receiving legal assistance. It is important to understand that the Commission of Enquiry process is not an adversarial trial. Our task is not to decide which of two or more competing parties has the better case, nor is it to punish anyone or to award anyone with compensation. It is simply to get to the truth with the help of all those who have relevant evidence to supply.

The process should be seen as essentially one of cooperation. Accordingly, the role of counsel to the Commission of Enquiry is not to promote any particular conclusion or result, still less to favour any particular witness or class of witnesses, rather, it is to place before us, that is Wilson and myself, and the public at large, evidence that will enable us to make findings about what occurred and put forward recommendations for the future in the hope that such recommendations will meet with the approval of the President and the

government and be implemented and thereby prevent such a tragedy from ever happening again.

Counsel to the Commission of Enquiry will do that by presenting the evidence at this public hearing and others that will follow, and I'll give you the dates in due course, by questioning those witnesses whom we decide should be called to give oral evidence. We have the power, where necessary, to subpoena to evidence. witnesses give irrespective of whether they have legal counsel, and we shall not hesitate to use that power in the event that there are any recalcitrant witnesses whom we believe have valuable evidence to provide.

All hearings will be conducted in public unless the particular nature of the evidence or arguments require otherwise, and I make it clear now that we will need some considerable persuading to agree to hear any evidence *in camera* or privately. Moreover, notwithstanding rule 26 of this Enquiry as to confidentiality of the documents, this Commission will place every document we receive on our website before the hearings or the evidence is heard, so that everyone would have access to all of the material.

I make it clear now that if any party wishes to have any document withheld from the public domain, they will need to persuade us of the need for that to happen, and it better be a substantial reason. Embarrassment will not count. It goes on the website unless we say otherwise.

I'm well aware that the past months has seen a considerable amount of press attention and speculation. Over the weekend, in the months that have gone by, theories have been postulated as to the lack of preparedness, who is or is not responsible, why more was not done to rescue those men. Many have expressed a great sense of anger, betrayal and outrage: this is entirely natural and understandable.

This Commission of Enquiry is here to get to the truth of what actually happened. It must seek out all the relevant evidence and examine it, dispassionately and calmly. rationally. Counsel acting for the Commission of Enquiry will approach their task in that way, as I hope would all the legal of the representatives various principal participants. This will help us to discover where the truth really lies

I should also remind everyone that it is no part of our duty on this Commission of Enguiry to rule on or determine anyone's civil or criminal liability. However, we're not to be inhibited by the likelihood of liability being inferred from any findings or recommendations that we may make. We shall therefore not shrink from or hesitate in making any findings or recommendations that are justified by the evidence, simply because someone else may say at a later stage that that forms the basis for civil or criminal liability. The police and other agencies are of course conducting their own enquiries and investigations into possible criminal offences or civil

liability. It's no part of our job.

Any application not to sit on any particular day must be made in writing in advance and I would expect any problems with the witness orders that will be passed down in due course as to which witnesses we want on which particular days. We must be notified if there is a difficulty with that well in advance so that we can make appropriate adjustments. I don't want days lost unnecessarily, please?

We will ordinarily sit from about 10:00 a.m. in the morning to about 3:30 p.m. each day with a short break in the morning around 11:30 a.m. for a coffee or stretch your legs and a lunch break at around 1:00 p.m. for an hour or so. I do expect flexibility to conclude witnesses to minimize inconvenience to them. As I've said previously and indicated previously, if necessary, we'll sit one evening to accommodate family members of the deceased who may wish to give evidence and if that means sitting one evening, well,

that's what we'll have to do.

Can I say this, that, I don't want any witness to have to come back the following day if it's unnecessary and if that means sitting a little longer that's what I intend to do. At the conclusion of each week, I may permit the press to ask a few questions for clarity, not every day but at the end of each four-day ľve that identified. session Providing it's not abused, I see no reason why they should not seek clarification of anything that's been dealt with in the course of that week.

Information about how to make contact with the Commission of Enquiry team could be obtained from those who are here. Come and speak to us afterwards, masked or otherwise, and in due course you'll be able to, of course, access any information and contact through the Commission of Enquiry's website, www.coe2022.com.

In due course, as I say, a transcript of the proceedings, today's and at each hearing, will be put on the website. Any rulings or directions that we give will be put on the website. If there's anything anyone needs to know it is on the website. If there's something that's not there and you would need to know, then there is a contact through that website.

Now, unless there's a good reason not to do so in any particular case, the hearings themselves will be streamed live through the Commission of Enquiry's website and live on TTT so that the public as a whole can follow the proceedings and, as I said, transcripts of those hearings will be posted I think within about 24 hours or so.

The evidence given by witnesses at the hearings will, however, be only part of the material which the Commission of Enquiry will have to consider. Much of that material will be in the form of documents and statements where we have determined that it is not necessary for a witness to give live evidence. We therefore intend to ensure that all the relevant documents that can properly be made public are scanned and on to an electronic database which will allow them to be called up and displayed on a screen, whether it's in this building or some other place, but everyone will see the document that's being referred to.

Now, whether hearings will be streamed contemporaneously I think it important that members of the public should be able to attend, and if they wish to do so we need to be able to make sure that there is sufficient place for them to do so. I shall therefore take steps to ensure that hearings of the evidence are held in rooms large enough to accommodate at least some members of the public as well as obviously members of the press and the media.

We propose to conduct giving evidence insofar as we're able in four separate parts as follows. Firstly, what was done in preparation of the work commencing. This will include industry standards, government protocols, emergency procedures, contingency plans, contracts, briefings, experience, all of those things will be dealt with as the first part of our Enquiry.

I anticipate we would have a site visit. At this time both the Chamber itself and, I'm not sure where that is, no doubt someone will tell me in the course of this morning, but we would like to see, if at all possible, that hyperbaric chamber, and also to go to the Berths #5 and #6.

Yes, the 22nd of November, if at all possible so that we have a picture in our minds of what we're dealing with, before we start to hear the actual evidence. I anticipate that on the first day we will have Maharaj open behalf of the the case on Commission of Enquiry and then anyone else who applies and is granted leave to say something at the outset will also make their opening statements on that day. So, first day opening statements, second day we sit, site visit, third day witnesses.

The second part of the evidence is

really what happened during the work itself. This will include what the work entailed, monitoring of the men whilst they were working, what caused the men to be sucked into the pipe and what the conditions were and what precautions were taken and put in place to avoid any such incident.

The third part of the evidence will be what happened when it was clear that there'd been a major incident. This will include how one man actions escaped, the of the emergency services, the reaction of the owners of the plant, the actions of the various contractors and the others involved, family, friends and those at the scene, and then the last part of the testimony will be what we characterize as any expert evidence. At this time it is unclear whether there will be any conflicting expert testimony but we will see what the evidence produces, if predicated at the moment on a root cause analysis from at least one expert in the field which we already have.

And, it's our intention that we should obtain written and oral evidence from those who can give direct accounts of what occurred before, during and after these tragic events. There will inevitably be some overlap between those particular categories. They would include employees of LMCS Limited who were contracted to carry out the work, in particular Mr. Boodram the sole survivor, the rescue divers who attempted a rescue, in particular, Ronald Ramoutar and Cory Crawford who helped Boodram, Paria Fuel Trading Company Limited whose people on the ground were coordinating their response to the incident, and the families who attended at the site when advised that their loved ones were trapped in a pipeline. All of this evidence is likely to be of great value.

We shall also have access to photographs, video footage, the various autopsy reports and other sensitive evidence. I know that giving evidence, whether in the form of a statement or in person, can be a stressful experience for anyone. So, I intend to ensure, so far as possible, that those most closely associated with those who died are treated sensitively and will be asked, where necessary, to give evidence once and once only, coordinated to be convenient to them as I said, if necessary, by sitting in the evening. But we are mindful that for some the stress of giving evidence is likely to be magnified by the continuing effects of what can only have been a most traumatic experience. We are acutely aware of the challenge that I intend to do presents itself. everything possible in our power to ensure that the process of assessing and assisting the Commission of Enquiry does not result in further unnecessary suffering.

To that end, I shall be looking for help from all of those who seek to represent the families and others directly involved in this tragedy. I'm open to suggestions as to how that might best be achieved in the most sensitive and appropriate way, and I'll be slow to permit any crossexamination or undue unnecessary questions of any of these witnesses.

The work of the Commission of Enquiry is urgent and there is an obvious need to begin hearings as soon as possible and I recognize that it is necessary to act with sensitivity and compassion and I shall take whatever steps, as I say, are appropriate in line with current practice to ensure witnesses give the best possible evidence. As I've already said we're charged to seek answers to the very comprehensive questions posed by those Terms of Reference I read at some length, but it is the very nature of the process of this kind and I shall want to follow up leads and any new lines of enquiry as they arise.

I wish to emphasize, it is for us to interpret the Terms of Reference and the Commission of Enquiry is not limited to factual questions surrounding the incident itself as I've already said and made clear. It's my intention to look closely at best practices and procedures, legislative provisions, emergency services, the decision-making and to what extent

these were taken into account and acted upon by those responsible for the safety and welfare of workers in these sorts of environments. This would entail considering what considerations motivated them such as timing, pollution risk, cost, chain of command and the like. That will be an integral part of understanding how and why this incident occurred and what could or might have been done in the immediate aftermath. It is only by that that we will learn the lessons for the future.

This Commission of Enquiry has its rules. It has been published on our website. We place certain duties upon those who are engaged in this enterprise and upon us, in particular in relation to core participants, lawyers standing having as recognized by the legal representatives. I said at the outset that we have had two applications, both of which have been granted. Anybody who wants standing must We will consider it. ask for it. Procedures for applying for standing were published on our website in mid-July and in the Trinidad and

Tobago *Gazette* on the 15th of July and those who wish, as I say, to be part of these proceedings need to apply—or paragraph 18 of the rules if anybody hasn't seen them.

Anyway, witnesses who are to give evidence do not need to apply for standing if they have counsel representing their interest, just while they give evidence. If it's just to look after a witness, we have no difficulty with that. You do not need to apply for standing. If you want to be part of the overall proceedings, you do. So far as possible, we intend to seek voluntary cooperation in the production of documents and other evidence such as witness statements and the Commission of Enquiry will carry out that work.

I expect everyone to whom a request of that kind is made to provide all the relevant material without the need for us to exercise our statutory powers. And I wish to take this opportunity to ask you all and the media present, today, now, if anyone is or thinks he has information of any kind, evidence, documents, relevant matters that pertain to this Enguiry, please come forward, preserve that material and let us take a statement. Details of the way in which the Commission of Enquiry proposes to deal with documents again can be found within the rules for the receipt and handling of such documents. I just pause there for a moment. These rules are not written for fun. They're there for a purpose, and, if we're to conduct this Enquiry in any semblance of order, those rules need to be followed.

I should like at this stage to say a little more about the procedure I intend to adopt in carrying out our Terms of Reference. It is unlikely that it will be necessary to hold any more procedural hearings. I cannot for my part see the need to do that.

When this Commission of Enquiry resumes on the 21st of November, as I said, we will be hearing the Commission of Enquiry's counsel open the case. Maharaj will do that, and anyone else who's applied will be permitted, where so permitted, to make their opening. If there are some other applications, they can be foreshadowed with skeleton arguments and put in writing so that we can consider them in advance and I suspect that nearly everything of that kind, provided it's compliant with the rules as set out, would be able to be dealt with administratively in writing in advance so that we do not lose time at the actual hearing of the evidence. And frankly, nobody wants to hear all of that. What the public want to hear is what the evidence is. They want to hear what the witnesses have to say. And I suspect they will not be particularly impressed in having to hear any legal arguments when that can be dealt with by us, the lawyers, in advance. So please, if you have any application, send them in advance to Ms. Sinanan and she will make sure have them for that we our consideration.

At the beginning of the hearing at which the Commission of Enquiry intends to take evidence counsel will be making, as I say, their opening statement and that will set out in outline the nature of the evidence that it is intended to be called, when it's going to be called, and the order in which it's going to be called. All witnesses who are called to give oral evidence will be the Commission of Enquiry's witnesses. I repeat that. All witnesses who are required to give oral evidence before this Commission of Enquiry are the Commission of Enquiry's witnesses. They will therefore be called, and, where necessary, examined by my legal team, Mr. Maharaj and his associates.

The Commission of Enquiry will seek the assistance of attorneys given standing in the preparation of witness statements. We shall decide which statements are to form part of the record of documentary evidence, which witnesses are to be called to give oral evidence in addition to any written statements that they've already provided. Our team will be closely involved in the process of obtaining statements from potential witnesses. Where appropriate. the secretary or counsel to the Commission of enquiry would explain the topics which should be covered in a witness' statement.

As I said earlier, it's not simply a question of Mr. Smith writing a statement and saying, "There you go", and then washing his hands of it. That's not how it works. Smith will give us his statement, we've had many as I've indicated, but if we think it's appropriate to further interview them to augment what they say or to add anything to a statement, we will do so but it is not our intention to catch anyone out. We're not going to ambush anybody. Any documents we need you to refer to we'll provide them in advance so that everyone will have as much notice as is necessary for them to be able to provide the best possible evidence to this Commission of Enquiry.

Whether I will permit, or Wilson will permit any questioning of other witnesses by other parties and to what extent they will be allowed to do so, will be a matter of our discretion. We will of course entertain anything that seems to us sensible and will advance the purposes of this Enquiry.

I'm currently minded to invite final submissions in writing after the conclusion of all of the evidence, and to give those with standing and who have been permitted to write such submissions, to give them an opportunity to make a brief oral summary or précis, if you like, of what it is that they've set out in writing. Whatever they do set out in writing will be on the website but I would hear any argument as to whether or not that's appropriate course once we've heard the evidence.

The process of gathering evidence has begun in earnest but there is much more to do. Taking a statement from those important witnesses will require care, but none of that can properly start until we have the right equipment. Thus, I ask you all once again please to exercise a degree of patience with us. We're doing everything we can to move it forward but in order to ensure there's no further slippage, I have insisted that this hearing should start, these hearings should start no later than the 23rd of November for the hearing of evidence.

And when I was sworn in as the Chair to this Commission of Enquiry, I hoped to have a draft report available before Easter. That presents a challenging goal but one which with everyone's goodwill we can still achieve. To achieve it will require much hard work as well as the active cooperation of all of those concerned, but I hope that we can count on the continuing cooperation of the Minister and his staff to ensure that this Commission of Enquiry has all that it needs to proceed as quickly and as smoothly as possible.

It is in the interest of the families whose loved ones have died that we do all that we can to give them the facts and bring such solace as the truth can provide. It is in the public interest that our findings which may affect the safety of the people who are still and necessarily must work in this industry that our findings are published sooner rather than later. We all share a common goal. We are all searching after truth, about what happened, the tragic loss of life that caused it and what we can do to prevent it from ever happening again. We owe it to those who died and to those whose lives have been turned upside down to work together to achieve that goal.

Thank you very much indeed for coming. I look forward to seeing many of you again at subsequent hearings. That is the opening statement by me, the Chairman, on behalf of us, Wilson and myself.

INTRODUCTION

It was carnival time on Friday the 25 February 2022, albeit muted because we were all still labouring under the burden of Covid 19. Pods had sprung up like mushrooms at Queen's Park Savannah with people doing their best to socially distance. The music played and persons capered; food was consumed and drinks flowed. There was even a sense of optimism that the world was finally emerging from its two-year lockdown.

Yet despite this revely there were those hard at work. Men and women up and down the country labouring to provide the essential services we all expect and those simply seeking to earn a living after the lean years that covid wrought.

Such were those at work at Paria: divers and boatmen; maintenance and security staff; managers and supervisors; coastguards and medics; a veritable army of workers. No Carnival for them. As the Friday unfolded little did they to know, that four men would die that day.

The unspeakable tragedy that developed was in our assessment of the evidence both avoidable and redeemable. Avoidable, because a proper assessment of risk would have identified the potential for what we now know to be the direct cause of the Differential Pressure. tragedy: Redeemable, because there was an opportunity to save the men: frittered away.

The primary root cause was the methodology adopted by the parties in removing the content from the pipeline in the manner in which they did causing a latent Differential Pressure or Delta P (Δ P) hazard. This created a vacuum which once the men were exposed to it, literally sucked them and anything not bolted down, into the 30 inch pipe, upon which they were working.

The opportunity to rescue the men from the pipe was completely wasted

by a degree of inertia that is difficult to comprehend. The creation of an Incident Command System (ICS) and an Incident Command Post (ICP) is enshrined in Paria's emergency response procedure. It is designed to deal with major emergencies and it is committed to the prevention of harm to people with its primary principle stated to be to safeguard human life. As a matter of fact no rescue attempt was ever made by them.

When the incident first happened at about 15:45 it was unknown how it happened or even where the men might have been. There was an initial search of the ocean. Neither they nor any of their equipment could be found. Some concluded they must be in the pipe but nothing was done about that until Christopher Boodram emerged from it at about 17:45. One might have thought that there would be renewed hope that the men could be recovered. Alas apart from an attempt by Michael Kurban no further attempt was either conceived by the ICS nor

did they permit anyone else to attempt a rescue.

One feature of this Enquiry that has become clear beyond peradventure is that throughout this process at no stage has anyone conceded a single error, a single mishap or a single recognition of a failing, even with the benefit of hindsight. We understand that there is a desire not to accept any liability lest that be seized upon in ANY civil suits that may follow but, these men did not die by accident. What they are left with is the posturing of the potential parties, perhaps challenging the very findings of this Enquiry, before they start fighting each other, each insisting they got nothing wrong.

For all the money that has been expended on this process so far much more is almost certain to be spent before the families will see a single dollar in compensation of any kind. We feel compelled to observe that the victims of this tragedy have had very little, if any, help in dealing with the loss both mentally and financially. We cannot help but think this is something that should have been addressed if not by the companies involved then possibly by the Government. It would have been an act of kindness and human decency to have made some kind of ex-gratia payment, without accepting any liability, at a time when they needed it most. But this is outwith our remit.

THE BACKGROUND

Paria put out an invitation to bid in a document identified as a "Request for Quotation" RFQ, on a Scope of Works they required for repairs on Berths #5 and #6 (and other works not relevant to this Enquiry) - this lengthy document dated the 10 February 2021 sets out what was required in sufficient detail to permit those parties who were interested to formulate a view as to whether they could undertake the works. It permitted enquiries for further information in writing within 6 days and the final response to bid for the works had to be submitted by the 23 February 2021 ie within 13 days of the RFQ. It seems to us that was always somewhat unrealistic, and the timetable was not adhered to.

The RFQ included reference to Paria's general working procedures and required a large number of documents to be provided by the potential bidder. It was signed by Manmohan Balkaran, Maintenance lead at Paria. Nothing of importance to this enquiry turns on this document.

LMCS together with a number of other bidders expressed their interest. Kazim Ali Senior (Ali Snr.), is the Managing Director of the company and has a long history of working in the petrochemical industry stretching back to the 70's. He along with others at his firm and other potential bidders attended a virtual site visit to better understand the works to be done.

On the 20 and 29 April 2021 the Maintenance Services Department of Paria issued Commercial and Technical Scope of Works, SOW, signed by Terrance Rampersadsingh, from Paria.

The document included a draft contract which specifically provided that the:

COMPANY (Paria) shall maintain such COMPANY REPRESENTATIVES at the JOB SITE, as it deems necessary for the purpose of inspecting, and ensuring the satisfactory performance of the SERVICES.

SCOPE OF WORKS - TECHNICAL

Michael Wei the Technical and Maintenance Manager of Paria Manmohan Balkaran assigned (Maintenance Lead) and Terrance Rampersadsingh (Maintenance Planner) to the task of developing this document which we regard to be of crucial importance. It is the Technical SOW which sets out, in detail, what is required of the Contractor. Put simply it is the contract between the parties the basis for their providing relationship and who does what. It incorporates the Permit to Work System imposed by Paria which in the "Applicant" turn makes responsible for certain supervising or oversight of the works. In this incident "Applicant" Houston the was Marjadsingh an employee of Kenson which was contracted by Paria to provide certain services to Paria. The role of the "Applicant" is an important one as we shall see.

Such is the importance of this document SOW/Contract that we feel compelled to set out the salient aspects of it below in italics so as to allow the reader the full background upon which the bidders proceeded and the terms agreed. In particular, the following numbered sections are of relevance to our consideration of the facts and our comments thereon set out under CN (Commission Note) after each section:

Request for Quotation

2.0 <u>GENERAL</u>

The successful Contractor shall supply all....supervision, inspection services...

CN 1 This seems to suggest that the Contractor was solely responsible for the supervision of the project but as we shall see that is not what this document as a whole suggests when regard is had to the various other

sections¹ hereinafter set out. It is our view, as we seek to demonstrate in this Report, that duties of oversight and supervision existed on both sides; they were not mutually exclusive, overlapped and were on their face a deliberate belt-and-braces approach to safe working. Insofar as counsel for Paria argue that the SOW was "unquestionably a model of clarity", we have no difficulty in rejecting that argument.

2.1 BID EVALUATION / VALIDITY

Elements of this project includes but is not limited to: 2.1.1 Removal of Fuel Oil from Line with Zero Spill²... NOTE: ... Bids are considered valid with the following submissions:

- STOW Certification
- Detailed Schedule (Microsoft Project) for Entire Project...
- Bidder to submit a detailed Method Statement identifying elements of the project inclusive of safety considerations, Lift Plan, Dive Plan, Quality Assurance, Safety Analysis and JHA which shows Contractor's procedures for:
 - 1.0 Removal of Hydrocarbon from Line with Zero Spill.
 - 2.0 Details of the Hyperbaric Chamber Installation and Welding in the Chamber including safety considerations.

especially in an official capacity". That is what we understand it was intended to mean.

² This includes documents such as Certificates of Environmental Clearance (CEC), which are vital for regulatory compliance. And may have informed what was to happen to the hydrocarbon removed from the pipeline in preparation for the works – see supra. According to Harrichan (Paria's Operations Team Lead) this was never applied for by Paria.

¹ sections (3.1.12), (4), (6.3.8), (8.9 - 3.0 & 8.0) and the incorporation into the contract of Paria's Safe System of Work & Permit to Work System. In particular see item 4.5 below which imposes contractual duties on Paria in relation to the line clearance to "provide personnel to oversee..." **The Oxford English dictionary meaning of oversee is "supervise (a person or their work),**

CN 2 STOW can be summarised as the minimum HSE prequalification requirement for the T&T energy sector. It is not adequate, nor can it be considered to match the mature processes achieved in Verification and Assurance systems required to manage safety critical operations in Commercial Diving. It is a HSE tool of general application.

CN 3 A Method Statement sets out the works to be done and the method for carrying it out. It appears to the Commission that it is usually written as a step-by-step guide to the works as suggested by the contractor. If we are right about that then it is for Paria to reject, amend, delete, and/or reorder those steps.

CN 4 The removal of the material from the line was a prerequisite for the carrying out of the works. The responsibility for that lay with the

³ This may have ensured that the measuring of the material to be drained from the pipeline was both accurate and communicated.

Contractor. At this point no reference is made as to the quantity of the material to be removed.

Recommendation 1

It is essential to demonstrate that all the necessary permits, licences and approvals are in place and a person assigned to undertake that task (such as the Diving Client Representative). Here there was no Certificate of Environmental Clearance CEC which are crucial to regulatory compliance³

Recommendation 2

The company must make clear that they require any contractor to adhere to an internationally recognised commercial diving standard or at least the 1997 TTBS standard⁴ that remains applicable although not compulsory in TT. This ought to be a contractual requirement not to be derogated

⁴ Infra

from. STOW does not meet this requirement.

3.0 SCOPE OF WORK

Estimated volume of product between isolation points:- 2000 bbls...

CN 5 This relates to the volume of material said to exist in the 30" pipe after isolation from the top-side pipework at Berths 5 & 6 ie that there was an estimated 2000 barrels of hydrocarbon material in the remaining subsea pipe.⁵ The relevance of that information is of interest. Is it to be supposed that the Contractor, LMCS, is to remove the entirety of the material to "clear the line"⁶ in which case it is highly relevant. Whereas, if all that needs to be done is the removal of sufficient of the material to effect an ullage below the water line sufficient to be able to cut and replace

the pipe then the total quantity in the line is of no moment.

3.1.5 Properly coordinate works with Paria Operations, Maintenance and H.S.E. personnel to perform the following activities including but not limited to; isolation/de-isolation, depressurization/ pressurization and draining/filling product from line SL 36 at Berth 6 and Berth 5.

3.1.12 Cut, insert migration barrier and install a 30" Ø flange onto the existing line. Inspection requirement for the flange 100% PT (including root passes), VT and Hydro Test. <u>Note video stream to be provided top side during work</u> <u>activity for Paria's representative.</u> (our emphasis).

is responsible for the safe removal of hydrocarbon contents from the line and <u>to</u> <u>ensure that the line is clear and dry</u>" (our emphasis).

⁵ See the evidence of Hassan Mohammed and Terrance Rampersadsingh

⁶ This is dealt with in detail later in this report but it is to be noted now that Paria's addendum to the SoW includes the following, *"the Contractor*

3.1.21 The Contractor shall supply video footage during the subsea works...

CN 6 If a video stream is to be provided by the Contractor for "Paria's Representative" it is reasonable to assume that Paria's Representative could and would monitor the work and have a video record of it.

4.0 PARIA'S RESPONSIBILITY

4.1 Supply personnel for organizing all work permits/certificates, monitoring contractor's performance & work standards, approving work done by the contractor and carrying out quality assurance audits.

4.4 Provide personnel for acceptance of work executed.

4.5 Provide personnel to oversee⁷ isolation/ de-isolation⁸, depressurization/ pressurization and draining/filling product from lines at Berth #5 and Berth #6

CN 7 These responsibilities bespeak of contemporaneous oversight and acceptance of the works by Paria

CN 8 The importance of overseeing isolation/ de-isolation, depressurization/ pressurization, and draining/ filling product from pipelines through a structured process cannot be overstated. As we shall see from the Work Permit the "process Isolation Checklist" was marked as NA (Not Applicable). Harrichan said in evidence that there was none.

Recommendation 3

Structured specified oversight by the company incorporating a robust procedure is an imperative to ensure that these types of operations are executed meticulously, safeguarding the well-being of all personnel and

7 ibid

⁸ This must be related to the removal of the plugs from the line.

plant. This is in addition to the fulltime supervision of the works by the contractor.

Recommendation 4

The company must employ either in-house or contracted a qualified and competent Diving Client Representative responsible for reviewing, approving and ensuring the adherence to procedures throughout <u>all</u> stages of a Diving Operation.

5.0 CONTRACTOR'S RESPONSIBILITY

5.1 Supply adequate, competent and certified/ licensed labour for the specific job functions, full time supervision...

CN 9 We take this full-time supervision on the part of the contractor to be in addition to Paria's responsibility for contemporaneous oversight.

5.3 Provide a designated safety officer at all work sites.

5.4 Provide live video feed during the subsea works.

5.11 To have a designated person on site who can report on activities and progress to Paria's Maintenance and Operations personnel.

5.12 To maintain permits to execute the entire job. The Contractor shall become familiar with and conform to Paria's Permit-to-Work Procedure, at his own expense, any limitations, provisions or requirements in or pertaining to the permits.

CN 10 Notwithstanding submissions to the contrary from both Paria's and Kenson's lawyers we are of the view that Paria's Permit-to-Work Procedure, PTW is incorporated into the Contract between the Company and the Contractor.

5.16 Prepare a Job Hazard Analysis (JHA) and Risk Assessment for review by Paria.

CN 11 Neither in this document, nor the bid from LMCS, nor upon review by Paria, nor at any stage by either party as the matter passed between the various departments at Paria including the HSE department and LMCS was the issue of Delta P, ΔP ever raised. This was a primary failure as identified in the expert report which observed "the root cause of this accident was the failure by both the [Company] Paria and the contractor LMCS limited to recognise that a latent hazardous differential pressure condition ΔP would have been created by the methodology used in the execution of the works, with particular reference to the removal of fuel oil from sea line SL36. If this hazard was recognised then simple mitigation steps and/or change in methodology could have been instituted to eliminate this hazard"9

The method used to remove the material from the pipe line created the void. The report went on to say "... The hazards associated with this void were overlooked by both Paria and LMCS". We do not accept that recognition of this hazard lay solely with LMCS as the contractor for the reasons we give later in this report.

CN 12 Wei made it clear that Paria relied on LMCS as a specialist contractor and therefore was best placed to identify the risks. He agreed with the Chairman's encapsulation of the point that "there was little point in buying a dog and then barking yourself". However, we are of the view that the plant belongs to Paria and there is an almost inevitable issue when Paria is the operator of, no doubt, thousands of miles of pipelines both in use and redundant, that have the potential to carry a ΔP hazard.

⁹ In-Corr Tech Ltd Report to OSHA prepared by Zaid Khan simply dated July 2022 at Para 2.1

5.17 Work Schedule

- i. Supply Work Schedule for the Entire Project with Daily Updates in Microsoft Project Format <u>before work</u> <u>execution.</u>
- ii. Supply Daily Look-Ahead Schedule to Paria's Representative and report on job progress and expected completion.

CN 13 If they ever existed, we have never had sight of these documents and take it that the MS and the daily Toolbox Meetings/Talks, TBM served as the basis for these requirements.

Recommendation 5

Contractors must engage a demonstrably qualified and competent Dive Supervisor relevant to the specific job being undertaken.¹⁰

undertaken.

Recommendation 6

A Daily Task Plan which sets out the specific jobs for the day or a shift ought to be considered by all companies to be undertaken instead of the current entry tasks on the Work Permit which would then simply refer to the DTP. It should not be deviated from without written consent is a more effective way of meeting the burden created by hazardous work carried out in hazardous а environment.

HSE Requirements for Contractors.

6.0 PARTICULAR CONDITIONS

6.1 GENERAL

6.1.13 The Contractor will supply in writing daily, at the start of each shift the number and type of resources to be utilized on each

¹⁰ See later under Farah who was the unqualified Dive Supervisor on this job

shift. This listing shall be supplied to Operations and Maintenance.

CN 14 If this ever existed, we have never had sight of this document either.

6.1.14 The Contractor shall adhere to all Company Policies and Procedures during execution of the scope work and while on the Company's premises.

6.3 SAFETY

6.3.1 All works are to be executed in accordance with the Company's safety requirements as specified by Paria's **HSE Requirements for Contractors**

6.3.3 All Contractor personnel must have attended Paria's HSE Orientation and must attend a Project Specific HSE Orientation course/refresher, prior to execution of works. 6.3.4 The Contractor shall conduct daily toolbox talks and weekly safety talk meetings on site and submit minutes of the meetings to Paria's Technical and Maintenance Department at progress meetings, clearly indicating date, topic discussed, presenter and list of attendees...

CN 15 We have been provided with some material in this respect but note that it is not complete, the Tool Box Meeting document varies in layout and the information provided. These are on matters to which we shall refer again in this report.

6.3.8 The contractor is responsible for provision of the Job Safety Safety Method Statement, Job Hazard Analysis and Risk Assessment which will be reviewed by Paria's Representative.

CN 16 We repeat CN 11

6.3.9 The contractor is responsible for assigning a full-time competent point person that must be present on site at all times. An alternate must also be provided.

<u>8.8 PROJECT MANAGEMENT AND</u> <u>PROCEDURES</u>

8.8.3 The Contractor shall submit to the Paria's Representative daily progress reports. This is to include a report of the previous day's activities as well as planned activities to take place on the day the report is given. The report is to be submitted by 8:00 am each morning. The progress reports are to be measured against the Work Schedule and Base Line Plan, which must be submitted for each Job and approved prior to the start of each Job.

CN 17 We have not seen daily progress reports provided by the Contractor LMCS, however we have been provided with Daily Activity Reports prepared by Kenson

employees on behalf of Paria which vary in layout and the information provided and to which we shall return.

<u>8.9 HSE REQUIREMENTS FOR</u> <u>CONTRACTORS</u>

3.0 BASIC HSE PRINCIPLES

Contractors and contracted personnel are required to obey Paria's Basic HSE Principles at all times. These are:

 Follow the Safe System of Work at all times Risk assessments must be done for all activities; and all contractor and maintenance jobs <u>must</u> follow the Permit to Work System...(our emphasis)

CN 18 there is no doubt in the Commissioners' minds that the PTW system is incorporated into the contract as a term of the contract and was intended to be so. The use of imperative language does not suggest that this is no more than "a general guideline only" as rather late in the

day was suggested by Mushtaq Mohammed and Randolph Archbald. The suggestion by Mohammed that the Commission could point to nothing to identify the intent behind the PTW system is not one we can accept. The very heading under which these "HSE sections appear FOR REQUIREMENTS CONTRACTORS" has as its mantra "These HSE requirements are provided to reduce the risk to personnel, plant, the public and the environment and **must** be followed by all contractors and contracted employees". That intent seems pretty plain to us.

<u>4.0 RISK ASSESSMENT/JHA</u> <u>AND JOB SAFETY METHOD</u> STATEMENT

Contractors must conduct suitable and sufficient risk assessments or Job Hazard Analyses (JHAs) for all activities and for all Work Permits. Appropriate controls shall be developed and implemented to ensure that the risk is As Low As Reasonably Practicable. Any change in conditions, emergence of relevant information or any HSE incidents renders the risk assessment void and must be redone taking into consideration the changes or gaps identified. **The Contractor shall provide a Job Safety Method Statements for all works.**

CN 19 Whilst all these documents were provided nowhere in them is ΔP identified as a potential hazard.

<u>8.0 PERMIT TO WORK/STANDARD</u> WORK INSTRUCTIONS/SAFETY RULES

Contractors and contracted personnel are required to follow the Permit to Work Procedure and Standard Work Instructions (SWI) <u>at all times</u>. Contractors shall ensure that all relevant employees receive the Permit to Work training prior to commencement of the job. All works are to be executed in accordance with the Company's safety rules and requirements.

CN 20 The PTW system is not being proffered here as an optional extra or a guideline to follow if the contractor thinks it's a good idea! We note that the PTW system has its own clause (CI.10) which sets out the circumstances in which a contractor can deviate from the procedure suffice to say there are only two; Emergencies and "routine low risk activities" neither of which were pertinent at the time of the carrying out of the works.

CN 21 We note what also happened when the PTW system was not complied with by Dexter Guerra, leaving the dock before a PTW had been signed. The works were shut down for eight days and he was demoted. The fact is that Paria placed considerable stock by their PTW system and we are unpersuaded by assertions from the General Manager Mushtaq Mohammed that it was there as a guide only, especially as those Paria officers, with hands on experience of the system, who gave evidence earlier in the proceedings, both by statement and in evidence, made no such claim.

CN 22 The SOW referred to here, requires the Contractor to follow them. In this CoE we have received a copy of same for the "Clearing of 36SL Section Between Berth #5 & Berth #6" which it was said was an internal Paria document: both this injunction and the the fact that document was deliberately sent to the Contractor LMCS on 10 January 2022 by Terrance Rampersadsingh via email appears to suggest that it was meant be followed notwithstanding to assertions to the contrary from Paria personnel. We are in no doubt that the document intended was to be followed.

9.0 SUPERVISION

The contractor shall provide competent supervision <u>at all times</u> during the execution of the job.

Contractor supervision must ensure that all employees on the job are aware of the hazards related to the job and the relevant control measures (our emphasis).¹¹

CN 23 Much reliance has been placed upon this SOW by both Paria and Kenson's representatives at the CoE, in an attempt to delimit the scope of clients' responsibility, their in particular, they make the point that since this is the contract any other document is subservient to it and insofar as it is inconsistent with it, it is the primary contract which reigns This is a basic law of supreme. contract with which we have no issue. Pequs on behalf of Kenson, for Marjadsingh said in his closing submissions:

> "... Paria's witnesses were taken to the rubric of "applicant" under the permit to work system and by

that means sought to impose on Paria/Kenson employee the certain obligations beyond what was retained in the contract... [and] those work permit systems or the work permit form for the "applicant" in the context of this contract is not applicable to employees of Paria and employees of Kenson because the principle there is that it's inconsistent. If the permit to work is applied to those employees it would be inconsistent with terms of the contract the obligations contractually retained by Paria, because the question would then be whether the permit to work could expand the contractual respectful terms and our submission is that it cannot... the permit to work has to be submissive to the host contract. So where a contract seeks to incorporate another document that may be inconsistent with

¹¹ We have already recommended a properly qualified Dive Supervisor supra which we regard as an essential requirement to ensure the safety of the

job and the people engaged in it. Different modes of diving require different Dive Supervisors eg Scuba, saturation, surface supplied.

some of its terms, in this case the retained obligations - by contractual obligations by Paria, the permit to work is to be read against the background of the host contract and the terms of the contract will take precedence over the incorporated document".

CN 24 This was echoed by Peterson SC on behalf of Paria in his closing submissions when he said:

"Given that these express contractual obligations are imposed on LMCS then to require Paria to be responsible for the same obligations under any or by virtue of the Permit to Work procedure would conflict with what the parties had agreed in the provisions of the written contract... it would be contrary to good business common sense...In the circumstances... it would plainly be wrong if this Commission ... is to view Paria's actions in relation to the events

under inquiry as though it carried the obligations of an "applicant" under the permit to work system. That permit to work system in the context of this contract doesn't bear that responsibility on the shoulders of Paria or Kenson. The foregoing contractual analysis is of course not to be taken to mean that Paria's entire work permit system is rendered inoperable, that system remains contractually intact and alive, save that the obligation imposed upon the "applicant" thereunder, [those] obligations do not bite where Paria or Kenson employee is the functioning "applicant".

CN 25 The way in which Paria and Kenson's representatives seek to utilise the SOW is different to how we see it. The central thrust of their interpretation of the contract (SOW) is that they were not obliged to "supervise" or "oversee" or "monitor" the works under the Permit to Work System that was in place, or at all and that such a system was not a part of the contract or if it was, any inconsistency with it must be disregarded. It was therefore for LMCS to supervise the works. If that is right Marjadsingh's role was completely otiose.

CN 26 We are of the view that the PTW system was incorporated into the contract between Paria and LMCS and therefore is to be considered as part of its terms. Moreover, we find nothing inconsistent in the wording or clear intent behind it. Looking at the SOW it is replete with references to Paria's role. At 3.1.12 a video stream is to be provided for Paria's **Representative** – why if not to ensure the ability of Paria to at least monitor. Specifically. under the heading "Paria's Responsibility". 4.1 Supply personnel for organising all work permits/certificates, monitoring contractor's performance & work standards, approving work done by the contractor... and at 4.5 Provide personnel to oversee isolation/ deisolation, depressurization/

pressurization and draining/ filling product from lines at Berth #5 & #6.

CN 27 Under the heading 8.9 HSE Requirements for Contractors at para 3 Basic HSE Principles it says at 1. "...all contractor and maintenance jobs must follow the Permit to Work System". What it does not say is "unless it is inconsistent with the SOW", or "this procedure is to be regarded as optional – a guideline". At "Contractors says, and 8 it contracted personnel are required to follow the PTW procedure...at all times". It appears to us that this means exactly what it says and that is what everyone understood it to mean. No one ever queried the Applicant being a Kenson employee. No one said shouldn't this be a LMCS employee? We believe the reason why that did not happen is because everyone believed that the PTW system required the "Applicant" to be someone from the company - Paria. They employed Marjadsingh through Kenson as part of their "contracted Personnel" to carry out the role of

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"Applicant" and provided direct supervision of that person through their senior planner own Rampersadsingh. Rampersadsingh was the architect of the SOW. It would, of course, have been entirely open to him to have excluded the requirement for an "Applicant", or designated that it should be someone LMCS. from or employ an independent firm to act as "Applicant" as they had done previously. He did not.

CN 28 At 9 The contractor should provide competent supervision at all times during the execution of the job. And so they should. That is not to be construed as instead of the oversight/monitoring/supervision of the job that falls to Paria. We do not accept that this is duplication or an inconsistency as between the SOW and the PTW at all. We believe this is intended to be belt and braces to ensure the safety and proper management of high risk works. In our view rightly so.

CN 29 But even if we are wrong, we are not required to make that finding in order to conclude as we have, that Marjadsingh as Applicant had a duty to monitor, that may be for a court to determine at some future stage when the parties can call whatever evidence they wish to prove their case in an adversarial environment. Our task is to ascertain the facts. It is the fact that Paria had a contract with LMCS to carry out certain works and a contract with Kenson to perform some of the tasks associated with the carrying out of those works.

CN 30 It is a fact that Paria had a system called a Permit to Work and that contractors had to abide by it, but so did Paria. The central purpose of the PTW is to "control risks" at a plant owned and operated by Paria. The idea that there can be some unilateral derogation from it because in the mind of one of the parties, unbeknown to the other, there is an apparent conflict between the clauses of the SOW and the PTW is as foolish as that sounds. We set out below when looking at the

terms of the PTW system why we regard this as untenable. Witness after witness from Paria described the importance of the PTW system with Wei making clear that had LMCS followed it properly then this tragedy would not have happened.

Before we pass on to the PTW system there was a signed addendum dated 14 May 2021.

Following a virtual meeting with the potential contractors (there were 16) which included LMCS's representatives, in particular Ali Snr., Paria (Marisa Ragbir) issued an Addendum which sought to deal with the queries raised by the attending potential contractors, one of which stated:

Query (from contractor) – Who is responsible for pumping back from the Berths to "clear" the lines with water?

Response (from Paria) – The Contractor is responsible for the safe removal of hydrocarbon contents from the line and to ensure that the line is clear and dry.

CN 31 This Addendum/queries was passed to Rampersadsingh, Balkaran and Wei. We regard this Addendum as a matter of some significance. When Wei was asked about the meaning of "clear and dry", in evidence he agreed with the suggestion that the words were "at best ambiguous" after having said that he conceded that it could mean the entire line.

CN 32 It is upon the basis of these documents in particular that the Contractors set out the bid and LMCS tendered its bid in a 326 page document dated 10 May 2021.

Before turning to their bid we need to consider a number of other Paria documents which all contractors are obliged to follow and which form an important part of the overall background to the relationship between the Company and the Contractor and therefore the backdrop to this incident.

HEALTH, SAFETY AND ENVIRONMENT, HSE

As one would expect both Paria and LMCS have policies on HSE and we have been able to examine all of their documents in support thereof. They cover a wide range of potential issues, in completely some separate documents with at times extremely detailed analysis and procedures. They seemingly covered everything from dropping spanner а to explosions; from tiredness to the covid 19 pandemic; from being overcome by toxic fumes; from spillage of hydrocarbons. All of Paria's documents should have been well known to LMCS as their HSE officer is Ahmad Rashad Ali who had worked with Petrotrin (Paria's predecessor) for 8 years and Paria briefly before joining LMCS.

There are manuals on health and safety, on-site requirements, general

work procedures at Paria's various facilities; there are policy statements issued by Paria from time to time, procedural requirements for welding, hot works, confined spaces, diving, and lifting; response plans for appreciated risk. All of which we have examined.

But nowhere in any of the documents we have examined has there been any mention of Differential Pressure, ΔP . In an industry riddled with what must be hundreds if not thousands of miles of pipes, used, dormant, abandoned and forgotten this is not merely surprising but in our view a major failing.

That failing is compounded by the stark fact that it was never apparently considered in any document we have examined by the parties. How it is possible for the number of experienced people to have examined the works and the hazards associated with them and not considered the prospect for a ΔP incident is frankly startling. It has been claimed as we

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shall see, by both LMCS and Paria that some consideration as to ΔP was given at the tendering stage when an ullage of 30'/35' was considered all that was necessary to obviate the risk, yet that in itself was open to criticism for the reasons given later in this Report. Both Paria and LMCS owed a duty of care to those engaged in work on their behalf.

Paria pray in aid of their "defence" that they owed no duty of care to LMCS's employees, that they employed the specialist contractor LMCS whose experience previous was considerable and had completed a very similar job in 2020 at Berth #5 which upon assessment was determined to be "excellent" or "very good". We note however that those involved а completely works independent person in the role of "Applicant", addressed later in this Report.

We are alive to the fact that what Ali Snr. says in his supplemental statement dated 8 November 2022, that they did "everything...to avoid creating a void in the pipeline...", rings somewhat hollow months after the incident that claimed the life of his son. Whatever may be the true position the fact is that it is simply from documentary absent any consideration. Why is ΔP not a heading in a HSE document as an issue to be considered? Why is it not part of a Risk Assessment prepared by LMCS, even if it is only to be rejected? And if as Ali Snr. says he wanted to ensure he did not create a void in the pipeline why is that not set out in any document anywhere?

In Counsel's response to these questions on behalf of Ali Snr. and LMCS, she argues that the absence of ΔP being mentioned at all in any documentation does not eradicate those considerations in the preparation of risk management prior to the works or during the practical execution of the work. She says the evidence from Ali Snr. and LMCS's HSE officer Ahmad Ali make clear that it was considered. Even assuming that this were true, which this CoE has effectively rejected, it does not answer the question "why does it not feature in any document produced by LMCS? Such is the nature of this known hazard for divers (not just commercial) that it simply must not only be a consideration taken into account by HSE but *must be seen to be so.* By way of example, look at the LMCS Dive Plan.

Hazardous Conditions Consideration:	Likelihood of Occurrence (Yes/No)	Corrective Measures:	
Cold Water	No	N/A	
Deep Depth	No	N/A	
Night Dive	No	N/A	
Dangerous Marine Life	No	N/A	
Chemical Contamination	No	Contents of Riser Removed and Line Double Plugged	
Biological Contamination	No	N/A	
Adverse Weather conditions (Hurricane, Tornados, Earthquakes)	No	N/A	
Strong Currents	Yes Refer to Dive Inspection Risk Assessment		
Marine Traffic	Yes	Liasie with Paria's Port Operation Authority	
Entrapment, Entanglement	No	N/A	

This part of the Dive Plan lists possible "Hazardous Conditions for Consideration" – it is not that any of them exist. It is a proforma designed to force the dive supervisor to see the potential risks that might exist and either reject it or mitigate it. If it can reference "cold water" surely it can deal with ΔP ? It is simply not enough to say "we considered it and rejected it or eliminated it".

Similarly, the Job Safety Analysis or JSA produced by LMCS is a proforma with headings "WORK TASK",

AND "POTENTIAL HAZARDS" "CONTROL MEASURES" these deal with such mundanity as entanglement in weeds when diving and cuts and bruises when using tools. These are potential hazards that have to be considered by being identified and mitigated or eliminated. No mention of ΔP no matter how remote is identified. It should be. As a consequence the Emergency Response Plan made no reference as to what to do in the event that there was a ΔP event and employees of both Paria and LMCS were ignorant of any such risk.

Recommendation 7

ΔP must be an ever-present hazard that needs to be identified as a standard item to be considered and dealt with in every case where subsea pipework is being worked upon and especially where a pressured environment is part of the methodology for the carrying out of the works.

THE PERMIT TO WORK PROCEDURE, PTW

The Permit to Work Procedure, PTW is dated 1 October 2019 and does not appear to have been revised since. It is stated to have its next review on the 30 September 2020 but we have heard no evidence that it was so reviewed. We observe that the document requires annual review by the HSE department, again there is no evidence that it has been reviewed since October 2019. Nor has it been reviewed since this tragedy. We will number be making а of recommendations in respect of this document and the Work Permit it spawns.

Be that as it may, the procedure itself is said to be a documented, formalised procedure for the control of risks associated with works being undertaken at the site. It is clear, in that it states "*all* parties must ensure that *all* risks are considered" (our emphasis); in our view this places the burden on considering the risks

associated with the works on both the Contractor **and** the Company.

It requires that the procedure will inter alia:

- clearly identify who makes the application to do a job, who authorizes the job, who develops the necessary precautions, and who gives approval for work to commence.
- clearly identify high hazard work and the requirements/precautions to be followed

The PTW document sets out individual designations as to **who** has these individual responsibilities.

PTW 3.0 The Authority: The whole procedure is under the remit of the Terminal Operations Manager who was and is, Collin Piper.

We pause to note that this document sets out in tabular form the definitions to be given to various aspects of the procedure and defines the Method Statement, MS, as "a document that details the step-by-step approach a task or process or Procedure is to be executed. It outlines the hazards associated with each step..."

It seems clear that the MS is intended to provide a clear statement of the work to be done, how it is to be done and crucially, the order in which it is to be done and further, it must identify the individual hazards associated with those steps. It follows that if this is a correct interpretation of what a MS is to achieve when submitted by the Contractor, it is a matter for the Company to determine if that is in accordance with their understanding of the works and to change it if not content. This is important as we shall see, because the MS submitted by LMCS sets out the work that is to be done and the order in which it is to be carried out, without apparent demur by Paria.

PTW 5.0

This sets out the **Roles and Responsibilities** of the various designated parties to which we will refer below, however included here is one issue that became clearer upon hearing evidence from many sources at the CoE's evidential hearings – it is this, irrespective of your designation, from the Managing Director to tea-boy there was the power to "STOP the job and consult with the supervisor if there is <u>any</u> doubt on the job steps or safety precautions; or if conditions change." Our emphasis.

This general STOP as identified in the document empowered literally anyone to bring the work to a halt. We regard this as an important power in the hands of all staff (and even visitors) to halt the works.

PTW 5.1

TheApplicant–thiswasMarjadsinghwhowasaKensonemployeeand whohadbeenworkingatPariaforjust6monthsasamaintenancetechnicianunderthedailydirectionofTerranceRampersadsingh,Paria's

Maintenance Planner. His role is defined as:

...the person who initiates the job/activity by completing Section A of the Work Permit or Certificate. The Applicant must have the **necessary competence** to execute the job, or to **supervise** the execution of the job. He shall be knowledgeable of the hazards associated with the job and the necessary controls for these hazards. He shall be **responsible** for the job and for the safety of people who work on the job. (Our emphasis).

In his statement to the CoE dated 2 December 2022 Marjadsingh said in order to carry out his duties he was to be able to follow the job as laid out in LMCS's Scope of Works ... however he was not a supervisor and did not have to supervise LMCS, he confined his skills to the tasks associated with the pipework. Rampersadsingh's counsel assert "Marjadsingh **was** appointed to **supervise** the execution of the said works and not "undertake this hazardous work". That much is self-evident and entirely in keeping with Para 5.1 of the PTW but it would appear that Marjadsingh did not appreciate that given his evidence that "he was not a supervisor and did not have to supervise". He was quite clear about what he understood his tasks to be (see below) – they did **not** include supervision. This must be a failure of Rampersadsingh in either communication or understanding.

This CoE does not require evidence before it to determine that the role of Applicant under the PTW system required certain obvious skills, dependant on the nature of the job, but as a bare minimum the appointed person must **know** he is to supervise.

It appears to us that counsel for the "defence" of Rampersadsingh's appointment of Marjadsingh as the Applicant is as follows. First, he was a competent supervisor in the PTW system, but if we are wrong about that, then second, it is for Kenson to

ensure he was competent, but if we are wrong about that, then third, the contract (SOW) overrides his role as Applicant in this regard and it can be set to one side. We find this argument unattractive. The PTW system is Paria's: they insist on its use. The employment of Kenson as Contractees to provide these services is their responsibility: the direction given to the Contractee is Paria's. Kenson did not appoint Marjadsingh as Applicant Paria did. Rampersadsingh both wrote and signed the contract (SOW) and it was in his gift, or at least Paria's on his recommendation, to determine the scope and implementation of the PTW system, if at all.

Marjadsingh went on to say that his work for the 25 February 2022 was to 1. fill out the work permit; 2. ensure there was inspection of the Carber test on Berth #5 & #6; and 3. supply materials when needed. This fell significantly short of the requirement for an "**applicant**" on a work permit as defined above. In point of fact he did fill out part of the work permit and went on to attach the various documents including the Method Statement as provided by LMCS.

Under Paria's PTW system the role of the Applicant is crucial to the safety of the persons engaged on the project. Marjadsingh was clearly incapable of performing that task. He said in answer to a question from the CoE that his experience was in "pipefitting [and] fabricating, mechanical-wise", he had no experience in "offshore subsea maintenance work". Why on earth he was appointed Applicant to this hazardous work undertake remains a mystery. Paria's Counsel's response to that finding by us is:-

In making this statement the Commissioners once more fall into obvious error. The work which was to be undertaken was **not itself hazardous** in nature. LMCS' act of gross negligence in the course of executing the work created a hazardous situation which resulted in a Delta P

event. These are two fundamentally different things.

We reject that argument for the same reasons we give later in this Report but which is worth stating here first. We regard working in a pressurized habitat; partially below the surface of the ocean; in a confined space; with welding equipment and grinding tools; where gases could overcome you or ignite; with the only means of access and egress by the use of scuba equipment, through the ocean, as hazardous and a failure to recognise that by counsel, no doubt on instructions, from Paria perhaps epitomises why they failed to take the kind of action, we believe they should have, before this tragedy unfolded and which may have prevented it.

Since it is Paria's burden to pick a suitable person to carry out the tasks of the Applicant, and theirs alone, it rather begs the question as to how the contractor, LMCS were to know anything of the "Applicant's" background be they good or bad, or indifferent.

Marjadsingh's Counsel has sought to contend that "there was no basis in contract, tort or in fact for using the PTW alone as a basis for how the works ought to have been done on the relevant day". This is to fundamentally misunderstand the document. Its primary purpose is to ensure the controlling of risks associated with the works to be undertaken, not to direct how the work is to be done - that is the province of the Method Statement and the experience of the Contractors.

Marjadsingh agreed that he did not attend the Toolbox meeting in part conducted by Dhillpaul of LMCS prior to the works being carried out on Berth #6 as he attended the Toolbox meeting for the Carber Test on Berth #5. Quite why he could not be at both was never satisfactorily explained particularly as Dhillpaul conducted both. He also agreed that he was wholly unaware of whether the barriers in the pipeline were to be removed or not. It follows that even if he had been monitoring the works and seen the barriers being removed it would have been unlikely to have triggered him to stop the works.

At least one witness, conceded that the role of Applicant here should have been either the Contractor or, preferably an independent expert employed by Paria as was previously undertaken. Either way, any Contractor and in particular his employee, is entitled to believe from reading this PTW procedure (as they are required so to do) that they would be overseen by either someone competent to do the job themselves or competent to supervise the job. This would, in our view, provide a basis, in the mind of the potential contractor for there to be professional, competent, independent scrutiny of the execution of the job, providing reassurance that their MS and planned work was safe. That is irrespective of the contractor's requirement to supervise their own staff and the works.

We are reinforced in that view by virtue of the following additional responsibilities ascribed to the **Applicant** set out in the PTW para 5.1:

- Stop the job if, in his opinion, the personnel performing the work fail to demonstrate the adequate skill, training or competence to execute the job safely
- Continually monitor the job to ensure that it is performed in a safe manner and within the conditions prescribed in the Work Permit, Certificates and JHA/Risk Assessment. He may sign the Renewal Section indicating that he has audited the job.
- Stop the work if there are changes in site conditions that increase the risk or if new hazards are identified; and promptly notify

the Site Authority of these changes (our emphasis).

What is clear is that the Applicant has very considerable power over the job and those carrying it out, but necessarily he needs to be competent to be able to exercise that power and clear as to the role required of an Applicant. In our view, Marjadsingh, on any proper analysis of his evidence, was not. In truth it is not really all his own fault, he did no more than he was bid by his immediate line manager Rampersadsingh, but that does not mean he cannot exercise his own judgement. He had been trained in the use of the PTW and must have known what his role was.

We regard this as largely a failing of Paria, and in particular Rampersadsingh and by extension Wei¹², for appointing him when they must have appreciated he was not capable of supervising the works under their own policy. It ill behoves

¹² For the reasons we give later in this report

them to point to Kenson and claim they employed that firm to provide the competent staff to carry out the task when the responsibility for the appointment lies with Paria.

We shall have more to say about the requirement to "continually monitor" later in this report, suffice to say that Wei was at pains to suggest that Paria was not responsible for supervising the works although he accepted that it required to "oversee" and was "monitor". When this passage of the PTW system was put to him and it was suggested that the Applicant had to "continually monitor" to ensure compliance, his response was:

Continually, continually—okay, so this is specific to this permit, specific to the training, what I understand that continually is more periodically as compared to continuously—

Whether this was an entirely semantic difference or not, we do not have to determine¹³, what we can say is it clearly does not mean "pop-in when you feel like it" if its purpose was compliance with the Work Permit and safety! It is not sufficient to say, as Paria's lawyers do, that since Paria did not contemplate the removal of the plugs he could not be expected to monitor it, when one of the reasons for Paria to "continually monitor" was to ensure that nothing was done that should not have been done so that they could exercise their "stop all works" rights. If the Applicant, Marjadsingh, is not at the Toolbox meeting, not at the site where the works are carried out and not monitoring at all, how can he possibly do his job?

Recommendation 8

The Applicant under the PTW system utilised by Paria (or any

¹³ "Continually" has two possible meanings according to the Oxford English Dictionary: 1. Repeated frequently in the same way; regularly or 2. Without interruption; constantly. (this is the same definition

as given to Continuously) Since Marjadsingh did neither it is irrelevant here but it ought to be clear to anyone what is actually meant.

other Company using a similar system) must be able to properly supervise the job. This means it either has to be an in-house expert Representative) or an (Client the or independent expert Contractor themselves but, if it is the contractor then this needs to be spelt out specifically, as they are unable to carry out all the functions under the PTW system.

Recommendation 9

If the PTW system is to retained or emulated elsewhere in other Companies the extent to which monitoring by the Applicant is to be undertaken must be completely clear. If it is to be "continuous" then it must specify what that is to entail by identifying the periods over which monitoring by the Site Applicant or or Authority equivalent will be carried out. Consideration needs to be given to that course of action by the parties when identifying the work for the day.

PTW 5.3

Site Authority – here this was Mr Ramdhan of Paria. He provided a statement to the CoE on 30 September 2022. He is Paria's Operations Team Supervisor, he reported to Visham Harrichan, Paria's Offshore Team Lead. The Site Authority has a number of specific responsibilities which include issuing the Work Permit, WP, and to "Periodically monitor ongoing work, either in person or through his team, to determine whether site conditions been precautions have and maintained".

Again, we shall have something to say about the meaning of "periodically monitor" – it is our view that this is in <u>addition to</u> the responsibility of the Applicant to "continually monitor" and ought not to be delegated to him. In para 10 of the Task Schedule which is 7.0 of the PTW Procedure , it states:- The Contractor executes the work. The Applicant <u>and</u> Site Authority monitors the work...

PTW 5.6

Contractor Official – This responsibility fell to Rudolph Gonzales, from LMCS. His tasks included:

- Have a clear understanding of the job and the different steps involved
- Be knowledgeable of the hazards associated with the job and the necessary controls.
- Be responsible for the work and for the safety of all contractor employees associated with the job...
- <u>Remain on site at all times</u> or be represented on site by a suitably competent and authorized alternate
- Ensure that contractor workers comply with all precautions on the Work Permit and Certificates
- Promptly notify the Applicant and Site Authority of any hazards that

may arise or of any changes in conditions that increase risk...

It is clear both from the documents provided and the evidence of Ramdhan and Marjadsingh that the work permit had annexed to it the MS which so far as LMCS's workers were concerned represented the work to be done and the order in which it was to be done.

Paria's and Kenson's lawyers reject parts of the PTW system as being active because they say the contract - SOW - overrides it in such a way that the roles of the personnel changed. There was no need for them to monitor or supervise as that fell to LMCS. That is important because the PTW system controls both the works and the site and is populated by Paria and Kenson personnel save the Contractor Official LMCS from (Rudolph Gonzales). Paria and Kenson go on to say that there was a parallel duty under the contract for "...provide LMCS to competent supervision and all times...".

Therefore, some of the responsibilities of the roles normally ascribed by the PTW to Paria are now ascribed to LMCS. In written submissions received by the CoE counsel for Paria stated,

"In the context of the specific contractual arrangements agreed between Paria and LMCS those obligations which were ordinarily imposed upon an Applicant or Site Authority under Paria's Work Permit Procedure had been displaced and/or were simply not operative in the event that Paria or its agent was an Applicant".

So, even though the "Authority" was Piper, the "Applicant" was Marjadsingh, the "Competent Person" was Dopson and the "Site Authority" was Ramdhan, all employed by Paria directly or indirectly, their roles were limited to everything other than "continually monitor", "periodically check", "periodically monitor". As has already been made plain we struggle to place that interpretation on the Contract. We see no inconsistency in a belt and braces approach to what most agree was highly hazardous work. That LMCS should have a supervisor on hand at all times together with Paria keeping a watchful eye makes complete sense to us.

We make plain that this apparent analysis by Paria/Kenson feels like a post-incident analysis. No one anywhere in the events leading up to the tragic incident said "these roles need to carried out by LMCS" or the PTW has to be amended in some way to reflect that changed contract. On the contrary the language surrounding the use of the PTW has and is cast in imperative language such as *must* and *will*.

Recommendation 10

Specifically, for Paria they need to have an introspective look at their operations and make changes to the PTW system to effectively reshape the roles, obligations,

processes, and behaviours, so they reflect the auditable aims of the PTW system's safety practices. Precision and simplicity of language is key to the understanding of all those engaged in the use of the system.

- a. Annual review and updates of the PTW system¹⁴
- b. Ensuring that only preapproved and competent commercial diving companies are engaged, by ensuring the established Approved Vendor List (AVL) consists of companies whose Diving Health, Safety, Security, and Environment (HSSE) capabilities have been rigorously assessed and validated by а

Commercial Diving Subject Matter Expert.

- c. A separate Task Plan needs to be created to supplement section A on the Work Permit.¹⁵
- d. The Isolation Checklist and Certificate system must be implemented.¹⁶
- e. Ensuring that the Contractor Official signing the Work Permit on behalf of the Contractors is on site.¹⁷

THE METHOD STATEMENT/S - MS

The Project Execution Plan - PEP

There was some initial confusion about what document this represents. The first document to be ascribed the name MS is dated 6 May 2021 and

¹⁴ The last version of this document was dated 1 October 2019 although the document itself says the revision date is to be 30 September 2020. It was not revisited and as far as we know still has not been.

¹⁵ The space for this on the existing work permit is too small to cover all the tasks that may be needed to be entered on a Work Permit which is supposed to last up to seven days. Thus a separate Task Plan document is a safer way to

proceed supplementing the Work Permit section A making clear what is and is not to be done. We should observe Cmmr Wilson has some reservations about changing the Work Permit which he regards as fit for purpose – that is not a view shared by the Chairman.

¹⁶ We were told that this had not been implemented as yet

¹⁷ Rudolph Gonzales was LMCS's Contractor Official for 25 February yet he was on Berth #5 not #6

appears to be an initial Project Execution Plan, (to differentiate it from MS's proper we shall refer to it as such), to "approach in a general way involved". elements It all the described the need for both Paria and LMCS to conduct Job Hazard Analysis (JHA), Risk Assessments (RA) and to "provide methodologies" for the work to be done. It was upon this document that Ahmad Ali. risk LMCS's HSE. based his assessment.

It had a separate section for the "Procedure and Removal of Line Content between Berth #5 and Berth #6". It described the removal of the liquid content from Sealine 36 of allow the material to sufficient corroded section of the pipe to be replaced. That was to be achieved using an air driven pump to remove approximately 300 barrels of line content into a slops barge. It made clear that "once the level in the riser has dropped to 35 feet below sea level, line plug[s] would be installed."



Inflatable plug used as a barrier



Mechanical plug used as a barrier

In this PEP there was a caveat at the foot of each page which read "the information provided in this execution plan is to be interpreted as a guideline only..." and they reserved modifications to themselves in the interest of enhanced execution of the works and/or safety. This PEP was significantly altered and augmented when the full MS was produced by LMCS".

According to Wei that is precisely what happened because, as he explained, the Contractor would not have all the information to make a detailed MS at this stage.

It is clear LMCS had an advantage over other bidders because they had done work for Paria in the past. A similar project had been undertaken to Sealine 36 in 2020, the result of which was a performance rating by Paria of "very good" and which included an assessment of their degree of compliance with Paria's SOW.

It is from the experience of these works that LMCS devised a check-list for works carried out in a hyperbaric chamber. Ahmad Ali claims to have used the checklist on the 15 February 2022 but the document was seized by Paria on the 25 February 2022 when the incident occurred. Suffice to say we have never seen it although Ahmad Ali does not specifically claim to have used the checklist, in fairness to him he was not asked by anyone at the enquiry and therefore the safe course is to assume he did.

Ahmad Ali secured a Safe to Work Certificate, STOW, for LMCS on 3 February 2021 which lasts for two years. This certification provides the minimum standard for Health, Safety and Environmental requirements. It is not compulsory for the industry although Paria required it from their bidders.

Recommendation 11

All Companies which seek to rely on Contractors to provide commercial diving operations must ensure they have а wellestablished Diving Safety Management System (DSMS) which follows a known industry

standard beyond requiring a STOW certification¹⁸

THE CONTRACT

The contract was awarded to LMCS on the 1st of June 2021 in the sum of TT\$5,225,630 without VAT, about TT\$550,000 less than what Paria estimated they would have to pay.

Manmohan The evidence shows Terrance appointed Balkaran Rampersadsingh to oversee the works. He in turn had the support of whose Houston Mariadsingh, responsibilities we have already referred to and Rajiv Mangalee along with the terminal operations personnel such as Kurt Scott and Andrew Dopson both of whom also worked for Kenson.

Dopson took his instruction from Paul Yearwood, Paria's HSE Co-ordinator, an experienced employee. His instruction was to "...make periodic visits to the site and to provide some HSE oversight. His role was to support the maintenance technician assigned to the job in ensuring that it was being done in accordance with the risk assessment and the Permit to Work documentation."

That Dopson took instruction from a more senior member of Paria, Yearwood does not absolve him of all responsibility. The mantra that "I was only obeying orders" doesn't work. He knew his role as the "Competent Person" under the PTW system and what that entailed. He needed to be *au fait* with the MS and what it required, which included "identifying any deficiencies in equipment" and the "potential adverse

critical operations of commercial diving. Paria should entrust its diving operations to contractors with wellestablished Diving Safety Management Systems (DSMS) who follow a known industry standard.

¹⁸ STOW can be summarized as minimum HSE prequalification requirements for the T&T energy sector. It is not adequate, nor can it be so considered to match the mature processes achieved in verification and assurance systems required to manage the safety

consequences". This is turn entailed "periodically check[ing] the site and equipment", the migration barriers were part of the equipment. In evidence he accepted that he regarded it as his duty to ensure that the matters referred to in the Work Permit were complied with, which necessarily included the migration barrier as, according to Paria, one of the principal reasons for it being there was to prevent fire from the Hot Works.

Counsel for Paria have sought to suggest that Dopson's sole responsibility was for the Hot Works. That is not the position as we see it, as the Competent Person under the PTW system, his responsibility was for all "high risk jobs" which also included confined space entry, ie the Chamber.

Works on the project began on 29 June 2021 but were suspended between 2 July 2021 and 5 January 2022 due to an incident which occurred when an LMCS employee was injured on site. The Occupational Safety and Health Agency, (OSH Agency) issued a Prohibition Notice on 6 July 2021 and all works ceased. The works did not resume until 7 January 2022 after the OSH Agency issued a Certificate of Compliance on 5 January 2022.

LINE CLEARANCE

METHOD STATEMENTS

True MS's were prepared for the removal of both the line contents from SL/36 between Berths #5 & #6 and the repair of the sealine at Berth #6.

MS 108 & 115 phase 1 and 2

These documents were prepared by LMCS dated the 1 December 2021 and 5 February 2022 respectively: they set out a methodical step by step guide to the removal of the line content by air blowing. There is attached thereto a job safety analysis' which once again fails to identify ΔP as a potential hazard.

Prior to the creation of the second of these documents Paria had created its own document entitled "Clearing of 36SL Section between Berths #5 & #6". This document, was actually Paria's Work Instruction created some time prior to the 5 January 2022, reviewed by Harrichan, approved by Jason Beckles and authorised by Collin Piper, all of whom are Paria employees. The document is controversial in that a number of witnesses were at pains to point out that this was an entirely internal document not intended for use by the contractor. This has been reiterated by Paria's legal team. We do not accept that evidence.

It is clear from the evidence that there was a Teams meeting on the 30th of November 2021. That meeting called by Rampersadsingh was attended by Harrichan, Beckles, Wei, Balkaran, as well as Ali Snr. and unidentified members of LMCS, the subject of which was said to be the draining of sea line 36. Counsel for Paria argue that there is no evidence to make that finding and that it was just to discuss scheduling issues. First, we note that the Agenda as drafted by Rampersadsingh says "to confirm draining *procedure* for 36SL" not schedules and second, to have a meeting attended by all these senior people from Paria and LMCS to discuss the schedule seems highly unlikely.

Ever since the first PEP back in June of 2021 and the award of the contract to LMCS there were concerns about the method to be used to clear the line. Two new MS's were created by LMCS MS108 and MS115 which as we have said were for the two phases of the draining operation. We cannot hold too much store by the dates on these documents because MS 115 (phase 2) is dated 5 February 2022 when the work had been completed. The 30th November meeting may have had a draft of LMCS's MS 108 since it was dated the very next day as was the JSA associated with it.

In an email from Michael Wei dated the 28 December 2021 and sent to the same personnel at Paria but now including Collin Piper and Catherine Balkissoon, he enquired if the sealine at 36 had been cleared. It is plain from the email chain that Michael Wei was anxious to ensure the line was cleared as soon as possible so as to get the works completed. In a further email from Jason Beckles dated the 5 January 2022 he attached a draft of the Work Instruction for review. This email chain was circled widely amongst Paria's senior staff but it excluded anyone from LMCS until agreement was reached on the 10 January 2022 when Terrance Rampersadsingh separately sent the completed document he had to both Ali Snr. and Jnr in an e-mail which was copied to the Maintenance Lead from Paria Balkaran.

The email reads "please see attached signed draining procedure let us meet tomorrow at 10:00 AM to discuss draining schedules..." (our emphasis). The idea that this

document was not intended to be used by LMCS in the light of that email is simply not credible. The revised MS 115 prepared by LMCS came less than four weeks later. It is argued by counsel for Paria that the email was an administrative matter only dealing with scheduling: again we cannot accept that interpretation. The document was sent to LMCS as an attachment to an email by Rampersadsingh (Paria's Planner) under the rubric of "draining procedure" asking for a follow-up meeting to discuss scheduling. By that we understand the intent was the "procedure" was set in stone all that remained was "when".

It is accepted that the Work Instruction contains matters that only Paria employees can carry out but equally it contains matters which only the contractor can carry out. It is plain to us that this Work Instruction was used by both Paria and LMCS personnel even if it could reasonably be argued that this was not Piper's intent. Ramdhan, Paria's Operations Team Supervisor in the Terminal Operations Department reported to Harrichan who reviewed the Work Instruction authorized by Piper and was quite clear in his evidence that LMCS drained the lines between Berths #5 & #6 in accordance with the Work Instruction with an effective date of 5 January 2022. When this evidence was put to Piper he said he did not know what Ramdhan meant and insisted this was an internal document only.

It is important to remember that one of the few responsibilities retained by Paria over the works under the Technical SOW as set out in paragraph 4 under the rubric Paria's Responsibility is the vital task to personnel to oversee "provide isolation/deisolation, depressurisation /pressurisation and draining/ filling product from lines at Berth #5 and Berth #6". We suspect that is what Ramdhan was referring to when he made his statement recognising that

the Work Instruction mirrored Paria's responsibility under the contract.

If we were in any doubt about the use to which LMCS were required to put this document described in its heading as a "Work Instruction" we observe that the SoW (Technical) provided to the bidders in April 2021 by Paria at S.8 states: "Contractors contracted personnel are and required to follow the permit to work procedure and standard work instructions at all times". (our emphasis). We had assumed that Work Instruction and Standard Work Instruction were of the same genus.

We indebted to Counsel for Paria that the reference to the requirement for all contractors to follow "Standard Work Instructions" at all times in the Technical SOW at para 8 on page 36 relates to HSE issues but. in "Standard Work particular, that Instructions" and "Work Instructions" are not the same thing. There were in only two "Standard Work fact Instructions" in existence at the time:

one related to driving safety and the other to excavation (digging ditches). On examination these are headed "Safe Work Instructions", yet another genus of the Work Instruction type. We are content to accept that they are not all the same thing. However, if as a contractor you are sent a document headed Work Instruction why would you not regard it as just that? It is at best confusing to have documents labelled "Standard Work Instruction", Safe Work Instruction" and "Work Instruction" with the former two being compulsory to follow by Contractors and the latter apparently not even supposed to be in their hands!!

It seems to us that the provision of the Work Instruction to the contractor meets the legal obligation placed on the Company for "An employer who employs an independent contractor to execute inherently dangerous work from which, in the natural course of things, injurious consequences to others must be expected to arise

¹⁹ Halsbury's Laws Vol. 97A (2021) at 381

unless measures are adopted by which such consequences may be prevented, <u>is bound to see that</u> <u>everything is done which is</u> <u>reasonably necessary to avoid these</u> <u>consequences</u>"¹⁹ (our emphasis).

Having established to our satisfaction that the Work Instruction *was* in fact used (whether intended or otherwise) by those responsible for clearing the line, LMCS personnel, and overseen by Paria personnel, we note the following facts to be drawn from it:

- The document describes the task as "clearing of the line" between Berths #5 & #6.
- Collin Piper has the overall responsibility for ensuring the procedure is established, reviewing and approving the Work Instruction.
- That the Offshore Team Lead has direct responsibility to ensure compliance with the

procedure by reviewing and approving the work instruction.

- To follow the steps set out in the document for the "clearing of SL36 between Berths #5 & #6"
- Periodically monitor the level of product in the riser via the gauging port.
- Operator to be assigned for monitoring.
- Tank 111 was to be used for the incoming line content and to be monitored.
- All risks associated with this job are covered under JSA 108 (LMCS's document dated 1 Dec 2021).

Nothing in this document suggests that only a part of the SL 36 was to be drained to create an ullage of sufficient depth to install the plugs above the remaining content.

It is pointed out by counsel for LMCS that 5. above "Periodically monitor the level of product in the riser via the gauging port" has been "totally ignored by the CoE" and argued that "Logically, if one is to remove all of the content, there is no necessity for monitoring the extraction process. In the value of consequence. monitoring the extraction of the line content is directly related to LMCS methodology of having a "leg of liquid" and to create the "ullage" for the replacement work". We do not accept that one is the logical conclusion of the other. Monitoring should be done both to ensure that some material was coming out, and (perhaps) what it contained but, crucially if you wanted to drain the line "monitoring the level of product in the riser" would tell you when it was empty. If you have been airblowing rather than pumping for days and extracted hundreds of barrels of fluid how could there still be a level of ullage claimed to be sought without there being a recognition of the existence of potential voids either or. the evidence created as suggested, already in existence, or both?

Additionally, and crucially, as Khan in his expert report and evidence made clear, that if there was more air coming out than liquid there must by definition have created a void which should have alerted the contractor and the Company to a possible ΔP issue.

Nothing in either of the MS's produced by LMCS suggests that only an ullage of 30' was to be achieved so as to install the two plugs. The only place where that can be seen is in the, now superseded, PEP dated the 6 May 2021.

The evidence of Ali Snr. on this is that it was always his intent to remove only sufficient content from the Line so as to create an ullage of approximately 35' below sea level. This had to be done by first removing the material from the topside pipework and then having isolated the subsea pipeline between Berths #5 & #6, the removal of sufficient content to leave the line with a 30'/35' ullage. This is what he intended to convey in his 6 May 2021 Project Execution Plan. He had originally estimated approximately 300 barrels of content would need to be removed by pumping (although that would seem to be excessive even by his own yardstick measurement of one barrel per foot): that changed to air-blowing – that was to have a major effect on the creation of the ΔP issue.

In a somewhat desperate attempt to avoid the consequences of the airblowing of the vast quantity of material from the pipeline Paria argue that MS 108 and MS 115 (revision 1) prepared by LMCS refer in the documents to the removal of the contents of SL36 to a "segment" only, when it is self-evident that SL36 is not confined to the section of the pipe between Berth#5 & #6 but extends beyond that "segment" at both ends.

The removal of the material was in two phases, Phase 1 – Topside: although the amount of material removed from the topside of Berth 6 is to a large extent irrelevant. Phase 2 – Subsea: this is what matters, how much material was removed from the isolated sealine between Berths #6 and #5? In a series of schedules produced by Paria's maintenance department for 2022 entitled Daily Work Reports, there is a breakdown of the quantity of material removed from the various pipelines into either the tank farm or slops barges.

These Daily Work Reports are very revealing. The topside, has what appears to be an accurate measure of what was removed from the lines some 916 barrels. This was achieved between the 18 and 21 January 2022. was then The topside piping removed/isolated and a connection made between the riser at Berth #6 SL#36 and SL#66 to "assist with phase 2 air-blowing". It would appear that this was done just so that the material in the subsea pipeline had somewhere to go when the blowing started. In other words, the material would be blown through the pipework to the onshore farm facility where it was supposed to be measured and stored.

One now imagines a large **U** shape representing SL/36 between the Berths #6 & #5 with a pipe connecting the top of the left-hand side (Berth #6) to a line (SL/66) to take away the blown fluid. At the other end (Berth #5 on the right of the **U**) is a valve into which a compressor is connected to air-blow the line content out.

It is important to record that in Kazim Ali Snr.'s written evidence of the 5th October 2022, ie his amplified that "the statement. he says procedure to remove the liquid was modified after much discussion with Paria and LMCS...[and the use of] air to remove the liquid was developed by and approved by Paria for LMCS to execute". He expected to achieve the necessary ullage that way. He did not. He went on to say that after two days the pressure being used was insufficient to displace the liquid into storage tanks ashore and so they decided to

use Paria's slop barges which according to him only had a capacity of 25 barrels. For the uninitiated, as the Chairman was, a barrel is just 42 gallons²⁰. Ali Snr. says only 2¹/₂ barge loads were used, ie circa 62¹/₂ barrels. Of course, if the sealine between #6 and #5 was level using the one-footper-barrel measure explained to us by Ali Snr., that would equate to approximately 31 feet at either end the ullage sought. However, as we shall see that is not the true picture. (our emphasis). Ali Snr.'s assertion in his statement that the decision to use air to displace the liquid was a joint decision is apparently not now accepted by Paria although it was not challenged.

What actually happened next is best described in tabular form. We have examined the Daily Work Reports for the relevant days which we understand to be contemporaneous documents.

Date	Job Status	Amt
31/1	SL/36 Riser	
	removal of topside	
	piping and solid	
	blank fitted with	
	hoses for phase 2	
	air-blowing	
1/2	Oil levels checked	
	on SL/36 riser at	
	Berth #5 using a	
	dipstick. ¾ full	
2/2	Phase 2 air-blowing	276
	4 hours. SL/36 to	
	SL/66 tank	
	received 276 Bls	
	Oil level checked	
	on SL/36 at Berth	
	#5 using a dipstick	
	estimated to be 1⁄4	
	full with oil –	
	"continue draining	
	tomorrow"	
3/2	Phase 2 air-blowing	55

²⁰ It may useful to know that 10 imperial or UK gallons = 12 US gallons. One barrel of oil is 42 US gallons or 35 UK gallons approximately.

	plus the unknown quantity		
		Total removed is at least 331 bls	
	Total removed		
	quantity unknown		
	SL/36 to SL/66		
	4 hours.		
4/2	Phase 2 air-blowing	u/k	
	received 55 Bls		
	SL/66 tank		

It is not clear why there was no quantity given for the 4th of February but if the rate of removal is the same as that shown in previous days it seems reasonable to assume that at least 100 barrels were removed. We are not prepared to ignore it altogether as we are of the view that if nothing was coming out then why continue for 4 hours? Neither should a failure of the Company to accurately record what was being removed be relied upon by them to excuse an of material quantity excessive removed from the pipeline. On any reasonable view of the evidence we are dealing with in excess of 400 barrels as a bare minimum.

It is worth observing that the only LMCS person alive who was present for the line clearance is Dexter Guerra. The other members of the crew were Ali Jnr. Kurban, Nagassar and Henry; Boodram was off ill over this period and Ali Snr. attended only periodically. Guerra is quite clear that he was only seeking to remove the necessary ullage - 30 feet and that when he had exposed the Line phase 1 of the Line following clearance the liquid was 4' from the top. It follows that there needed to be removed a mere 26' more. In evidence he said he was surprised to learn, for the first time, that something in the order of 500 barrels (bbls) were removed from the sub-sea pipeline in order to create the ullage needed. Even assuming we were wrong and that it was closer to 400 bbls the point is still well made. But even the Ali Snr. prognosis in the PEP for the removal of 300 bbls was a vast amount more than could ever have been necessary to create the desired ullage of 30'/35'. Guerra said that he achieved this by using a dipstick at Berth #6 only and that they did not record the dipstick measurements each time they did it. That is to be regretted. We also observe that had there been a dipstick taken at the other end ie Berth #5 everyone would know there was an issue if it were not the same distance from sea level at each end.

Ali Snr.'s account was further augmented in a supplementary statement he made on 8 November 2022 in which he says the following:

"I estimated the contents to be removed from top side piping would have been approximately 300 barrels based on one foot of pipe containing 1 barrel of liquid I estimated the topside piping would have been about 300 feet".

We are not convinced that this is an accurate statement. Ali Snr. is referring to his original PEP of the 5 May 2021. Immediately after the reference to the removal of 300

barrels it says "Once the riser has dropped to 35' below sea level a line plug will be installed".

That simply does not square with the proposition that the 300 barrels was to be from the topside only. According to the Daily Work Reports 916 bls were removed from the Topside piping. Is the experienced Ali Snr. so inaccurate as to be more than 300% wrong? We think not.

Using the conservative one-foot-perbarrel measure it follows that something in the order of 400 feet of the material from the subsea line was removed. We were told that the length of the pipeline from Berths #6 to #5 was approximately 1200 feet in the horizontal and 120 feet in the vertical (60 feet at either end). If these figures are correct, in short one third of the material was removed from SL/36 between Berths #5 & #6 but such was the paucity of accurate records it could have been much more.

When Ali Snr. was asked by Maharaj SC if he had asked Paria's operations how much material was being received into their oil tanks he said, he was told "negligible". Whether this is accurate or not perhaps is not to the point as clearly the contemporaneous records recorded some, if not all, of the material being removed. If that was not conveyed to Ali Snr. then it certainly should have been or he should have asked.

But, and it is a big but, surely if the sealine was isolated from the rest of the pipework topside so that all that was left was the subsea U pipe between Berths #5 & #6, he must have realised that continuous blowing for hours, over several days was likely to have removed significant amounts of material from the pipe. Certainly, more than the ullage he claims he was looking for. le 30'/35' at either end which adds up to 70 feet, in total, using his rule of thumb, at the most 70 barrels, not hundreds. Guerra told us that when the line was open the fluid was about 4 feet from the top of the riser thus requiring no more than 26' to be removed.

As was pointed out during the enquiry if all you wanted was 30' or 35' of ullage one could almost have done that with a bucket and rope! That may be a bit of Chairman's licence, but Ali Snr. was asked whether he would be surprised to learn that apparently 500 bls of material was removed from the subsea pipeline, unsurprisingly he said he would (we do not imagine that if the question was 400 bbls the answer would have been anv different). What's more, he conceded that this would have created the environment for a ΔP hazard. He went on to agree that with the benefit of hindsight knowing the quantity of oil removed from the pipeline was critical to determining whether there was a potential for latent AP hazard to be created.

During the course of the evidence we asked for Bathymetric Charts and any survey maps of the seabed between Berths #6 & #5 which Paria supplied, dated 2014. Insofar as we are able to discern there is a difference in depths between Berths #6 & #5, it being deeper at #6. But only by a matter of a few feet. Whilst it is true that this information was not passed to the contractors before they submitted their bids or indeed before the works were undertaken by LMCS we have concluded that should not have made any difference to the amount of fluid to be removed to create the necessary ullage, whilst it may have made a difference to the creation of air pockets.

We received some late submissions from the Institute of Surveyors of Trinidad and Tobago (9 March 2023) for which we are grateful, in which they point out some of the difficulties that arise when there is no accurate cadastral of the seabed. These were explored during the enquiry and as aforementioned we were provided with bathymetric maps prepared by a respectable firm. There is no evidence that LMCS or Paria factored in any slope to the pipework or indeed if there were any undulations.

It appears to us that whilst there may have been an initial view taken by LMCS to drain only that part of the line that was necessary to create the desired ullage that is not how the work was finally conceived or performed. If that were the position it is remarkable in the extreme that both LMCS's Method Statement's and Paria's Work Instruction omitted such an important fact – not least because it would have saved both time and money.

We are of the view that there was on its face a completely different approach taken to the clearing of SL#36 by Paria than originally (if it were ever so) conceived by LMCS. In the Supplemental statement produced by Ali Snr. he was emphatic in his understanding of what was sought to be achieved, he said:

"I did not propose the removal of the entire line contents between Berths #5 and #6 because we

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wanted to set the plug on a solid leg of liquid. We didn't mention ΔP in our discussion in the method statement or risk assessment but, that was to be taken care of by ensuring that there would have been no pressure difference across the plugs. Everything we did was to avoid creating a void in the pipeline which is why we tried to ensure that we had a column of liquid under the plug in the riser."

And later

"I did not think from the work instruction that Paria wanted me to clear the entire SL/36. Paria did not do their own risk assessments for the clearing of the lines but had oversight and final approval of all method statements and JHA's"

This account of trying to avoid creating a void is a tacit recognition of the potential for a ΔP hazard from before the work was carried out. Why that was not identified and dealt with in any paperwork especially in a JHA/JSA (Job Safety Analysis – it's the same as the JHA), by anyone until after the event is beyond our ability to fathom, lest it be less than the truth.

It cannot be made any more pellucid than that the Work Instruction issued by Paria, on 5th January 2022, which LMCS *must* follow, under their SOW document, says in bold at its head "*clearing* of 36SL Section Between Berth #5 and Berth #6". Under S.6 Procedure it states: "*The following are* the steps that should be followed for the *clearing* of #36 sealine between Berth #5 and Berth #6." (our emphasis).

None of the Paria witnesses set out in any statement that the line was only to be partially drained or even partially "cleared". Harrichan from Paria was intimately involved in the Work Instruction for the clearing of the line at #36. He attended meetings with Paria and LMCS personnel, he reviewed the instruction provided to him by Paria's Operations Team Supervisor, Curt Dyer, sent it to Acting Offshore Team Lead Beckles for approval and to Collin Piper for authorisation; all signed it in their respective capacities.

When Harrichan was asked whether he was aware that the Scope of Works document provided to the bidders had an Addendum in which a Paria Representative at a meeting with all parties on 14th May 2021, said that the line was to be "clear and dry", he replied that he was unaware of that. We find that answer difficult to accept as the document specifically requires signatures from the parties to sign it, such is its importance. Frankly, if he really did not know, he should have. He was Paria's Offshore Team Lead reporting directly to Collin Piper. This was a matter directly in his purview.

In Harrichan's statement dated 28 October 2022 he appears to be quite clear about the clearing of the line. When dealing with the topic of Hot Works Certificates (HWC), he said that they were required because the tasks used equipment which may

cause a spark. "Prior to the issuance of the HWC's the line was cleared of hydrocarbons in accordance with the Work Instruction ... " (that he had been instrumental in preparing). "The clearing (or cleaning) of the line of hydrocarbons was therefore consistent with Paria's PTW procedure which required mitigation of the credible risks associated with performing Hot Works..."

And a couple of paragraphs later:

"Therefore, the clearing of the line was one of several precautions intended and designed to safeguard the employees of LMCS".

It would appear to us that at the time of the writing of his statement he was in no doubt about what "clearing the line" meant, albeit he was a little more reticent in evidence, the overall effect of which was that he should have looked a little more closely at the amount of material that was being pumped out of the line. Clearing to us means just that – clear the line. If it was to mean something else, it is essential that it is spelt out in the most explicit of terms so that everyone knows what is intended and what is expected of them. It is our view that this is at best ambiguous as was conceded by a number of witnesses.

Ahmad Ali, LMCS's HSE, claims in his supplemental statement dated the 31 October 2022 just 8 days before Ali Snr.'s supplemental statement, that he was:

> "....satisfied that based on the Method Statement a scenario of the men entering the pipeline would not have occurred because the Method Statement that we remove reguired enough line content only sufficient to give us room to install the plugs while leaving the rest of the contents in the line. Therefore, we would not have created a void in the line which would have enough space for something to be

sucked in. By leaving the contents we minimised the void space. In addition, whilst the works in the hyperbaric chamber were ongoing the other end of the pipe or riser would have been blanked and therefore airtight. I'm aware from the work experience at LMCS that this was to prevent the risks occurring."

We have to say that this post event account apparently recognising that ΔP was alive and well in his mind sounds a little hollow. If Ahmad Ali had considered the risks associated with △P but rejected it as having been mitigated that should have been in his JHA/JSA. It is not. Frankly, we find his account difficult to accept. As his counsel said in her reply to the Salmon letter "The primary role of HSE Management system is the facilitation of the processes including risk identification, risk assessment and risk responses". It is simply not identified, not assessed and therefore devoid of a response.

First, in both of LMCS's Method Statements, which were written in the weeks before the work was to commence, there is a complete failure to mention removing only enough for an ullage of 30 or 35 feet.

Second, the one document which does mention the removal of just 35 feet of material from the pipeline, erroneously called а Method Statement, is in fact the Project Execution Plan, PEP, dated 6 June 2021. It also suggests to achieve this ullage, 300 bls would need to be which removed. on anyone's evidence is woefully inaccurate.

Third, the PEP has been superseded by the Method Statements, the whole point of which is to provide a detailed step-by-step account of the works. This in turn allows HSE to trawl through it, identifying the potential hazards and setting out how to either eliminate them or reduce them to the bare minimum. This is what is called a Job Hazard Analysis, JHA/JSA which

then accompanies the Method Statement. "It is a form of risk assessment that still identifies scenarios and hazards and puts control measures in place to reduce risk..." What it does not do is to remove the issue from either the Method Statement or the JHA/JSA. It is not good enough to dismiss this as being omitted on the basis of it not being a "credible risk" as asserted by counsel for Ahmad Ali in her Salmon response, praying in aid that a risk of an earthquake wasn't assessed either. But, if that is a credible risk (and we take judicial notice of the fact that there are over 60 seismic events in the T&T region every year) it should be.

In the JHA/JSA of the 6 December 2021 the Job Task is described as "*Clearing SL 36 Line Contents Btn Berths 5 & 6*". It gives the Assessors as, Ahmed Ali and Ali Snr. and under the heading "interacting with product line" it has as a control measure "communicate with Client to ensure nature and expected amount of product in line is ascertained prior to start of works".

expression the First. why use "clearing" if that is not what was intended? And second, why do you need to know the expected amount of product in the line unless it is to clear it? Finally, the JHA/JSA has at the footer of each page the name of the document for computer storage, it reads "JSA115 SL36 Draining Btn 5 & 6 Phase II 06DEC2021 R0". We cannot but wonder why it would refer to it as "draining" if it were for "required ullage". Whilst this is not of great moment it simply adds to all the contemporaneous written indicators being for the clearing of the line.

In fairness to both Ali's there is an email dated the 4 January 2022 from Ahmad Ali to Rampersadsingh which despatched the Method Statement for the substantive works on Berth #6 to replace the leaking line which referred to, *"These works will follow reduction of contents in the line between Berths* 5 & 6..." This appears to be the sole reference to the true picture as Ali Snr. would have it since the dubious reliance on his PEP eight months earlier. Be that as it may it does lend some support for the claim that it was always his intent to remove only the desired ullage. However, that email is dated the day before the Work Instruction issued by Paria on the 5 January 2022 which as we have seen is in somewhat different terms and predates that actual work itself by about a month. Whilst this may be evidence of Ali Snr.'s intent it is not what we believe ultimately happened.

In Ali Snr.'s revised statement he says, "Pressure differential across the plug though not discussed in the JHA would be eliminated by liquid leg under the plug and movement of the column of liquid reduced by installation of blank on the riser at the Berth #5 end" sic.

In his evidence Ali Snr. contradicts that account as he says there was no risk assessment concerning ΔP as he did "*not contemplate the possibility*" of

a void in the pipeline being created, this only came with the benefit of hindsight.

These differing accounts, it seems to us, come about as a result of a recognition by those at LMCS to fail to adequately consider and then to eliminate or mitigate the risk of a ΔP issue arising when removing the material from the pipeline. It is beyond doubt that it was never documented. There can be no doubt that the conditions for a ΔP scenario were hatched at this time.

In the **In-Corr-Tech Report** prepared by Zaid Khan on behalf of the Occupational Safety and Health Agency, OSHA, he concluded that:

> 3.1.1 "The removal of contents with respect to quantity and method in line SL36 between #5 and #6 Berths was the underlying factor that led to this accident. The removal created a gaseous void in the riser and sea line setting up a latent

differential pressure (ΔP) condition between the habitat and a large gaseous void in the sea line..."

And at:

3.1.3 "...Paria's Maintenance Department as recorded by OSHA, stated that line contents were indeed removed by air blowing from #5 Berth to #6 Berth. This technique although not stated in LMCS's Method Statement or in Paria's SOW would have definitely removed way in excess of the optimum quantity of oil from the line..." (our emphasis)

And crucially at:

3.1.4 "Changing the method of oil removal from the line from using an air driven pump as per LMCS Method Statement to forced air blowing from Berth #5 resulted in a dramatic increase in the risk profile of the job". Having heard the evidence on this matter the Commission has little difficulty with accepting those findings.

RE The capacity of Sealine 36.

Mushtaq Mohammed was and is Paria's Terminal and General Trading Manager

On the 13 January 2023 the Chairman of the enquiry raised with lead Counsel to the enquiry Maharaj SC the contents of a letter dated 20 July 2022 that was sent by Mushtaq Mohammed of Paria to a Ms Fayola McDonald of the OSH Agency seeking to answer certain queries that they had raised in a letter dated the 1 July 2022.

Of particular interest were the following two queries and answers set out below and numbered the same as in the letter:

4. The volume of hydrocarbon remove from sealine 36 between Berth #5 and #6 prior to the installation of the subsea slip-on flange 30" diameter as per method statement. sic

Response:

Given the configuration of the system it is impossible to segregate and measure the displaced volume.

5. The volume of hydrocarbon removed from sealine 36 between Berth #5 and #6 after the accident.

Response:

The volume of hydrocarbon removed is estimated at 125 bbls. The quantity is based on the estimated spilled hydrocarbons (6 bbls) and the recorded volumes of hydrocarbons recovered in the Sea Manatee (119.8 bbls). In a written response from Mohammed dated 27 January 2023 he gave 11 reasons (really only 6) why the answer to those queries was entirely accurate.

We deal with some of them herein but before we do we would observe two matters: first, it must have been well appreciated by Paria that OSHA have just 6 months from the date of knowledge by an inspector of an alleged offence under the Act²¹ to complete their assessment of an industrial accident and consider whether to prosecute. This requires timely responses from the companies involved. It took nearly three weeks to reply to OSHA's gueries coupled with a request for yet more time to the 29 July to deal with a further enquiry from OSHA, leaving them with a little over three weeks to make a decision.

Second, our response from Mohammed is a rather more comprehensive reply to the few-line response that was provided to OSHA which on any view ought to have been made then.

a) At all material times Paria did not know the volume of hydrocarbons contained in Sealine 36. The Sealine had been out of Commission for a considerable period of time during Petrotrin's... operations due to a leak. Additionally, Paria had no estimate in its possession as to the volume of hydrocarbons in the line. Whilst that may be strictly true it could have provided an estimate of the amount that the line could hold when and if full. They could have checked the records to see if there had ever been any removal of material from the line during its period of dormancy. That was not done.

²¹ On its face the Inspector Dion Lawrence knew of the potential for a breach of the Act on the 25 February 2022, Arguably he did not formulate

that view until 27 February 2022 when he submitted his Incident Brief Form IBF to his senior officer, Shevon Ali.

- b) Sealine 36 which is 30" in diameter was temporarily connected to Sealine 66 crude system which is 50" in diameter and consists of a network of pipes configured in a non-linear fashion which in turn fed into storage tank no. 111 during the relevant period.
- Although Paria d) does not precisely know the volume of hydrocarbons which were contained in Sealine 66 piping network during the months of January and February 2022, it does know from the general nature of its operations due to thermal expansion and it's loading operations, that Sealine 66 is normally not completely filled with hydrocarbons thereby leaving vapour spaces within the line. Those vapour spaces have been known to range anywhere between 3% and 5% of the capacity of the line.
- employed e) The method by LMCS for moving hydrocarbon content out of Sealine 36 was air blowing at a pressure of Further given that 40psi. Sealine 36 empties into Sealine 66 and Sealine 66 in turn is emptied into storage tank 111, air blown in this manner will not be confined to Sealine 36. It will necessarily filter into Sealine 66 and tank 111.
- f) Accordingly, the process of air blowing caused both the movement of hydrocarbons contained in Sealine 36 and the movement of hydrocarbons contained in Sealine 66. The process of air blowing:

* resulted in a <u>co-mingling</u> of hydrocarbon content from <u>both</u> Sealines within Sealine 66 which was ultimately emptied into storage tank 111: and/or

* caused hydrocarbons from Sealine 66 to be moved into tank 111 without a measurable volume attributable to Sealine 36

- g) Paria's "maintenance department daily work report" <u>does not</u> constitute a record of what volume was drained into storage tank 111 from Sealine 36 only but is instead a combination of hydrocarbons derived from <u>both</u> Sealine 36 and Sealine 66.
- h) Accordingly, although Paria's "maintenance department daily work reports" which are in evidence before the Commission show approximately 1247 barrels of hydrocarbons... being drained into storage tank 111 that aggregate figure cannot properly be attributed to content from Sealine 36 only.

We regard it as a commonsense view that if you push (airblow) a barrel of fluid into a pipe at one end, you'll get a barrel of fluid out of the other end. Even if there is some loss by the filling of voids of a claimed 3% to 5% in Sealine 66, Paria was able, with that caveat, to give a minimum that was pushed out of the line.

It may be that given Sealine 66 is very long, 14,025 feet, which we have been told contains up to 33,660 Bbls and only a relatively small amount was pushed out of Sealine 36 - only approx 1,320 feet long which may contain a max of say 1,550 Bbls - there is some loss en route. It seems to us that there is every likelihood that none of the material that was drained from Sealine 36 ended up in Tank 111 - it's all in Sealine 66. Surely that does not matter as we do know that a significant quantity of material ended up in the storage tank and in the barges - it got there because

the material was being pushed (air-blown) from the other end.

Even given your 3% to 5% of possible void space (which equates to between approx 400 Bbls and 700 Bbls). We know as a matter of fact that an absolute minimum of 1250 Bbls was removed during the operation and so could not have just filled the void.

It seems to us that what really matters here is that Paria <u>was</u> in a position to give a minimum amount that was removed from Sealine 36 which was what was being sought by OSHA. That was not done.

i) Further the figures shown in Paria's "maintenance department daily work reports" ought to be viewed with caution and treated as potentially unreliable. This is because temperature correction factors were never used for the

the recorded on volumes "maintenance Paria's department daily work reports" relative to the quantity of drained into hydrocarbons storage tank 111. In this connexion it is critical to note that a 5 degree difference in a tank temperature during the course of the day accounts for a difference of measurement of 401 barrels in tank 111 at a 20 foot tank as level.

If we understand this correctly the quantity difference in a 5 difference in dearee record temperature can а difference of circa 400 bbls in the whole of the Storage Tank 111 at a depth of 20 feet? This is а meaningless statistic without knowing the total barrelage of the Tank. In any event our concern in the enquiry as it was no doubt for OSHA when they were asking the questions is that the difference between that which was sought to be drained for the purpose of a modest ullage at either end of the line and a complete draining of the line was substantial. And in our assessment of the evidence the amount drained was substantial. We are not dealing with a few percentage points difference which might account for a modest discrepancy.

Whilst Mohammed's response to OSHA's queries is strictly correct it really only paints a very small part of the picture. We prefer to believe this was not deliberate but inadvertent.

As to the reference to the Chairman's erroneous suggestion that Paria had failed to provide the records to OSHA he is happy to be corrected, although it has to be noted that they were not supplied until 15 August 2022, having sought an extension to serve them by the 29 July 2022. We also observe that this would have been just 10 days before the 6 month deadline the Statute gives to OSHA to consider possible charges.

CONCLUSIONS

Whilst it may have been Ali Snr.'s initial intent to only remove the necessary amount of material from the pipeline prior to installing the barriers, the 30'/35' ullage, no one examining LMCS's MS's or Paria's Work Instruction said "DO NOT CLEAR THE LINE", drain only sufficient to the required ullage; no apparent consideration was given to the topography of the pipeline; no regard was given to the implications of the changing methodology from pumping to air-blowing and worse of all no one had any regard to the actual amount of fluid that was being blown out of the pipeline.

The only person alive today that can actually say what the men were doing is Dexter Guerra and he was manning the compressor, so we are quite unable to discover what the workers at the coal-face believed they were doing in order to "clear the Line".

We are forced to accept that both Paria and LMCS personnel say that only intended to remove they sufficient material from the line to create the necessary ullage even is not what the though that contemporaneous documents suggest. In truth this was a shared responsibility between Paria and LMCS. During the evidence a number of witnesses conceded that the language used was ambiguous. It is our view that it was ambiguous at best and plain misleading at worst.

Given the serious implications of getting this wrong, it is, we regret to say, nothing short of irresponsible to use language such as the parties did. Had an expert been brought in by Paria or LMCS to independently review the MS and play a hand in the Work Instruction this would almost certainly have been spotted as a potential hazard and been eliminated. We recognise that this conclusion must be particularly hard to bear for Ali Snr. when one remembers that he lost his only son to this tragedy for which, as we have found, he bears some measure of responsibility.

Paria, in particular Mohammed, was dilatory in replying to OSHA's legitimate enquiries when they were investigating the incident and sought information about the line content and what was removed from it. When they did respond, scant regard was paid to the detail. In answer to this Enquiry they have been somewhat more fulsome in their response although it does not provide a complete answer to the issues raised in the line clearance.

Recommendation 12

The MS or Task Plan procedure should incorporate where applicable, a mandatory verification "hold" or "witness point" where the work cannot proceed without designated company authorisation. These are called hold or witness points and allow an additional safety feature that permits everyone to know what has been done and what happens next.

Recommendation 13

Precision of language is essential and if an ullage is being sought it must be written large all over the documentation so that those carrying out the work can be in no doubt what is being asked of them.

Recommendation 14

A proper estimate of identifying how material is to be removed from the line must be given and an accurate method by which that can be measured especially as all one is looking for is a modest ullage. A slop barge is more than adequate for those purposes.

Recommendation 15

Any change in methodology must be accompanied by a new risk profile so as to accurately reflect the possible additional hazards. This is often referred to as a Management of Change²² process.

Recommendation 16

An expert Dive Client Representative is essential to act as an independent assessor of the works being undertaken, the risk profiles they throw up and in ensuring a monitoring regime that that all parties understand.

²² <u>Management of Change (MOC)</u> is a systematic and structured approach employed by organizations to plan, implement, and control modifications in their processes, systems, structures, or technologies. It helps organizations navigate

transitions successfully while minimizing potential negative impacts on their operations and stakeholders. This is also recommended by Khan in his Incorrtech report.

Recommendation 17

Companies are to be expected to provide timely and comprehensive responses to Occupational Health and Safety Officers. The creation of a separate offence within the OSHA regime for failing to comply adequately or at all, with a legitimate request for information by an investigating officer of the OSH Agency.

THE SUBSTANTIVE WORKS ON BERTHS #5 & #6

METHOD SATEMENT 116

We turn now to the substantive works to be done. Having "cleared" the line a detailed Method Statement was prepared by LMCS for the works to be carried out. It is an important document and was clearly intended to supersede any earlier incarnations. The document is dated 4th January 2022 and is signed by Kazim Ali Snr.. So that we are clear on what this document represents, we are of the view, having heard and read all the evidence on the subject, that the purpose of a method statement is to provide a step-by-step guide to the works that need to be done. Taken literally it is a statement of the method being employed to carry out the task.

In this enquiry it is first seen and referred to in the Technical Scope of Works, SoW provided by Paria to all potential bidders. It is a requirement to satisfy the bid process without which they would be regarded as invalid. S.2 of SoW says: *"Bidder to submit a detailed Method Statement identifying elements of the project inclusive of safety considerations..."*

The SoW further sets out in tabular form the definitions to be given to various aspects of the procedure and defines the Method Statement, as "a document that details the step-bystep approach a task or process or Procedure is to be executed. It

"All Steps below shall only be carried out in full compliance with PARIA's The PTW is the Permit To Work

The document has a brief introduction as to when this "phase" commences and is then divided into 7 sections and two diagrams. Each section is subdivided into numbered steps followed by a description of what that step is. It is worth setting out the sections:

PTW System".

System

- 1. To load equipment and material onto barge. Steps 3 to 12
- II. To prepare line for works. Steps 13 to 29
- III. To install a prepare hyperbaric chamber. Steps 30 to 36
- IV. To remove leaking section of riser. Steps 37 to 65
- V. To install new riser section. Steps 66 to 79
- VI. To complete riser installation topside. Steps 80 to 93

outlines the hazards associated with each step ... "

As we observed earlier in this report, a Method Statement sets out the works to be done and the method for carrying it out. It appears to the Commission that it is usually written as a numbered step-by-step guide to the works as suggested by the contractor in the order in which they are to be performed providing as much detail as is necessary for the worker to understand what is expected of him. It is also the catalyst for the creation of the JHA/JSA which flows from it. As we have already pointed out if we are right about this then it is for the Paria to reject, amend, delete, re-order those steps.

What does it say?

The document is headed:

<u>"METHOD STATEMENT 116</u>

To Install Subsea Slip-on Flange on Ø30" Sea Line #36 (SL36) at Berth 6"

VII. On completion of work activities. Steps 94 to 95

The Sections we are engaged with here are II, IV and VI and we set out the relevant steps.

We have included each of the steps for section II so as to make clear the level of detail each step involves. These steps are just for the purposes of installing the migration barriers to SL/36. It is designed to cap off the line below the sea-level inside the hyperbaric chamber (habitat) before cutting the pipe and installing a new flange.

II. To prepare line for works. 13 to 29

- 13. Manually remove fasteners holding end flange onto riser topside
- 14. Remove end flange from riser
- 15. With direction from banksman position crane boom over semi- inflated line plug
- 16. Rig plug to lowered main block

- 17. With direction from banksman Lyft, swing, and position plug within open riser by lowering from above
- 18. When plug reaches necessary depth approximately 5' below the proposed new flange level stop lowering and holding place
- 19. Connect plug to air compressor...
- 20. Operate air compressor to inflate plug to necessary level as indicated by manufacturer instructions
- 21. Once inflated depower compressor and disconnect from plug
- 22. Lower main block to visually release tension from rigging and observe...
- 23. De-rig plug
- 24. Return crane boom to position over barge
- 25. Repeat steps 15 to 17 to bring mechanical migration barrier over top of open riser

- 26. Lower migration barrier until it sits just above the inflated line plug
- 27. Using extended manual tools adjust bolts until barrier seals against pipe walls
- 28. After barrier seals against pipe wall introduced 1 foot of water into open riser
- 29. De-rig migration barrier and return crane boom to barge

Clearly this level of detail cannot be inserted into a Work Permit at Part A.

We note that step 18 does not say lower the inflatable plug to just above the level of liquid in the pipe as asserted by Ali Snr. was to be the position. Rather it positions the plug by reference to the level of the proposed new flange.

As to Section IV we propose to set out only those steps that are pertinent to the issue in hand ie after the cutting and removal of the damaged line, fitting of the new flange and the weld being tested for its integrity.

IV. To remove leaking section of riser. 37 to 65

- 56. Manually remove migration barrier from line
- 57. Manually deflate line plug and remove from line
- 58. Manually install blind flange on riser by positioning end flange on newly installed slip-on flange and securing with fasteners. sic

It can readily be seen that after the works on the line have been done the plan was to remove the plugs. Those were steps 56 and 57 of the MS. No one suggested that this was wrong until after the tragedy.

<u>VI. To complete riser installation</u> topside. Steps 80 to 93

- 80. Rig hyperbaric chamber as per lift assessment/ plan
- 83. With directions from banksman removed chamber to barge deck

- 85. Measure and mark the location for a new top side piping flange on the newly installed vertical riser section
- 86. <u>Repeat steps 15 to 28 to install</u> <u>migration barrier and</u> <u>mechanical plug just below</u> <u>proposed location of new</u> <u>topside flange</u>
- 92. Manually disengage and remove migration barrier

Step 86 was referenced in the e-mail from Ahmed Ali to Rampersadsingh on the 4th of January after the queries that had been raised by him. We've set out steps 15 to 28 above as they are a careful step-by-step guide to the installation of the migration barriers.

It is our understanding that this Method Statement with all its various steps demonstrates how the migration barriers were to be put into the line; a hyperbaric chamber placed over the top; the line then cut where necessary to make the repair; a slip-on flange fitted; the migration barriers removed; a blind flange fitted; fit the new pipeline; remove the hyperbaric chamber; the plugs are reinserted; a new section of riser fitted; the riser is then cut to meet existing pipe work on Berth #6; and the plugs are then removed again.

It is not as if Paria did not examine it with care. On the 4 January 2022 Ahmad Ali sent the MS together with other documents by email to Ali Snr. who then forwarded them on to Rampersadsingh. There must have been a conversation because there is no reply in the email chain we were provided with, but a further email from Ali Snr. to Rampersadsingh later that day answered apparent queries and resulted in a revised MS (Rev 1). The query is not insignificant because it relates directly to the plugs. The email reads thus:

"(Q1) Will the <u>inflatable plug also be</u> <u>raised to the top of the new riser</u> section when cutting and welding from new flange above water? (A1) <u>Yes, both the inflatable plug</u> and the solid barrier will be **reinstalled** at the top before hot works begin. Step 86 has been updated to reflect this (now indicates that <u>steps 15 to 28 will be</u> <u>repeated</u>, which includes both plug and barrier installation). Our emphasis

There was a second question but not of relevance, save that it was asked.

This email provides the clearest indication that Paria, Rampersadsingh, examined this Method Statement with real care and raised queries with regard to the installation of the plugs paying particular attention to their installation, removal and re-installation.

On receipt of that email Rampersadsingh replied by forwarding it to the following people at Paria:

- 1. Ryan Nanton
- 2. Tenisha Kernahan
- 3. Jason Beckles

- 4. Prakash Beharry
- 5. Manmohan Balkaran
- 6. Donald Harriam
- 7. Rajiv Mangalee
- 8. Generic LMCS

With the following words "Ryan, Jason, Beharry. Please review respective attachments, MS was reviewed, updated and is acceptable. Regards Terrence".

Whilst we recognise some of those individuals but not all it seems to us not to matter very much. We are left in no doubt that the revised MS supplied by LMCS was carefully considered by more than one person at Paria and approved.

At this point LMCS had their plan with the express approval of Paria.

On the 13 February the hyperbaric chamber was lowered into place and the same day the plugs were fitted to the pipe all with Ali Snr.. supervising the works. A meeting took place on the 14 February at which Ali Snr. and Jnr and Ahmed Ali attended with personnel from Paria in particular Rampersadsingh. According to Ali Snr. no one raised issues with the works or the order that they were to be performed.

On the 15 February 2022 the works commenced. There are two Daily Activity Reports for 15 February 2022. One from Andrew Dopson, HSE Technician and one from HSE Ramkissoon. The Dopson Report states a Toolbox Meeting started at 08:30 (this is a meeting of the parties immediately before the work begins to agree what works are to be done, communications and safety issues) All workers were present and it was spearheaded by Rampersadsingh. The Ramkissoon Report is only of interest because it describes Paria's Professional contractor then Inspection Services Ltd personnel Ramlogan together with Adesh Gonzales from LMCS monitoring the screen whilst the welding work was taking place.

On the 16 February Dexter Guerra moved the barge to Berth #6 without the Paria supervisor Rajiv Mangalee's permission. Paria then stopped all works and withdrew all work permits. As a result, Paria did not re-issue work permits until 24 February.

This "stop" to all works predicated on moving the barge precipitously without permission having yet arrived, has to be seen in sharp contrast to the failure to observe any of the works being done on the 25th that now according to Paria, no Work Permit had been granted for.

CONCLUSIONS

Having considered the relevant material as set out herein we have been able to come to the following conclusions:

 The Method Statement prepared by LMCS dated 4th January 2022 was the most recent document setting out the works to be done and the order in which they were to be done. Paria's own SoW system describes it as a "step-bystep approach". Any contractor is bound to follow Paria's System of Works.

- Section IV of the MS which involves the removal of the leaking section of the riser with no less than 28 separate steps. It is selfevidently intended to be a methodical approach to the work. It was "accepted" by Paria's Technical team.
- 3. The fateful steps 56 and 57 were the removal of the plugs. This was to be done before the cut-off section of the old riser was removed from the chamber. The LMCS men working in the Habitat and the men on the outside of it believed that they were required to carry out the work as set out in the MS but in any event they had to remove the barriers at this time.

4. Paria was well aware of the steps. No objection was taken because no one saw a problem. ΔP was not considered by any party before the works began and tragedy struck. That there were other, no doubt, good reasons for not removing the barriers, should of itself have ensured that the steps were altered, as was within their remit, illustrated by them changing part VI of the MS to include step 86 concerning the re-installation of the migrations barriers.

Recommendation 18

Any Method Statement must be agreed in writing by the Company. It would be helpful and wise to have a tick-box next to each step which can be initialled by the Company as having been considered and approved. It is also here where the "Hold and Witness" lines can be drawn so that the works are halted until the Company approve moving to the next step. This can be captured in what is referred to as a bridging document.²³ No diving operation should commence without the bridging document.

The 24 February 2022 Meeting

Wei says there was the Weekly Planning Meeting on the 24th but that LMCS personnel were not there. He was subsequently told by Rampersadsingh that there was a further Weekly Planning Meeting on the 24th with the LMCS personnel, at which he, Wei, was not present. It was at this second meeting that the planned works for the next three days were discussed and outlined.

Wei goes on in his statement dated the 16 August 2022, to give his knowledge of the meeting/s on the 24 February. At paragraph 56 he says the following, *"The specific tasks* required to be done by LMCS and the sequence of the said tasks from Friday February 25 2022 up until completion of the works were as follows..." There then follows a detailed list of 23 separate items. He said he wrote his statement without the benefit of any notes and entirely from memory from six months earlier.

Rampersadsingh's account is that this list is not what he discussed with LMCS on the 24th. According to him the matters discussed for Fridays work were no more than what actually appears in an earlier paragraph of Wei's statement (para 53) and included only 4 items²⁴ albeit they did

²³ <u>The Bridging Document</u> serves as a comprehensive and integrated framework designed to establish a unified approach to managing diving operations. It acts as a critical link between the various entities involved in the project, including the Operator, Worksite, third parties, and contractors, by harmonizing their respective management control processes and safety management systems. The document acts as a vital tool for risk mitigation, promoting a shared commitment to safety, and fostering a

collective responsibility for the successful execution of diving operations at the worksite. Such a document is in common usage in the wider industry.

²⁴ Para 53 in part reads as follows: Scheduled for Friday - (1) remove the old riser section from the hyperbaric chamber; (2) Install new riser section in hyperbaric chamber; (3) Hydrotest installed flange on riser; (4) Couple new riser section to riser flange and guarantee flange.

not include the removal of the plugs either.

So, if we have this right, Wei is able to recount a list of 23 separate technical items, in the right order, six months after having been told the list by Rampersadsingh, without a single note. And all this when Rampersadsingh says, he did not discuss that list with those that were to be there. In fairness to Wei, when the Chairman pressed him on this remarkable feat of memory recall, he did say that the sequence was what he would have "expected it to have been ..." Later when asked by Maharaj SC if there was any document at all to assist he referenced the toolbox meeting (see later) and the Work permit (see later), yet he had no knowledge of the Method Statement put together by LMCS specifically for these works on the 4th January 2022 and approved by Paria.

We are concerned about this claim concerning a meeting on the 24

February 2022 at which LMCS were present. Rampersadsingh could not be pressed on the matter by any of the parties because he did not attend to give evidence. Wei says he was told there was such a meeting by Rampersadsingh, but he was not there, yet was able to recall in truly remarkable detail what he was told by Rampersadsingh (in any other hearing pure hearsay). Ali Jnr. cannot be asked and no one asked or put to Ali Snr. or Ahmad Ali if there was such a meeting, neither does it appear in any of their statements. Ali Snr. said in his Supplemental Witness Statement there was a meeting on the 14th February 2022 in which the work plan to complete the works was discussed which included the removal of the plugs.

We have not been provided with any contemporaneous notes appertaining to this meeting from any source, which bearing in mind the works had been suspended (for the second time) for 7 days following the non-compliance with SoW and the failure to obtain a Work Permit before setting off for the Berths, is more than a little surprising. Rampersadsingh's evidence was that there was a note at the time made by him which he entered into a Notebook which has unfortunately disappeared since he left Paria. What Rampersadsingh did rely upon were notes he made after the event in a "log" that was prepared just before he left Paria in April 2022.

That neither he nor Paria have the Notebook is lamentable, this is especially so when one considers how important it was. The Notebook was available on the 24th, the incident happened on the 25th. And the immediately investigation started thereafter. One might have thought such a document would have been preserved with particular care bearing in mind that it would contain what they were discussing; the resumption of works and the specific tasks for the next three days all of which would have to be put into the Work Permit.

CONCLUSION

There is simply no other evidence to support this meeting taking place at all: in the circumstances we are compelled to disregard this evidence completely and proceed on the basis there was no meeting on the 24th which involved LMCS personnel.

As a footnote we should state that Terrance Rampersadsingh left the employment of Paria shortly after the incident. He has not returned to work and the Commission excused his attendance on health grounds. It was in these circumstances that he was not called to give evidence before the CoE.

Recommendation 19

Consideration should be given to a documented "Go-no-Go"

Process.²⁵ But as a minimum all meetings relevant to the works to be completed should at least be noted on a standard form designed for the purpose and signed by the parties as being an accurate record of what was discussed.

The 25 February 2022

As we have already identified, Marjadsingh the Maintenance Technician for Paria was not the most experienced of those employed at Paria. On the morning of the 25th he spoke with Rampersadsingh together with Mangalee. He was instructed by Rampersadsingh that there was to be Carber testing at both Berths #5 & #6 and there was to be the removal of the old riser and installation of a new one at Berth #6. He was instructed to fill out the Work Permits for the work to

²⁵ It serves as a decisive framework determining whether to advance or halt a project, ensuring that all stages and components are thoroughly assessed and addressed until closure. This comprehensive approach involves evaluating key factors such as feasibility, resource availability, risk analysis, stakeholder alignment, and be completed and to arrange for the Carber testing to be done. This is undertaken by outside specialists in the field. Basically, they use dedicated equipment to ensure the integrity of the weld that had been performed to fit new flanges to the pipeline. He was further advised that should LMCS need any materials in order to remove the old and fit the new riser, that he was to arrange that for them.

He then chose to go straight to Berth #5. It is important to note he was not instructed to do so by Rampersadsingh, *he chose it* – all that was taking place on Berth #5 was the specialist Carber test about which he could do nothing except confirm it had been done. Quite why he chose to go there rather than Berth #6 where all the main works were to take place we simply do not know. Why he did not

adherence to project objectives. The decision to proceed or not is contingent upon the fulfilment of predefined criteria, providing a systematic and informed basis for project progression or termination.

share the responsibility with Mangalee we do not know. How he could carry out the functions even on his own account assigned to him to facilitate the supply of materials to LMCS, if necessary, we do not know.

What we do know is that he signed the Work Permit as Paria's "Applicant" and, that Rampersadsingh told him that the documents attached to the Permit to Work, were approved by Paria. Those documents included the latest MS and JHA from LMCS.

Andrew Farah

It is convenient to deal with his role here before going on to examine the Toolbox meeting.

Andrew Farah had been working for LMCS since 2016 as a fully qualified commercial diver. He had completed his Permit to Work System Training just the day before on the 24 February 2022 in a one-to-one session with a Paria representative. In his very short statement of the 5 October 2022 he said at para 2:

"Each job I have carried out with LMCS limited carries different responsibilities. On the 25th of February 2022 my responsibilities were to:

- a. Supervise the aspect of diving of the workers involved in the job to ensure everything is carried out in accordance with the job scope,
- b. ensure all divers are certified and inspect the equipment before use. I had done so and was satisfied that the workers had their diving certification, and that the equipment were in working condition and fit for use,
- c. to be stationed at Berth #6 to monitor the workers while working in the habitat to ensure that there was a live feed and
- d. to be a stand-by diver (in case of emergency)

Basic industry standards draw a specific distinction between Supervisor and Stand-by-diver. These need to be two separate people and given his training he should have realised that. It is our view that there is no way, as a supervisor, he should have undertaken the additional role of stand-by-diver²⁶.

In his supplemental statement made to the Commission of Enquiry team on the 29th of October 2022 Farah told us that he was "*Involved in the preparation of the risk assessment for the diving part of the job*". We have seen LMCS's Dive Plan dated 10th of May 2020 sic which we take to be 2021, which appears to be some kind of pro forma completed by Farah in relation to the overall bid for the works. We note that in the list of "Hazardous Conditions

²⁶ By assigning specific roles and responsibilities to known standards or practices, organizations create a structured and accountable framework for their operations. This approach ensures that established best practices and industryrecognized standards are seamlessly integrated into the "job scope". Roles and Responsibilities are captured in Bridging Documents and or Consideration" column there is listed 10 separate categories of issues ranging from cold water and depth to chemical contamination and entrapment. Nowhere on this document is there any check for the issue of ΔP . There should be.

We have examined the LMCS HSE Manual of 2021, their Safe Systems of Work Manual 2021, their Technical Tender Submission for the Project dated 10 May 2021, the Method Statement dated 6 May 2021, the MS for the line clearance dated 5 May 2022, the MS for 4 January 2022, the Dive Plan of 15 February 2022, a Pre-Dive Checklist issued on 13 March 2016 and completed on the 25 February 2022 by Farah and the Work Permit for the diving part of the operation dated 25 February 2022 and nowhere is there ever a mention

Communication Plans etc. These frameworks enhance safety and operational processes, ensuring that all personnel understand their role. By assigning specific roles and responsibilities, it becomes clear who is accountable for safety measures, making it easier to manage and mitigate risks effectively.

of ΔP by way of an ever present hazard or warning. Neither in the Dive Plan proforma, nor Checklist nor the Work Permit for diving is there even any provision for considering ΔP if only to reject it, whilst at the same time making provision for the condition of boots and fins! This is a significant flaw in their safety procedures and plans with a complete failure to recognise an ever-present significant environment of in an hazard pressured pipelines.

We mention this here again because we regard these matters to be very much a part of the Dive Supervisors tasks working together with the HSE.

In Farah's statement to the CoE dated 29 October he said at para 11:

"The hazard of men being sucked into the pipeline was not considered. This is because in the method statement the installation of the plug just above the liquid was brought up and this would have been to eliminate the hazard of the differential pressure"

We find this difficult to accept in part because in the original Dive Plan of 10 May 2021 Farah had indicated under "corrective measures" for the heading "chemical contamination" that he understood the "contents of the riser" to have been "removed and line double plugged". If that was intended to mean plugging the line to prevent the instance of ΔP arising, it would, in our view, have been incumbent upon him to have identified that hazard quite separately as ΔP , not to simply ignore it or fail to annotate it anywhere in any document. As dive supervisor on the 25 February 2022 it was at least in part his responsibility to ensure even a remote possibility of a AP hazard was identified to his fellow divers and how that hazard was eliminated to ensure their safety.

Additionally, if he understood that ΔP was eliminated as a result of the installation of the plugs just above the liquid, removing them under the

pressure of the hyperbaric chamber was likely to revive any ΔP issue. However, we struggle to understand how it is possible to eliminate a ΔP issue by placing the plug immediately above the liquid – if there was a latent ΔP issue before placing the plugs in the line how would installing the plugs just above the content eliminate it?

In truth the plugs were installed for the reasons given in the Dive Plan itself, Chemical Contamination and by many of the witnesses who said it was for the elimination of gases escaping and the items entering the pipe including sparks that might ignite it. We do not believe that the plugs were there for anything to do with ΔP .

We have not identified any gualification that Farah holds in order to be a dive supervisor. This is not to say that he is not capable of undertaking that task but we would have expected to have seen at least some training in that regard and an understanding of his responsibilities; in our opinion that was not

demonstrated. Having 10 – 12 years of experience as a qualified commercial diver is not of itself a sufficient basis to assume the role of Dive Supervisor neither should it be: such a role must be regarded as safety critical overriding all other considerations.

The OSH Act Chap 88:08 provides as follows:

6. (1) It shall be the duty of every employer to ensure, so far as is reasonably practicable, the safety, health and welfare at work of all his employees.

(2) Without prejudice to the generality of an employer's duty under subsection (1), the matters to which that duty extends include in particular—...

(d) the provisions of such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the safety and health at work of his employees;

This is a provision of universal application that LMCS was obliged to follow and apply. It appears to us that prima facie it did not when it sought to appoint Farah as the Dive Supervisor in addition to his burden as Stand-by Diver when it must have been clear he had no training as a Supervisor²⁷.

As such we conclude that it was improper to *appoint* Farah as the Dive Supervisor at that time. But, and it is a big but, Farah is a qualified diver to the Canadian Dive Standard. He must have known better than to *accept* that role without the proper training. Being trained to Canadian Dive Standard is a significant factor in a diver's credibility and awareness of all levels within the commercial diving industry. Divers with this qualification have a robust foundation in safety, regulatory compliance and best practices, undoubtedly making them valuable assets to their employers and clients. Farah was not a trained Dive Supervisor.²⁸

It is cogently argued on his behalf to conclude that Farah's that appointment as Dive Supervisor was improper, is hasty. His counsel says: "The history and development of diving in Trinidad is one that was fashioned to the needs of the industry with local conditioning. In consequence, the experience of diving and the understanding of the local conditions and apparatus in use are far more crucial than the All information. gualification.

²⁷ Additionally, the STOW requirements to which LMCS had subscribed contains a number of provisions for the proper training of the company's employees. Element 5 (page 60) of STOW at Q69. asks the pertinent question *"Has the organisation conducted a training needs analysis which includes..."* [there is then set out several specific areas that need to be trained for – but it is not an exhaustive list] it then cites OSH Act – see supra. Q71 which deals specifically with training, Q72 requires the Employer to monitor the effectiveness of the training and Q73 poses

the ultimate question as to whether the employee has the qualifications and competence to satisfactorily complete work without posing a risk to themselves or others? It seems to us that these basic STOW requirements were not met.

²⁸ S.**10.** (1) It shall be the duty of every employee while at work—*(a)* to take reasonable care for the safety and health of himself and of other persons who may be affected by his acts or omissions at work;

instruction, and training necessary for Mr. Farah to competently dispense with his supervisory duties were given by LMCS. It must be pointed out that this dive was SCUBA operation, where if required, the supervisor can enter the water if needed. This will not jeopardize the other divers as opposed to surface supply diving where the dive supervisor is required to always remain at the dive station to oversee the dive operation".

However, on closer analysis it is precisely this kind of thinking that has led to the tragedy that unfolded on the 25 February 2022. Commercial diving in Trinidad & Tobago, whether by scuba or commercial equipment and training is unregulated. It relies on either the individual Company or the Contractor voluntarily applying the Code of Conduct introduced in 1997 by TTBS²⁹ or some other international diving standard. There is no evidence that LMCS applied either.

The so-called reliance on understanding "of the local conditions and apparatus", is in our view an impediment to progress in safety and little more than an excuse for not recognising the need to change the way things are done in the interests of increased safety. This inevitably comes at a greater financial cost but saves lives.

Further, reliance on the fact that this **"SCUBA** was а operation" to somehow excuse the need for the various roles Farah was undertaking at the time to be separate and distinct as well as to "permit" him to be in the water rather obfuscates the decision as to whether this should have been a commercial dive with commercial equipment rather than just assuming it could be carried out by Scuba divers.30

²⁹ Trinidad and Tobago Bureau of Standards³⁰ The TT Standards for Commercial Diving

Operations Revised version upon which the stake-holders in T&T could not agree and

therefore even this voluntary standard is not in use nonetheless permits commercial SCUBA diving but has the following caveats: SCUBA shall not be used for commercial diving operations

It is important to appreciate at this juncture, that there are no compulsory universal dive standards in Trinidad and Tobago for the minimum qualifications a Dive Supervisor should hold. Indeed, there are no compulsory commercial dive requirements at all³¹.

In the Dive Plan prepared by Farah on the 15 February 2022 (ie 9 months after the first) he sets out the divers as being "Six (6) – One (1) Supervisor, One (1) Assistant, and Two (4) Divers". We have understood that to mean only two divers would be in the water at any one time with two spare divers as alternates. As such it is in our view questionable whether having four divers in that habitat at any one time, given the limited space to work, and the need to swap divers for rest

periods was a proper or wise use of the personnel to carry out the work. We are fortified in that view by virtue of the Dive Plan indicating "20ft -Maximum bottom time @ 20ft = 300 minutes." That is 5 hours. It is not clear whether that was for the whole day or in any one stretch but given the amount of work that needed doing that day it does seem odd that all four divers were being deployed all of the time. We think that unless specifically justified there should not have been 4 men in that habitat at any one time, but do not conclude that it was wrong in principle.

Counsel for Farah has suggested that "Kazim Ali Jnr. . was in the water from chamber to barge monitoring the men in the chamber. He did not go into the chamber to take tools nor was he instructed to do so by Farah. But as

except where a risk assessment has shown it to be safe, efficient, and more appropriate than the use of surface supplied techniques.

NOTE 1 Self-contained underwater breathing apparatus (SCUBA) has inherent limitations. It is recognized that commercial divers may require the use of SCUBA equipment in the performance of some task at sea, inland waters and visual inspections.

NOTE 2 The limits on the SCUBA mode of diving are more stringent than for other diving operations because a SCUBA diver has a limited breathing supply, lack of communication with the surface team, higher safety issues with breathing equipment, has to monitor his own depth and bottom time and being mobile makes emergency recovery more difficult.

³¹ See The Regulatory Regime infra

stated by Boodram...'at the same time Kazim Ali Jnr. came in and we tell him we needed a spanner. He went out, collect the spanner, bring it back'''. Farah says he had nothing to do with Ali Jnr. . taking the spanner to the men. Whilst we are ready to accept that proposition as a fact, given that Farah was the Dive Supervisor he should have been at the very least aware of it and clearly Kazim Ali Jnr. must have entered the habitat because Boodram said he did both when making the request for the spanner and when handing to them.

There was both camera and audio equipment that allowed communication between those in the Habitat and the barge. It was therefore unnecessary for Kazim Ali Jnr. to be in the water to "check with the men in the chamber" or to be fetching spanners. That Kazim Ali Jnr. chose to enter the water to bring a spanner to those in the habitat, deprived the team of their standby diver when they needed him most. Kazim Ali Jnr.'s roles on the day was Operations Manager/Supervisor, dive attendant and standby diver. Once again these are not roles that can properly be combined. The proper application of any recognised dive standards would not have permitted any one person to hold all three roles.

Recommendation 20

All safety documentation (such as the JSA/JHA) which provides for a checklist of potential hazards in a commercial diving environment must have as one of the criteria to be considered ΔP . Next to that issue, must be a column which demonstrates the manner by which the hazard will be eliminated completely or reduced to a bare minimum. Any emergency procedure must include a plan for how to deal with the hazard.

Recommendation 21

Ensure that the separate roles of dive supervisor, dive attendant,

standby diver and operations manager are held by separate individuals who understand the limit of their responsibilities.

Recommendation 22

The new TT draft dive standards to be made compulsory immediately. With a 12 month review to be conducted so as to bring same up to date with the most modern approach to Health and Safety.

Recommendation 23

If it is thought truly necessary to have a commercial scuba diving requirement, which we are unconvinced that it is, that must be incorporated in the compulsory dive standards, setting out the very limited circumstances in which that is proper and the conditions to be applied. This should be part of the review process referred to above.

The Toolbox Meeting

A toolbox meeting is a meeting of all the people involved in the job for the day being briefed as to the safety aspects, the prevailing conditions and what works are expected to be completed. Individual HSE and Job supervisors would normally play a part in that meeting and there is a document which shows briefly what was said and by whom: who attended and signed by those present.

There is here a direct conflict between the accounts given by LMCS and those at Paria. The former make it clear that there was discussion about the works for the day which included the removal of the plugs whilst the latter say there never was any such discussion.

There is a specific form for the Toolbox Meetings which are supposed to be completed contemporaneously on-site. Here, there are two, as there were two sites where the meetings needed to be held, Berth #6 & #5 – they were at 9:15 am and 9:30 am respectively. The forms disclose that only two people were at both, Dhillpaul, LMCS's HSE who is identified as the "speaker" and Marjadsingh.

During the evidence of Dhillpaul it became clear for the first time that Marjadsingh was not at the Toolbox Meeting on Berth #6 and therefore not privy to the briefing that took place. He said he signed the document later at sometime around 2pm. He did not indicate this late signing on the document itself nor did he indicate it in his statement either. He conceded under questioning before us that he had not attended the Toolbox Meeting at Berth #6 but had only attended the Toolbox Meeting at Berth #5. That clearly came as a surprise to Mootoo (now SC) Counsel on behalf of Paria and their staff.

It gives rise to a difficulty for Paria because as we have pointed out, a number of witnesses from Paria suggested there was never any discussion about works for that day let alone the removal of the plugs as part of the works. This was robustly put by Counsel for Paria to a number of the LMCS witnesses.

There is nothing at all on either Toolbox Form for Berths #6 or #5 about the work for the day. That does not mean there was no discussion at all. Indeed, leaving aside any LMCS witnesses who insist there were such discussions as part of the Toolbox Meetings, which included references to the removal of the plugs, Dopson, Paria's HSE Technician, employed by Kenson and the only representative at the Toolbox Meeting for Berth #6 says in his statement:

"I was present when a toolbox meeting commenced at about 0800 hours on LMCS's barge. That meeting was led by Mr Victor Dhillpaul and Ali Jnr. . At this meeting the activities for the day was discussed followed by a prayer". sic In his statement, dated 2 December 2022, he does not say what those activities were, perhaps unlike Wei he did not regard it as important. Although one might have thought that the removal of the migration barriers was now at the forefront of everyone's minds as being the reason why the tragedy occurred. In evidence he said it would have caused him concern if the migration barrier were being removed as there was a high Hyperbaric probability that the chamber would be contaminated by fumes emanating from the pipeline. He said, had he known the barriers were being removed he would have asked the contractor to halt the operation.

When asked about monitoring he said he did so periodically, about every hour or so, that is borne out by the Log. We doubt that comes close to being sufficient given his role as the Competent Person under Paria's PTW system, but even if it were, it is difficult to understand how he could not have appreciated the barriers were being removed because this is not something that can be done in a The evidence. in minutes. few particular, from Boodram was that the mechanical plug was removed before lunch which was taken at 13:45 and that it took them no less than 30 minutes to remove the plug and $1\frac{1}{2}$ to 2 hours to complete the task of removing the plug to being sucked into the pipe. This it would appear does not take account of the luncheon break.

How it is possible to miss seeing a 30" mechanical plug being unbolted and hoisted out of the pipeline over such a time frame whilst "monitoring" even hourly on a small berth (as this is where he said he was) is difficult to comprehend. When asked if he was anyone from Paria of aware monitoring the screen he said he did not think so. He makes no mention of Kirt Scott who was there for Paria employed by Kenson to monitor the work area for pollution and shipping. Kirt Scott himself said he witnessed the removal of the mechanical plug. Yet this passed Dopson by.

Dopson was quite clear in his evidence that there was no discussion of the removal of the plug from the line in the Toolbox Meeting or at any time on that day prior to the works being carried out. He did complete a Daily Activity Report. We do not know when it was all actually completed but it is supposed to be contemporaneous, and he said in answer to questions from Peterson SC that he had access to "one drive" on his device and that he would have edited it effectively contemporaneously.³² In it he refers to Paria's HSE Technician arriving at 7:30 a.m. on Berth #6. The only persons recorded as being at the Toolbox Meeting were all LMCS people except Marjadsingh and Kirt Scott. Marjadsingh was not at the Toolbox Meeting and did not arrive on Berth #6 until lunchtime but in any event he is not an HSE Technician. Kirt Scott is an Offshore Operator, is

employed by Kenson, and did not arrive until 08:20, but whatever time he arrived, it was, according to Dopson after the Toolbox Meeting had begun. That seems to square with the fact that his name is not on the Toolbox Meeting form as having been present.

We are told by Paria's lawyers that the person Dopson refers to as the HSE Technician is Dopson himself. We are content to accept that as a fact even though he has not stated that in his statement nor in his own reply to the Maxwell Letter sent to him.

The "Competent Person" under Paria's PTW system is required to "...have adequate knowledge, of the processes...<u>and</u> of the activities to be carried out", further to "identify any deficiencies in equipment or Method Statement for the job <u>and</u> the potential adverse consequences". Neither in his statement nor his evidence does Dopson even mention the Method

 $^{^{32}}$ It was some 10 – 11 days before the report was handed in.

Statement. This is his job according to Paria's own PTW system.

Recommendation 24

The Competent Person must be capable of examining and actually examine the MS (step-by-step guide to the works) to identify any deficiencies therein and the potential adverse consequences of those works being carried out in that manner.

If Dopson is right, Ali Jnr., who was the supervisor on the job, did contribute to the Toolbox Meeting on the activities for the day, but failed to record it on the Toolbox Meeting form. Dhillpaul also says that Ali Jnr. did discuss the jobs for the day although he cannot recall what was said he does recall that since he was the supervisor he was a bit busy to add his notes to the Toolbox Form and would do it later. Under crossexamination from Mootoo for Paria he said that he believed Ali Jnr. had mentioned the removal of the migration barriers in the Toolbox Meeting. It was pointed out to him that having given evidence that he could not recall what Ali Jnr. had said, that this was the first time he had ever made such a suggestion. This is not the most credible part of Dhillpaul's evidence.

It is right to recall that Dopson had completed that Activity Report for the 25 February although untimed. It is typed and so if contemporaneous, as suggested it should be, he would have had to have the facility to type the document with him on Berth #6. He was on the berth where the principal works were taking place. He was monitoring albeit only hourly, but the Daily Activity Report sets out in a list of 16 "Activities Planned" a reference to whether the specific task was completed or not by the adding of the word "completed" in bold. This is relevant because in that list there is no mention of the barrier being removed.

Dexter Guerra from LMCS was a supervisor with over 20 years'

experience, before his suspension relegated him to compressor monitor. He confirms that there was a gas monitor in the chamber with an automated alarm that will turn on at the change of air in the chamber. Gone are the days of using canaries!

In his amplified statement of 5th October he said, " the works discussed for the day at Berth #6 after the chamber was made operational, was to pressure-test the weld on the flange. This was to be done after testing flange at #5 by another LMCS crew. After pressure testing there was to be the removal of the line plugs and the installation of the replacement riser section..."

In his supplemental witness statement dated 31 October 2022 he elaborated thus, "... Ali Jnr. . told everyone what the job was. He stated it was to remove the old section of the riser from within the chamber, place the new section into the chamber, secure the chamber and after that it would be blown down to displace the water to make the habitat a dry space. He stated that the flange would then be pressure tested the plugs removed and they would then install the new piece of pipeline". He also referred to a meeting he had the day before at LMCS between all the staff engaged on the job when the work for the next day was discussed.

When Guerra gave evidence he said the reason the barriers were being removed at that time was because of the difficulty of getting them out after a longer piece of pipeline was fitted to take the riser above sea level. The plugs would have been very much further down the pipe and it may have necessitated a man being lowered into the pipe to unbolt the mechanical plug and deflate the inflatable plug. But as was pointed out, once the new pipe was cut it wouldn't be much longer than the old pipe – just a few feet.

Whatever the motivation for removing the plugs, is really not to the point, what we have to determine is whether that was discussed at the Toolbox Meeting or not.

Andrew Farah was the appointed Dive Supervisor. In his short first statement dated 5 October 2022 he says he was at the Toolbox Meeting, Dhillpaul conducted the meeting when "numerous aspects of work and safety and the plans for the day was discussed".

In his supplemental statement dated 23 October 2022 he said (para 15) "The job scope for the 25th February included the following (in this order):

(a) pressure testing the weld...

(b) ...remove the plug that was installed in the pipeline...

(c) once the plug was removed, the next step was to install the new section of the riser...

(d) removal of the habitat..."

And at para 17

At the toolbox all the persons involved in the entire job gathered on the barge. The meeting was conducted by Victor Dhillpaul. We discussed the job scope for that day. Whoever had any concerns or questions had a chance to discuss. There was general safety discussion with the scope of the works for that day. I cannot recall which Paria persons were present during the toolbox meeting".

The only other person from whom we have any evidence of the Toolbox Meeting is Boodram. Since it is the first time we have mentioned him in the substance of this report it is important to say now, that leaving aside any sympathy or approbation him for the moment, this for Commission found Boodram to be a very credible witness. We did not find him to exaggerate or downplay what happened, neither was he blasé or long-winded, he was, of course understandably, disconsolate.

He was the only witness to give his evidence-in-chief, in full, without reliance on a summary and he did so in a clear and forthright manner for which we were grateful.

In his first statement dated 28 March 2022 apart from referencing the Toolbox meeting as routine he said little else. In a later statement dated 19 October 2022 he gives a fuller account. He said:

"We were told the following jobs would be done that morning... By Ali junior in the presence of the Paria officials:-

- (a) Extract the pipe from the top of the habitat
- (b) Install the new one into the habitat
- (c) Add air to habitat to remove water
- (d) The divers would enter the habitat
- (e) The divers would take off the blank flange
- (f) The divers would unbolt the mechanical plug
- (g) The divers would wait for the carber testing to be done on Berth #5

- (h) Carber testing would then be done on Berth #6
- (i) After testing the weld the divers would extract the inflatable plug and install the new riser, and

(j) Then the job would be done It was anticipated that the job would take about 8 hours".

When he gave evidence he said in answer to questions from Maharaj SC:

"So de—we had de toolbox meeting concerning, um, this riser job that was in—that in question. We gather round at that toolbox meeting; toolbox meeting is more or less of de job entails, wha' we going tuh do fuh de day, um, in de stages ah how we going tuh do it. Um, de safety officer go also, um, talk tuh us, ah lil safety, um, briefing, yuh know, de hazards ah de job, and whatnot.

There are no other witnesses because they are of course all dead except for Boodram who was not present for the installation of the plugs. He was clear that he believed that there was discussion about the removal of the plugs at the Toolbox Meeting given by Kazim Ali Jnr. as discussed below. It was Boodram's evidence that the mechanical plug would have taken an hour and a half to two hours to remove before the lunch break was taken.

Peterson SC for Paria, later asked Boodram if there were any discussions about the removal of the plugs at the Toolbox Meeting and he confirmed that there were. And, that it addressed the stages and how the job was to be done.

Boodram made clear that there was a discussion after lunch with the team and they were directed by Kazim Ali Jnr. to remove the inflatable plug, indeed Kazim Ali Jnr. obtained a spanner to assist specifically with that process.

We appreciated that all counsel did their job in cross-examining Boodram in a fair way on essential matters without being overly zealous. This is not a court of law.

Such is the state of the evidence that it is difficult to conclude one way or the other whether the Toolbox Meeting did raise the issue of the removal of the plugs.

CONCLUSIONS

We are however able to conclude a number of facts.

- We are absolutely certain that the dive Team believed that the job on that day entailed the removal of the plugs. Why else would they have removed them?
- In order for them to believe that, there simply must have been some instruction from someone to do so, the only person present with that authority was Ali Jnr. .
- On the 4 January 2022 LMCS produced a Method Statement in anticipation of the resumption of

the remaining works. It was passed through many hands at Paria. No one ever said there was anything wrong with it. It contained two vital paragraphs: "56. Manually remove migration barrier from line and 57. Manually deflate the plug and remove from the line". These identified tasks were sequential and intended to be so.

- 4. Paria's own Permit to Work Procedure defines what a Method Statement is: "A document that details the step by step approach a task or process or procedure is to be executed." This is their own document written by them and enforced by requiring anyone on Paria's property undertaking work to through qo а training programme to ensure they understand the system. That training is renewed every two years. The document was last revised on 30 September 2020: it is not some ancient long forgotten policy to which mere lip-service is paid.
- 5. Paria's appointment of Marjadsingh the to role of Applicant was highly questionable. This was complicated and dangerous work. It was not without some surprise on our part, that Paria's lawyers refute that this was dangerous work arguing that "the work which was to be undertaken was not hazardous in nature" claiming that it was LMCS's gross negligence that caused the problem. It is perhaps this very approach that has led them to misunderstand their own responsibilities. Working in a pressurized habitat, partially below the water's surface, in a confined space, with welding equipment, where gases could overcome you or ignite, with the only means of access and egress being the use of scuba equipment, through the ocean is, apparently, not hazardous! Well now we know!

- 6. It is our view that the PTW procedure, forms part of the contractual relationship between Paria and LMCS. We suspect that the rationale for Paria's counsel to claim that the contract does not incorporate the PTW procedure is because when discussing LMCS's work to clear the line using MS108 and MS 115 together with Paria's Work Instruction we relied on the law as set out in Halsbury's³³ which placed a greater burden on those employers who contract out hazardous work. Thus, they are left with no alternative but to argue that the work is **not** hazardous.
- 7. Their POW System required Marjadsingh to be competent to execute the job or to supervise its execution. He could do neither, but he should not have been asked. We have no doubt that this was the kind of job where in the

absence of having in-house outside expert expertise. an independent contractor should have been brought in as the Applicant. There was room in Paria's own budget for the works to do so. Archbald head of HSEQ conceded that Marjadsingh did not all the competencies have necessary for the job of Applicant.

- Marjadsingh at best 8. was the disingenuous in signing Toolbox Meeting Form as if he was present at the meeting His without caveat. any is less than explanation convincing. We stop short of suggesting it was deliberate.
- Marjadsingh's complete failure to supervise the execution of the job at all from the arrival at Berth #6 of the crew at about 8 am until the afternoon, after 2:30 pm was a

³³ <u>Halsbury's Laws Vol. 97A (2021) at 381</u> "*An* employer who employs an independent contractor to execute inherently dangerous work from which, in the natural course of things,

injurious consequences to others must be expected to arise unless measures are adopted by which such consequences may be prevented, is bound to see that everything is done which is necessary to avoid these consequences".

complete abrogation of his responsibility. Watching the Carber test on Berth #5 was a poor reason not to be where the substantive works were taking place. Even Archbald the HSEQ took the view that at least every two hours was the maximum period between checking, in order to satisfy the supervision requirement.

- 10. Rampersadsingh's supervision of Marjadsingh was poor at best. Marjadsingh did not appear to understand that as the Applicant he was required to be in at least a supervisory role if or not. specifically told that he was not. If the MS is of any value at all one would expect Rampersadsingh to have been very familiar with it as a step-by-step guide for what was to be done and if there were to be deviation from it an explanation given. There was little point of giving this to the Applicant without clarifying why it was to be deviated from.
- 11. One could not reasonably expect Marjadsingh to be in two places at once ie carber testing on Berth #5 at the same time as providing supervision at Berth #6 but, where was he going to be of more use? Which was the more significant works? Why not ask Mangalee to assist if there was a real issue as to the monitoring of the works or providing the support necessary. It in is this way that Rampersadsingh could and should have directed Marjadsingh.
- 12. We are unpersuaded of the value, much relied upon by Paria, that The Toolbox Meeting Form fails to mention the removal of the migration barriers. The Form does not mention the jobs for the day at all. Yet no one seriously suggests that there was to be no work done, or that Ali Jnr. did not address the

tasks for the day³⁴. Even Dopson accepts that much and records same on his Daily Activity Report.

for this 13. The safest course Commission to adopt is to conclude that everyone on the site, except Dopson and Essaire Warrick³⁵ carrying out the actual work, believed that the plugs were to be removed. Whether that was said in the formal Toolbox Meeting or on the barge/pirogue going across to Berth #6, or the day before at LMCS, in the end, matters less than the finding that everyone working on the job, save Dopson and Warrick proceeded on the premise of the MS, whether they read it or were told it.

- 14. There are four final matters before we leave this aspect of the Enquiry:
 - i. The removal of the barrier at this juncture whilst not desired by Paria was predicated on not dropping anything into the line and not allowing gases to escape. It was not predicated on a fear of creating a ΔP crisis.
 - ii. There are many aspects to the PTW system which are to be lauded and had it been strictly adhered to as Paria claims it should have. Dopson, the Competent Person, under the scheme would have identified the deficiencies in the Method Statement and the potential adverse consequences – there's no evidence he even

³⁴ See Dopson's Daily activity report in which he says the toolbox meeting was spearheaded by Dhillpaul and Kazim Ali Jnr

³⁵ We note Paria's counsel's reference to Essarie Warrick, LMCS's crane operator who expressed bafflement as to why the barriers were being removed as that was not what he understood. We also note they ask why we failed to call him as a witness or refused to do so. The Toolbox meeting record shows he was present. However, we

observe that his "evidence" given to OSHA was unsigned and unrepeated before the COE. It was not sought to be relied upon by anyone, neither did he provide a statement to this COE. Further as the Crane Operator he would have been on the Barge away from the Chamber. Additionally, the mechanical plug was in fact removed using the internal block and chain thus at that time making the crane redundant.

read it. Further, we are of the view that in this case periodic checking, is and should have meant more than hourly. For the avoidance of doubt we do not accept that Dopson's job was confined to Hot Works certification.

- iii. Also of importance was Ramdhan, the Site Authority, under the scheme. He was required to "periodically monitor ongoing work either in person through his or team to determine whether the site conditions and precautions have been maintained". We doubt this was achieved through Dopson or Scott.
- iv.A primary failing, under the system, must be reserved for the Applicant, Marjadsingh. He had many tasks, many of which he failed to fulfil but crucially the following was completely abandoned:

"Continually monitor the job to ensure that it is performed in a safe manner and within the conditions prescribed in the Work Permit, Certificates and JHA/Risk Assessment. He may sign the renewal section indicating the that he has audited the job".

As a matter of fact, he did no monitoring at all: he arrived minutes before disaster struck.

Recommendation 25

The MS "step-by-step" plan for the works must be signed by both Contractor and Company as the approved common working document. Similarly, any amendment must also be signed by both parties as the new common working document.

Recommendation 26

The PTW is stated explicitly to be part of the contract between the parties only to be derogated from in writing by the parties so that everyone knows who is in which roll.

Recommendation 27

Where works are being conducted in more than one location at a time there should be a Simultaneous Plan.

Recommendation 28

No one should sign the TBM document if not present at the time of delivery of it.

Recommendation 29

No work to be commenced by the contractor until the TBM document is completed.

Recommendation 30

Method Statement attached to the Work Permit is to be read and understood by all parties but especially, the Contractor Official, the Competent Person, the Site Authority and the Applicant, along side the Task Plan

Recommendation 31

Definition given to what "periodic checking" is meant to entail for each particular job. Similarly "monitoring" needs to be made plain as to its meaning and to what extent it is to be continuous or otherwise.

THE WORK PERMIT

The Work Permit system is a creature of Paria's own making no doubt derived from their experience and what they inherited from Petrotrin. This is no collaborative document agreed between the Company and the Contractor. Paria describes it as:

"This permit to work procedure has been developed to provide a formal documented process for controlling risks associated with certain work activities such as contractor and maintenance works... it is intended that this procedure will... clearly identify who makes the application to do a job, who authorises the job, who develops the necessary precautions and who gives approval for work to commence."

The Scope of Work – Technical Document requires at Para 5.12, that *"the Contractor shall become familiar* with and conform to Paria's Permit to Work Procedure, at his own expense..." and at Para 8.9/3.0 under the rubric **Basic HSE Principles**, "...all contractor and maintenance jobs must follow the Permit to Work System". This is not an option: it is saying, 'do not even bid, if you are not prepared to commit to this procedure'.

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Each Work Permit is separately numbered. The one with which we are primarily concerned is 9320. The document is divided into four sections A, B, C & D.

A is headed **APPLICATION**. It then has requests for information by asking a question and leaving a line for it to be answered. So:

Department – Maintenance Contractor – LMCS No. of Workers – 14 Location – Berth #6 Equipment Name/No. – SL 36 Riser Job – Various maintenance work on S/L 36 Riser Specific Tasks – To remove and install 50" Flange, Remove and install 30" Riser Pipe, Remove 30" solid blank, Conduct Pressure Test

on Flange Weld, Remove Chamber and Blank top of new riser.

ID No. – 3740

Date - 25/2/2022

This is all in Houston Marjadsingh's handwriting.

Section B has 5 Sub headings:

1. REQUIREMENTS FOR EQUIPMENT ISOLATION AND CLEARANCE.

This is further sub-divided into 5 separate pre-determined matters with "yes/no/NA" and "comments" boxes two are particularly relevant here:

- i. Isolated by blind flanges/blanks/ spool removal/valves – No – line drained
- ii. Cleared of process/hazardous
 materials Yes Migration
 barrier to be used

2.RESIDUAL HAZARDS/REMARKS.

3. CERTIFICATES/CHECKLISTS REQUIRED

The following relevant documents were attached:

i. Hot work Certificate – 2634

ii. Confined Space Certificate – *NA (No cert available)* iii. Safe Work Method Statement – *see attached*

iv. Lift Plan – See attached

v. JHA – See attached

4. PERSONAL PROTECTIVE EQUIPMENT AND WORKPLACE REQUIREMENTS

5. AUTHORIZATION

The process equipment to be worked on and the work area are safe for the proposed work, providing the precautions in Section B4 and conditions on certificates listed in B3 are followed This is then signed by Johnathan Ramdhan and dated 25/2/2022 07:20.

The next section, is Section C:

ACCEPTANCE

I/we understand the conditions and precautions required and undertake to execute the required works accordingly ApplicantHoustonMarjadsinghIDNo.-3740Date/Time25/2/20220730

Contractor Official R Gonzales ID No. – ??68 Date/Time – 25/2/2022

Over the page it has space for any changes to be made to key personnel and authority to proceed each day of its 7 day life, should that be necessary. It also has space for any work suspension, including end of day for that to be recorded by the key personnel.

The final Section is D which is described as **Handback/Closeout**, with which we are not concerned.

So much for what's on the face of the document. What's the evidence?

Marjadsingh: We have made a number of observations about him and his role so we do not repeat them here, but they are just as apposite. Frankly placing anyone in that role

who is not either the Contractor or, better still, an independent expert, as they did in 2020 on a similar job, is just asking for trouble. Placing anyone to bear the responsibilities of the role of Applicant under Paria's Permit to Work system is onerous. Using an inexperienced individual is foolhardy at best. We regard this as a system failure.

Ramdhan: He is the Site Authority with all that entails under the PTW system. Ramdhan was entirely dependant on what he was told about the works that needed doing, by Marjadsingh. If the information he received was wrong then he proceeded on a wrong basis. He told the enquiry in his statement that Marjadsingh told him the barrier would not be removed. Marjadsingh in his statement is completely silent on the point.

In Ramdhan's evidence he said that it was his understanding that Paria had developed instructions for the "draining of the Line". This would accord with his handwriting on the Work Permit where he wrote "line drained". But he clarified that in his evidence when he said he believed that not to mean completely drained but partially drained, whatever that means.

When Ramdhan was asked about why the LMCS Method Statement was attached to the Work Permit and what value it had, he seemed to believe that all it did was to confirm the works had been approved. He said it was not necessary to read it at all and presumably he didn't. All he had to do was ensure that the work that was authorised was done safely. The Site Authority "... is responsible for ensuring that conditions required for the safe conduct of the job are maintained, or that the permitted activities are promptly stopped if there are any changes or violation of a prescribed condition." This must mean monitoring. Clearly knowing that the barrier was not to be removed was essential if he was to comply with that condition. He didn't - even

though the mechanical barrier had been removed before lunch. The PTW System required him to periodically monitor and as we have already identified he did that approximately hourly. We have little hesitation in concluding that this needed to be more often, if the PTW procedure is to work effectively. After all the words "Migration Barrier" were written in his hand. Put there because he regarded it as a safety issue, his primary role as Site Authority.

When he gave his statement to the CoE he adopted the words of the Work Permit and said "...a Safe Work Method Statement...is defined in Paria's PTW Procedure as а document that details the step-bystep approach to execute a task, process or procedure". And he is right. That simply has to be better as a guide to what the works entailed than writing a few headlines on the three lines made available on the Work Permit itself. Why say "see attached" if it's not meant to be seen? We think that it is in recognition of that

truth that he sought to give a different understanding when questioned at the CoE. He told us that the Method Statement was "a list of proposed jobs to happen to get a particular job done..." He further said that he did not regard it as a sequence of events to perform the job. He was at pains to point out that the document meant nothing to him in his role on the day. He was only interested in the specific task set out in the Work Permit.

We regard it as completely untenable to have Paria's PTW procedure describe the MS as a step-by-step approach yet in evidence say that it is not sequential.

Wei's contribution to the evidence surrounding the Work Permit has already been commented upon and there is no value in adding it again. Suffice to say he had no direct connection with the creation of the Work Permit. He obtained his information from Rampersadsingh. All LMCS personnel³⁶ privy to the PTW insist that the work for that day included the removal of the barriers.

As we have already pointed out it is insufficient in our opinion to rely on the entry in the Work Permit "migration barrier to be used". There is no issue that it had to be **used** the issue is when was it had to be removed. Given that the Work Permit covered the entirety of the work to the completion of the blanking-off of the new riser it had to be removed at some point before that!

If the Work Permit is to last 7 days why wouldn't all the works to the completion of the job not be set out in the Permit? It is our view that this is precisely what this Work Permit did. It makes no sense to apply for a new work permit for the Sunday, when according to Wei's evidence, the Migration barriers were to be removed. It is entirely open to conclude that the 7 day Work Permit

³⁶ This includes Farah, Boodram, Guerra and Dhilpaul who when cross-examined by Mootoo

that was issued contained all the major elements of the job to its completion, ie "*remove and install the* 50" flange, remove and install the 30" riser pipe...remove chamber and blank top of new riser". What else was left to do?

We are in the fortunate position of having a Work Permit (no. 4832) for these works created earlier, on the 13 February 2022, because as we know the works were due to start back then, but were stopped because Guerra moved his barge on 16 February 2022 without permission. This is held-up by Paria as indicative of a *modus operandi* of disobedience by LMCS to the Work Permit strictures. We give such arguments little credence.

The earlier Work Permit is set out below as we received it.

confirmed that removal of the plugs was discussed.

No	rk Order No.:	Permit No: 1832							
	APPLICATION (PLEASE PRINT)								
	Department MAINTENANCE Commence (MLS No of workers 14								
	Location BERTHOB	Equipment Name/No R 6 S.C							
	INTERED MIGANTION BARRICES, MITTEREARICE MAMBLE, CUT MO REMOVE IS SECTION								
	Specific Tasks TO CARAM DULT INSTALLATION OF MILLATION BARRIER, HYPERBARIC CHAMBER, CHEAND REPORT IS SECTION LIVER CLEARING SECTION), FABRICATE AREA FOR SCIPTON								
		ALL AGENSICATION OF RISER, LEMONE HYDEREMENT COMMENCE.							
	Applicant RAJI - MANGALES	10 No 959599 Date \$\$/00/2022	5						
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	Cleared of process hazardous materials	Yes Gass previously air blows To remain							
	Pree of process hazardous materials	Yes. Euro anothert							
	lealated from metive power (electrically)								
	holated from motive power (mechanically)	10th							
1	RESIDENT RAZARDS/REMARKS								
3.									
	CERTIFICS, TECHTIECHI STR DEGULD								
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This document is completed by different people. The Applicant was Rajiv Mangalee. He completed Section A.

Mangalee's list of works to be carried under his work permit were as follows:

Job: Install migration barriers, Hyperbaric Chamber, Cut and remove 15" section riser.

Specific Tasks: to carry out installation of migration barrier, hyperbaric chamber, cut and remove 15" riser, (leaking section), fabricate area for slip on flange installation, install new section of riser, remove hyperbaric chamber, weld flange on the riser with the use of divers.

Such was the limited space available under Section A for these items to be listed that Mangalee wrote in the tight far-right margin on the side of the document (as illustrated above), in order to squeeze it all in. This document was to be used as the work permit for the entirety of the job. It

was annotated anew at the beginning of each day as page 2 demonstrates. But for the intervention of Guerra's mishap this work permit would have sufficed to the conclusion of the job. What this document illustrates is that it is neither necessary nor normal practice to have only the individual day's work set out in Section A as claimed by a number of the witnesses and prayed in aid by the lawyers on behalf of Paria. They were wrong to assert, as they do, on Paria/Wei's behalf that "the only works which could be executed on a given day are works which are authorised to be conducted on the Permit applicable to that day". The works set out in the document are not for one day but for up to a week and self-evidently were to the completion of the job.

Under the heading in Section B of "Requirements for Equipment Isolation and Clearance" in answer to the standard question "Cleared of process/hazardous materials", the answer given is: "yes", because the Site Authority believed it was. He added in the '**comments'** column the following "**Riser previously air blown to remove line content**", presumably because he believed it had.

There is no issue that a migration barrier had to be used in the pipeline to ensure that tools did not enter and fumes did not egress as well as preventing hot works from igniting the gases emitted from the hydrocarbon content. This never had anything to do with ΔP .

Wei's statement asserts that the removal of the migration barrier without express Work Permit permission would have constituted "a serious breach of Paria's PTW Procedure", which in turn would have led to the work being stopped.

This rather presupposes that LMCS must have been flagrantly ignoring the PTW procedure and arguably damage their prospects of ever working for Paria again. Consider for a moment, the works came to an

OSHA's abrupt end following suspension of their activities in 2021 when one of LMCS's workers was injured. The works did not start again until January 2022 when given permission by OSHA. The lines were cleared and then work commenced on the main project only to be halted yet again, because Guerra moved the barge without permission. A further 10 days lost and only were recommenced after Ali Snr. demoted Supervisor to Guerra from compressor monitor!

Whether that was regarded as a harsh punishment or not is irrelevant, but it was clearly necessary to assuage Paria's concerns and get the project going again. The idea that LMCS would then somehow deliberately breach the new Work Permit or even be reckless in doing so belies what must have been Kazim Ali Snr.'s. clear desire not to jeopardize the project a third time. We do not accept the proposition postulated by Wei that this was such a violation. It is our view that the LMCS team genuinely believed that the plugs were to be removed at that time. They would have also believed that they were being monitored in doing so. Otherwise, why do it?

But, even if we are wrong about that genuine belief, the evidence discloses an obligation on Paria to continually monitor, even if that is to be interpreted as "periodically", as they claim; by someone competent to carry out the job of "Applicant", which as we have found was not the case; and to stop the work if the contractor was to carry out something they should not be doing, when the person charged with that responsibility was not even there.

Wei's statement of 16 August 2021 says:

"... the removal of the migration barriers would have caused a dangerous disturbance of the atmospheric conditions inside the hyperbaric chamber and the differential pressure between inside

the pipeline and outside of the chamber. With regard to the former, it would have allowed the hydrocarbon fumes from the pipeline to enter the chamber which contaminate would then the breathing air inside the chamber. The introduction of hydrocarbons into the hyperbaric chamber would also have created a combustible environment in the chamber and therefore created a fire explosion hazard. This is because of the existence of some residual oil in the pipeline which would have contained volatile organic (VOC's) compounds i.e. gas fumes..."

There were no other works at that point that would create a hazard of dropping something into the pipeline, there were no Hot Works in the Chamber to take place after the removal of the plugs likely to create a spark and ignite any fumes from the residual oil, without them being reinserted as set out in step 86 of the LMCS Method Statement of 4 January 2022 (as requested by Paria) attached to the Work Permit. In any event the air quality was being continuously monitored to alert the divers in the habitat of any rising CO² when they could vent the Chamber and remove the divers until levels returned to normal as occurred several times when they were working in the Chamber before.

The reference to "residual oil" in the pipeline, rather suggests that the Technical and Maintenance Manager of Paria, one of the most senior executives in the company, believed at the time he wrote his statement, that all that was left in the pipeline after the air-blowing was "residual oil". When asked about this in the hearings he was rather more circumspect, he said he was "unaware" of how much product was drained from the line but that if the line were "clear and dry" he would have expected a latent ΔP hazard to exist. He did not ask what was meant by "clear and dry". He appeared to assume it was the same way any ordinary person would take it - by its literal meaning!

Wei's reference to the ΔP hazard if one were to remove the barriers from the line suggests that he was very much alive to the risk of a ΔP hazard. Since this appears nowhere in the pre-incident documentation we regard this as a post-incident observation. Both Paria and LMCS have made clear that the issue of migration barriers was to prevent ingress of items falling into the line, the prevention of fumes coming into the chamber and creating either a fire hazard through ignition or breathing hazard from CO². No one considered ΔP or mentioned it until after the event.

Returning for a moment to the issue of the Isolation certification, there was none. Harrichan indicated Paria had not completed the "Isolations" aspect of the PTW system. The importance of this cannot be overstated as it is usually a supplemental document indicated in Section B of the Work

Permit as shown above. An isolation certificate is a critical supplemental document especially in industries where the isolation of equipment or systems is necessary for safety reasons during maintenance, repair or other tasks. We note that it is one of the few responsibilities Paria reserves to itself in the Technical SOW for oversight.37 The specified equipment/system to be isolated is specifically certified as having been properly isolated according to their procedures and given the critical importance of any isolation the company ought not to allow any work to proceed until the isolation has been confirmed to be in place and effective. The same is true for when the isolation is being removed.

CONCLUSIONS

1. The Permit To Work system is important. Indeed, it is the penultimate point of contact between Contractor and Company that identifies the specific tasks to be completed. We do not accept that this only sets out the work for that day. It lasts 7 days and can be used for all of the work set out in it and as many days of the week as is necessary to complete those works, provided it is surrendered at the end of each 12 hour shift, reevaluated and re-issued.

- 2. There are clearly problems with the lay-out of the document, in particular where the "specific tasks" are to be described in Section A, there are only three lines. That is very little space to set out the parameters of the job particularly where it is supposed to last up to 7 days.³⁸
- That section is completed by the Applicant, Marjadsingh, it is clear to us that he got this information from Rampersadsingh not LMCS. Rampersadsingh is the only one

³⁷ Technical Scope of Works section 4.5

³⁸ See Footnote 17 supra, where Cmmr Wilson and the Chair disagree on this narrow issue.

who says there was a meeting on the 24th February. What does the document say? This is divided into a few headlines thus:

- i. To remove *and* install 50" Flange,
- ii. Remove **and** install 30" Riser Pipe,
- iii. Remove 30" solid blank,
- iv. Conduct Pressure Test...
- v. Remove Chamber and
- vi. Blank top of new riser. (our emphasis)
- 4. This was not all work to be done on Friday 25th, it is clear that these works were to the conclusion of the job as a whole. Neither is it in the right order, the removal and installation of the 50" flange and the same for the 30" pipe is not sequential – it's a short-hand. The removal of the Chamber was slated for the Saturday. Other works fixed for the Sunday are not therein set out at least according to Wei³⁹.

This list does not describe the detail that needs to go into achieving those works merely the headline. We are of the view that the *how* is a matter for LMCS employees.

- 5. The document has attached to it a series of other documents which includes the Method Statement. It is attached for a reason. It sets out the works to be done, the order of those works and crucially the HOW.
- 6. In answer to the question it poses relating to isolation, it must be so isolated, whether "by blind flange, blanks, spool removal or valves", the answer given is "no" and the comment is "line drained". One interpretation of that is that the line did not need to be separately isolated because it was drained.
- In answer to the question, "cleared of process/hazardous materials" the answer is "yes". Again, suggesting the line was cleared.

³⁹ See para 53 of Wei's statement

8. The documents identified in section B are attached for a reason. It is our view that the works identified in Section A can be no substitute for detailed Method Statement, even though counsel for Paria argues otherwise. Isolation an by any pipework and other potential energy hazards need to be isolated before works can begin. This must include a Certificate of Compliance annexed

But in the comments column there are the words "Migration Barrier to be used". Now this was written by Ramdhan not Marjadsingh. It is a matter upon which great reliance is by Paria. Again, one placed interpretation of this is no more than that a barrier would be used. There is no dispute that two barriers were used. This is no bar on its face to them being removed, as and when required. They are said to be used. Just analysing that for the moment, this is in relation to the need for equipment isolation and clearance where the equipment MUST (their emphasis) be cleared of process/hazardous materials, we take that to mean the line. If the answer is "yes" why do you need a migration barrier at all? If the answer is "no" then clearly a migration barrier seals off the line. The answer given here was "yes"!

lockout-tagout (meaning lock the isolated component from being used), electrical, or mechanical isolation steps.

Procedure adopted company where

must

be

Recommendation 32

more

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to the PTW.40

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⁴⁰ An isolation certificate is a critical supplemental document to a Permit to Work, especially in industries where the isolation of equipment or systems is necessary for safety during maintenance, repair, or other tasks.

An isolation procedure describes the steps for the specified equipment or system, including any

The critical importance of any isolation will not allow any work to proceed until the isolation has been confirmed to be in place and effective. The same is for when the isolation is being removed.

THE PRE-INCIDENT WORKS

Following the issuance of the Work Permit and the completion of the Toolbox Meeting the works began on Berth #6.

The total personnel present for the works were as set out in the Toolbox Form but the key personnel were as follows:

- i. Christopher Boodram LMCS diver
- ii. Yusef Henry LMCS diver
- iii. Fyzal Kurban LMCS diver
- iv. Rishi Nagassar LMCS diver
- v. Kazim Ali Jnr. LMCS diver and supervisor
- vi. Andrew Farah LMCS stand-by diver
- vii. Dexter Guerra Compressor Operator
- viii. Andrew Dopson Kenson Site Authority for Paria
- ix. Kirt Scott Kenson Offshore Operator

There is no dispute that the first task of the day was to remove the blank from the riser. This entailed going into the Chamber and un-securing up to 30 bolts and then removing the blank plate before the Carber test could be performed. Boodram said he was then asked to surface and enquire if the Carber testers were ready to do their work? He confirmed with Guerra that they were and returned to the the Chamber. They removed mechanical plug again by un-securing the bolts, which appears to be 14 or 15 bolts. As we now know this mechanical plug is big and heavy. It cannot be removed by simply grabbing it with one's hands, it needs to be hoisted out with a chain-block. It was then shackled to the outside of the Habitat. Thus, the Mechanical Plug had been removed before lunch according to Boodram.

They then sought to fit the equipment for the Carber test but struggled as the pipe was misshaped. They reported this so as to leave Paria and LMCS to discuss what to do about not being able to Carber test. They took lunch. Upon return they were told by Ali Jnr. that the Carber test was being abandoned and to proceed with the works.

Farah as Dive Supervisor was stationed on the platform on Berth #6 in a tent for the purpose of monitoring the dive activities. He said in his first statement that there was a Paria representative working with him at the monitor, probably Kirt Scott.

He monitored the men working in the habitat and believed them to be carrying out the activities expected that day. He said he saw the men remove the *mechanical* plug shortly before seeing a splash of water and the camera going blank. That cannot be right as the mechanical plug must have been removed before lunch. This squares with what Boodram says happened and we do not believe that the removal of the mechanical plug after lunch could have been done in the time between the men coming back to work and the incident occurring – there simply is not enough time. In any event the removal of the mechanical plug "*shortly before*" the ΔP event would not have caused the ΔP as the inflatable plug was still in place.

Andrew Dopson went for lunch when work on the Chamber stopped at 13:45. At 14:45 he was on his way back when he was advised by Dhillpaul that the divers were missing. He told Ramdhan and Yearwood and arrived at Berth #6 at approximately 15:12.

If Dopson is right in his initial statement that "work continued in the Hyperbaric Chamber between 10:00 hours and 13:45 hours", it rather begs the question as to what did he think they were doing for 3³/₄ hours? Irrespective of how many bolts secured the blank it simply could not take that long or anywhere near it to complete. Even the additional labour of fitting the equipment for the Carber test would add little by way of time to swallow-up 3³/₄ hours!

We heard various accounts of the evidence as to how long it might take to remove the mechanical plug. Either way we are satisfied it was removed before lunch and they must have used the hoist. No one said anything – in particular not Dopson.

BOODRAM'S ACCOUNT

At this point the inflatable plug was to be removed. Boodram left it to the others but there was a difficulty with the nut holding the nipple through which the air was pumped or released. Ali Jnr. brought a spanner to assist in the release. Moments later he (Boodram) noticed the sea level in the habitat start to rise, he put it this way and we make no apology for printing his uninterrupted account in full:

"...and I jump; and when I jump tuh come out de, de habitat, I feel like instead ah sinking in water, ah feel like ah was floating; like it had no gravity. Yuh know, ah feel like—and den after within a second it was like a tornado; everything just spinning and beating yuh up and—it happen so fas', yuh couldn' react. The onlys' ting ah remember able to do was cover mih head like in the foetal position. After dat all ah remember—ah didn' even remember actually getting pulled in de pipe.

Ah just remember being hurled through de pipe at unbelievable speeds. It does feel like if when yuh, yuh driving ah car and yuh doing ah hundred or 120 on de highway, yuh feel like if yuh was going through dah kind ah speed. Every time ah try after ah realize ah in de pipe and ah going through de pipe, every time ah try tuh, tuh stop miself jamming de walls ah de pipe, ah woulda feel mih hands burning through de wetsuit. While going down yuh woulda feel lil debris hitting yuh.

When, um, when um, when we kind ah stop—when de water kind ah slow down and ah was able tuh stop mih self, at dis time ah couldn' hold mih

breath no longer. Mih throat—when yuh holding yuh breath, when yuh holding yuh breath fuh too long, after a while yuh body, yuh lungs does fight to try to gasp fuh breath, and when yuh forcing yuh airways close, yuh does hear ah noise. Ah was actually dah is wha' I was hearing. Yuh body suffering tuh pull air. And at dah point I tell mihself ah was going and dead. I tell my—I say, God, ah coming; ma, look out fuh mih. Ah was expecting to be dead dey.

And all ah a sudden ah just out ah de water and ketch ah breath. Ah was in ah, ah state ah panic, realizing dat, awright, ah in de pipe. Ah just now nearly dead. Ah not sure if ah alive, as ah matter ah fact. I ain sure whay ah is; if ah in hell; if ah in heaven; if ah in ah pipe. It may sound funny tuh ah lot ah people but dah is how I was going through my mind fuh ah brief moment.

And den ah heard, ah believe it was Kazim Ali calling out tuh me. Dah was de first person ah hear calling, and I assumed he was outside de pipe and calling me. I thinking dat I fall down de pipe. And ah was like—well all yuh hear de audio.

"Yeah, boy, who is dat, boy? Yeah, boy, who is dat, boy? Ah inside de pipe. Ah inside de pipe, boy. Yeah, boy, yeah boy, I inside de pipe too". And from dey is when ah realize that ah hah tuh go into survival mode here now; ah still living, because ah hearing somebody talking, unless he dead too, ah hah to find out. And ah start going tuh de voice closer and closer. Ah still didn' actually make out who it was until ah reach on him. When ah reach on him ah touch himmih foot touch him, because ah was going backwards, because ah geh sucked in de pipe, and in my head l thought that ah geh sucked in headfirst, because ah try jumping out foot first.

... At least dah is de maths I did at de time in my mind. Yuh know? And ah tell mih self dat if ah geh sucked in headfirst, well foot first is de way out. Yuh know? And Kazim Ali and whoever—well whoever else was...dey was closer tuh de riser, and it was like right dey, right dey, because dah is how it soun'in. Yuh know?

So when ah reach across now, and ah-mih foot touch something soft and ah pull it back so because ah was in ah state ah fright. Ah say, "Who is dah, boy?" He say, "Boy me, boy, me, boy." Ah say, "Me who, boy?" He say, "Boy, Kaz boy." Ah say, "Kaz, yuh awright?" He say, "No, boy; ah in real pain; ah in real pain. I mash up; I mash up bad." I hear somebody else bawling in the background. Ah say, "Who is dat?" Yusuf answer. Ah say, "Who is dat, boy?" He say, "Boy me, boy, Chris, boy, Yusuf boy." Ah say, "Yusuf, you awright, boy?" He say, "No, boy, bredda boy. My foot break, boy." Ah say, "Awright, boy, bredda, boy. I feel my hand and foot break too. but we hah tuh geh out ah dis. We hah tuh come together and we hah tuh geh out ah dis."

I hear bawling in de background. Ah say, who is dat now? Who is dat? The person ain' answer. Ah say, "Who is dat?" Yusuf say, "Boy, dah is Fyzie, boy." Ah say, "Fyzie, Fyzie." He say, "Yeah, yeah." Ah say, "Yuh awright?" He say, yeah. Ah say, anyting wrong with yuh? He say, "No." "So wha' yuh bawling for?" He say, "Ah doh know." Ah say, awright, watch mih. We hah tuh geh out ah dis. God is good. We go come out ah dis. Leh we pray. Ah pray. Ah ask Kazim—ah ask Kazim Jr. ah say, "Kaz, how we could come out ah here? Wha' we could do boy? Think. Wha' we could do? Wha' we could do?" Kazim say, "boy, we going and dead." Ah say, "no. Doh say dat. We nuh going and dead in here. Leh we come out ah here, boy. We nuh going and dead in here, boy. We comin out ah here." Ah say awright, awright. Ah say, "All yuh, whay Blacks?" Yusuf tell mih, boy, he di pass over Blacks lower down when he was coming across. He say he ain sure wha' going on with he. Ah say, "Boy, hear wha' going on. We cant stay and wait fuh he. We hah tuh go

and come back. Who could move, leh we move." Ah say, "Fyze, you push. Yusuf, Yusuf, you push Kaz and I go pull."

Now, before dat, ah ask him, ah say "I think we hah tuh go backwards so, because I think I come in foot (sic head) first. Kazim say, "no, we come in foot first"...I think we come in headfirst... Ah say, "well awright boy, well we done in dis, so I cant fight all yuh. If all yuh say dah is it, dah is it. If we hah tuh dead, we hah tuh dead. Leh we go. Ah hah tuh go with wha' all yuh say." If dem didn't know what direction we had tuh go, I woulda be dead today too.

We, um, we, we form a chain like. Ah tell dem, ah say, listen, "ah will puh mih foot underneath Kaz shoulder. Kaz, see if you could lock on tuh Yusuf. Yusuf see if you could push— Kaz—um, Fyze, see if you could push everybody. And we going. Now, mind all yuh, inside dey was like an unbelievable nightmare, eh. Yuh eyes burning. Every time yuh try tuh open yuh eyes, it burning. Yuh pitch black, yuh can't see notten. Yuh throat burning. Yuh ears ringing. Yuh body sore.

Inside dey wasn' no just crawl through ah pipe like wha' plenty people might be thinking, eh. And me and dem fellas, with all de pain we had, we link up together and we drag and pull, drag and push and pull, and every now and again small Kaz would ask fuh ah rest, because he apparently was in de most amount ah pain. He was saying "Chris, Chris, Chris, we hah tuh rest, and ah hah tuh stop."

At this point Boodram asked for a short break as the emotion was understandably getting to him. When he returned, he said this, before continuing his narrative:

Ah owe dem men dat at least ah could be here and do wha' ah hah to do fuh dem. I owe dem dat, because ah fail dem in every other way. [sobs] Ah apologize. Ah apologize. There was of course nothing for him to apologise for, but one can readily understand the emotion and how difficult it was for him to have to recount, that he left his friends and colleagues in that pipe, to seek help for them and his.

He went on to explain that the "snake" of men pushed and pulled their way along a very slippery pipe making the going tough. They were initially in about 8 inches of fluid. Precisely what they could not say but given what we now know happened there must have been a considerable amount of water in the pipe as well as whatever hydrocarbon was there.

Fyzal Kurban had an air-tank and he shared this with Boodram. It is not necessary to recount the full horror of their suffering in trying to make their escape. Suffice to say a 30" diameter pipe covered with a slippery slush, in the pitch black, breathing hydrocarbon fumes, injured, disoriented, not knowing how far it was to reach the bend in the pipe must have been hell on earth. It is a punishment no one would visit upon their enemy. All the time hoping against hope that they would be rescued.

Then the water was rising and Boodram had just a 6" gap in which to breath. He told his colleagues that he needed to go and see what the position was. He took one of the tanks and swam 15 feet ahead into the fluid and realised that the pipe was completely full. thereafter. He returned to the men and told them he needed to get help that they would not be able to go together with just two tanks and "buddy sharing air" in their physical condition.

He asked them to move back into the pipe where there was more air and that he would go to get help to rescue them. They heard knocking at this point and thought it may have been "Blacks" the nickname given to Rishi Nagassar. On any view it must have been extremely hard for Boodram to leave the men behind and even harder for the men to be left behind, but we have no doubt it was the right thing to do. It gave them all a chance at survival as opposed to what must have appeared to be a good chance of drowning or suffocating.

We believe there is the prospect that Boodram was confused in his further account he spoke of nearly running out of air again and then finding a new tank and then a third. He seemed to think that Fyzie was behind him. This may or may not be accurate but we are sure that Boodram honestly believed he was right there behind him shortly before reaching the bend which was to take him up to the top of the riser.

It is difficult to envisage his sense of relief and salvation the ascent must have provided only to be plunged into further hopelessness on reaching the top of the riser only to find no one there and unable to climb out on his own. He tried many times but simply could not extricate himself from the pipe. By a quirk of fate the chain block that was to be used to remove the plug from the line was hanging down into the pipeline and Boodram was able to wrap it around his arm to stay afloat. In his despair he called out for help and banged on the pipe.

At the point of giving up Ronald Ramoutar entered the chamber and hauled Boodram out of the pipe. Immediately he is pulled from the pipe he says, "Boy, dem fellas down dey, boy. Dem fellas down dey, boy. Yuh hah to go down and help dem." He say, yeah, he just waiting fuh more equipment and backup, buh we go geh dem. Ah say, "Boy, Fyzie not too far, boy. Fyzie not too far, boy."

Once he was out of the Chamber and on the barge he saw Nicholas Kurban and he said, *"Nicholas, go and save yuh fadder. Go and save yuh fadder. He not far down. He right behind mih. Go and save your father".* Andrew Farah there was and Boodram said to him, "Boy, dem fellas in dey. All yuh go and save dem. All yuh go and save dem." Andrew was like, "Awright, awright buh you relax, you relax." Ah say, doh tell mih to relax. Do what-better all yuh leh me go back and save dem, yuh know, becor like, all yuh, all yuh ain't want to do nutten." And he say, "Ey, relax yuhself. You in shock." I say I not in shock. Dem fellas dong dey, boy. Leh we geh dem."

CONCLUSIONS

- Whilst it is true that no one knew for sure that the men were sucked into the pipe it was, as we shall see, a real possibility as neither they nor any equipment was found anywhere around the seabed or on the surface.
- That said that there was no one waiting in the Habitat at all to monitor the pipe is lamentable to say the least.

- As a bare minimum, fresh communications, a camera and lights should have been positioned in the chamber. It was effectively abandoned.
- 4. Boodram may not have been in the best state of mind when he was finally brought to the surface but apart from his own insistence that the men were rescued no one sought, at that time, to ask him anything about the men, the conditions in the pipe or anything else pertaining to the event. That too was lamentable and was a lost opportunity to discover more in the crucial minutes and hours after he emerged from the pipeline.

As we have already stated we have no reason to doubt the veracity of what Boodram has told this enquiry. We have listened in full to the harrowing Go Pro audio footage retrieved from the pipeline. Much of what Boodram has said in his statements and account to us, as to their discussion in the air-pockets, the locking together to help each other move along the pipe, the encouragement he gave others, the prayers and his general determination is borne out.

The Commissioners' acceptance of Boodram's evidence is also challenged by Paria. They cite a number of reasons:

1. His claim that Fyzal was right behind him when he emerged from the pipe was not bourne out by the evidence. When the camera was eventually sent down the pipe there was no one seen even up to 200 feet. But we do not consider that to be material as this was many hours after Boodram emerged and may well have been affected by the removal of the habitat and installation of the new riser at about 9pm that night thus depressurising the pipeline; or that the men and Fyzal in particular returned to an area in the pipe that had a larger gaseous void to breathe.

- His evidence that he took a back-seat in the removal of the Inflatable Barrier when the GoPro shows he was engaged in the barrier's removal. We fail to see how that in some way undermines his credibility – taking a backseat doesn't mean disengaged.
- 3. His detailed evidence that he left the chamber and fastened the mechanical plug to the outside of the habitat when the shows the evidence mechanical plug was leaning against the pipeline inside the habitat. Again, we regard this of little moment. Hooking-up the barrier by chain to the habitat as Boodram said he did, may well be interpreted as hooked-up to the outside with the barrier remaining inside, but then none of this explored was in evidence.
- 4. That they did not have the necessary tools to remove the

plugs from the line and one of them had to seek a spanner from Kazim Ali Jnr. . We regard it as rather thin to suggest because they needed a spanner there were no discussions of the removal of the Barriers at the Toolbox Meeting.

5. His evidence that Nagassar could not be accounted for. Boodram told us that Fyzie told him that Rishi was breathing but not moving. Or an apparent contradiction between what it is said he told the ICT about Nagassar when interviewed that night and having crossed over him in the pipeline. He did not accept what was put to him by counsel for Paria as to what he is supposed to have said to the ICT. There are in any event a number of different versions of what it is he is supposed to have said.

We make clear again, that we found his evidence truthful, accurate and compelling.

Recommendation 33

It is essential that a hyperbaric dive chamber for divers underwater for long periods be made available as close to the site as possible. The diving contractor the bears responsibility to ensure the provision of adequate decompression facilities to enable the recompression of a diver in the event of an emergency, should such a situation arise.

A "hyperbaric" Doctor must be in place to deal with every foreseeable scenario⁴¹.

⁴¹ The scenario wherein a member of the dive team sustains an injury or falls ill, and a doctor is not readily available at the worksite, necessitates careful consideration. In such circumstances, proactive measures must be in place to facilitate effective communication and timely access to medical advice. This contingency planning is

critical to ensuring the well-being of the injured or unwell diver.

To address this, the diving contractor should establish a comprehensive plan that allows personnel at the worksite to communicate swiftly with the diving contractor's designated medical adviser. This communication can be facilitated

The Incident Command System, ICS

The use of the Incident Command System (ICS) is a standardized approach that helps ensure efficient and effective coordination during emergency incidents.

It seems to us that the starting point here is to look to what happened after the first report of an incident.

Paria claims to have in place an Incident Command System supported by a short document setting out its structure and objectives. It sets out the principles by which it is intended to operate as:

Safeguard human life

Regular drills and training sessions should be conducted to familiarize the dive team with the

- Protect plant and property
- Reduce the impact on the environment
- Resume operations as soon as possible

One assumes in that order.

The objective of the ICS includes as its primary goal to ensure there is a clear, documented Plan for responding to major emergencies. The document makes clear that the ICS:

"...provides a management system that organizes the functions, tasks and staff within the overall emergency response. It allows for the integration of facilities, equipment, personnel, procedures and communications

through radio or telephone systems, ensuring that crucial information reaches the medical adviser promptly. It is essential to pre-agree upon a suitable and efficient method for transferring information from the worksite Peculiar to the medical adviser. This may involve establishing clear protocols for relaying medical data, including the injured or ill diver's condition, vital signs, and any other relevant information. The agreed-upon method should prioritize accuracy and speed, enabling the medical adviser to make informed decisions and provide guidance on the appropriate course of action.

established communication protocols and information transfer methods. This proactive approach should dictate that in the event of an actual emergency, the team can execute the established procedures confidently and efficiently.

This level of preparedness is integral to the overall risk management strategy and aligns with industry best practices for ensuring the highest standards of safety during diving operations.

operating within a common organizational structure and enables a coordinated response among various organisations/ authorities.

The responsibility for coordinating the corporate response to any incident, so as to ensure that it is consistent with company-wide, strategic, operational and communication policy requirements, lies with the Incident Commander.

ICS promotes communications and coordination; and all responders must understand the system and their duties within it".

The risks that the plan identifies are sixfold and inevitably overlap, they are, injuries and fatalities, property damage, flooding, fires from spilled hydrocarbons, prolonged interruption to business/operations and environmental impact.

Paria had a number of emergency response documents to enable them

to deal with the process of handling an emergency on site through the ICS.

- Emergency Response
 Procedure specifically for
 Berths #5 & #6 undated
- Terminal Operations
 Emergency Response Plan
 Port of Pointe-A-Pierre May
 2019. This is the emergency
 plan for the entire terminal.
- Fire Emergency Response Procedure - undated. Said to be for Main Viaduct Berths #1, 2 North and South and 3.
- Fire Emergency Response
 Procedure Island Berths #5 & #6 undated.

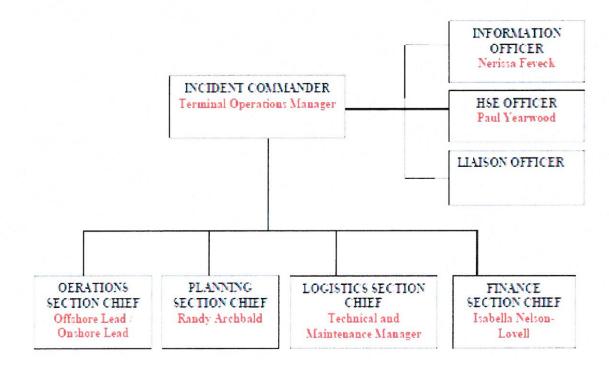
None of these plans deal with an emergency that arises as a result of a ΔP situation or have a plan for dealing with emergencies in small, enclosed spaces. During the course of the enquiry we were further provided with the extract from **ISGOTT's Rescue** and evacuation from enclosed spaces but as we understand it this was/is not formally adopted by Paria.

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The structure of the ICS is as follows

The ICS is activated upon notice of an emergency and the key personnel who may be regarded as the **Incident** Command Team ICT (the hierarchical structure of which is well explained in the chart shown) are as follows: the Incident Commander, here Collin Piper. He was and is the Terminal Operations Manager at Paria. He reports Mushtag to Mohammed the General Manager. The Incident Commander is in overall charge and establishes the command structure to suit the particular incident. Also in the ICT are the Operations

Chief Visham this comprised Harrichan and Catherine Balkissoon, and they are supposed to direct tactical operations. Next the **Planning** Section Chief - Randolph Archbald whose task it is to assess the probable cause of the events and assemble and evaluate information needed to prepare incident action plans. The Logistics Section Chief was Michael Wei whose job it is to assemble personnel, resources and equipment. The Finance Section Chief was **Daren Lal** who is required to manage financial documentation and to handle compensation and damage claims. The Information Officer was Nerissa



Feveck for communications. The **HSE** was Paul Yearwood and a Liaison Officer.

Recommendation 34

Drilling, Drilling and Drilling, For any ICS to succeed it is dependent on regular drilling of the ICT. This is

something that should happen at least once a year.42

Trinidad & Tobago Coast The **Guard TTCG**

It is appropriate that in making these findings we record that the TTCG refused to respond in detail to the Maxwell Letter we sent them on 27 October 2023. The circumstances

⁴² Conducting drills or tabletop exercises is essential for ICTs within the ICS framework for several reasons: Drills and tabletop exercises are invaluable tools for Incident Management Teams operating within the Incident Command System. They help ensure that teams are well-prepared, organized, and capable of responding effectively to a wide range of incidents, ultimately contributing to the safety and well-being of whom they serve.

Familiarity with Roles and Responsibilities:

Drills allow team members to become familiar with their specific roles and responsibilities within the ICT structure. This includes understanding the chain of command, communication protocols. and the decision-making process.

Testing the ICS Structure:

Tabletop exercises provide an opportunity to test the effectiveness of the ICS structure in a simulated environment. This ensures that the team is well-organized and can seamlessly integrate with other responding agencies.

Improving Communication:

Effective communication is paramount during an incident. Drills enable ICTs to practice protocols, ensuring that communication information flows accurately and efficiently between team members and with external agencies. This includes the use of standardized terminology and communication tools.

Coordination and Collaboration:

Tabletop exercises involve multiple stakeholders, allowing for the practice of coordination and collaboration with external agencies, fostering a unified and integrated response to the incident.

Decision-Making Practice:

Responding to incidents often requires rapid decision-making. Drills provide ICTs with opportunities to practice making critical decisions under simulated pressure. This helps team members become more adept at assessing situations, analyzing information, and making timely decisions.

Resource Management:

ICTs need to efficiently manage resources during an incident, including personnel, equipment, and supplies. Through drills, teams can assess their ability to allocate and deploy resources effectively, ensuring that they are adequately prepared to handle the demands of a real incident.

Identifying Weaknesses and Areas for Improvement:

Conducting drills allows ICTs to identify weaknesses, gaps, or areas for improvement in their response plans and procedures.

Enhancing Team Cohesion:

Regular drills contribute to building a sense of teamwork and cohesion within the ICT.

leading up to that refusal are set out in brief below:

On the 18 July 2022 the CoE wrote to TTCG asking it for its assistance and pointing out the following:

- (a) In a Media Statement issued on 9th March 2022, the Paria Fuel Trading Co. Ltd ("Paria") stated that it contacted inter alia the Trinidad and Tobago Coast Guard ("TTCG") and other emergency response organisations in response to incidents occurring on 25th February 2022 No. 36 Sealine Riser on Berth No. 6, Pointe-à-Pierre. In that Media Statement, Paria also stated that service providers arrived at various times on that day to assist with the rescue efforts; and
- (b) Officers from the TTCG may have been present at <u>and/or involved</u> in events surrounding the incidents on 25th February 2022 that led to the tragic deaths of the four (4) LMCS Limited's divers and/or continuing up to the recovery of their bodies.

On the 15 August 2022 the CoE received an incomplete copy of a statement made by Hargreaves. There then ensued email correspondence to obtain the complete version.

On 25 August 2022 the CoE wrote to the TTCG asking for the complete copy of Hargreaves statement to which we received no reply.

On the 7 September 2022 the CoE opened the enquiry with an introduction that included recognition of the challenges faced by the emergency services:

It is also right to observe that a disaster of this kind provided a unique challenge to the emergency services as well as to those charged with direct responsibility for those divers

On 20 September 2022 the CoE having considered the partial statement it had received from Hargreaves and nothing from Leidgewood we wrote seeking the two officers to attend upon the CoE to be interviewed to which we received no reply.

On 28 September having still not heard nothing from the TTCG since the 15th August 2022 we fixed an interview date and asked them once again to attend for an interview on 3 October 2022 so that we might determine whether it was <u>necessary</u> for them to give live evidence before the CoE and that if they did not attend voluntarily we would issue a subpoena; we still did not hear from the TTCG.

On the 8 November we issued two subpoenas.

On 29 November 2022 we finally received the complete statement from Hargreaves but nothing from Leidgewood. The missing passages contained rebuttals of the controversial allegation by some that the TTCG had used armed officers to prevent divers from entering the pipeline to attempt a rescue.

On 12 December 2022 both Leidgewood and Hargreaves answered to their subpoenas and their evidence was taken. Leidgewood had been given every opportunity to make a statement but did not. Hargreaves also gave evidence before the CoE on this day.

On 29 June 2023 as a result of their evidence and the evidence of others a Salmon letter was written largely dealing with apparent contradictions rather than any specific misconduct.

On 17 August 2023 the CoE received replies to the Salmon letters in which complaint was made that the "criticisms" of the TTCG and Lt Hargreaves were outwith the terms of reference to the enquiry; that they had no advance notice of any adverse finding and in particular were unable to test the evidence of the various witnesses as the evidential hearings had been closed. Finally, criticism was made of the procedure adopted by the CoE in particular to the timing of the Salmon letters

Without arguing the merits of those criticisms, which we reject, the TTCG nonetheless provided useful submissions in their reply to the preliminary observations made by the CoE and which we made what we thought were fair adjustments as a result.

On the 27 October 2023 we wrote again in a Maxwell letter to the TTCG maintaining some of the observations and criticisms of Lt Hargreaves.

On the 10 November 2023 the TTCG responded saying that

TTCG. More importantly we wrote to the parties which included Hargreaves on 14 July 2023 reminding everyone what the procedure had been hitherto and what was to happen following the issuance of the Salmon letters, inviting any representations as to how we could facilitate any concerns about the procedure.

Andre Leidgewood was the Coxswain on the TTCG boat. He was called out to the berth to assist in a search and rescue and arrived at 16:55. It is said on behalf of Piper that he instructed Leeandra Singh (then of Paria) to contact the TTCG at 15:12 and we have no reason to doubt that.

Leidgewood was part of a six-man crew which had just one diver. When he realised that he needed a dive team he left the Berth at about 6:30 pm and went to collect them. He returned with Lt Hargreaves and a team of about 10 divers just over 2 hours later, 8:40 pm. Thus he was present when Boodram emerged from the pipeline and there was no TTCG

having regard to the procedural unfairness they had previously articulated which they reiterate at this time, they asked for the criticisms of Hargreaves be withdrawn.

It will be apparent from this Report that we have declined to do that. We do not regard the treatment of Hargreaves, Leidgewood or the TTCG to have been unfair in particular, given the history as set out above. The two officers of CoE interest to the were repeatedly written to for their statements and to come to the inquiry for an interview so that they would have been forearmed with the matters of interest to the Enquiry. They ignored those entreaties. We asked for better statements and that too was ignored for far too long. We were forced to issue subpoenas to obtain any evidence from them beyond eventually receiving the full statement from Hargreaves.

After the oral hearings all parties were invited, should they so choose, to make any oral representations, privately, post the receipt of a Salmon letter. They chose not to. In any event we had helpful and useful replies to our initial observations from the on site for at least two hours between 6:30 and 8:40pm.

We note that in Piper's statement he says that the ICT was advised that the TTCG's divers and equipment had arrived onsite at 18:55. That must be an error as the ICT Log says only that "divers and equipment arrived onsite" – we think that was probably Alvin Seeteram of Subsea Global Solutions captaining the Waterworld who arrived shortly after 19:00 hours.

Whilst he (Leidgewood) was there on the first occasion, he was passed a telephone and asked by someone at Paria if he would take over rescue operations at Berth #6 and he said "no" because he did not have the experience to do it. During the course of his evidence there was much he not remember but when could pressed he disclosed that there was a log which was said to be contemporaneous and which had not been provided to us. We did manage to obtain the TTCG ship's log which we have been through, but it provides

no further assistance of any substance.

Leidgewood made clear that at no time was he asked to prevent people from diving and neither did he hear anyone direct divers that they were not to dive. He changed that later to say he cannot remember anyone giving such instructions: ultimately, he said he could not recall that happening.

There was some suggestion, if only through subsequent press reporting that the TTCG had prevented anyone from diving at gun point. Beverley Howe was the only witness to provide a statement in which she claimed to have seen the TTCG pointing a gun at Kurban. Leidgewood was at pains to point out that no one from the TTCG had either prevented diving or pointed guns at anyone to do so. The regular crew (but not the divers or himself) were armed the whole time with primary (automatic rifle) and secondary (handgun) weapons. This is flatly contradicted by Lt Hargreaves

who says that at no time were any of the TTCG armed at all. We do not accept that as an accurate picture of the true position. It is our understanding that the TTCG are routinely armed.

We are ready to accept that no TTCG personnel pointed his weapon at anyone in order to prevent any divers from entering the water, however their mere armed presence may be enough to act as a deterrent to those who might have defied the general order not to dive on the pipeline. But that cannot have been the position between 6:30 and 8:40 when there was no TTCG presence at the site at all.

The ICT Log dealt with below, has an entry at 18:24 that the TTCG were asked to "take control of the rescue operations". It would appear that Leidgewood would have told the ICT that they do not have the manpower nor equipment for such a rescue, but that it was coming. Unfortunately, the Log does not record TTCG's refusal to "take control of the rescue operations". Yet we accept the TTCG left the site literally minutes later.

Mushtaq Mohammed said that he had discussed with Piper the need to "protect Paria and Kenson personnel, assist with the search and rescue efforts and take control of the site..." with the TTCG. In Piper's statement he affirms those discussions adding that they should be prevented from entering the pipeline. He said that he heard Mohammed make that request of the TTCG.

The next entry in the Log of relevance to this issue is at 20:09 wherein it is recorded as "TTCG ETA 20:54hrs with full rescue and Boroscope". This is followed-up with an entry at 21:03 which indicates Lt Hargreaves asking Piper if there were any other options apart from sending a diver into the pipe as he did not regard it as safe.

If these entries are correct it would appear that the TTCG were not on site between 6:30 and perhaps as late as 9:00pm. It follows that if that is correct which we are inclined to accept, there could have been no instruction from the TTCG to the various divers as they arrived on site during that time not to dive whether with guns or not.

We are of the view. given Leidgewood's poor memory, that the request of the TTCG to take control made as indicated was bv Mohammed and Piper and recorded in the log. Precisely who or how that was expressed at Berth #6 is unclear as Balkissoon is silent on the matter. but we are further of the view that the TTCG had been requested to take control and had instructed the divers not to dive on (at least) the pipeline. We are unable to determine with any degree of certainty whether that was immediately before Leidgewood left to collect his dive team at 6:30 and/or upon his return sometime after 8:40 pm that night.

That there was no TTCG presence for this 2 to 2¹/₂ hour period at what must have been a crucial time is a matter upon which they may wish to reflect. Moreover, there was no dive team in place at the site from the TTCG until 8:40 ish approximately 6 hours after the incident occurred. The TTCG were not informed until after 4 pm of the incident and they were given insufficient information by the ICS to have immediately instigated a dive team to attend Berth #6 necessitating the need for Leidgewood to have to return to base collect his dive team.

On Leidgewood's return to Berth #6 he had Lieutenant Hargreaves with him. Lt Hargreaves is a highly experienced and qualified diving officer with the TTCG. He was there as the man in charge of the 10-man diving team to lend assistance to an attempt at a rescue of the missing men.

What was both surprising and somewhat disconcerting was that when asked in evidence before this enquiry, Lt Hargreaves made plain that he was unaware of the following important facts before coming to the conclusion that his men would not be able to effect any rescue:

- That Leidgewood had been to the site earlier that day,
- II. That he had no conversation with Leidgewood before, en route or on arrival with him as to what he knew of the incident,
- III. That Leidgewood had witnessed Boodram coming out of the pipe,
- IV. That Boodram had been using scuba equipment
- V. That Kurban had entered the pipe using scuba equipment yet in his statement he said that he interviewed Kurban,
- VI. That the remaining men were inside the pipe before he arrived at the site,
- VII. That at least 6 hours had passed between the initial incident and his arrival at Berth #6
- VIII. That he was ever told that there was a belief the men had been sucked into the pipe as a result of a ΔP event and therefore that

there was a danger of a secondary ΔP event.

These findings are in part challenged by the TTCG and we are grateful for the fulsome response from Brigadier General DL Francis the Vice Chief of the Defence Staff under whose command the TTCG operate.

The explanation is given that Hargreaves knew all he had to know from TTCG Operations and that any update on that information had to be gleaned from the ICS on arrival as Leidgewood was off site for the time it took to get the dive team.

Contrary to the counter-assertion that Leidgewood did not witness Boodram emerging from the pipe the evidence from him at the Enquiry included the following passage, albeit not answering the question being asked:

Q. ... Whilst you were there, did you see anyone dive in

the pipeline and came back out?

A. Yeah. While I was there, I didn't see how they were getting into the pipeline. But while I was there, it had a point where we heard shouting coming from the pipe, and dah is when, well, they started to be a little more urgent. And ah think dah is when they someone went into the pipe and eventually they came out with the survivor.

This can only be related to Boodram emerging from the pipe which would have been before Leidgewood left to collect the dive team at 6:30. This was a fact known to Leidgewood before he collected Hargreaves yet the Brig. Gen. says he only learnt this from Kurban later that night.

That Boodram was using scuba, is not disputed but is asserted as

being "imperceptive" because we have failed to take account of matters such as the time of night and that TTCG were untrained in such a rescue. Whilst we are ready to accept without hesitation that the dive team Hargreaves was in charge of were wholly untrained to carry out any attempted rescue they were being asked to consider, we fail to see what possible difference the time of day could make yet the fact that these men carrying out the work in scuba must have been a relevant fact as they using commercial were not equipment being air-fed through an umbilical.

Lt Hargreaves was most anxious to tell the CoE that his opinion that any attempted rescue was too dangerous was predicated on the fact that *his men* were not trained to carry out such a rescue. In his written statement he gave as reasons for that view the following:

- I. No room for manoeuvrability
- II. Inappropriate equipment
- III. The cause of the incident was still unconfirmed
- IV. Still hazardous material in the pipe.

He told Balkissoon that an attempted rescue operation required commercial equipment and that his divers were only scuba trained not commercial. That does not seem to be what the ICS got from Lt Hargreaves. The ICS Log says that at 21:08 hours TTCG Lt Hargreaves asked Piper if there was any other option besides sending the TTCG divers into the pipeline to carry out a rescue as he did not think it was safe to send a diver down. The log further states that he, Lt Hargreaves, provide other asked Piper to recommendations and options. It would appear that there were no such other recommendations given to Hargreaves.

Brig. Gen. Francis says in reply that "...with specific reference...to the

written chronology of events maintained by the ICS, several other pieces of critical information was retrieved. However, the ICS was under no obligation to share, nor did they share according to the TTCG records, any further information to the TTCG Operations or Leigdewood who was at the scene of the incident prior".

The Brig. Gen. goes on to say that the TTCG was not apprised of the incident when it first occurred and the fact that this was believed to be a ΔP event. Clearly, they should have been, on both counts.

At 22:38 the Log indicates that Lt Hargreaves once again spoke with the ICT to discuss the way forward. Hargreaves then said he would speak with his senior and get back to them. At 23:50 Hargreaves informed the ICT that they would not dive.

He said in evidence that he did not say or prevent commercial divers from carrying out an attempted rescue. But that does not appear to have been conveyed to the ICT nor did the ICT suggest the use of commercial divers to the TTCG.

In his witness statement he said the following:

"As far as I'm aware, the decision to persons from prevent attempting a rescue was made by Paria personnel and not by either myself any member of the TTDF diving department or by any member of the TTDF. Neither I, any member of the TTCG diving department, nor any member of the TTDF had the requisite authority to do so. The decision by Paria however was based on the assessment by the TTCG diving department that an attempt at a rescue can have severe health and safety implications as stated in paragraphs 9 and 10 above". Our emphasis

We found a number of difficulties with that statement. First, Hargreaves must have appreciated that Paria were reliant on them to both carry out and advise on any rescue attempt. Second, their decision as to whether a rescue was possible was made without the basic facts as set out above. Third, the Health and Safety implications identified by Hargreaves as set out in his statement were capable of being overcome by the use of commercial divers and equipment as he recognised in evidence but was never apparently conveyed to the ICT. Fourth, he knew that commercial divers and equipment was on site when he arrived yet he made no effort to either speak with them or see to what extent his divers could assist them to carry out a rescue attempt even if his men were not to enter the pipeline.

The Brig. Gen. says that it is his understanding that the "ICS had at all times retained control of the access of LMCS personnel into the pipeline...Whilst divers and equipment was on site ...it was the responsibility of the ICS to manage the conduct of the rescue operations". Herein may lie the difficulty because that is not how Paria, and more particularly the ICS, see it. The Brig. Gen. says that:

> "Whilst the TTCG agrees that the health and safety concerns could have been overcome. the responsibility the to order commercial divers to enter the confined space was Paria's not the TTCG's. The Commission has sought to juxtapose communications between Paria and LMCS without a modicum of thought being applied to the fact that an ICS had been stood up to provide control and give direction to the resolution of the incident.

> The TTCG rejects the assertion made that the gravermen of Hargreaves' supposed offence was that he failed to communicate properly with the ICT....The Commission has not considered that the ICS being a standardised approach to the command, control and

coordination of emergency response provides a common hierarchy relating to the management of an incident. What ICS is not is the TTCG".

We have a certain sympathy with the Brig. Gen. and the stalwart defence of his TTCG save that no one could **order** anyone to enter the pipe. Here we had the father of one and the son of another in that pipe willing to either enter the pipe or ensure it was entered to carry out a rescue attempt.

We can assure the Brig. Gen. that more than a mere modicum of thought has gone into our consideration of the ICT and its role. The fact is that it has become clear that the ICT relied, clearly too much, on the advice it sought and was being given by Hargreaves representing the TTCG.

We find that Lt Hargreaves failed to obtain all of the known salient facts before concluding that he could not carry out an attempt at a rescue, although we accept that really all he needed to know was that these men were stuck in a 30" pipe, but, more particularly he failed to communicate properly with the ICT in making it clear that he believed it may have been possible to carry out a rescue with commercial divers and equipment. We are confident that it was not his intent to mislead but it is plain to us that the ICT as a matter of fact did not appreciate that he was saying it was *his men* that were not able to carry out a rescue attempt rather than *no men* could carry out a rescue attempt, and that is on him.

THE ICT LOG

It is important at this stage to refer to the Log. This is supposed to be a contemporaneous or near contemporaneous record of the events as they unfold and what was being planned. It is a time-line that provides insight into the activities of the ICT.

The first entry records that the 5 divers entered the Chamber at **14:15**. Then

that the camera was not functional at **14:45**.

At **14:55** Farah reported the divers missing.

At 15:48 HSE technician, Shane the Ramkissoon. reported that chances of survival are slim. Piper says he took no notice of that entry. But it rather suggests that someone believed that the men were in the pipe. These men were experienced divers, if they were out at sea, one might have thought that some trace would have been found by then, but even if not, surely all possibilities should have been. were. or considered, including examining the pipeline especially as Piper knew the incident happened as a result of the removal of the plugs because Ali Snr. told him so.

At **16:48** Ramkissoon made a number of entries into the log. Immediately before Piper arrived at the ICT the last entry (16:48) was from Ramkissoon which said he "heard divers knocking". Piper makes no mention of this in his statement nor anywhere else but the only place they could be knocking from was the pipeline – NOT the ocean!

Thus, discounting anything else that may have been said by LMCS or others there was some evidence the men were in the pipe. In evidence Piper agreed that he had as a possibility that the men were in the pipe yet he did not order a camera be provided. He arrived at the ICS at 16:55 just 7 mins after Ramkissoon reported to the ICT that there was knocking coming from the pipe. There is no further entry in the log for an hour. This is now on Piper's watch. No camera has yet been ordered.

At **17:45** the Log records a person having been rescued from the pipeline (Boodram). Piper confirmed that Yearwood sought to have someone accompany him in the ambulance to glean as much information as they could about the condition of the pipeline but were thwarted in that endeavour by GMRTT attendants who

refused the request. We have been told by Dr Paul Anderson the Chief Executive Officer of GMRTT, that it was part of the Covid19 Policy to prevent any passenger, other than those specifically to do with patient care, from travelling in the back of the ambulance during the pandemic. We have no doubt that is correct, but it seems to us that GMRTT's response in such a unique emergency situation as they were presented with, required a more flexible approach and the failure to adopt it may have had the effect of jeopardising the lives of the remaining four men. We note that nonetheless no one followed the ambulance to be on site as soon as they were permitted to speak with Boodram. It was not until 20:35 that Shan Balkissoon (we think Shane Ramkissoon) was despatched to the hospital to speak with him. The interview of Boodram finally took place at 21:58, 41/2 hours after he

emerged from the pipe and over 7 hours from the time of the incident.⁴³ after the emergence of It was Boodram from the pipe that Piper first seeks information as to the condition of the pipe by calling for a camera at 6:10 pm. This is in our view highly pertinent to the Timeline which we deal with below. Once it was considered that there was a prospect the men were in the pipeline a camera ordered been ought to have immediately, not await the emergence of Boodram. Piper insists that there was a general sense of urgency which is difficult to accept against the failure to order the camera until 6:10pm.

Paria in argument state they "...simply played a supportive role in LMCS' rescue efforts (if they can even be characterised as such)." Whatever else might be said of the ICT and Paria's role "supportive" does not immediately come to mind.⁴⁴

At **18:00** the Log indicates Kurban had retrieved a GoPro camera and cylinder from the pipeline – little or no effort was made to retrieve this GoPro. Thus, the ICS knew he had been into the pipeline and may have had vital video footage of the condition inside the pipeline. The Log describes Boodram as being treated by the EMT's for muscular injury and

⁴⁴ They go on to say "the ICT just did not have the information as to what caused the incident and where the men were." – they may not have known the precise cause or exactly what happened to the men but they accepted that it was possible they were in the pipe. If that was a real possibility, why wait to order a camera? Next they say "The evidence is also clear that LMCS had more information than my client and the ICT" – not true. Paria were seized of far more information (had they bothered to look for it) than LMCS but either way they had an obligation to get it beyond just depending on a camera.

⁴³ We have subsequently learned that Boodram's oxygen level was low – 96 – and as such he had to wear a full face oxygen mask to bring the level up. We have not probed this matter but do not regard it as a particularly significant obstacle given the very grave situation the men in the pipe were and that between 96% and 100% is generally regarded as normal.

Next they assert "...there was nothing preventing LMCS from seeking and or sourcing their own camera footage of inside the pipeline or entering the pipeline without it" – LMCS clearly did not regard it as vital to obtain camera footage before mounting a rescue attempt. The only thing preventing LMCS from entering the pipeline was as we have found, Paria!

described the patient as "alert and conscious" with pain in his right shoulder.

At **18:04** the Log records that the OSH personnel arrived on site. An important matter given what at least one officer was to say later in his report of the operation of the ICT. By the time they arrived Piper had been on site for over an hour.

At 18:21 the TTCG arrived and Piper requested security to secure the incident area at 18:25. Curiously the log goes back to 18:24 and records that the Coast Guard had been requested to take control of the rescue operations although they did not have the equipment nor diving personnel on site at that time. A further team had an ETA of 19:24. Piper says in his statement that they were requested to conduct searches of the divers, take control of the incident scene as LMCS were becoming hostile towards Paria personnel; and to attempt to rescue by diving inside the pipeline. Apart from

the searching they were not prepared to take on any other responsibility.

At **18:55** Divers and diving equipment arrived on site.

At **19:37** the following entry was made:

1 ROV Subsea 7's boat with 2 ROVs leaving Chaguaramas and can arrive on site in 2 hours...ETA 2 – 8 divers one full crew on Gulf Stream Eagle, left Main Field to mobilise to PaP In 90 -120 mins. The other diving crew to arrive PaP within 2012 hrs...Line Crawlers camera already on site and deployed...

The entry contained other information but this is what we regard as relevant. What it shows is the various timelines for the various different parts of the assets being sought. Precisely how this fed into the thinking of the ICS is not clear because as we identify below there was no timeline to work to. So, if at 19:37 nearly 5 hours after the incident and 3 hours from when Boodram emerges from the pipe they are being told it's yet another two hours before the ROV's can even arrive let alone be deployed, analysed and acted upon, what are the chances of any of the men being alive? This begs the question, is there a plan B? Evidently not.

A few minutes later the Dive Crew confirmed that they did not have the boroscope.

At **20:09** The Log shows that the TTCG ETA 20:54 with full rescue and boroscope.

At **21:03** TTCG asking Piper if there is an alternative to sending divers into the pipeline as he did not think it was safe to do so. But at 20:50 the log records that the TTCG will not dive. At **21:06** there was a discussion with Ali Snr., Balkissoon and Piper, Mohammed, Wei and Archbald to install riser spool at Berth #6 to bring the end above the water line to ordinary atmosphere and then to remove the flange on the riser at Berth #5. It was said there was reciprocal knocking heard at Berth #5. We think this had the potential to completely disrupt the equilibrium in the pipeline, a view supported by the evidence of the expert Zaid Khan.

At **21:58** there was reference to the call with Boodram to which we will refer later in this report.

At **22:42** Atlantic LNG personnel arrive with boroscope. 8 hours after the incident.

At this point there is then a curious anomaly with the Log, supposedly contemporaneous, it goes from 23:50 when TTCG are recorded as saying they will not dive, to 23:02 when there is reference to Heritage and the way forward.

At **23:04** the Log records that the ICT are to have Recovery plans to be drafted for the following scenarios:

- 1. All four non-responsive
- 2. Found responsive
- Non-responsive and submerged
- 4. Non-responsive air pocket

We never saw any of these scenarios.

At **23:39** HSSL confirmed they will not perform rescue.

At **23:58** Update from ALNG Camera team – nothing seen having entered pipe.

At 23:59 the ROV arrived.

At **00:02** now 26 February the ALNG Camera could go no further than 40 feet into the horizontal – clear water and scuba tank seen well enough to read the markings.

At 00:45 The ICT were asking for the camera to go down again to try to assess further. Divers are to deploy and assess the pipeline blockage and provide information of the assessment. Seales45 to liaise with the divers (OTSL and Mitchell Divers) to provide feedback on their willingness to perform the job.

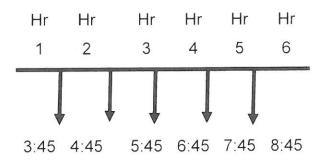
⁴⁵ A highly experienced dive expert assigned to Heritage from Kenson.

At **00:58** Seales indicates that no divers were willing to perform the dive. This seems to us to be entirely rational 10 hours after the incident with the likelihood of anyone being alive being fanciful delusion. Seales told us that he regarded the men being alive after 21:30 as being "highly unlikely" and he would not therefore risk his or anyone else's life to retrieve a tank.

Yet even if that were to be rejected at **02:12** two Eastern Divers were debriefed and 14 minutes later they suggest a rescue operation. Yet the ICT were still sending down cameras and crawlers.

A Workable Timeline

Pausing here for a moment we have considered long and hard the initial approach taken by the ICS. No one, and we mean no one, ever considered or applied any time-line to the work of the ICS and what that entailed at the time. We have had much said about the need for urgency but that failed to be translated into a coherent plan as to what could realistically be achieved as time passed. This we regard as Piper's primary responsibility. This is a theme to which we will return when examining the effectiveness of Paria's ICS and their response to the tragedy. We have no doubt that a major flaw in its effectiveness was a failure to have a timeline. We have in mind something like the following:



What this would achieve is a guide to the work and plans of the ICT. At 2:45 they know the men have gone missing. Someone, we say, the head of the ICT, ought to have been asking:

- 1. Where are they? What are the possibilities?
- 2. What has caused their disappearance?
- 3. If they are out to sea how long have they got before drowning?
- 4. If in the pipeline how long have they got before drowning?
- 5. What possible air supply could they have?
- At what point in time would they become saturated?⁴⁶
- And then the crucial answers to those questions being applied to the timeline.
- And then asking the ICS what can be achieved in the first hour, what in the second and so on.

⁴⁶ Saturated means that the body has absorbed all the inert gases such that the body cannot absorb any more having reached an equilibrium. In short what that means is the only way that person can be saved is to put them immediately into a decompression chamber. This allows the

body to slowly acclimatise to the normal pressure and expel the gases without which the person will die of decompression sickness and other pressure related injuries commonly known as the bends.

Whilst there is evidence the first two of those questions were being asked, the remainder were not.

If the primary responsibility of the ICS and any emergency plan is to preserve life, it follows that the faster one acts the more likely the victims can be saved. As time ebbs away so too will the possibility of saving life. The law of diminishing returns. This was to prove important as the possible rescuers would have wanted some realistic prospect of successfully recovering live divers from the pipeline before risking their own lives.

Decision making must, we repeat must, be driven by what can realistically be achieved in the time available. That requires a dispassionate rational estimate of the time that the victims have before expected death. During the course of the evidence we heard various estimates of the likelihood of survival. We are not in the least bit surprised that Kenson's HSE Ramkissoon placed the chances of survival as "slim" an hour after the disappearance of the men particularly if they were believed to be in the pipe; up until Boodram emerged that was not an unrealistic prognosis if they were entirely reliant on tank air.

Piper was asked how long he gave the men's survival. Initial estimates before knowing for sure they were in the pipe was a couple of hours. Thus dead by the time he arrived at the ICP. Perhaps that is why nothing is recorded in the Log until an hour later when Boodram emerges. But once Boodram did emerge the renewed hope of which he spoke gave them a fresh opportunity and a timeline was variously estimated (in hindsight) of 3 -4-5 hours eventually pushing it to as late as midnight. Here we suggest lies the importance of having the timeline clear from the outset.

We are only able to judge the ICS by what it appeared not to do that it

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should have done. It prohibited diving and never revised that ban even when it had some camera footage; it never came up with a rescue plan at all even if the criteria could not have been fulfilled; assuming it considered at the time any of LMCS's plans it rejected them all as inadequate without offering any alternative; it failed to utilise any of the diving resources that were available by around 7 pm that night: and ultimately gave a disproportionately greater responsibility to the rescuers health than the lives of the divers in the pipeline especially given that no one was being ordered into the pipeline it was only ever going to be voluntary.

The Pipeline Contents

We are also troubled to have identified the confusion amongst the Paria staff, as to the extent to which they knew or even enquired as to the amount of hydrocarbon material that was removed from the sealine before substantive works began. No one in the ICT asked the department responsible for recording the amount of material removed from the line to provide the records that we have seen and were readily available at Paria's offices. No one enquired as to whether the line was "clear and dry", partially filled with hydrocarbons and now seawater as well or even what was in the pipeline before any works were done to remove material⁴⁷.

A common refrain of those in the ICT was "we do not know the condition of the pipeline". This it seems to us was the starting point. Once again, it was an opportunity missed.

Logic dictates that whatever was in the pipeline was below the inflatable barrier. That got sucked into the pipeline as a result of ΔP as we now know but even if they were ignorant of the process the likelihood was that the hydrocarbons were going to be on the other side of the barrier and sea

⁴⁷ We know it to have been LSFO - Low Sulfur Fuel Oil where the Sulfur content is below 1%

water on the people side. This does not seem to have occurred to anyone in considering the condition of the pipe either. That Boodram emerged covered in oil is entirely explicable because he was crawling along an old pipe in and out of fluid which was no doubt lined and caked in old deposits from years of pumping hydrocarbons through it.

Moreover, no one it seems checked to see what hydrocarbon was in the pipe even before pumping.

So that we are clear, this is a criticism of the ICS and its head Piper. It was he who was determined to discover the conditions in the pipeline. The line content was one matter that he could ascertain without the need for a camera. It is reasonable to assume that once the line was isolated and the content exposed it was a) possible to know what the fluid was, b) how full the line was, and c) how much needed to be removed to obtain the ullage if that what was genuinely believed to be the position. Only Paria had the records to show that, not LMCS.

The comingling of material that went into tank 111 from both Sealine 66 and Sealine 66 is of no moment because SL 66 comes after 36. Paria had previously identified the content as LSFO not crude oil.

As demonstrated above it was clear that on any view a very considerable amount of material was removed from the line even if it was to then be concluded that it was not empty. Counsel for Paria claimed in earlier submissions that the Maintenance Departments Daily Work Records could identify that only a limited amount of the material that entered Tank 111 came from Sealine 36, yet in dealing with this aspect of the contents of the line they maintain that it was not possible to identify what amount came from Line 36. It is accepted that there are a number of variables that affect what has been measured to enter Tank 111 such as known air pockets and expansion but

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we are not looking at a precise science neither are we talking about minor discrepancies – we are dealing with the difference between as little as 56 bbls and as much as something in excess of 400 bbls.

Collin Piper – Incident Commander

Piper first heard of the incident when he was called by Harrichan, the Offshore Team Lead at 15:10 on the 25 February 2022. As Incident Commander it was his responsibility to implement the ICS, but as far as we can establish it was Paul Yearwood who acted as temporary head of the ICT until Piper arrived.

It is completely unclear to us now, in particular, in the light of the various submissions made by counsel for Paria, who was actually in charge before Piper's arrival at about 5pm. Counsel for Paria claim it was Collin Piper and maintain that it was always him even though he did not arrive at the ICP until just before 5pm. Indeed, they insist there never was any handover because Piper was always in charge. That does not quite square with what Yearwood has said to the CoE both in his statement and in his evidence (given after Piper).

It is appreciated that Piper was some distance away from the Terminal (San Fernando) thus it seems to be assumed that responsibility for the establishment of the ICT ERP⁴⁸ fell to Yearwood. He arrived at Paria at about 4pm. In his statement to the CoE he said he "activated and mobilized the ICS, he contacted key personnel and he convened the ICT at the designated ICP.

According to Yearwood he did not speak to Piper about the incident until 3:53 pm when he learned that Piper already knew. What is a little difficult to understand is that given Piper was the designated ICS Incident Commander why Yearwood would

⁴⁸ Emergency Response Plan

not have spoken to him for 45 minutes: sadly, more than an hour after the incident? He called Archbald (Paria's HSEQ lead) at 3:12pm, Donawa (Paria's Terminal Port Security Officer) at 3:33 pm, Subero (Paria's Security Lead) at 3:48 pm and Wei (Paria's technical and Maintenance Manager) at 3:48 pm all before reaching out to the Incident Commander of the ICS at 3:53 pm.⁴⁹ Extraordinarily, he could not have spoken to him for very long because he was speaking with Rampersadsingh one minute later! In evidence Yearwood said he "handedover" to Collin Piper when he, Piper, arrived at the ICP at around 5 pm.

There is a clear divergence of views as to who was actually in charge in these first crucial hours.

We are told that Paria's sea searches commenced about a half an hour after the report of the divers having gone missing.

⁴⁹ See Para 16 of Paul Yearwood's statement dated 16 August 2022

En route Piper says he spoke with all his principal staff either directly or indirectly. He spoke in particular with Kazim Ali Snr. at 15:23 who told him that the incident happened as the men were removing the inflatable plug from the line and that his son was one of the missing divers.

Piper knew that the plugs had been removed from the pipeline because Ali Snr. told him so. That ought to have alerted him at least to the possibility of a ΔP incident and that the men or some of them may be in the pipeline. It didn't. Ali Snr.. makes clear that when he spoke with Piper he thought the men were in the pipe.

Piper was at pains to explain the extent of the problem of confined space accidents around the world yet he recognised that this was not specifically addressed in the Risk Assessment made either by Paria or LMCS notwithstanding the fact that the Habitat was a confined space and itself was at a different pressure to the outside space.

In Piper's statement (1/9/22) he said he deliberately did not invite Ali Snr. to the ICT or any representative from LMCS because he thought it would be more useful for them to be making the necessary arrangements to get more divers and because he believed Ali Snr. would have a "troubled state of mind". That is not what Ali Snr. says. He says that he was specifically asked to attend the ICT [See below under Ali Snr..] by Piper but that he was too busy between 3pm and 4pm to attend as he was seeking resources to effect a rescue and liaising with the families of the divers.

Precisely why either Ali Snr.. or his representative could not be making the necessary arrangements on the phone whilst being in attendance at the ICT escapes us as does the rather thin reason of believing Ali Snr.. may be troubled. We would expect anyone to be troubled including Piper but that does not mean they cannot function. Indeed, this is all the more so when one might think if the proprietor's son was missing the proprietor might be prepared to go above and beyond what might be reasonable to expect. We regard this as a lost opportunity to ensure that the efforts of LMCS and the ICT were coordinated and that the lines of communication were always open. We do not think that the liaison between Balkissoon and the LMCS staff on the barge was effective for the reasons given when dealing with evidence. We do Balkissoon's however believe that must have been obvious to Piper and ought to have been acted upon by him as the Incident Commander.

Piper was later to criticize LMCS and in particular Farah for being less than cooperative that having been conveyed by Harrichan. Whilst it is true that Yearwood says he asked Ali Snr. for his representative to attend the ICP that was clearly at an early stage – 4:50pm – he was told he would. We know Farah and Guerra were to attend the ICS but turned back when Boodram was being rescued. That does not smack of a lack of cooperation on Farah's part.

Piper did not arrive at Paria until 16:55 - more than two hours after the incident. That does seem a long time given the emergency. Anyway, having said that he did not want to invite anyone from LMCS to the ICT he tried calling Ali Snr.. twice more without success, he did not call anyone else until he called Guerra at 18:32 and 18:45. Harrichan had told him that the search for the missing divers confirmed they were not in the chamber and were not found out at sea. Harrichan was later to report that Farah was ignoring him and being uncooperative. All the more reason to have some LMCS liaison present ideally Ali Snr., - at the earliest opportunity.

On arrival at the ICT the only person there was Paul Yearwood. This more than 2 hours after the incident. It matters not to this CoE whether this was Yearwood's fault or Piper's, what is beyond doubt is that it was a failing of the ICT to operate efficiently. They didn't even have everyone on the same radio frequency until an hour and a half after the divers first went missing. It seems it was only after Piper's arrival that the ICT assembled with Balkissoon, Archbald, Wei (who says he got there at 3:51) and Mushtaq Mohammed arriving. Piper said he regarded the situation as "urgent and critical", yet so little was done in those crucial early hours.

We find it extraordinary that their own HSE Technician was reporting hearing knocking an hour before Boodram's escape from the pipeline and seemingly nothing being done by anyone by the ICT.

Yearwood reported that the ICT were not getting any information from LMCS personnel yet it was a further 1¹/₂ hours before Piper tried to get in touch with Ali Snr.. or Guerra again. After Boodram's rescue, one might have thought Piper would have called Ali Snr. to try to arrange attendance at the ICS especially as Piper and Ali Snr. had known each other from the industry for over 30 years and presumably trusted each other or they would not have had such a longstanding working relationship.

Piper says he relied on Harrichan and Balkissoon to provide him with regular time information. and real observations and developments and then to communicate his instructions and requests to LMCS, TTCG and others as necessary. We are bound to observe that he had no one in the ICP in the earliest hours who understood the diving aspects of the incident. No one to assess the diver's suggestions and plans. Merely to rely on second or even third hand plans via someone who knows nothing about diving. This was a serious error.

Heritage was sending their personnel to assist – Flemming-Holder, Rawle Arneaud, both HSE personnel and Rolph Seales, a dive expert.

Thus, we look to see what was achieved in these early first hours by the ICS. In our estimate these first few hours were absolutely vital. Given our view on this we will look in some detail at those hours up to around midnight on the 25 February 2023 - a short 10 hours from the incident happening. The reason is simple, having now heard and read all the evidence in this CoE we think it now beyond peradventure that these men were dead by that time. That may be a small mercy as the conditions were, on any view, utterly horrendous. Indeed, we think that there is every prospect that once the equilibrium of the pipeline was interfered with by the installing of the riser at Berth #6 and depressurising the chamber (and/or later the removal of the blank at Berth #5) the air-pockets that did exist may well have shifted to the men's detriment.

Piper's statement makes the observation as if it were something to be proud of that the contractors that he had sought assistance from came quickly and were contacted early – he said they were "all present on site by 02:00... on Saturday morning". This is nearly 12 hours after the event. What were four men breathing? Where was the sense of urgency?

Regrettably we are unable to accept Piper's account that he or the ICS acted urgently. Of the professionals that were contacted, the evidence shows the following, Mitchell's arrived 8:40pm; Eastern Divers were not contacted until 11:40pm and could only perform a rescue from a dry line; OTSL - arrived 8:10pm with their ROV and camera but it didn't fit in the pipe and the light was not working.; HHSL and Hull Support Services - were called at 4:30 but never went to the site, Hummingbird - was not contacted until 10:50pm; Atlantic LNG arrived at 9pm with a pushrod camera but it was not inserted until midnight; Professional Inspection Services Ltd – came with their Boroscope camera at midnight but was not deployed until 1am. A crawler camera was inserted into the pipe at 3am and the same was done at Berth #5 at 6am.

Apart from failed attempts to deploy cameras during the latter part of Friday evening, the dive teams contacted by Paria and Heritage were placed on standby and were not consulted until the early hours of Saturday morning, when frankly any rational, objective assessment would have determined it was too late.

Such was the ICS's and in particular Piper's determination, if not obsession, to discover the condition of the pipe with a camera alone, that he lost sight of the information that he already had and could garner without the need for a camera and they lost all sight of the urgency needed. Had he applied a timeline to the work of the ICS he would have been better informed. He could and should have been asking each professional when contacted, what's your ETA and "how long" before you can deploy whether camera or diver. Had he done so he would have been able to assess whether it was even worth getting them before actioning alternative strategies.

In contrast LMCS had some of the best divers and equipment available anywhere on the islands of Trinidad and Tobago on site by 7:30pm, none were consulted by the ICS.

The TTCG arrived at Paria at 16:40 on the 25th at the behest of the ICT. They were wanted in order to conduct searches, take control of the incident scene and attempt to rescue the divers. It would appear that they failed to deal with any of those requests.

Archbald's job was to assess the probable cause of the incident and prepare action plans to deal with it. He apparently consulted with the TTCG and Eastern Divers for the purpose of assisting in a rescue attempt. That too failed. Although

highly experienced and well qualified as an HSE he was not a diver and had little if any experience in dealing with such an emergency, not we hasten to add, the diving into a pipe, but the delta P emergency. According to Piper he consulted with the TTCG who made it clear at an early stage that they had neither the competence nor the equipment to carry out such an attempted rescue. Eastern Divers were engaged to carry out a rescue attempt from a dry line. The line was not dry even though Seetaram from OTSL was told otherwise by some unidentified member of the ICT: if it were thought the line had been "clear and dry" before the ΔP incident, the ingress of water was well known by the time they were actually consulted in the early hours of Saturday morning by a third party - Seales.

Nonetheless he seemed content to advise on what he regarded as necessary for a "safe" rescue attempt to be made. He (Archbald) told Piper he needed the following;

i. A rescue diving plan

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- ii. A reliable regular air supply
- iii. An emergency air supply
- iv. Communications
- v. Means of Extraction

All of which was especially important where the conditions in the pipeline were unknown. But we do not think the ICS ever sought to satisfy themselves that they had all of those features on site save the Rescue Plan itself their own one being abandoned by Yearwood and Seales.

This was not to say that it was necessary to know the precise conditions in the pipeline which whilst desirable was not in our view a prerequisite to carrying out an attempted rescue or at least devising a plan. In any event there were already a considerable number of knowns about the pipeline and its condition, to wit:

- i. length,
- ii. depth,
- iii. age,
- iv. the material it had housed,
- v. its shape and topography,

- vi. how much was pumped out,
- vii. that there was a plug part way through it,
- viii. that there was sea water in it,
- ix. that there was some hydrocarbons in it,
- x. that tools, tanks and five men were sucked into it,
- xi. after Boodram emerged, that they were all facing Berth #6 head first.
- xii. that there were injuries,
- xiii. that there were air pockets,
- xiv. that at least 3 more were alive.
- xv. that they had moved at least some of the way towards the riser at #6.

Additionally, speaking with Boodram and Kurban both of whom had been in the pipe would provide additional detail. In our view this information was considerable, readily available and important. That it was not gathered together in a coherent way is the fault of the operation of the ICT. It is not sufficient for Paria's counsel to say, that the Boodram information could not have been obtained before 10 pm that night. Dopson was clear that Boodram was conscious and lucid when he came out of the chamber. The ICT log records him at 18:10 as being "alert and conscious". It was approximately 30 minutes between Boodram coming out of the pipe and him being taken away in an ambulance. No one was sent to follow the ambulance when the crew refused entry into it to accompany Boodram. It was not until 8:35 pm that Shan Ramkissoon was despatched to the hospital to interview Boodram.

wealth of Notwithstanding the information that was available to the ICT, Counsel for Paria argue there were two matters that were unknown and for which they required a camera. Namely the location of the divers in the pipeline and the location of the inflatable plug. We would describe that knowledge as "nice to have" but not essential. The distance of the men in the pipeline was at least in part known as Boodram had come out following an agonising crawl and in

part the others had moved with him. He further described weld lines he can recall crossing which would inform at least in part how far he had travelled. But in any event the rescue could be distance any performed was likely to be determined by the length of the umbilical hose that they had on site. The position of the plug does not seem to us to matter at all, as they had to be on the Berth #6 side of it.

Balkissoon was despatched to the Berth #6 and was said by Piper to be "performing a critical technical role in the assessment of the pipeline conditions and the execution of the recovery efforts". We are of the view that she too failed in this endeavour as set out in this report.

Simply blaming LMCS for not having foreseen the possibility of this ΔP incident and saying that Paria had no responsibility for any kind of emergency response rather belies the very existence of the ICS to deal with emergencies, in particular

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emergencies that have not been foreseen by anyone, whether they should have been or not. They had control of the site and clearly exercised it. No rescue attempt could be undertaken without their approval.

Nerissa Feveck was said to work closely with Mushtag Mohammed in coordinating and organising Paria's communication to the diver's families. Here too there was an abject failure to achieve that relatively simple task. Leaving the families camped out in the car park for hours and days on without end any facilities or information in the near first 24 hours of this tragedy is frankly unforgiveable. But for Hon Stuart Young MP returning from abroad and attending a meeting with the families on Saturday afternoon we doubt it would have happened at all. Even then, the families were not told, even a version of the truth.

Such is Paria's resistance to any criticism that even here they are unable to recognise that perhaps

more could have been done for the families. First, they say it falls outside of the CoE Terms of Reference - we do not agree. We are required to "examine all of the decisions and actions taken after it became clear that the 5 LMCS divers went missing" and to make "any other recommendations that may be deemed necessary in the circumstances". Moreover. communication is an integral part of the ICS

Second, Paria's Counsel say they were prevented from crossexamining the families, which is indeed true, but we fail to see how such a lack of empathy for the family's plight could have been remedied by questioning from Peterson SC or Mootoo even given their skill set.

Thirdly, once again they off-load the responsibility to LMCS. We fail to see how Paria could not have permitted them some place where they could gather together whilst awaiting the news of their loved ones, to take

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comfort in one another and have the appropriate facilities such as, food, water and shelter, within easy line of communication. Is this really too much to ask? The answer is "no". When the Chairman of the Enquiry posed these questions to Mushtaq Mohammed, he conceded that failing to make arrangements for the diver's families camped outside the gates of Paria was not acceptable as a bare minimum. He said he would not argue the point.

Piper is at pains to itemise the number of times he called Ali Snr.. and Guerra setting out a schedule of both for the Friday. Unsurprisingly neither of them answered on each occasion they were called as they were no doubt somewhat preoccupied either in seeking to effect a rescue attempt or garnering support.

Suffice to say 3 calls connected with Ali Snr.. and 4 with Guerra all of short duration. He (Piper) claims to have received information that LMCS employees were being hostile to Paria's representatives and he was calling to try to persuade them to be calm so that LMCS and Paria could work together.

We remain unsurprised that relatives colleagues and friends on site who sought to save their kin were being told to stand down because diving in the pipeline is unsafe. We rather suspect they knew that. After all they worked in an unsafe industry that cause deaths every year.

According to Piper in his statement he says diving was not curtailed until 19:00 or 7pm. (at the outset of his evidence he sought to amend this time in his statement from 17:00 to 19:00). That does not accord with the LMCS divers who said they were told there was no diving before Boodram emerged from the pipeline ie 17:00? claim that even then. They approximately 17:45 they were being told that diving on the chamber was not allowed and they deliberately ignored that order when they heard knocking and shouting. Piper says he actually told Balkissoon or Harrichan that they should keep checking the chamber in case anyone else emerged from the pipeline. That is also in dispute.

Curiously Piper's statement refers to the time at which the LMCS people were being told that there was no diving permitted. In his statement at 106 paragraph he says at approximately 18:26 hours he asked Paria's security to secure the incident area and to stop divers from entering the pipeline. At paragraph 109 he refers to asking the TTCG to take control of the ongoing rescue operations to include "preventing the LMCS divers from entering the pipeline". This accords with a similar entry in the Log at 18:24.

This does not fill us with confidence in the accuracy of Piper's account and his belated request to change the time from 17:00 to 19:00. There is yet a further area of dispute as between Piper and Ali Snr.. Ali Snr.. says that he told Piper of the removal of the inflatable barrier in his first call with him at 15:23 and that he said he (Ali Snr..) believed the men were in the pipe. Notwithstanding that Boodram emerged from the line saying that the others were with him and 3 hours of searching the sea for traces of the men and their equipment without a sign they were there, Piper was still able to put in his statement the following:

> "Based on the circumstances surrounding Boodram's rescue it was now evident that there was a <u>real possibility</u> that the missing divers were all trapped within the pipeline. It was therefore critical for the ICT to first and foremost ascertain the conditions within the pipeline before it could properly and safely plan any rescue of the divers". our emphasis

This seemingly innocuous paragraph perhaps demonstrates the approach taken by the ICT to anything they learned from the LMCS personnel. The idea that with all that they knew it was no more than a "real possibility" that the men were in the pipe smacks of a degree of cynicism rivalled only by the lack of urgency demonstrated by the ICT.

We have well in mind the experience of the ICS with the LMCS personnel. The vision of Farah flat out on the barge following the loss of the men in the pipe is as we have already observed unsurprising given these men were his friends and his role as Dive Supervisor. Or, Kurban being in an emotionally volatile state as it was his father "*Fyzie*" in the pipeline whom he had tried to rescue and failed. The lack of apparent cooperation between Paria and LMCS clearly did not assist in coming to a coordinated plan for any attempted rescue of these men. However, a blanket declaration by Paria that there was to be "no diving" and the TTCG seemingly authorised

to enforce it was hardly going to lead to a spirit of cooperation. All the more reason for direct intervention by the most senior men on each side Piper as the Commander of the ICS and Ali Snr., as the owner of LMCS.

At this juncture it is convenient to deal with the claim that it was Farah who apparently was told that he could not dive by Guerra as the Work Permits had been taken away by Paria. Counsel for Paria argue the following:

If Farah's evidence is true, then the instruction from Guerra not to dive in the water was wholly uninformed, illogical, reckless and dangerous, one of his own making and one which reflected a total lack of common sense, training in, and knowledge of, emergency response procedures and practices. Further, Guerra's instruction to Farah, if true, was made without Paria's knowledge, consent or approval. No such instruction or from Paria directive came

shortly after 3:00pm or at all. In fact, the evidence showed that it was guite the opposite, namely, that Paria supported LMCS' efforts as best they could in the wake of the incident. Further, having taken such a position, rather than seek clarity from Paria's officials on site, the Commissioners received a preponderance of evidence that Mr. Farah refused to communicate with Paria and Kenson officials, namely, Kirt Scott. Johnathan Ramdhan and Visham Harrichan in the hours immediately after the incident and instead waited until the arrival of Catherine Balkissoon at about 6:00pm to begin to communicate with Paria officials.

Much of this argument is dealt with in the body of this report but for clarity anyone who sought to prevent diving in the immediate aftermath of the men's disappearance should be characterised as *"wholly*" uninformed, illogical, reckless and dangerous".

There is a substantive dispute between LMCS and others and Paria as to the instruction not to dive, when it was given and what not to dive on/in. In essence the positions are that it was much later, certainly after 6 pm that Paria issued an instruction that there was to be no diving on the pipeline but that when it continued they did nothing to enforce that diktat. LMCS's position different. is Guerra's evidence that was Harrichan told him that Piper had said no one was to enter the pipeline, the TTCG was going to take over and that Piper wanted to see both Guerra and Farah at the ICP. They were in the process of making their way there when they received notice that [Boodram] was coming out of the pipe and so the returned to Berth. And according to Ali Snr.. the no diving instruction was received as early as 3:33pm from Piper.

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Lastly, Paria's Counsel did not ask for Guerra to be recalled to give evidence having been at the COE the same day as Farah.

We also have in mind the evidence of Farah that he had repeatedly asked Balkissoon (not entirely accepted by her) to communicate the plans to Piper but was met with a "no dive policy". We remain of the view that Balkissoon was unable to stamp the authority of the ICS on the site and that in turn had a detrimental effect on coordinating any kind of rescue attempt between the Company and the Contractor. Each appear to be acting in a silo and to a degree blaming each other for the failure to rescue.

Just when there should have been a genuine sense of renewed hope, that these men were still alive, three hours after the event, Piper seemingly places yet a further obstacle in the way of an attempt at a rescue. We have already identified all that was known about the pipeline, or at least all that with a few enquiries could have been known. This new mantra to, "ascertain the conditions in the pipeline", was to be the central impediment to rescuing anyone, because it was dependant on a camera.

Piper was asked if he made any effort to determine those known facts and additionally to try to calculate how much air each man would need to survive in the pipeline per hour. He frankly told us that he made no effort to calculate or determine any of those facts.

He was further asked if he applied a timeline to the work of the ICT that they had to work within before the men could reasonably be assumed to have perished. He postulated 3, 4, 5 hours and when asked to clarify from when, said from when Boodram emerged from the pipe. That was at 5:45 pm so his outer limit was before 9 pm that evening. This was also predicated on the fact that he

believed a man could last a couple of hours on a tank of air. It's a pity he didn't find out the answer to that at the time. We think on the evidence a safe estimate is about an hour. In any event as the questions unfolded and he no doubt realised where this was all going, he revised his time line to midnight. Sadly, that does not avail him as he was the one who required video footage of the inside of the pipeline before being prepared to sanction a rescue attempt on any view that came after midnight if at all. What is yet more disturbing is that he knew what the various ETAs were for all the equipment's arrival. It made no difference – there was no plan B to attempt a rescue of these men from the pipeline.

As a result of the wrong cameras being either without light or too big or delayed arrival/deployment and the various blockages in the line, the ICT never got what they sought, but it was entirely predictable that they would not have it even assuming all went well, until after midnight. Piper's absolute outer limit. Yet this never seems to have featured in the thinking of the ICT. Again, no plan B for an attempted rescue into the pipeline.

It is right to observe at this juncture that other possible ways of saving the men were postulated – cutting into the pipeline sub-sea. That was pretty quickly rejected as not being feasible both in terms of what it involved and the time it would take, but according to the evidence of Mushtag Mohammed he was told they would still need to know where the men were in the pipe - presumably that could only be ascertained with a camera! Alternatively, sucking out the fluid from the line to create a dry That was rejected environment. because the company that was to carry out the work were not asked to do so until it was too late to risk their men.

In Piper's statement he deals with the request to remove the blank at Berth #5 and fit the extended riser at Berth

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#6 to take it above the sea-level and therefore to atmospheric conditions. We share his scepticism about the wisdom of that move. The pipe returned to normalcy after the barrier was deflated. It is reasonable to assume the barrier was sucked into the pipe as far as was necessary for equilibrium to be achieved either side of it. In other words, between it and the blank at Berth #5 was now the same pressure as between the blank and the pressurised chamber at Berth #6. Changing the conditions at either end may well result in moving the plug again and shifting the air pockets we knew to exist. As we have already pointed out, this of itself could have killed any remaining living divers.

When the ICT finally got around to speaking with Boodram (they never did speak to Kurban – even though Piper recognised the value in that in paragraph 174 of his statement) at just before 10:00pm that night the record of what was said varies significantly depending on whose note one reads. Given the short time they had with him one might have thought it would have been the simplest of things to record it on someone's phone. Alas no, so we have varied accounts none of which confidence have much in we choosing. In the end we prefer the hand-written note scribbled down by someone in the ICP (probably Shelly Ann Maharaj). It records Boodram as having told them the following facts: 40 feet from rafter (sic riser?) – 2 air pockets and went down - Fyzie couldn't be found - Broken hand and foot everyone tried to pull - reach in air pocket - only Fyzie answer another part with water - Fyzie had tank on him - couldn't climb out the water stick at top of flange - felt 2 weld seems.

This was translated into the Log as:

- Informed the ICT that he was about 40 feet from the rafter
- He felt two weld seams on his journey out
- He came across two air pockets He crossed blacks as he was unresponsive. They

(four others) started making their way out the pipe. They were helping Kazim Ali as he appeared to have a broken arm and foot

- They came across an air pocket and after the first airpocket one person less was with them
- After the second air pocket they lost Kazim Ali Jnr.
- Fyzie was behind him until he reached the elbow then he didn't see him

This was obviously valuable information but there were, one might have thought been a few other questions that might have been asked that perhaps do not need adumbrating here. It is a pity this material was not garnered earlier but given the stance taken by Piper to what he needed, this was all rather pointless.

In his evidence there was a long discussion about the use of the various agencies that were contacted

by the ICT and what the delays were in securing the camera footage needed by the ICT and in particular Piper. The upshot was that Piper agreed that he would only sanction an attempted rescue if he knew the conditions inside the pipe and that could only be achieved with a camera. Therefore, until he had such footage there was no rescue. The limited footage that was obtained did not arrive until well after 4:00am. There was some earlier footage, post-midnight, but that showed blockages that could not be passed. What all of this delay meant was that when Archbald asked Eastern Divers if they were willing to enter the pipe they "now considered the exercise at hand to be recovery and not rescue and would not risk any of their personnel to enter the pipeline for recovery purposes. They were now saying that they would not enter the pipeline even if all the water was pumped out of the line."

Lt Michael Maharaj of the TTCG came to see Piper in the ICP and in a

private corner told him that in his personal view it was unlikely the divers were still alive because it was unlikely that they would have had sufficient air to survive for this long and that we should consider recovery efforts.

Counsel on behalf of Paria and Piper have sought to persuade the COE that none of the various divers or companies were prepared to dive or that their respective plans were workable. It is our view that this was largely⁵⁰ because none of them were asked to dive until, by any rational analysis, it was too late. No one could be expected to risk their lives to recover a dead body. The time to effect a rescue attempt was in the immediate hours after Boodram came out of the pipe and before the men had become saturated. The window of opportunity was lost. Once it was appreciated that there was not going to be any camera footage until many

⁵⁰ OTSL thought there was a continuing delta P in the pipeline, Global Divers had their men already reached their maximum time.

hours later that should have been abandoned and all the possible information about conditions in the pipeline identified above should have been garnered, placed before the various dive companies and then ask them could you formulate an attempt at a rescue on this information now. It is our view that this should have been done by no later than 9 pm and probably 8pm. Not in the early hours of Saturday morning.

The fact Is too much time was lost just trying to get the camera footage. No consideration was given to any alternative, as became clear from the evidence that Piper gave, it was camera footage or nothing. We regard that as a very narrow-minded approach. To give no consideration at alternative all to any was irresponsible. All options should have been considered. Even if the camera revealed that which they sought, no plan to carry out an attempted rescue

had as yet been put in place. No attempt was made to engage in any way with the some of the country's experts in commercial diving that had arrived on site. In our view what Piper did was to close his mind to any alternatives without even hearing them. That we regard as a very serious breach of his and Paria's duties under the ICS to effect an attempt at a rescue. This is not to suggest that a rescue must inevitably be sanctioned but to recklessly close one's mind to alternatives carries the hallmark of a serious breach of duty, but which, on the evidence we have heard, falls short of criminal liability in relation to Piper as an individual.⁵¹

Heritage Employees

<u>Seales</u>

Rolph Seales is clearly a highly experienced commercial diver assigned to Heritage from Kenson. His expertise is not in doubt. He first learnt of the incident just before 5:00pm that afternoon, ie 21/4 hours after it happened, from his line supervisor. He was asked to make contact with Mitchells Professional Diving Services, MPDS, with whom Heritage had а standing which arrangement, he did by contacting a Fitzroy King.

Seales arrived at Heritage's site at 6pm and at 8:20pm he arrived at Paria's ICP where he met with Rupert Paul from Offshore Technology Solutions Limited, OTSL which was at Berth #6 on Gulf Stream Eagle. Fitzroy King arrived at Paria's gate at 8:40pm. These were the only two diving contractors he had any dealings with.

Seales made clear in his evidence that the first briefing he got as to the circumstances was at 9pm from Flemming-Holder and Yearwood. This was when he learnt for the first time that Boodram had emerged from

⁵¹ However see further on this matter under Duty of Care by Paria and Gross negligence ante

the pipe at 5:45 and that the incident happened when the crew were trying to remove a plug from a 30" line. He was shown a "rough sketch of the riser/chamber layout which was a picture of a whiteboard on someone's phone". Even with that belated and paltry information he was able to advise that this was a likely ΔP event. He was not told at this time that the other 4 men were still in the pipe, neither was he told that they were said to be still alive when Boodram emerged from the pipe, neither was he told that Boodram had described air pockets in the pipeline. He was never asked to address the ICT as to his belief this was a ΔP incident.

He told the Commission frankly if there was to be any kind of rescue from the pipeline that time was of the essence and that in his estimate the timeframe was 5 hours maximum ie 7:45pm. No one asked him his opinion.

He confirmed that there is a balance to be drawn between the passing of time in determining the likelihood of rescuing someone alive and risking the rescuer to "save" a dead body or merely moving/recovering some inanimate object as he was asked to do sometime later.

He was not asked to provide his advice and help in respect of the remaining men in the pipe until shortly after midnight ie the 26th February 2022. Nearly 10 hours after the event. These men were almost certainly dead. Seales was asked to speak with Mitchell's (Fitzroy King) and OTSL (Rupert Paul) after the camera footage had been obtained, to see if they were prepared to dive into the pipeline to move the blockage. This was around 00:30am on Saturday morning. Both declined sending divers into the pipe for different reasons but the risk was too high to simply remove a blockage. He was not asked to speak to LMCS or Subsea Global Solutions Ltd who were on board WaterWorld or the Beddoes).

This is the same person that Piper said was part of the ICT's "search and rescue efforts" and whom he and the ICT relied in particular to provide advice! Piper did not even speak to this man until sometime after 9:30pm. Another lost opportunity.

Flemming-Holder

Flemming-Holder was one of Heritage's HSE officers. He arrived at Paria at 5:33pm but was not asked to carry out a Risk Assessment for a possible rescue attempt of the divers from inside the pipeline until after 9 pm that night when he spoke with Seales the dive expert. There had been a meeting of the ICT wherein a number of options were discussed as to what to do after Boodram had emerged from the pipe which included the following:

- To determine the conditions in the pipeline using a boroscope or cameras.
- 2. Send in a rescue team
- **3.** Empty the line of fluid and carry out rescue in a dry line

4. Cut the pipeline

Flemming-Holder's Risk Assessment commenced at approximately 9:10 p.m. which he said was conducted Yearwood, with Balkissoon and another, whom he cannot recall but was on the site, and Seales. Seales did not accept that, he says he was asked to assist with a Risk Assessment concerning a dive but no detail was provided by Flemming-Holder. Whilst Seales accepted that he was shown a diagram of the pipe on a mobile phone and later saw a similar diagram on a white board in the ICT he insisted he was not asked to carry-out a risk assessment for a dive on the pipe. It is also true that Seales was privy to the Boodram call which must have related to acquiring knowledge to make the necessary risk assessment. He also accepted that he was asked to contact anyone with an ROV to examine the pipe and he did so.

Peterson SC taxed Seales at some length to seek to undermine his

account in preference to Flemming-Holder's and Piper's accounts. Whilst a valiant effort was made we Seales' preferred the ultimately account, largely, because when we asked Flemming-Holder for his work product on the matter, which only came to hand after both he and Seales had given evidence, it reveals no input from Seales at all, which appears to us to be entirely in keeping with his evidence and at odds with The that of Flemming-Holder. participants of the work-product are stated to be as follows: Yearwood. Balkissoon, Flemming-Holder and Andrew Farah (from LMCS), no mention of Seales. We regard it as inconceivable that Flemming-Holder would have left out the name of the one person qualified as a diver who risk with the assisting was assessment.

Farah was a bit of a surprise as Paria's people were quick to point out that he was being singularly uncooperative. No name is given to the task and under "Hazard and Threat" the answer given is "Pipeline Pressure". Under "Existing Controls" the answer given is "Mechanical Plug in place". This hardly inspires confidence in the information that Flemming-Holder was seized of let alone passing it on to Seales. A short injury risk chart was also annexed to the Assessment.

The whole of this enterprise was then according to abandoned. as Flemming-Holder in his statement the need for a Risk Assessment was overtaken by what emerged in the video footage which was obtained by the ICT of inside the pipeline: in evidence he said it was because he was called back to the ICT in order to listen to what Boodram had to say from his hospital bed. Either way and whatever the reason, it was never completed. Quite why Paul Yearwood an experienced HSE Coordinator could not have finished the task is unclear. That he had no dive experience as an HSE may well be a factor but he had, on site, the very experienced Seales (and access to a number of dive companies' personnel who had arrived at the Berth). Fact is, the Risk Assessment was not finished when Paria clearly determined it was both necessary and possible. It seems to us that this was but another wasted opportunity for the ICT to have a proper Risk Assessment in front of them prepared by their own people.

It is argued that the risk assessment was thwarted by virtue of not having sufficient data on the condition of the inside of the pipe which was to be obtained both from Boodram and the camera provided by Atlantic LNG. Given our observations as to what we regard as the serious delay in the obtaining of the information from Boodram (whoever's fault that might be); the failure to obtain information from Kurban (notwithstanding his alleged truculence); the failure to secure the GoPro camera footage by Balkissoon (if it ever existed but was believed to be); and the ICS's preoccupation with obtaining camera

footage irrespective of how long that would take, we are not minded to accept that argument.

Flemming-Holder made clear that he was not able to formulate a rescue plan until he knew the conditions in the pipeline – as he put it "it's not trial and error...It has to be pinpoint accuracy and you need to know exactly what is required in order to perform a rescue". We regard that as a counsel of perfection that inevitably would and did lead to no rescue being even attempted, primarily because they simply ran out of time for it to be a rescue. In fact, Flemming-Holder never completed the Risk Assessment " saving never completed the risk assessment because the thinking at the time was after the video footage, that the dive companies would complete the risk assessment". The problem with that is that the initial ALNG camera footage was not available to the ICT until midnight, 9 hours after the event and an update was not available until 00:45, a full 10 hours after the event.

We are wholly unsurprised that Seales reported back to the ICT at 1 am that no diver was willing to perform a dive particularly if only to retrieve a tank, that was causing a blockage to the camera.

As aforesaid much of Seales' account was challenged by Peterson SC but we find Seales' account the more credible on the issue of the degree to which he was consulted and engaged in the process of the ICT. As an employee of Heritage he has little or nothing to gain in seeking to support an inaccurate account save any opprobrium herein.

Flemming-Holder was party to arranging the additional resources sought to be called on site by the ICT. These include the arrangements for the Gulf Stream vessel to be brought and the Spearfish ROV; underwater cameras and technicians through Atlantic LNG; confined space entry from Eastern Divers; lights and pumps from other suppliers. He says he provided details of the ETA's for all of this assistance/equipment. We assume the purpose of that was so that a proper assessment could be made of the value to placed on it as time ebbed away. But that does not seem to have been in the minds of the recipients.

Paria Employees

Yearwood

Yearwood heard about the incident just after 3:00pm. He said, that automatically triggered the ICS ERP and he mobilised the ICS by contacting the ICT members. He told us in his statement that the first person he contacted was Archbald Paria's HSEQ Lead at 3:12 pm. Then he called security. He did not call another principal member of the ICT until 3:52 when he spoke to Michael Wei.

One can imagine that there were many calls being made between the various different interested parties including calling for the TT Coast Guard and TT's Global Medical Response. He did not arrive at the Paria's Incident Command Post until 4:00 pm. It would be unfair to describe this as an hour lost but one cannot help but think if the ICT had rehearsed and drilled regularly this process would have been honed to a much speedier convening, delegation and therefore action.

Instead of group calls between the ICT whilst en route they were each speaking to each other separately, no doubt repeating the same information but achieving little. The calling of emergency services could and should have been delegated following a group call either by phone or radio. The world was now used to virtual meetings because of Covid19 and a Teams/Zoom chat might have been arranged whilst the parties were gathering. Yearwood says that when he arrived, he was informed that Paria's HSE. security and maintenance personnel had switched to channel 2 in order for information to be disseminated collectively. The

log records this as happening at 16:17 a full 90 minutes after the incident was reported. We are of the view it should have happened immediately.

We have a general concern that the Log could have and should have contained more information as a contemporaneous record of exactly what was happening in a minute-byminute account. For example. Yearwood says he spoke with Ali Snr.. at about 4:50 asking him to send a representative to the ICT and having said that he would he never did. He does not say who Ali Snr. was to send. He further states that neither Ali Snr. nor anyone else ever discussed with him any rescue plan. We entertain doubts about this call as it is not in the log - a matter of considerable importance - and which would have coincided with Ramkissoon having heard knocking. Had there been a conversation one might expect that to feature rather large as it was the first evidence of life.

There are no entries at all between 16:48 and 17:45 – did nothing worthy of note happen in the ICP? We know Piper arrived at 16:55 and was briefed – that doesn't get an entry either.

In Piper's statement he says that Rolph Seales, Heritage dive expert and Messrs Flemming-Holder and HSE Heritage Rawle Arneau personnel were stationed at the ICP from soon after the incident on 25th and that he involved them in the ICT meetings. "They were part of the ICT's planning of the search and rescue efforts... Rolph in particular also provided me and the ICT with advice on the feasibility of attempting to dive into the pipeline to rescue the divers".

Mushtaq Mohammed

Mohammed was and is the Terminal and Trading General Manager of Paria. He learnt of the incident on the 25th at around 3:15 from Piper. He was not a member of the ICS.

His contribution to the ICS was as head of Paria and a desire to be kept abreast of the situation.

He said that at some time after Boodram's retrieval from the pipeline he heard that there was diving into the pipeline and he regarded that as unsafe.

He said that he received a report that LMCS people at the site were becoming anxious, emotional and hostile. As a result he issued an instruction at 18:24 that the TTCG were the best people to take control of the site at Berth #6.

He said that at 19:45 he overheard Piper speaking with Ali Snr.. who was telling Piper that he was assisting in the conduct of rescue operations. We note that Piper did not ask "what rescue"? He went on to say that between 22:38 and midnight the TTCG did their initial assessment and concluded that it was too risky to dive into the pipeline. He had little else to contribute that night.

On Saturday between noon and 1 pm he attended a meeting of the family and friends of the divers.

Michael Wei

Wei first heard of the tragedy from Piper at 3:11 pm that afternoon. Wei was to act as the Logistics Chief in the ICS.

His witness statement adds little to that which we do not already know and, perhaps unsurprisingly, supports the general theme of the ICS's response to the crisis. However, there are a couple of passages that warrant examination.

This was now Saturday 26 February: at para 113 he states: "Despite ICS's efforts the TTCG, Hull Support services, Mitchell's and OTSL could not be persuaded to enter the pipeline to conduct any rescue efforts. All four explained there would be significant risk to their own divers in attempting to rescue the divers by entering the pipeline".

And at para 114

"However, the ICT continued to make efforts to get a diver to attempt to rescue the missing divers..."

And at para 124

"By the end of Saturday the ICT were unable to persuade any of the dive companies to enter the pipeline to attempt to rescue the missing divers."

We regard these assertions as mischievous. They give the clear impression that Paria and the ICT tried everything they could to persuade divers to try and rescue the trapped men. That is palpably untrue for the following reasons: first, the ICT's Lead and Incident Commander Collin Piper never authorised a rescue attempt by anyone. Second, regard it as a reasonable we inference that by the time these dive companies were consulted, they could be forgiven for thinking the divers were probably dead and were not prepared to risk their own divers for what was in essence a recovery. Third, the TTCG were never going to agree to send their personnel into the pipeline because they were not trained commercial divers, did not know how to use the equipment made available and had no training in confined space diving/rescue. Fourth, no one asked any of the LMCS divers to perform a rescue attempt. They had been waiting to carry out same from before Boodram even emerged from the pipe. Fifth, even if there were some reason for not using LMCS, which we are unable to discern, there were other independent divers on site such as the Beddoes and Cory Crawford who were also ready, willing

and waiting to be authorised to carry out an attempted rescue.

When Wei gave evidence, he was asked in relation to effecting a rescue, "You... arrive[d] at the decision that at no point in time were you given sufficient information to allow you to say it was a risk worth taking". His answer was "Correct". We found Wei to be evasive and less than candid in answering questions before this CoE. But we would be an injustice to Prakash doing Ramadhar for his question of this witness if we did not recognise its worth.

> How do you rate the management of this incident on that day...How would you rate yourselves?

There was a very long pause – a sip of water and after obvious consideration he gave his answer:

I would rate it as ... excellent.

<u>Balkissoon</u>

She was the Acting Technical Lead at Paria, a position she had held for only 3 months. She reported to Wei. She was first informed of the incident at about 4pm. She arrived at Paria at around 5pm and was at Berth #6 by 6pm. En route she saw Boodram being ferried to shore. She was to act as liaison between the site and the ICT.

In her statement she said that between 6pm and 7pm she sought additional air tanks at the request of Farah the dive supervisor. She arranged for lighting to be provided. She met with Guerra the construction supervisor and saw personnel from Kenson, Paria and LMCS. She saw divers in the water in and around the Chamber. She was told that a tank and GoPro camera were recovered from the pipeline. At around 6:30pm she saw the LMCS personnel huddled around what appeared to be the camera. She asked HSE personnel for it to be secured.

Farah denies ever having sight of or even knowledge of a GoPro camera having been retrieved at this time.

At 7pm she was instructed by Piper that further diving was unsafe and not allowed. In evidence she said that Piper did not differentiate between the pipeline, the chamber or the ocean, he just said diving was to stop. She relayed that information to the LMCS people on site. This was not received well by them. She described them as being hostile to that suggestion. They ignored it and no one stopped them from diving least of all the TTCG. More LMCS divers arrived at the scene by 7:30.

She received a call from those operating the Spearfish that the ROV could be deployed. She passed the call onto Farah as he was the dive supervisor. He spoke to them, and they, that is Farah and Spearfish, concluded that the ROV was too big to fit in the pipe. Shortly thereafter Professional Inspection Services Ltd, PISL arrived with a borescope camera, but the camera had no light and a tether of only 100 feet. It was not used.

At 8pm HSE personnel told her that LMCS could hear knocking from Berth #5 and could they remove the flange at #5. Ali Snr., also asked to be allowed to fit the topside riser at #6. This was all passed to Piper for consideration.

Between 8:30pm and 9pm she discussed with the TTCG, Lt Hargreaves, if diving into the pipeline to rescue was safe and was told that such a dive was too risky to attempt and that they did not have the training nor the equipment for such a dive.

By 10pm the new riser was being installed onto the old riser at Berth #6, the compressor was then shut down. During her call with Piper to inform him of same she was told that Boodram said there were two airpockets in the line and had passed two weld seams on his way out.

By 11pm the instruction was not to remove the flange at Berth #5. During this time she spoke regularly with the TTCG to keep them updated.

It was around midnight when the borescope was being utilized with limited effect as it could not proceed beyond a certain point in the pipeline.

In her evidence before the CoE she said that she regarded one of her jobs was to find out what resources were available on site which included confirming commercial divers were available. She said that she only talked with Farah to see who was available and willing to carry out an attempted rescue. She passed on that information to Piper at around 7 pm. However, a little later she said she did speak with Michael Kurban who was visibly distraught. He told her then that he had been in the pipe but couldn't go very far.

The Log records that at 18:00 Michael Kurban recovered the GoPro and cylinder from the pipe. The ICT must have received that information from somewhere. Balkissoon was asked a number of questions about whether she relayed information to the ICT about the conditions as she understood them. She said she knew that Boodram was covered in oil (quite how is unclear) but that she also knew Michael Kurban had entered the pipe and was not covered in oil. Similarly, he had recovered a GoPro and scuba tank. She accepted that she did not speak directly with Kurban even though he says he did, to find out what he could say as to the conditions in the pipeline, neither did she view the GoPro or seize it or ask about what it showed. She says that she tried to recover the GoPro but was unable to do so.

Piper was asked about this in his evidence and his recollection was that Balkissoon was not sure exactly what it was but it may have been a GoPro camera. He also said he was

unsure about whether this had come from inside the pipe having been retrieved by Kurban when he entered the pipe. What is beyond doubt is that the contemporaneous Log records "Diver Michael Kurban recovered the GoPro and cylinder from the pipe". That is an unequivocal statement of the fact as they understood it to be at that time. Given the ICT's determination to examine the inside of the pipeline with a camera and that all operations in relation to an attempted rescue were contingent upon that knowledge it is nothing short of extraordinary that а concerted effort was not made to secure that camera or if it did not exist to establish beyond peradventure that it was a red-herring. Piper accepted he never even asked Ali Snr. about the GoPro.

There is some evidence that there were two GoPro cameras. There was one belonging to Fyzal Kurban in the Habitat and there was one that Kazim Ali Jnr. was wearing according to Boodram. Either one was recovered by Kurban from his dive into the pipe or it was not, but the other is clearly the one that was retrieved from the pipeline during the recovery efforts and which everyone has had access to - it was played in part at the Enquiry. Balkissoon's statement sets out her contention that she saw LMCS personnel huddled around what she believed was a camera and was told by Paria's HSE that a GoPro camera had been retrieved (as much is contained on Paria's own ICP log this simply cannot be the one found following the recovery of the bodies from the pipeline retrieved on the 28 February). That this was not nailed down at the time is lamentable.

It is not enough to contend as Paria's counsel does, that LMCS personnel were being uncooperative. Paria had no difficulty seizing the Work Permit and other documents, they had their own security personnel on site and had sought the assistance of the TTCG. In the final analysis they had only to say to the LMCS personnel "we cannot help you unless we have that camera footage". They did nothing of the sort.

We have not seen this camera footage and it may not exist at all. If it did exist it may not have provided assistance to anyone, but the fact that it was thought to exist and no effort made to retrieve it regardless of the truculence of the LMCS people, is as we have stated, lamentable.

As we have identified, this material has never been made available to the CoE and if it does/did exist then it was incumbent on LMCS to give it to us.

The failure to debrief Kurban there and then to add to the knowledge the ICT said they craved is equally extraordinary. Of course, there is Kurban evidence was acting erratically if not belligerently but that be seen against the has to background that his father was one of the missing men in the pipe. We do not accept the argument that he could not add anything of value to the knowledge needed to effect an attempted rescue. He could tell them what was in the pipe, water or oil, what the visibility was like, whether a torch would penetrate the fluid, whether he saw any air-pocket, what the lining of the pipe felt like, whether he went in feet first or head first and how that might hamper any rescue attempt, whether he heard any sounds, did he bang on the pipe whilst there?

Whilst Balkissoon says she would have told the ICT what she had gleaned from Kurban from observing him after he had been diving in the pipe and had no oil upon him, she accepted she did not ask him any of the questions that might have assisted in having а greater knowledge of the conditions inside of the pipe and that with hindsight she should have. Neither is any of this in the Log.

Yet Balkissoon agreed her role was as described by Piper to be <u>crucial</u> in assessing the pipeline conditions and making recommendations as to recovery efforts.

She was later to agree she knew that by 7 pm one boat had arrived with commercial diving equipment and willing divers prepared to carry out an attempted rescue when called upon to do so. It was noted that this coincided with the instruction that diving was to cease. That instruction did not change. Counsel for Balkissoon wrongly assumed that this reference is to the vessel Waterworld owned and run by Subsea Global Solutions Ltd. The vessel was captained by Alvin Seetaram who told us he arrived at 7:15 pm and was unable to deploy his divers as they had already used-up their dive-time for the day. Paria's own Log shows that divers and diving equipment arrived on site at 6:55 pm. Additionally, since Balkissoon was at Berth #6 she would have seen the arrival of Beddoe, Crawford and Ramoutar.

Farah had told her that he had the divers, they had the commercial equipment and they were willing to do a dive - they want to do a rescue she said that she told Piper that. He said to stand down and the decision not to dive won't have been changed. Balkissoon agreed that Farah asked her more than once if the position had changed and she told him to stand down. Piper had told her that there was a camera coming soon and that therefore there was to be no diving until the camera had been used. She confirmed that she agreed with that position. Later she was to say that she did try to persuade Piper to rescind the decision. He did not.

She did not liaise with Mitchell's dive team or OTSL and she left them to report directly to Piper. It follows that she was therefore not privy to the full information from the professionals on site, neither did she know what they were being told themselves. When asked why she did not inject herself into this process she said that's not how the ICS works! We find that difficult to reconcile with her role as defined by Piper that she "*performed* a critical role in the assessment of the pipeline conditions and the execution of the recovery efforts."

During the course of examination by Maharaj SC and the Commissioners she gave another reason for not rescuing the trapped men, which she asserted as a matter of her own opinion, that since she did not know where the inflatable plug had moved to that was of itself enough to prevent risking any rescue attempt because there was a chance that there could be another ΔP which might further push the plug. This was new and had not featured in her statement to the CoE. Assuming this was not some post-fact rationalisation, it seems to this was genuine if а us. contemporaneous fear, the ICT ought to have secured some expert advice upon the matter immediately.

Counsel for Paria have sought to rebut this observation by relying on Mr Donawa from OTSL who

apparently spoke with the ICT at some unspecified time "later that night" to explain to the ICT what Delta P was, as according to him they did not appear to understand it (none of which is recorded on the Log). He accepted he was not an engineer (such as Khan from In- Corr- Tech Ltd.) but understood the basics of Delta P. During that conversation he had been told by an unidentified member of the ICT that the pipeline was dry at the time of the incident. That appeared to be important to Donawa as it informed of the differential pressure that the pipeline would have experienced!

We regard Mr Donawa as very experienced and well informed but not an expert. He clearly did the best he could to help when asked. Probably all a bit too late.

The only other evidence they sought to obtain on this matter was from a Ms Shantal Ramdeo, a Senior Process Engineer at Heritage, who was contacted between 11:00pm and 11:30 pm on the 25 February. By midnight she concluded that as a result of a lack of information (she was only given a rough sketch) she was unable to assist them about air pockets or whether they would be likely to move if the blank at Berth #5 was opened.

Balkissoon agreed with the Chairman that it was possible, albeit not straightforward, to have attempted a calculation of the amount of air required to sustain a person for one hour in the pipeline: Balkissoon agreed with the proposition put that "it is possible isn't it to work out how long or how much by way of volume there would need to be per hour for a man to breathe with a plus or minus. She later agreed that it was possible to work out how much volume would be needed to sustain one person per hour which in turn would have informed the volume needed to sustain four men per hour. From there it is a relatively easy mathematical exercise to calculate how large the air pocket would need to be for each

hour that passes. That does not appear to have been considered by anyone in the ICT or anywhere else. By 5:15pm when Boodram emerged from the pipe it was a reasonable assumption there were air (or gaseous) pockets, but by 10pm they knew for sure that there were air pockets in the pipeline as Boodram told them he had encountered two.

It seems to us that this simple exercise would have informed the ICT how many feet of pipeline needed air in it for each hour that passed by for the men to survive. Such valuable information was never obtained yet would have informed them that waiting for several hours for a camera to arrive was not a viable option if the men were to be found alive.

Balkissoon seemed unclear of her precise role which was probably more Paria's/Piper's fault rather than hers. In her statement she defines her role as providing "onsite logistical and technical assistance and support to the search and rescue efforts, to update the ICT on my observations and information from on site and to act as liaison where necessary between persons on site and the ICT and visa versa." We regard her as having largely failed to live up to that. In essence she merely passed messages back and forth between the site and the ICT.

Overall, had there been a regime of regular drilling of the ICS she might have better understood her role and been rather more proactive.

Whilst she was no doubt well intentioned, she did not seek to stamp the authority of the ICT at the site; she failed to secure the GoPro footage that may have shown the condition of the pipe that seemed to preoccupy Piper and the ICT; she did not seek to ascertain any detail of the method of rescue proposed by LMCS personnel after the support divers had arrived and who had expressed a willingness to attempt a rescue; she gave little if any advice or opinion to the ICT bearing in mind her stated role by Piper; her account of not risking an attempt at rescue because of not knowing where the inflatable plug was situated in the line and the risk that this may cause some secondary ΔP felt more like a reflection after the event than a genuine concern at the time; and she did not seem to inject any sense of urgency into the proceedings.

There is a dispute between her account and that of Farah's as to the number of times he sought to persuade her to get Piper to permit diving operations to resume, but we think that does not need resolution as she conceded that it was more than once.

It is said on her behalf that it was LMCS's primary responsibility to attempt a rescue about which there can be little doubt but the plant belonged to Paria and they had refused to permit diving at least into their pipeline. They thereby assumed some responsibility for a possible rescue. The ICT thought it necessary and desirable to stamp their authority on their own plant. They sought the security of their site and assumed the primary authority over it. They clearly expected the TTCG to assume control of any rescue not LMCS and when that became non-viable they sought to secure other players to join the rescue efforts. Since Balkissoon was the senior member of staff at the Berth and a specific member of the ICT it was her role to stamp the authority of the ICT at the site when needed.

Her counsel argues that the situation on the site was volatile and that some LMCS staff were "hostile and openly disobeying instructions", if true, this was something that needed to be managed for example regular drilling with role-play to iron out these kinds of issues. If she was not up to the job she should have been replaced. We recognise that she was in her job as the Acting Technical Lead for just 3 months and will only have had limited experience but which is not entirely related role as Offshore Operations Section Chief on the ICT. However, she could have, and should have, been helped by the ICT.

disingenuous In somewhat а argument by Balkissoon's counsel they seek to describe her role as wider than merely giving advice to the ICT about the rescue efforts and cast it as being for "recovery" as well. Balkissoon was on Berth #6 for 12 hours between 6pm on Friday night and 6am on Saturday morning. This was a period over which she was solely concerned with "rescue" not "recovery". We are less concerned with recovery which we do not understand to be a matter that arises until Sunday 27 February 2022. Of course, thereafter she was and continued to provide her expertise to assist in the recovery of the bodies of the divers.

Her Counsel argue that any assessment of the pipeline conditions was dependent upon having access to information as to what was actually in the pipeline. With that we can entirely agree. But they go on to ask, "how was this to be reasonably obtained without the use of a camera?" After some facetious suggestions they say "camera footage was therefore the only reasonable means of ascertaining the conditions in the pipeline".

We simply cannot agree. First, a full inventory of everything that the divers had with them should have been compiled from those at LMCS who could have provided that information right down to the nuts and bolts that were removed. They were never asked. Second, they and they alone would have had some notion of the material that was in the line to start with. No attempt to discover this appears to have been made. Third, they knew, how much had been pumped out of the line. No one sought to obtain the records held by Paria. Fourth, they could have and should have spoken with Kurban to get his information as to what he could tell them about the line having been in it. Balkissoon agreed she did

speak with him but never asked him about the conditions in the pipeline. Fifth, they should have ascertained whether there was a GoPro camera retrieved from the line. This we have already dealt with earlier but it was not retrieved. Sixth, they should have obtained such information as they could from Boodram either at the time of his egress from the pipeline or very soon thereafter and not have waited until 10:00pm that night. Which again, we have dealt with in this Report, but virtually nothing was obtained from Boodram when he first emerged from the pipe until finally reaching the ambulance.

All of the above would have provided a detailed account of the expected conditions in the pipeline. We entirely understand the need to organise a camera to get the best information but it is simply not appropriate to assume nothing could be known or an assessment made as to conditions without it. Moreover, dependant on the time it was likely to take to obtain the camera footage, decisions should have been made concerning a possible attempted rescue informed by a timeline of expected life.

This does not all lie at the feet of Balkissoon, neither should it, but much of the information we have described above could have been obtained by her so as to better inform the ICT.

Randolph Archbald

Archbald was the Planning Section Chief on the ICT. Outside of that role he was the Health, Safety, Security and Quality Lead at Paria which included responsibility for HSEQ training programmes throughout the company. We take that to include responsibility for drilling the ICT upon which on the evidence he was somewhat equivocal. Commissioner Wilson asked Wei:

Q. ...how often do you guys drillfor any type of response whetherit be small or large?A. Um, I can't recall.

Q. So it's not the practice of Paria to drill for emergency responses? A. No, Paria would have emergency drills, right, but I can't recall the last time I would have been specifically involved in a site-wide emergency response plan.

Which rather suggests that whenever it was it did not involve Wei. Maharaj SC then asked of Balkissoon:

Q. Now, I just want to ask you, in the ICT that existed, did you all have drills at all over the period of time to deal with emergencies that may happen?
A. We don't have drills per se.
What we have is that we run like a tabletop, but not a full drill to say that we go out and we have

Although she did go on to say there had been a number of incidents when there was an emergency response so the ICS would have been activated. Next the Chairman asked Yearwood:

the full ICS in place.

Q. Right. For example, has there been any drills of the ICS after this event?

A. No, there haven't been any drills.

Q. Has there been any change of personnel on the ICS following this event?A. No.

The Chairman asked Archbald:

Q. Well when was the last time they drilled?
A. We do drills every year.
Q. No, no. When was the last time that this ICT did a drill?
Was it within the year of this event happening?
A. Yes. We, every, not every year, maybe twice over the last three or four years we did, um, hurricane drills and we would have done a—
Q. Did comp involve an ICT?

A. Yeah, we used the ICS for it, and then we used the, um—we had a companywide drill that

involved a Berth on the, um-fire on the Berth and that was in 2019. We'd used the ICS system for that. Um, now it takes an effort to really use the ICS system because it's almost natural to get into emergency response without following the system, but we have been using it so often that we even attempted to use it on a, on a-ICS could be used for anything, for any event, including an incident, and we used it for the repair of 66 Sealine recently and we set up the incident commander and the logistics section chief, so we used it for a repair purpose.

Q. Yes.

A. So we have been using it.

Q. But the answer to my question is that there have been drills and they took place in the year before?

A. Yes.

Q. Approximately?

A. Yes, yes, yes...Within 2022 that is, this year.

In fairness to Archbald he offered to obtain the record for the drills which we did not follow up upon. The best we can make of this is that some of those who were part of the ICS on the 25 February 2022 were not part of any previous drills, which given the purpose is to practice so that the system is a well-oiled machine that can be galvanised into action in an emergency, is disappointing to say the least.

In any event he heard about the incident from Yearwood at 15:12. He attended the ICT between 16:00 and 17:30 pm. At 17:35 he claims to have instructed that a triage station be set up on the Lube Oil Jetty with ambulances, oxygen and other emergency services "for the recovery of 4 more persons", which was a particularly clever prognosis given that Boodram had yet to emerge for the pipe!

In his statement (16/8/22) he said that having learnt that Boodram came out of the pipe there were others diving

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into it and that "based on my qualifications, knowledge and experience in occupational health and safety I advised the Incident Commander that diving into the pipeline was unsafe". He supported that contention by saying that what was needed was, i) continuous air supply and a tank ii) a tether and a rope, iii) a means of communication and extraction were the three things they needed for the attempted rescue to be safe. He added that LMCS did not discuss or present any Rescue Diving Plan with the ICT.

Archbald agreed with Maharaj SC that Subsea Global Solutions arrived that evening with all the commercial diving equipment that was needed. He was also aware that that there were willing LMCS divers present, with commercial diving experience. According to Archbald all discussions had between the divers willing to carry out an attempted rescue and the ICT was conducted through Balkissoon. This was all around 7 pm that evening. He agreed that the order not to dive in the pipeline stood even though to his knowledge all the items necessary to make a dive safe or safer had arrived on site.

Maharaj SC put to him the evidence of Balkissoon from her transcript in which she told us there were divers who were willing to go into the pipe, actually wanted to go into the pipe, which she communicated to the ICT and they were told to stand down. He was asked if he was aware of that and his answer was "Not to that detail."

It was after this exchange that Archbald surprised us when asked if he as the Planning Section Chief had applied any time frame to any rescue attempt and his response was "...I really did not attach any time frame on it". He said it was "urgent and critical" and seemed to row a little backwards by saying the rescue needed to be done urgently, but at 7pm when, as we have found, all the equipment and willing divers had arrived he was still saying that from the information they had there was still no safe dive to be able to take place at that time.

This account seems to us to be confused. He set out very clearly in his statement in August 2022 what he as the head HSEQ at Paria regarded as necessary to effect a rescue safely, yet when as Planning Section Chief to the ICT, that equipment arrived he said in evidence in January 2023 that no safe dive could take place at that time. It is difficult to see how that squares with his assertion that the rescue was "urgent and critical" with the rescue having to be carried out "immediately". It has not gone unnoticed that Counsel on behalf of Paria have relied on Seales to support their client Archbald yet are happy to invite this Commission to disregard his evidence in relation to Flemming-Holder.

Paria place reliance on their attempts to bring such resources as they could to the site. Piper refers to a number of experts being contacted for their help. So it was that Maharaj SC put to Archbald as he was head of Planning, the various experts for his observation on their value. For completeness we have augmented the full account of the resources that Paria utilised.

Mitchell's was contacted at 4:30 pm they arrived at 8:40 pm with surface supply equipment, they were then placed on standby until 1:00 am on Saturday morning when Fitzroy King from Mitchell's was shown video footage of the pipeline. He said his divers were too big and could not help with divers.

Eastern Divers was not contacted until 11:40 pm according to Andy Johnson's account. The first part of the Team arrived at 00:30 on Saturday morning and stated that the ICT should prepare themselves for a retrieval rather than a rescue given the passage of time. When they were shown the footage by Seales they could not perform any attempted rescue because the pipe was filled with water, they required a dry line. They advised that any attempted rescue needed a dive team. They too, were placed on standby until 5:00 am.

OTSL were contacted in the afternoon and arrived on site at 8:10 pm and remained on standby until 5:30 am. They were not called upon by Paria to do anything save Donawa providing an explanation of what ΔP was.

Hull Support Services received a call at 4:30 pm on the Friday. They were unable to put a crew together and so never attended.

HHSL Safety Systems were not contacted until 10:50 pm for mobilization of their pipeline crawler. According to the Log they arrived at 1:37 am. The crawler was deployed at 3:16 am and redeployed at 3:46am. Between 4:24 am and 4:33 am the crawler could not move two cylinders in the pipe. At 6:00 am the same crawler was used on the opened flange at Berth #5 with no result.

Wei says that at 6:10pm he called Hassan Mohammed of Paria to source a camera. A boroscope sourced from a third party arrived at 7:30pm but was unusable as it had insufficient light.

At around 9:00 pm a pushrod camera with crew arrived from Atlantic LNG, however it could not be deployed until midnight as the topside cover had to be removed first When it was deployed it encountered a cylinder obstruction in the horizontal part of the pipe.

The point of having the detail of all of these resources for Archbald, the Lead Planner to deal with was twofold, first to suggest that although Paria knew there were divers from 7:00 pm that evening ready, willing and able to attempt a rescue they were not permitted to do so. Instead, reliance was placed on these other agencies who were not there until much later. We cannot understand why LMCS or Subsea Global Diving Solutions were not brought into the picture. Why they were not being utilised, consulted or even put on stand-by – they were just ignored.

Archbald was reluctant to accept the accuracy of the accounts read to him by Maharaj SC as being accurate. His focus was that this was the best any of these agencies could do and that is what they had to work with leading him to say "whether that was good enough I mean we know the result. We know the outcome. But whether they could have done better I don't know". This in turn led the Chairman to observe "No. its not about whether they could have done better, it's whether you could have done better, you the ICT...the fact is, if you call someone and they say, "look its going to take 3 hours to get there", there must be another plan...a plan B".

Archbald's response to that suggestion was to say "LMCS was affecting the first plan which was to put together a rescue team which we were helping with". On analysis what he meant was that they were supplying a few air tanks for diving whilst at the same time telling them not to dive. In our books that is not very helpful and smacks of an approach that bespeaks of 'if they succeed great, but if they fail we can say we told you so'.

In what can only be described as an ingenious argument, Counsel for Paria sought to draw a distinction between diving and rescuing in the following way:

"Archbald 's evidence, that the order not to dive in the pipeline stood, even though around 7 pm all the items necessary to make a <u>dive</u> safe or safer, had arrived on site, was simply a statement that the necessary equipment was present for a <u>dive.</u> It did not amount to a statement by him that the equipment necessary, to effect a <u>rescue</u>, was present at that time or that the divers on site

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were in a position to properly attempt a **rescue** at that time".

Archbald was unequivocal in his statement provided to the COE, he said, as outlined above, "I believed it was unsafe to dive within the pipeline at that time without ... " and then he gave the three things he said were necessary. If this is not for an attempted *rescue*, what was it? They were not planning on a recreational dive for a bit of fun, especially not into the pipeline! The only point of diving was to attempt a rescue. When that was put to him we were left in little doubt that he had in effect sought to finesse the account he had given in his statement to what he was prepared to admit in evidence before the COE.

Ultimately Archbald accepted that they could have done more to engage with LMCS and the Beddoes. When asked about the ban on diving he said that the ban was only in relation to diving on the pipeline and that it was never reviewed by him or that the ICT reconsidered it even though he knew the very equipment he had said was required for a dive on the pipeline had arrived at the site as early as 7pm. He asserted that he believed there was no one who was prepared to traverse the horizontal part of the line but accepted he could have been wrong about that. We find as a matter of fact that he is wrong about that. There were men willing to traverse the horizontal part of the line. He accepted that perhaps there was a miscommunication between the men on the barge and the ICT. If that is so, that falls into Balkissoon's lap.

It is said that the ICT knew that there were men willing to traverse the horizontal and any failing on Balkissoon's part in not informing the ICT of that therefore does not matter. We do not agree. She was Piper's "eyes and ears" and should have been constant in her updates about what was possible from Berth #6, all the more so as there was no representative from LMCS in the ICP.

Finally, Counsel for Paria postulate this: "the real question with which the ICT had to be engaged was not whether persons were willing to enter the pipeline, but rather whether it was safe to do so and whether a proper assessment had been undertaken. This, as the evidence shows, plainly was never established". Herein lies the crux of the problem: did Paria set the bar too high? Every attempted rescue necessarily carries some risk Seeking to completely eliminate all risk is unrealistic. No one would ever save anyone if that were the test. We are human, there is a natural instinct to want to save lives, which is felt all the keener when it's your colleagues, keener still when friends. and overwhelming when a close relative. Is that human instinct to be snuffed out by an overcautious approach? We think not. More could have been done, more should have been done. In the event nothing was done.

risk

Harrichan

He was the Acting Operations Team Lead between 1 February 2022 to 31 March 2022 having been temporarily elevated from Operations Team Supervisor. It follows he had not been in that job for very long which was not unlike Balkissoon who had also only been employed in her role for three Thus, the two people months. stationed at Berth #6 by the ICT were perhaps lacking in experience in their roles. We are unable to say if that had any impact on the work of the ICT that day.

Harrichan arrived at Berth #6 at 4:15 pm where he met with Johnathan Ramdhan. He appears to have been the "eyes and ears" of the ICT relaying information back to the ICT.

He claims that he was wholly unable to obtain any information of any kind from any LMCS employee. In his statement he said he saw Farah lying flat out on the barge with his hands covering his face. When he sought to

ask Farah questions about what had happened, he got no response. He added that none of the other LMCS personnel answered his queries either. Whether they were just being uncooperative with this man or not is of less importance as Farah was able to contribute to the ICS Log, to the Flemming-Holder Risk Assessment, and spoke with Balkissoon more than once and in particular about rescues and the supply of air-tanks and lights. Piper spoke with Guerra. Farah was making arrangements to attempt a rescue by contacting and speaking with the Beddoes whom he got on site before any other agency that Paria were seeking assistance from, which we deal with below.

The Independent Divers Alvin Seeteram

No one from the Paria's ICT spoke to them at all.

Seeteram is a ship's captain at Subsea Global Solutions and was working on a rig for Merskat Point Lisas Anchorage. He received a call from Ronald Ramoutar at 4 pm asking for help to rescue five missing divers. He arrived at Berth #6 at 7:15 pm that evening. He was met by and Conan Beddoe. Ramoutar Ramoutar, Beddoe and one of his own divers used their commercial equipment to install a flange to the pipeline. This allowed the camera to be inserted into the pipeline.

They waited until 3 am when they asked for permission to leave but this was not forthcoming until 5 am as they were being held on standby in case needed.

This was clearly a wasted opportunity to utilise their equipment if not their divers.

Ronald Ramoutar

Ramoutar is Fyzal Kurban's brotherin-law. He learnt of the incident at about 5:00 pm on the Friday. We estimate he was on the barge by 5:30 pm and entered the water tentatively shortly thereafter even though Paria officials were saying they could not dive.

That is as well because upon entering the Chamber he immediately heard the voice of Boodram. He got him out of the pipe. Ramoutar used the 4 tap emergency signal used by divers on the pipe and received a return signal. On emerging from the pipe there was a discussion with those present and a decision made to enter the pipe.

Michael Kurban volunteered to enter the pipe with a hooka/hose to breath. He went in as far as he could. He saw nothing and emerged without bringing anything with him according to Ramoutar. By this time Conan had arrived and between those present there was a discussion inside the habitat that Kurban would return to the pipe with a tank and two regulators and second stages so that two people could breathe using the same tank.

However, Kurban was unhappy with the amount of air in his tank and they decided to abort at that time. They surfaced and contact was made with Seeteram. A plan was formulated between the group now on site with Conan Beddoe entering the pipe using the commercial diving equipment that arrived with Seeteram. As they were about to effect the dive plan they were told by Paria officials to await the TTCG. There was some resistance but ultimately they agreed.

In evidence Ramoutar made clear that in his opinion, by early evening on the Friday, there was nothing more by way of equipment that they needed.

When the TTCG arrived they were clear that they would not go inside the

pipeline as they were not trained for that. Ramoutar and the team decided to stick to their own plan but were prevented from doing so by a combination of refusal to dive from Paria and at least the appearance of enforcement from the TTCG.

He said that Kurban, Crawford and LMCS workers tried to persuade Paria personnel and the TTCG to permit the dive but they both said "no".

Later Ramoutar assisted to fit the riser to the line. This was finished at about 10:30pm.

Later still a camera was inserted into the line but the footage was not shown to Ramoutar.

Peterson SC in cross-examination for Paria put a series of facts to Ramoutar that he (Ramoutar) was clearly not aware of when he formulated his plans on the Friday evening. What Ramoutar and Beddoe (see below) demonstrate is that had there been a greater degree of cooperation between the independent divers, the LMCS team and the Paria team through the ICT a plan could, and should, have been formulated to attempt a rescue on the Friday evening when there was at least a prospect of success. After all, is this not what the ICT was created to achieve?

In truth there was little by way of coordination between the teams on the Berth and the shore. This is probably the fault of both, but the primary responsibility must lie with the ICT/Paria.

Any rescue attempt had an inherent risk associated with it. There must have been a potential risk of death of the rescuer let alone those to be rescued, but on that Friday night, gathered at Pointe-´a-Pierre were amongst the country's most experienced, capable and willing commercial divers, oil-men of all types and HSE officers of the highest calibre, combined with a veritable panoply of diving equipment. We are of the view that if a timeous, safety conscious plan, could not have been formulated and executed then, it never could.

Conan Beddoe

This gentleman was an extremely experienced commercial saturation diver. At 3:47 pm on 25th he received a call from his brother Conrad who had been contacted by Andrew Farah following the incident. He arrived at Paria just as Boodram was being stretchered into the ambulance. He spoke with him.

He arrived at Berth #6 at around 5:45 pm when he spoke with Andrew Farah who gave him the details of the incident. He also spoke with Michael Kurban, Corey Crawford and Ronald Ramoutar.

They then made a rescue plan which we shall call Plan #2. Conan would

enter the habitat to assess with a rope whilst Farah and another would tend from the barge. If assessed as feasible he would return to the habitat with Kurban and Crawford. He would then be lowered in using the rope feet first. He would use scuba equipment. He planned to share his air with anyone that he encountered bringing them out and then returning for the others one at a time.

He was about to attempt the rescue when he had a concern over Kurban's ability to tend, so he decided to wait until his brother arrived which would also mean there would be better equipment.

Upon surfacing it was the TTCG who said he had to wait for their superiors. When Conan's brother Conrad arrived, they refined the plan we shall call Plan #3. This involved a smaller 30lb cylinder, helmet and 300' umbilical air feed, Conan entering feet first and tended by his brother, any rescued man would be brought out using the Pnemo which was an additional half inch hose connected to the umbilical. Any obstructions would be removed first with Conan returning to the line as many times as was necessary. Any rescued diver would be brought out one at a time following Conan. Before this could be carried out he discovered that they were required to wait on the TTCG. He did not discuss the plan with Paria he left that to Farah.

It was around 8:00 pm when Farah and Conrad spoke with the TTCG. Conan waited for the TTCG to give them the go ahead. Whilst waiting two with significant boats arrived additional gear. The Gulf Stream and by OTSL Marine owned Waterworld owned by Subsea Global. From Conan's perspective the TTCG did nothing. He was never given the "go ahead" to attempt a rescue by anyone.

At around 8:30 pm (in crossexamination he thought this to be later around 11:00 pm) that evening he and Ramoutar were permitted to bolt on the riser extension ostensibly to prevent any further suction into the pipe.

It was not until Sunday Paria wanted an oral plan, a Risk Assessment, a Job Hazard/Safety Analysis and a full Dive Plan, Fuentes, IMCA Air Dive Supervisor agreed with the plan but had a concern about NORM, a radiation issue that may have long term effects on health. There being not a single Hazmat suit on the Island. Piper said he did not think it a problem but when Fuentes asked if they would guarantee his health for 20 years everyone fell silent. The plan was rejected by Paria. Conan felt that Paria were not serious about the plan and were really more interested in recovery rather than rescue.

Peterson SC in cross-examination for Paria put a similar series of facts to Conan Beddoe that he had put to Ramoutar which he (Conan) was clearly unaware of when he formulated his plans on the Friday evening. What became clear was that

Conan Beddoe was unaware of the existence of air pockets, which direction the men had been sucked into the pipe, the hydrocarbon content, the movement of the inflatable plug, the possibility of a second ΔP event, or even how long they had been in the pipe. Clearly these were factors which ought to have been considered before executing a plan to dive into the pipe.

Whilst all of that is true, neither Paria nor LMCS did anything to appraise these brave and willing men of the facts as they understood them to be. No attempt was made by Paria to go through the very exercise that Peterson SC did very effectively in 15 minutes. In truth Paria spent almost no time talking to people who were divers. Even Seales was kept in the dark for much of the time: his advice was not sought until after midnight.

There was a meeting on the Sunday at the ICP of the kind which ought to have occurred on the Friday and which bears all the hallmarks of window dressing when in truth no one believed there was any longer a prospect of the men being alive.

LMCS Employees

Dexter Guerra

Guerra made three statements and gave evidence. He is a PADI certified diver. When he discovered the men had gone missing he called Ali Snr. who then arrived on site at 15:20. They concluded the men must be in the pipe and to that end formulated a plan to attempt to rescue them using a spare dive set and a rope for tethering and signalling. Other divers were called up to help. The "plan" was devised between Ali Snr., Farah and Guerra. They were about to execute it when Harrichan told them Piper said they were not to enter the chamber or the pipeline.

Guerra said that shortly after that Piper asked to see him and Farah ashore - Gonzales and Farah left to see Piper.

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Other divers started to arrive. Michael Kurban, Corey Crawford and Ronald Ramoutar. There was knocking and Boodram was recovered from the pipe and chamber even though Harrichan said there was to be no diving. Michael Kurban then entered the pipe with an umbilical, traversed about 10' into the horizontal, reached the end of his line and had to withdraw. He bought a dive set with him. He does not recall any GoPro Camera.

Gonzales and Farah never reached the ICS or Piper as they were called back when Boodram emerged from the line.

Whilst he was lengthening the umbilical to return into the pipe they were told by Balkissoon and Harrichan that there was to be no diving into the chamber and that the TTCG were going to take over. Kurban was obviously agitated by this turn of events, after all it was his father in the pipeline. He said he was going anyway but Guerra says that the TTCG were present and "were armed and stopped him". We have carefully considered this assertion and are unable to accept it as entirely accurate. That there were TTCG men present is not in dispute, that some of them were armed is not in dispute, that they had been asked to assume not in dispute. rescue is the Moreover, it is accepted that they have an authority as a quasienforcement agency. One could understand how a diver may have felt authoritative intimidated by an assertion that they should stand down. In evidence he said the TTCG had their guns pointing down towards the water and he believed they were there to enforce the order, not to dive on the chamber, but we do not conclude that deliberate coercive threats were made by the TTCG to the divers.

Other dive teams arrived with their commercial equipment and a willingness to help. Guerra asserts that he asked both Balkissoon and Harrichan on numerous occasions to be permitted to dive but was refused as Piper had said no one was to enter the pipeline. Paria had never asked him what the dive plan was.

In evidence he said he received a call from Piper before Boodram emerged from the pipe that the TTCG were going to take over any attempted rescue and we were not permitted to enter the chamber or the pipe. This is challenged by Paria and Peterson SC put that the prohibition was on the pipeline only not the chamber but that in any event Paria and its personnel did nothing to enforce the instruction. This was further supported by Balkissoon although he asked her to ask Piper to permit the rescue attempt again but the answer was the same. He also said that when the TTCG arrived they did not appear to assume the rescue and had no divers.

We are of the view that once again there may have been a breakdown in communication as clearly there were a number of divers at the scene who believed they were not permitted to enter the chamber or dive at all, whilst it may well have been the intent on the part of the ICS to prohibit diving into the pipeline only. We doubt that this makes much difference as clearly they did dive into the chamber in defiance of what they believed the position to be when Boodram was at the opening of the pipe unable to get out by himself and they were concerned to enter the pipeline which could not be achieved without first entering the habitat.

It was put to Guerra that the plans that they conceived to rescue the trapped men on the Friday night were "halfbaked; incomplete". If we were to assume that to be true it is at best lamentable that Paria or the ICT had no plan at all. As we have seen from various HSE personnel there were issues that needed resolution before a plan could be hatched but it never was. The ICT's preoccupation with the need for a detailed knowledge of the conditions in the pipe effectively prevented them from ever conceiving a plan. That coupled with the failure to factor into account the dwindling prospects for these men as time passed by, effectively sealed their fate. Perfection in safety was being sought and was unachievable.

Andrew Farah

Farah was the dive supervisor charged with the responsibility to supervise the divers and the works the day of the 25 February. He could both see and hear the men in the habitat. At 14:45 everything went blank and he lost contact. When he entered the Chamber there was no one there. There was sea water to 3 or 4' from the top of the riser and he concluded the men were probably in the pipeline. Dexter was advised and the alarm was raised. He had tied a torch to a rope and dropped it down the line.

He said he had dived into a pipeline before albeit larger and not as far as contemplated here. But in the course of his evidence, in particular in answer to questions from the Chairman, he detailed an account of three separate plans to dive over the course of Friday 25 February albeit as Mootoo pointed out without necessarily considering all the hazards. It's a pity Mootoo wasn't there on the 25th because the very issues raised by him ought to have been raised by the ICS for the purposes of honing a workable plan.

What was described by us as Rescue Plan #1 was articulated in Farah's statement to the COE at para 26 and was devised with Guerra and Ali Snr. that he would enter the riser with an extra set of dive gear, a tag line for and extraction. communication entering feet first. This plan was pre-Boodram's emergence from the line. They had surmised that the men were in the pipe as there was no other trace of them or their equipment anywhere else. This plan never got off the ground. Farah accepted that it was illthought out and could understand now why Paria was not prepared to countenance it.

He accepted he was distraught at the thought that his colleagues and friends may be dead. We feel that his knowledge that he was the Dive Supervisor at the time would have weighed heavily upon him. There was he stated renewed hope that the men were alive when Boodram came out of the pipe.

In effecting Rescue Plan #2 he had the benefit of Conan Beddoe who between them formulated the plan set out above under Beddoe's heading although he says the plan involved five divers, Conan Beddoe, Michael Kurban, Ronald Ramoutar, Corey Crawford and himself (Andrew Farah). These were all highly experienced commercial divers (with the exception of Kurban). They were all willing to attempt a rescue using the greater equipment now on site. By this time Kurban had been in the pipe and traversed a few feet along the horizontal. He had removed a tank (probably Boodram's discarded tank) and could see that the line was filled with seawater. He said he discussed

with Beddoe that the incident was caused by a ΔP event but that they concluded it was now safe as the habitat had returned to equilibrium.

He said that whilst there were potential hazards and risks associated with any rescue, not all of which they had considered, they were nonetheless willing to attempt a rescue. At this point someone like Seales ought to have been brought in by the ICT to work together with Trinidad's foremost divers to ensure that all issues were considered and a "best that can be achieved" plan formulated. Perfection was not an option: there would be attendant risk. But it is our view that having identified the risks it was a matter for the divers to determine whether they were prepared to take it NOT the ICT to adamantly block it. After all the father of one diver and the son of the contractor were in the pipe.

Having formulated the plan it was not carried out at that time as Beddoe had thought to wait for his brother to arrive with further equipment (Beddoe was concerned about the state of Kurban's mind and so used this as a pretext to wait). Farah says he knew that Paria had instructed them not to enter the water but that he was ready to disobey that instruction but when he was asked by the TTCG to get the men out of the water he did.

Rescue Plan #3 was formulated when Conan's brother Conrad arrived shortly thereafter. This time they had more divers, remote communications equipment and full facial masks, surface air and at least 300' of umbilical ie full commercial diving equipment. We repeat our view that the ICT should have engaged directly with these men by using Seales and an HSE.

In recognizing the complexity and interconnectedness of emergency situations, incorporating external entities into the drill scenarios ensures a more comprehensive and realistic simulation. This collaborative approach

Recommendation 35

An ICS requires a well- rehearsed Unified Command within it, that must be clearly defined, include all outside agencies that are likely to be necessary in an emergency, but must include a contractor representative in the ICT. They must be drilled at least annually.⁵²

The upshot was that it is difficult to conceive of any other equipment that might have been obtained to attempt a rescue. According to Farah this new plan was communicated to Balkissoon who in turn communicated same to Piper. Permission to enter the water was not forthcoming. We wish

⁵² The Unified Command structure is instrumental in ensuring effective decision-making and resource management during emergencies, and this is facilitated through regular drills conducted by their Incident Command teams. An integral and forward-thinking aspect of these drills is the deliberate inclusion of external entities to enhance collaboration and coordination.

enables the Unified Command structure to test not only internal communication and response mechanisms but also the interoperability with external partners such as emergency services, government agencies, and community organizations.

An integral aspect of evaluating the proficiency of these drills is the capacity to furnish auditable evidence showcasing the outcomes. This documentation is essential for identifying any gaps in the emergency response procedures and facilitating continuous improvement in performance.

to state here that counsel for Paria seemed to take some satisfaction that notwithstanding an instruction from the ICT not to permit diving, that LMCS were prepared to act in defiance of that. somehow exonerated Paria from responsibility of issuing that instruction. As we have already stated there does not appear to have been any review of the "no diving" instruction at all, whether it was for the pipeline, or the habitat, or the ocean, is perhaps not to the point.

We are concerned however that there appeared to be a clear lack of communication between the ICT and the men on the berth who were willing to carry out an attempted rescue. This does not lie entirely at the foot of Farah. Communication is a two-way street and it seems to us that much more could have been done to ensure engagement between those on the berths and those in the ICT.

Paria's Counsel argue "bearing in mind the serious risks which had to be catered for and the equipment

required to even contemplate an attempt at a rescue, the so called rescue plans spoken by Farah, Guerra, Ali Snr., Ramoutar and Beddoe were all woefully inadequate, ill-conceived and almost certain to occasion further loss of life, if executed". Yet nothing was done by the ICT to seek to improve those plans. They continued to act largely on their own, awaiting camera footage that was not to come until too late and in the event never arrived at all. There was no plan B.

It is an indisputable fact that the ICT did not consult Michells to view the limited camera footage they had obtained until 1:00 am on the 26th, Eastern Divers didn't even arrive until 1:37 am and OTSL was placed on stand-by and were never consulted. Their own man Seales has had his account to the enquiry undermined by counsel for Paria as being wrong about what he was told by the ICT, but on any view he simply was not being used or consulted until very late into the night of the 25th. 10 hours after the incident the ICT was re-sending the ALNG camera back down the pipe "to try to assess further" a scuba tank blockage. By 00:56 am on Saturday morning no diver consulted by Seales (OTSL and Mitchells) was willing to enter the pipe. Unsurprisingly it was TOO LATE.

It needs to be made clear that the legal team for Paria argue that there was <u>no duty under the ICS system</u> <u>to effect a rescue</u>. We find that to be a disingenuous approach. Their ICS has as its rubric the following:

Paria Fuel Trading Company Limited (Paria) is committed to the **prevention of harm to people** and the environment and to the protection of our assets. Paria shall therefore develop and implement emergency response plans for all credible emergency situations that may arise. The Incident Command System is utilised for scenarios such as impact of tropical storms or hurricanes, major fires, offshore spills and other major emergencies.

We are unsure what they mean by "prevention of harm to people" if it is not to include the men sucked into a pipe belonging to them. Of course, they are not bound to "effect" a rescue although we do believe they are bound to come up with a plan to do so even if it could not be "effected". They One of the cardinal never did. ICS the is of the principles safeguarding of human life - this must include the trapped men.

Kazim Ali Snr.

Ali Snr. first heard of the incident from Guerra who said they could not find anyone in the chamber. Ali Snr. was at Paria carrying out other tasks. He immediately made his way to Berth #6 where he met with Farah and Guerra.

He quickly concluded that the men were in the pipe and that they had approximately an hour to get them out on the assumption that they had an air bottle each (more if any of them were already dead) failing which they would likely perish, if they hadn't already. A plan was devised which would see Farah go into the pipeline with Guerra playing out a rope, Farah would take with him a spare dive kit and bring them out one at a time signalling on the rope. He thought that Paria's representatives were listening to their plans and after he left to get extra resources he was told by Guerra that Paria had stopped all diving and that they could not do anything.

We know that Piper and Ali Snr. spoke at 3:23 pm for a little over 3 minutes. Ali Snr. says he was asked by Piper to come to the office. Piper says he did not ask him as he thought that he would be distraught. I do not think we need to resolve this dispute; the fact is that Ali Snr. did not go to the Paria office. In evidence he told us that he told Piper that it was his belief that the men were in the pipeline. He said he told Piper that he was to carry out a rescue attempt – he asked for no details of the plan neither were they proffered but it was about this time (approx.. 3:30 pm), according to Ali Snr. that he had been told they were prevented from implementing the rescue plan.

We do find it a little surprising that there does not appear to be any evidence of any discussion between Ali Snr. and Piper or Mohammed about Paria's ban on diving. In Piper's witness statement provided to the COE he said that the diving ban was at around 17:00 hours (ie before Boodram emerged from the pipe) but changed that (unprompted) to 18:25 hours when he came to give evidence - which incidentally coincides with an entry in the Log that Piper requested security to "secure the area". As was apparent on the evidence, that was not the understanding of the LMCS personnel or others on site.

At around 5 pm he got a message that Boodram came out of the pipe and that the others were alive. He called Piper and Mushtaq Mohammed to request the fitting of the riser so that the chamber could be removed and the removal of the blank at Berth #5. Mohammed agreed but it took some time for that to filter through for the works to be done.

He spoke with Mohammed, Piper, Balkissoon and Guerra many times that day but he says he assumed they knew about the rescue plan because he had said what the plan was on the barge and also because Boodram had said that the men were alive. In evidence he said he specifically told Balkissoon about the plan

He said he spoke to Balkissoon on the phone and she told him that they heard from Boodram that the men were in an air pocket and Paria did not want to disturb the air pocket. He said that he told her that this was ridiculous because both ends of the pipe were out of the water. He said that Balkissoon told him that Paria had sent for a camera to see what was happening, and that the TTCG were in charge and he therefore believed that they were going to carry out an attempted rescue.

He was told about the camera meeting an obstacle and that they eventually opened the flange at Berth #5 with no result. He says he was never asked to attend the ICT. He said he spent time trying to alert families and arranging supplies. He visited Boodram in the hospital and was refused entry but he spoke with him on the telephone. He tried to arrange a decompression chamber for Boodram.

We have to say that it would have been wise for Ali Snr. to attend the ICT sooner than he did, if not by invitation then by inveigling himself into it to explain how he wanted to attempt to rescue the men and to persuade them to permit diving in the pipeline. Having no one at the ITC was not going to help the members of the ICT understand the issues.

That was realised when he attended at 7:00 am the next morning, although it took 2 hours to get clearance. When he got there he recalls Balkissoon, Yearwood, Wei and Rajiv Mangalee being present walking in and out of the meeting. Ali Snr. said that Balkissoon told him that she did not think it was safe to send divers into the pipeline and that Paria had a plan to pump out the line and send in confined space experts to take the men out. He says he assumed she was still talking rescue as no one was talking recovery. He told her he saw the pumps but these could not pump out the line, and in any event, Paria was not going to get anyone to go 60 feet into a dry pipe. Ali Snr. then told Balkissoon of his rescue plan and she seemed amenable but she said would have to run it by Mushtaq Mohammed who was in a meeting so that Ali Snr. waited. At about 4.00 pm Mohammed said he would like to speak to the rescue diver Conan Beddoe. This was arranged for Sunday morning as they had all left the site.

However, at this time it was Ali Snr's belief that Paria were doing nothing more than delaying. They were acting with no urgency.

To our mind little more was achieved in the time thereafter. As we have said we believe that the men were dead by this time and that the time for action had passed.

In answer to questions from the Chairman, Ali Snr. agreed that with the benefit of hindsight, had the valves at Berth #5 been opened before removing the plugs at Berth #6, that would have informed as to whether there was any ΔP in the line.

What's clear from Ali Snrs' account is that he assumed a rescue attempt was to be made by his team. It wasn't. Not because of a lack of willingness or a lack of resources but because Paria/ICT refused to grant permission for it to be carried out. The concomitant of that is that the rescue plan was not shared with the ICT. It should have been.

OSH Agency - Involvement of its Officers

Dion Lawrence was a Health and Safety Inspector II with OSH Agency. He made a statement on 31 October 2022 for the COE in which he stated that at 3:43 pm (approximately an hour after the incident) he was contacted by Archbald of Paria. On instruction from his line manager, he attended Paria's Point-a-Pierre office arriving at approximately 6 pm. There he met Shevon Ali (OSH Agency's Chief Inspector at the time). Both were taken to a room which we believe⁵³ was where the ICP was originally set-up and briefed by Archbald.

Lawrence describes receiving information from Paria during the course of the evening having made various requests for information as follows:

- a Risk Assessment and a Job
 Safety Analysis for the task
 which was being conducted;
- ii. Permits to Work for the task;
- iii. the Scope of Works for the task;
- iv. an Emergency Response Plan;
- v. a Lift Plan;
- vi. a Dive Plan;
- vii. Standard Operating Procedures;
- viii. Certificates of all equipment being used for the task; and
- ix. Training Records of the persons involved in the incident.

During the time that Lawrence and Shevon Ali were there they received the following documentation at around 11:30 pm:

i. Method Statement 116 - To install Subsea Slip-On Flange

⁵³ The evidence reveals that the ICP was originally set-up on the ground floor of the Terminal building, described by Lawrence as being 12 feet wide and about 18-20 feet long with a whicte board with timelines written on it. This is in accordance with the

room we were shown when the COE visited the site and from the photographs taken of the board at the time and the description given by other witnesses that this is where the ICP was first established before being moved to Piper's office upstairs.

on 30" Sea Line # 36 at Berth #6

- ii. Sketch of Chamber Schematic
- iii. Dive Manual Pre-Dive Checklist
- iv. JSA To install Subsea Slip-On Flange on 30" Sea Line#36 at Berth #6
- v. HSE Management System Toolbox Meeting Form
- vi. Permit to Work # 9322 issued on 25 02/2022 - Applicant . Houston Marjadsingh
- vii. Permit to Work # 9324 issued on 25 02 2022 - No Applicant
- viii. Permit to Work # 9320 issued on 25 02/2022 - Applicant . Houston Marjadsingh
- ix. Work Permit Certificate No: 2634
- x. Work Permit Certificate No: 2619
- xi. LMCS' description of equipment to be used to load required for lifting
- xii. HSE Management System Hyperbaric Chamber

Operations Pre-Work Checklist

- xiii. LMCS Air Compressor Inspection Checklist
- xiv. Breathing Air Test Record
- xv. Test Certificate LMCS 20211206-001
- xvi. Crane Crawler Certificate
- xvii. Magnetic Particulate Report dated December 06, 2021
- xviii. JSA 116 issue date December 10 2021

Lawrence identifies various people "on site collaborating with regards to the rescue operations" and "I was not invited to go into Paria's ICP nor was I told who was Paria's Incident Commander" which is a little surprising as he spoke to both Archbald and Yearwood. They remained at Paria until 1:45 am Saturday morning.

Lawrence was updated by Paria during Saturday and Sunday. On the Sunday night 27th February 2022 he prepared an Incident Brief Form (IBF) in draft which is apparently standard operating procedure and sent it to Chief Inspector Shevon Ali. In that IBF a number of preliminary findings were made which included:

- The JSA/Risk was not suitable and sufficient for the task being conducted.
- (ii) There are discrepancies with regards to the permit granted and approved for the task being conducted.
- (iii) Evidence suggests that the rescue plan was not sufficient and in alignment with the emergency procedure required.
- (iv) Applicable breaches during the investigation: as per the OSH Act Chapter 88:08
 Sections: 6 (1), 6 (2) a, 6 (2)
 b, 6 (2) d 7 (1), 8, 13 A, 6 (2)
 (d).⁵⁴

Lawrence attached both the original draft IBF and the subsequent track changed IBF at the COE's request, to the statement he made to COE on 31 October 2022. This is noteworthy because there appears to be a significant difference between them.

The documents had originally been provided on 15th August 2022 by OSHA when it submitted its Preliminary Report and various written statements. Included in these documents was OSHA's IBF under cover of Lawrence's internal memo dated Sunday 27th February 2022 in which he said that from his observations on Friday 25th February 2022:-

- there was <u>no</u> clear personnel in charge of the rescue efforts being conducted; and
- (ii) there was <u>no</u> Incident Command System in place during the rescue efforts.
 (our emphasis)

On 20 September 2022 interviews were convened with Lawrence and Jason Loorkhoor (Senior Inspector,

⁵⁴ These sections are set out Supra

OSHA) and counsel for the COE. A further interview was conducted with Shevon Ali (former Chief Inspector, OSHA) on 22 September 2022.

the September 2022 On 26 wrote lawyers Commission to the representing OSHA seeking unedited version of the IBF and the email correspondence associated with it.

On 1 March 2022 at 6:15 am Lawrence received an email from Shevon Ali in relation to the IBF which said:

"I apologise for the tardy response. A good brief overall. I tracked some <u>minor changes</u> for your consideration. We can discuss should you have any concerns." Our emphasis.

This "tracked" version returned to Lawrence did not, in our opinion, contain "minor changes". They were, as we have said, significant, they completely deleted the two paragraphs referred to above ie, *there* was <u>no</u> clear personnel in charge of the rescue efforts being conducted; and there was <u>no</u> Incident Command System in place during the rescue efforts.

statement Dion his witness In Lawrence did not explain why he apparently agreed with the edited version of the IBF. In his written response to this observation he said, "I did not have any issue with the edits as I imagined that Mr. Ali may have preferred to have additional evidence which would be obtained during the course of the full investigation before documenting such findings." We find that argument unconvincing as he has not made clear what additional evidence has come to light and whatever that evidence might have been, it does not of itself detract from his original observations in the "immediate aftermath of the incident".

In an unsigned witness statement taken from Shevon Ali by the

Commission's counsel dated 15 August 2022 he was asked to comment on the observations contained in the original IBF. He did so in the following way:

Lawrence's observation in the IBF

Various personnel were on site collaborating with regards to the rescue operations

Shevon Ali's Comments

I did see various personnel on site but I am unable to say whether they were collaborating with regards to the rescue operations.

Lawrence's observation in the IBF

<u>There was no clear personnel</u> <u>in charge in the rescue efforts</u> <u>being conducted</u>

Shevon Ali's Comments

It did not appear to me that there was anyone in charge of the rescue efforts based on information given to me and the environment I was exposed to.

Lawrence's observation in the IBF

<u>There was no Incident</u> <u>Command System in place</u> <u>during the rescue efforts.</u>

Ali's Comments

Based on the information given to me I could not discern if there was any Incident Command System.

This would appear in all material respects to support the initial assessment made by Lawrence.

On 31 October 2022 Jason Loorkhoor (OSHA's Senior Inspector) submitted a signed witness statement in which he says that based on the documents he received:-

"Paria <u>had</u> an Incident Command System in place in accordance with best practice and OSHA was satisfied that there <u>was</u> an Incident Commander in charge" (the Commissioners' emphasis).

He declined to comment on Lawrence's observations about the Incident Command System nor the apparent lack of evidence concerning rescue efforts.

It is disappointing that but for our probing of OSHA, the unedited version of the Report would never have come to light.

We have no doubt that there was an ICP established and that Piper was the Incident Commander, however it telling that the somewhat is perception of an experienced investigator with the OSH Agency was that he was unable to establish in the $7\frac{1}{2}$ hours he was there (to be noted that this started after Piper had assumed control from Yearwood) that although the ICP had been set-up, it was not obvious to him. He was never invited to be part of the ICT nor into the ICP, even as an observer. We note that Lookhoor says that OSHA's representatives have been invited into the ICT in the past albeit in relation to oilspills.

Pettal John-Beerens is the Deputy Director of Legal for OSH Agency and has made clear that an IBF is a preliminary document designed to capture basic information and that it is standard procedure for Supervisors to review document drafted by their subordinates by the use of track changes and discussions. We are happy to accept that, but it does not detract from the fact of the finding, as perceived at the time, by the Investigator and its removal disguises the true position even given that was not the intent.

The use of track changes to make such a major change to the document is inappropriate. It is our view that

such a substantive change, as occurred here, should not have been made to the document, rather it should have been clarified as to why the investigator would have concluded what they did and then a note from the supervising officer demonstrating why in his view it may be wrong or adding whatever additional information he was able to garner from the documents.

In this way everyone will know the position as perceived on the night and OSHA will be better placed to make recommendations for the future conduct of these emergency responses utilising the ICS when it makes its final report.

On a final and separate note concerning OSHA, we are of the view that it is beyond understanding that the OSH Act having established the Agency and the Authority as long ago as 2004, that nearly 20 years later there are still not compulsory guidelines for the commercial diving industry in Trinidad and Tobago. That

failure must be borne at least in part, by those at the OSH Authority charged with the responsibility of ensuring the safety of workers throughout industry. This is particularly so as any voluntary Code of Conduct has palpably failed to materialise in recent years as explained below by the T&T Bureau of Standards (TTBS) whose valiant efforts have come to nought.

It is difficult to conceive of a more dangerous industry than commercial diving and as such ought to have been at the forefront of the Authority's mind to ensure regulation, if not by consent, then by compulsion.

The Regulatory Regime

As already identified, there are two institutions that can bear on an appropriate regulatory standard for commercial diving. The OSHA and TTBS, depending on whether one seeks a Statutory Regulatory Regime or a voluntary Code of Conduct. Voluntary Dive Standards were created by the TTBS as long ago as 1997⁵⁵ and remains the only Code of Practice in T&T, but they are not mandatory and have no force of law. The foreword contained the following words:

> In light of a number of incidents in the local commercial diving industry which have, over the years, resulted in serious injuries and sometimes death, it is hoped that this standard will serve to reduce the likelihood of such incidents occurring in the future.

Yet it seems that mere lip-service was paid to this standard.

There is in addition, the Occupational Diver Training-Specification of 2010⁵⁶ which similarly has no legal force and was said to arise "*out of the need to*

ensure that persons entering into commercial diving are certified by a competent local/international body." It would appear to follow the Canadian Regulations and methodology.

By 2007 the TTBS recognised that there was a need to introduce revised voluntary standards and commenced Inexplicably the process. the Sub-Technical and Marketing Committee of the Board of Directors, raising a number of technical issues, did not convene a Specification Committee until 2011. Yet even then the rate of progress in obtaining the various from agreement stakeholders was so slow as to threaten the life cycle of a tortoise. Various reasons were proffered by the the TTBS. Ms of Manager Ramachala, whose frustration is selfevident and for whom we have but sympathy, but key nothing amongst the problems for not finding consensus was the use of scuba in

⁵⁵ TTS 539:1997 is a 78 page document – it has never been updated or amended.

⁵⁶ TTS/CSA Z275.5:2010 which replaced a 1997 standard TTS 542:1997 It covers every aspect of diver training

commercial diving operations, where clearly no agreement could be reached, resulting in no updated standards for the industry at all.

It would appear that the last meaningful meeting was in 2015 before major stakeholders withdrew and the process stagnated characterised by а "lack of professionalism". Of course, the net result was no change which may have been exactly what some parties wanted, we simply do not know.

Attempts to reconvene the Specification Committee floundered even though the TTBS undertook some work to discover the extent to which other jurisdictions used Scuba Diving in the commercial context and found that most did, albeit with restrictions.

It is not without cruel irony that we note the TTBS issued a press statement by advertising in the major newspapers just three days before this tragedy unfolded in which they made the following statement:

TTBS has made several attempts to revise [the Code of Practice for the Safety in Commercial Diving Operations] since 2007, however consensus could not be reached among industry stakeholders participating in the

standards development process. TTBS emphasizes that notwithstanding the above, the existing standard is a useful guide for the diving industry in promoting safety in diving operations, but being voluntary, its revision will not guarantee Its use or any other similar code, by the industry. The revision of the existing diving standards remains a priority for TTBS. As such, TTBS encourages stakeholders in the diving industry to fully cooperate in our standards development

process and provide meaningful feedback during the Public Comment period. In the meantime, the existing standard continues to be pertinent to the Diving Industry and can help to manage the risks associated with commercial diving.

TTBS believes that through continued communication with stakeholders in the diving industry, we can help in addressing the critical issues of industrial welfare, safety and health.

This plea requires no comment from us.

We are of the view that voluntary standards are unlikely to be achieved and the only sensible route is to impose compulsory regulation if lives are to be saved in the future. This will necessitate the use of powers provided under OSH Act and the Minister.

Recommendation 36

That compulsory Regulation of all commercial diving operations be introduced with a regime of financial penalties and criminal sanctions for companies and individuals failing to adhere to them.

TREATMENT OF THE FAMILIES

The families of Rishi Nagassar, Yusuf Henry and Fyzal Kurban were in Paria's car park from around the afternoon of Friday 25 February 2022 seeking information about the incident and the rescue efforts.

Counsel for Para argued that the evidence these family members could give was inadmissible and irrelevant being outwith the COE's remit. That they ought to be removed from the website and that the CoE ought to have no regard to them. In a considered ruling delivered on the 10 January 2023 the Chairman allowed the evidence to be given. During the course of his ruling he said:

"The evidence we have heard deals with the following matters. One, failures by Paria and to some extent LMCS, to keep the families informed. Nearly 24 hours passed before anyone from Paria spoke in a meeting to all of the families waiting for news about what was happening. That, on any view, must be unacceptable.

Two, families were left to camp in a carpark at the gates of Paria's facility for days until some measure of assistance was given to them driven largely by the public outcry and the intervention of the union. That, on any view, must be unacceptable.

Thirdly, rumour and misinformation, as was clear from some of the evidence read yesterday...becomes rife when there is no formal dissemination of the facts told honestly and timely in a consistently updated manner by those who were in authority and knew those facts.

At page 107E of the core bundle is a chart in a Paria document showing the different responsibilities assigned under an Incident Command System for emergency events. It includes an information officer and a liaison officer, yet it says absolutely nothing about what they are supposed to do....There must be a humanitarian element to any future emergency response plan that includes honest, regular with the communication immediate families of those most emergency affected bv the unfolding."

According to the written statement of Vanessa Kussie (common law wife of Rishi Nagassar) she arrived at the Paria's compound on Friday and requested to speak to someone who could give information. She was denied entry into the compound by Paria's security and had to resort to stopping vehicles coming in and out of the compound to obtain information. It was not until the afternoon of Saturday 26 February 2022 at a meeting with Paria Officials and the Minister that the families were given any information by Paria. After this meeting, Paria created a WhatsApp group with some of the family members. The families returned to the car park.

It was also the evidence of the families of Rishi Nagassar, Yusuf Henry and Fyzal Kurban that they learnt of Paria's decision to transition from rescue to recovery efforts on 27 February 2022 during Paria's press conference.

Mushtaq Mohammed's role in the aftermath of the incident was to inter alia liaise with the family members. In his written statement, he states that after the decision was made to transition from rescue to recovery he informed the wife of Kazim Ali Jr of that decision at her home on the evening of 25 February 2022 and returned to Paria to inform the other families as he was informed that they were gathered outside Paria's gates. However he says that they refused to come inside and he therefore at approximately 8:00pm led а

WhatsApp Call to inform the other families of the decisions to transition to recovery.

In cross-examination, Mushtaq Mohammed in responding to questions as to why arrangements were not made to accommodate the families and to provide them with timely information, stated:

- (a) That arrangements were made to accommodate the families on Saturday afternoon (that is almost 24 hours after the incident).
- (b) The first time that Paria met with the families was on Saturday 26 February 2022 at the Pointe-a-Pierre staff club.
- (c) Before this meeting, Mohammed says that he did not know that the families were in the car park since Friday afternoon trying to get information.

(d) Mohammed said that he wouldn't argue the point and conceded that it was not an acceptable position that no arrangements were made since Friday 25 February 2022 to accommodate the families and to keep them informed on a step by step basis.

It is the view of the Commission that the way in which the families were treated was insensitive and frankly uncivilized. The failure to keep them informed especially in the first 12 – 24 hours was shocking, as was their failure to look after them. Even if it were to be in the car park, basic shelter, toilet facilities, water and food ought to have been provided by Paria to comfortably accommodate them. Mohammed in our view rightly conceded that Paria's failure to accommodate the family and keep them informed within the first 24 hours was unacceptable.

Recommendation 37

Companies operate in that environments must dangerous have a protocol for dealing with the families of victims of industrial accidents and incidents. Once an ICS is established there needs to be a proper procedure to keep the immediate families of those who properly directly affected are informed.

tragedy real any these, or consideration needs to be given to assisting the families in the immediate aftermath of the incident to help them with the financial that they have been burden catapulted into. This does not have to involve any admission of liability merely the recognition that the families of those who have died, or been seriously injured, may need help.

Recommendation 38

Where there is the prospect of delay and or a rescue attempt to be made, providing sanctuary away from the public and the media to the immediate relatives, on site, seems to us not to require any protocol, just common humanity.

Recommendation 39

Lastly, in situations where families have had their loved ones and breadwinners snatched away from them in circumstances such as

GENERAL DUTY OF CARE

A recognised Code of Practice is the Diving at Work Regulations 1997 which has been adopted by several countries as guidance of what good Commercial Diving Practices look like. It states:

"Every person who to any extent is responsible for, has control over or is engaged in a diving project or whose acts or omissions could adversely affect the health and safety of persons engaged in such a project, shall take such measures as it is reasonable for a person in his position to take to ensure that these Regulations complied are with"

⁵⁷ Operational Discipline

58 Human Performance

We are of the view that both LMCS and Paria displayed significant organisational weaknesses in their management control systems for the safe execution of Commercial Diving that can be summarized at a high level known in the industry as Operational Discipline⁵⁷ and Human Performance⁵⁸.

LMCS

It is our view that there can be no doubt LMCS bore a duty of care towards its workers which we do not seek to articulate here as it has not been argued otherwise.

PARIA

That LMCS had a duty of care does not absolve Paria of its Common Law duty of care given the inherently dangerous nature of work on its plant. There is a non-delegable duty of care

Operational discipline relates to how well safety and other systems are followed. It is influenced by many factors, including safety culture and leadership, quality of safety systems, and other human behavior and human factors programs.

Human error is not random. It is systemically connected to people's tools, the tasks they

perform, and the operating environment in which they work. Therefore, the behaviours within the systems, its causes are extremely valuable as key indicators to be addressed in service of improvement efforts to anticipate, prevent, catch, or recover from errors. Drilling an ICT is a crucial aspect of ensuring the best Human Performance especially at times of crisis.

that arises in addition to LMCS's duty of care. It cannot be discharged by entrusting the safety of those working on its plant to independent contractors be it LMCS or Kenson or anyone else⁵⁹. Of course, Paria reject those arguments predicated largely on the claim that the works undertaken by LMCS were not inherently dangerous. We have dealt with this claim elsewhere in the Report. In arriving at the conclusion that Paria had such a non-delegable duty of care, we have taken into account the following nonexhaustive factors:

- As various Paria officers and their attorneys have conceded Paria bore a responsibility for the safety of all personnel on their plant.
- ii. Paria accepted and approved LMCS' plans, the PEP and the MS's at various stages in the

process of the works being undertaken.

- Rule 5(1) of the PTW expressly III. Paria the states that as Applicant for the works on 25th February 2022 had a positive duty of care for the safety of LMCS divers who were engaged in the works at their plant. The Applicant is stated as being responsible for the job and for the safety of the people who work on the job.
- iv. Rule 5(3) of the PTW expressly requires Paria as the Site Authority to determine whether site precautions have been maintained such as the plugs in the line.
- v. Paria failed to identify the potential for a ΔP hazard as a foreseeable risk when air-blowing the pipelines;
- vi. Paria had its own methodology for the removal of the content

⁵⁹ See Pickard v Smith (1861) 10 CB (NS) 470. Williams J placed considerable emphasis upon the danger that had been created by leaving open the trap door. He said: 'the defendant, having ... caused danger, was bound to take reasonable

means to prevent mischief ... and the fact of his having entrusted it to a person who also neglected it, furnishes no excuse' and more recently Woodland-v-Essex County Council [2013] UKSC 66

from the line (which included the cargo flow and tank) and failed to communicate the quantity that was being removed to the contractors.

vii. Paria failed to stop the works when the plugs were being removed.

Duty of Care to Rescue and by Rescuers

We have given serious consideration to the extent to which a potential rescuer owes a duty of care to those whom he seeks to rescue. There is no duty owed by a mere bystander in common law to rescue a person. This is based on the fundamental principle that the common law does not impose liability for what is called pure omissions. Something more is required than being a bystander. There must be some additional reason why it is fair and reasonable that one person should be regarded as his brother's keeper and have a legal obligation in that regard⁶⁰. Lord Scott has said:

"Sometimes the additional feature may be found in the manner in which the victim came to be at risk of harm or injury. If a defendant has played some causative part in the train of events that have led to the risk of injury, a duty to take reasonable steps to avert or lessen the risk may arise. Sometimes the additional feature may be found in the relationship between the victim and the defendant: (eg. employee/employer or child/ parent) or in the relationship

⁶⁰ Lord Nicolls in <u>Stovin v Wise (1996) 3 ALL ER</u> <u>801 at page 807(b)</u> summarised the legal duty in relation to a rescue <u>and see: Mitchell v Glasgow</u> <u>City Council (2009) UKHL 11 Per Lord Scott</u> "...the Pharisee who passed by the injured man on the other side of the road would not, by his failure to offer any assistance, have incurred any legal liability. A legal duty to take positive steps to prevent harm or injury

to another requires the presence of some features, additional to reasonable foreseeability, that a failure to do is likely to result in the person in question suffering harm or injury. The Pharisee, both in England and Wales and in Scotland would have been in breach of no more a moral obligation."

between the defendant and the place where the risk arises. (eg. A fire on the defendant's land Sometimes the additional feature may be found in the assumption by the defendant of responsibility for the person at risk of injury ... In each case where particular circumstances are relied on as constituting the requisite additional feature alleged to be sufficient to cast upon the defendant the duty to take steps that, if taken, would or might have avoided or lessened the injury to the victim, the question for the court will be whether the circumstances were indeed sufficient for that purpose or whether the case remains one of mere omission".

Clearly LMCS accept it had a duty to seek to attempt to rescue its employees and sought to put in place all the necessary personnel and equipment. We are of the view that there are additional features sufficient to have imposed on Paria the duty for it to have taken steps, which if taken, would or might have avoided the death of the LMCS divers in the pipeline.

- I. There was a contract between Paria and LMCS on the date of the accident which permitted the LMCS divers to be on the site owned by Paria. The contract provided for Paria to approve and accept the Method Statement, Job Safety Analysis and Risk Assessment and Emergency Response Plan in relation to the works.
- II. Paria's PTW system expressly provided a positive duty upon Paria to safeguard the welfare of the divers.
- III. Paria's Incident Command System for Major Emergencies was Paria's Plan for major emergencies designed to provide a timely response to the

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emergency at hand which they failed to do.

The divers were not trespassers. They were visitors who had been invited onto the premises by Paria to do works which concerned Paria. Paria ought to have been aware that a latent ΔP hazard existed and inevitably exists in the hundreds if not thousands of miles of pipeline all under various different pressures. It cannot be said that the divers themselves were aware of this danger as none of the documents including the Method Statements, the Risk Assessments, the Job Safety Analysis, the Emergency Response Plan or the Permit to Work identified such a hazard to them. Indeed, it is Paria's case that the plugs were not there to prevent a ΔP hazard but to prevent ingress of articles into the pipe, prevention of fire and the egress of fumes.

Paria on their own admission lacked the competence to review the LMCS documents, determine the extent to which they were complete, and failed to recognise that they should have employed an expert to assist in conducting a review and supervising the works as they had previously done in 2020, when undertaking a similar job between LMCS and Paria on Berth #5. It is therefore our current view that Paria was in breach of its duty of care towards the LMCS divers.

We are also of the view that the general principle that there is no duty to rescue does not apply to the person that created the danger in the first place whether solely or with others.

"...where a person creates,,,.or contributes to the creation of a state of affairs that he knows or ought reasonably to know has become life threatening, a consequent duty on him to act by taking reasonable steps to save the other's life will normally arise."⁶¹

It is clear from the facts which have been produced before this Commission that:

- 1 The danger which resulted in the divers being sucked into the pipeline was created by LMCS and/or Paria during the line clearing of the pipeline. clearing The line was undertaken by LMCS and overseen by Paria pursuant to Paria's Work Instruction which was a step-by-step instruction for the clearing of the line.
- II. The line clearing process resulted in more than the optimum target of line content being removed and caused a gaseous void to have formed in the pipeline and a latent Delta P hazard was created when the plugs and the habitat

were installed. The hazard was activated when the men removed the inflatable plug and caused the men to be sucked into the pipeline.

- III. The issue of whether or not the removal of the plugs was to be part of the work plan for 25th February 2022 is not relevant in determining whether or not Paria was responsible for the danger since Paria had a nondelegable duty to ensure that measures to avoid injury were in place given the inherently dangerous nature of the job. The following illustrate how they failed in that duty:
 - Neither Paria nor LMCS
 ever recognised that a
 ΔP hazard existed;
 - (ii) The plugs were not a control measure for a ΔP hazard;
 - (iii) Paria had the responsibility through its

⁶¹ Archbold 2023 page 2233

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Permit to Work Procedure which was a contractual obligation on the parties to continually and periodically monitor the works;

- (iv) The Permit to Work itself was ambiguous in that even though the removal of plugs was not identified on the Permit itself, it was identified in the method statement attached to the Permit to Work;
- (v) The Site Authority which issued the Permit was Paria's Ramdhan. His duties included monitoring the works to ensure that all safety precautions remained in place. He carried out this duty through Kirt Scott at Berth #6 who saw the mechanical plug being removed but he did not have the requisite knowledge or training to

identify the mechanical plug and therefore did not stop the works;

- (vi) The Applicant to the Permit to Work was Marjadsingh. He also had a duty to ensure that the work plan was discussed at the tool-box meeting and to monitor the works. He did neither. He was not present at the toolbox meeting and did not arrive at Berth #6 until after 2.00 pm on 25th February 2022.
- IV. Given that both LMCS and Paria were responsible for the hazard which resulted, they both had a consequent duty to attempt to rescue the divers. Paria made little or no attempt to rescue in that they failed to manage and coordinate the resources that were available. Whilst LMCS' divers were willing and prepared to attempt a rescue of the men from the

pipeline, they lacked coordination and were prevented from doing so by Paria.

The evidence led at the hearings of the Commission of Enquiry clearly established that Paria assumed a duty of care to at least attempt a rescue of the divers, in that:

On Friday 25th February 2022 1. and every day thereafter as the facts and circumstances of the accident unfolded, it prohibited divers from diving into the pipeline and gave instructions to the TTCG at 7:00 pm to enforce Paria's prohibition. This prohibition was in force until the recovery of the dead bodies whilst Paria insisted that it had to approve any plans for rescue. LMCS' divers could not attempt a rescue because Paria prohibited them from diving at least into the pipeline to do that. Paria was the Site Authority responsible for Berth #6.

- II. Paria by virtue of its contractual obligations and the Permit to Work System required that any risks associated with the job would be identified and controlled by Paria.
- III. On 25th February 2022, after the incident occurred, it activated its Incident Command System, took control of Berth #6 and assumed responsibility for the rescue efforts and any attempt to rescue the LMCS divers;
- IV. LMCS on more than one occasion requested permission from Paria to conduct a rescue attempt and Paria refused to give permission. This demonstrates that LMCS was forced to rely on Paria's duty of care to conduct the rescue attempt and it assumed that Paria had the authority to

refuse them permission to rescue.

We are of the view that LMCS did try to attempt a rescue but were effectively prevented from doing so. Paria acted unreasonably in that inter alia it:

- Spent the first three hours on open water searches when they had information⁶² there was a real possibility the men were in the pipe.
- ii. Eschewed the chance to obtain good information from Farah about the plug having gone missing and Boodram about the condition of the pipeline.
- iii. Spent the remaining time that night trying to obtain video camera footage of the pipeline in vain, such that by the time they obtained the limited footage recovered, it was too late to effect a rescue attempt.
- iv. Failed to have any kind of timeline that would inform the ICT of

what was realistic and what would not work.

- v. Failed to use the available independent divers and equipment they had arranged to attend on site at all or in a timely fashion.
- vi. Did not utilise their own expert Seales until it was too late.
- vii. Failed to complete the Risk Assessment with Flemming-Holder, their own HSSE manager.
- viii. Failed to contact Eastern Divers until shortly before midnight which was too late to attempt any kind of rescue.
- ix. Never sought to use the independent divers that arrived at LMCS's request
- Failed to adequately or at all consult with LMCS divers whilst there remained a realistic chance of an attempted rescue.
- xi. At no point did the ICT reconsider the "no dive" policy.

⁶² Kazim Ali Snr. told Piper he believed the men may be in the pipe. Not an unreasonable deduction that

the men were in the pipe after nothing found in the ocean after searching.

For all these reasons and those set out in this Report we are of the view that:

- LMCS was in breach of its duty of care towards the divers they employed;
- Paria was in breach of its nondelegable duty of care to the divers LMCS employed; and
- iii. Paria and LMCS have a separate and distinct duty to attempt to rescue the men they placed in jeopardy.

INVOLUNTARY MANSLAUGHTER

In order for us to conclude whether the evidence discloses the commission of the criminal offence of Involuntary Manslaughter we have to answer four main questions⁶³, namely:

(i) Was there a breach of the duty of care by Paria and/or LMCS by its relevant officials?

- (ii) Did Paria/LMCS by its officials breach that duty of care?
- (iii) Did the breach of the duty of care by Paria/LMCS cause the deaths of the four divers?
- (iv) Can the breach of the duty by them which caused the death of the four divers be characterised as gross negligence and therefore a crime.

We address our minds to the last question as the first three are already dealt with above. In answering such a question we have to consider the seriousness of the breach of duty committed by Paria/LMCS in the light of all the facts and circumstances in which Paria/LMCS and its relevant officials had to act during the period and after the accident. In doing so we have had regard to all that we have set out above and in this report.

⁶³ <u>R v Adomako (1995) 1 AC 171</u> per Lord Mackay and <u>R v Willoughby (2004) EWCA Crim</u> <u>3365</u> and rather neatly encapsulated by Madame Justice Nalini Singh (as she now is) from

the local case <u>The Inquest into the death of</u> <u>Ojoe Moyo Oliver</u> INQ 10 of 2008 determined on 22nd April, 2009.pp49 -50

Recommendation 40

We recommend to the Director of Public Prosecutions that on the evidence before this Commission we find that there are sufficient grounds to conclude that Paria's negligence could be characterised as gross negligence and consequently criminal. We do not conclude that the same is true of LMCS as we are of the view that they were effectively prevented from pursuing a rescue by Paria.

The remaining issue is whether there is/are any individual/s for whom recommendations may be made. We have concluded, that there is not a strong enough case to recommend the prosecution of any one individual. However the law permits a corporation to be charged with manslaughter⁶⁴, who can on such a charge appear through their

representative and if convicted, to be fined⁶⁵.

Recommendation 41

That the DPP consider charging Paria with what is commonly known as Corporate Manslaughter.

Offences under The Occupational Safety and Health Act Ch. 88.08

The OSH Act came into force in 2004 and has been amended at various times since. The OSH Act is divided into fifteen (15) Parts and created obligations on Employers, Occupiers of Industrial Premises and Others to ensure the Safety Health and Welfare of those who may be adversely affected by their activities.

Part II created general duties and other parts created specific duties. Part XII created the OSH Authority which is the Regulatory Body

⁶⁴ See <u>R v. P&O European Ferries (Dover) Ltd.</u> <u>93 Cr. App. R. 72</u> per Turner J, at 84 and <u>Tesco</u>

Supermarkets v Natrass [1972] AC 15, Lord Reid at para 173 and <u>R v. Adomako ibid</u> ⁶⁵ The <u>Criminal Procedure (Corporations) Act</u> Chap. 12:03 regulates the procedure and penalty.

charged with ensuring the health and safety of employees and visitors and it is with them that the power to prosecute offenders resides. Part XIII created the OSH Agency which is in essence the investigatory arm of the scheme.

Part XIV regulates the offences, penalties and proceedings. If the Act is not complied with, summary be instituted proceedings may both individuals and against companies. Such proceedings are time-barred to 6 months of the matter being known to the Inspector. A recent decision of the Court of Appeal⁶⁶ has confirmed that this is the time frame. However, by virtue of s.91(2) where a Commission of Enquiry finds that there is evidence that the Act has not been complied with, summary proceedings may be instituted within six months of the making of the Report (here the 30 November 2023). However, by virtue of s.97B all proceedings must be initiated within 2 years of the incident. It follows that any recommendation we make to the OSH Authority may need to be acted upon (initiated) by 24th February 2024.

These time constraints can operate harshly on OSHA's work when complicated industrial incidents occur and where investigation takes time or there is a less than enthusiastic response from the parties causing delay.

Recommendation 42

That the 6 month time limit be extended to 12 months on the application of the OSH Authority to the Industrial Court where they can show good reason.

⁶⁶ <u>Civil Appeal No. P295/2019 UWI -v- OSHA</u>. At para 4, Aboud JA (Mendonça and Moosai JJA concurred) held:-"A Complaint for a safety and

health offence <u>must be made within six months of</u> <u>the date when its occurrence came to the</u> <u>knowledge of an OSHA Inspector</u>"

Recommendation 43

That the 2 year time limit be extended to 3 years on the application of the OSH Authority to the Industrial Court where they can show good reason.

All offences are to be determined in the Industrial Court.

For the myriad of reasons spelt out in detail above we regard both Paria and LMCS to be in potential breach of a number of the General Duties set out under the OSH Act. We have seen, as have all the parties, the document entitled Preliminary Report from the OSH Authority and Agency dated 29 April 2022 in which they make a number of provisional findings.

We were told that a full report may well have been concluded whilst the Commission of Enquiry was going about its work, but we have not been provided with a copy neither have we seen it. We suspect, out of an abundance of prudence so as not to interfere with our work, it has deliberately not been made available.

However, the draft report is clear in that OSHA has considered that there are a number of potential breaches of the Act, or that the Act has not been complied with, such as to give rise to possible prosecution. As a matter of fact they have not pursued any prosecution before the 6 month deadline that had expired on 24th August 2022.

They made a number of preliminary findings in the following terms:

- The contractual arrangement between Paria and LMCS is to be confirmed.
- The risk assessment provided for the task was neither suitable nor sufficient.
- The emergency plan for LMCS did not make provisions for emergency scenarios based on a suitable and sufficient assessment of risks.

- The emergency plan for Paria did not make provisions for emergency scenarios based on a suitable and sufficient assessment of risks.
- Hyperbaric Chamber. The utilized subsea during maintenance works. was LMCS. No fabricated by documentation was presented to verify the specifications, inclusive of standards adopted in its design, construction and installation.
- The system of work employed for the task being conducted was not, so far as is reasonably practicable, safe and without risk to health.

The need to confirm the contractual arrangement between Paria and LMCS is clearly important, but as has already been identified in this Report, the views expressed by counsel for Paria – that this was all on LMCS as the specialist contractor and ours are very different especially as we regard the PTW system to be an important part of the contractual relationship between Paria and LMCS whereas Paria do not.

Save for the reference to the Hyperbaric Chamber these preliminary findings echo our own which include the failure to recognise a potential ΔP hazard by either LMCS or Paria thereby placing employees at risk. The same failure to identify that risk resulted in no emergency plan by either LMCS or Paria to respond to it, if the hazard were to be realised.

The system of work to which reference is made is also a matter to which we have referred, in particular, the PTW system and the method adopted for the removal of material from Sealine 36.

We do not repeat all the potential findings we have made herein again. Suffice to say we agree with their preliminary findings at this juncture.

OSHA has considered that there were a number of breaches and identified them in their Preliminary Report. Insofar as we are in agreement, there appears to potential non-compliance with the following persons/entities and provisions:

For both Paria and LMCS, consideration to be given to individually and separately prosecuting Piper and Ali Snr.:-

6. (2) Without prejudice to the generality of an employer's duty under subsection (1), the matters to which that duty extends include in particular—

 (a) the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health;

(d) the provisions of such information, instruction training and supervision as is necessary to ensure, so far as is reasonably practicable,

. . .

the safety and health at work of his employees

8. (2) An occupier of an industrial establishment employing twenty-five or more persons shall prepare or revise, in consultation with worker representatives in the industrial establishment—

(b) an emergency plan in writing based on a risk assessment made in accordance with section 13A ... and the occupier shall submit the statement or the emergency plan, as the case may be, and any revision thereof to the Chief Inspector and bring them to the notice of all persons employed in the industrial establishment.

13. (1) A person who designs, manufactures, imports or supplies any technology, machinery, plant, equipment or material for use in any industrial establishment shall(b) take such steps as are necessary to ensure that there will be available in connection with the use of machinery, technology, plant, equipment or material, adequate information about the use for which it was designed and tested and about any conditions necessary to ensure that it will be safe and without risks to health or the environment when properly used.

25. (1) The requirements of section 25(2) to 25(8) apply, with all necessary modifications, to any confined space while an employee is in that space.

(2) Subject to section 25(4),a confined space shall be entered only where—

(a) there is an easy egressfrom all accessible parts ofthe confined space;

. . .

(c) all pipes and other
 supply lines whose contents
 are likely to create a hazard
 are blanked off; and

(*d*) the confined space is tested and evaluated by a competent person who—

(i) records the results of each test in a permanent record; and

(ii) certifies in writing inthe permanent recordthat the confined space—

- (A) is free from hazard;and
- (B) will remain free from hazard while any worker is in the confined space having regard to the nature and duration of the work to be performed.

83. (3) Where an offence under this Act or Regulations made thereunder is proved to have been committed with the consent, connivance or

acquiescence of, or to have been facilitated by neglect on the part of a director, manager, secretary or other officer of a company, such director, manager, secretary or other officer, as well as the company, is liable to be proceeded against for the commission of the offence.

And Paria alone:

7(1) It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment, who may be affected thereby are not thereby exposed to risks to their safety or health.

. . .

(3) In such cases as may be prescribed, it shall be the duty of every employer and every self-employed person, in the prescribed circumstances and in the prescribed manner, to give to persons, not being his employees, who may be affected by the way in which he conducts his undertaking, the prescribed information about such aspects of the way in which he conducts his undertaking as might affect their safety or health.

As we have indicated it does seem to us that these provisions of the OSH Act have not been complied with for the reasons we have given above.

Recommendation 44

That the OSH Agency complete its investigation if it has not already done so

That the OSH Authority then consider instigating summary proceedings against those we have herein identified. NOTE: within the limited timescale now available to them (i.e. 24 February 2024). For the avoidance of doubt, in addition to the pertinent matters set out in the OSHA Preliminary Report, we rely on the same evidence for these charges as we do for the breaches of duty and for the charges of corporate manslaughter identified above.

The Expert Testimony

We have taken the view that we will not rely on the evidence of Dr Glenn Cheddie.

We do, however, very much rely on the evidence of Zaid Khan to whom we are indebted for the readiness with which he was prepared to assist the Enquiry and the clear and precise way he addressed these difficult issues to the uninitiated.

The model he produced demonstrated how the latent ΔP affected the pipe and the surroundings once it was active

ZAID KHAN

In-Corr-Tech Limited is an Engineering Inspection, Root Cause Analysis and Engineering Design Company. Khan is a registered professional engineer and failure analysis consultant. The company was contracted by OSHA to "conduct root cause failure analysis and causative factors" pertaining to the incident.

A report was submitted to OSHA in July 2022 in which Khan concluded, inter alia, as follows:

- (a) The root cause of the accident was the failure by both Paria and LMCS to recognize that a latent ΔP hazardous condition, would have been created by the methodology used in the execution of the works with particular reference to the removal of fuel oil from SL36.
- (b) LMCS Method Statement 116⁶⁷ was based on partial removal of

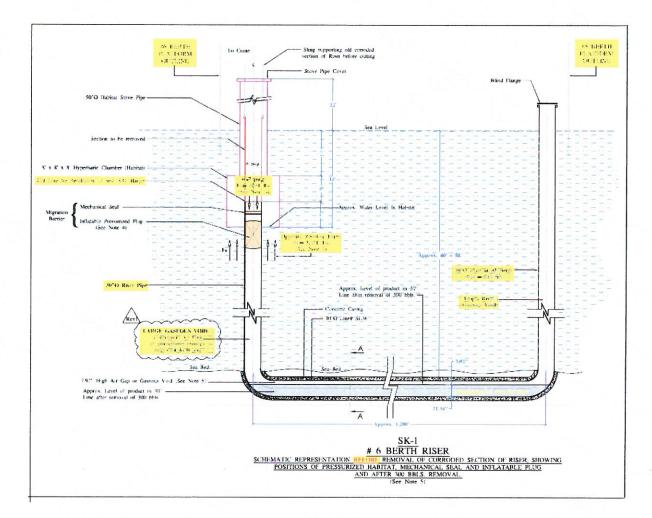
⁶⁷ MS 115 (rev1) does not say "partial removal of the line content" it says Remove contents of SL36 between Berths#5 and #6 – phase II. Later it says "To Air Blow Line Contents to Clear Line Segment". This MS is dated 5th February 2022 and comes after Paria's work instruction for the clearing of the line dated 7th January 2022. MS 116 is dated 4th January

²⁰²² and is assumed to be superseded by the later dated MS115 (rev1). MS 116 does not deal with the removal of material from the line at all. We note the Report from Khan is dated July 2022 and revised to 20th September 2022. He does not appear to have been given MS 115 when he completed his report.

line content, using an air driven pump. This procedure was changed to air blowing and the management of change was not adequately addressed.

(c) The removal of fuel oil⁶⁸ from the line and the installation of the migration barrier created a large, gaseous void in SL36. This void served as a prerequisite for the Latent ΔP Hazard what was created when the habitat was installed and pressurized to facilitate work within the habitat. The hazards associated with this void were overlooked by both Paria and LMCS. See the diagram (part) SK1 shown below.

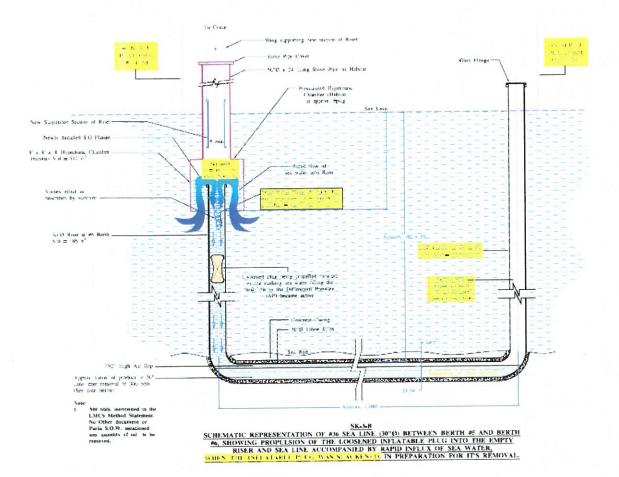
⁶⁸ Originally estimated as being 300 barrels in the PEP not the MS116 but which proved on the evidence to be more than 300 barrels.



- (d) The LMCS and Paria documents supplied by OSHA to Khan all failed to identify this potential ΔP hazard and hence no steps to eliminate or mitigate the hazard were implemented.
- (e) This latent ΔP hazard existed at the onset of work within the

habitat and became active when the divers were attempting to remove the primary seal (inflatable plug) from within the riser.

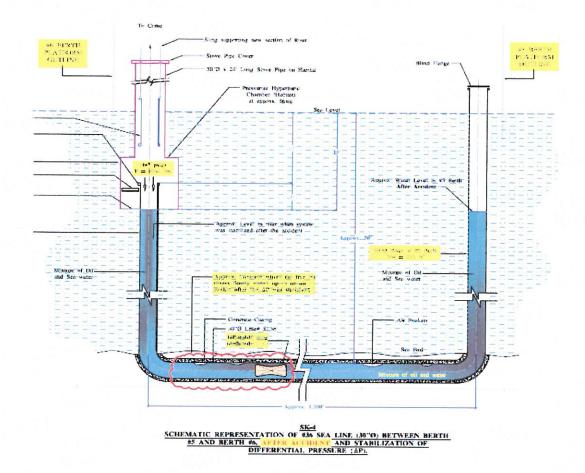
(f) Not being aware of this latent ΔP condition, LMCS divers proceeded to deflate the plug after safe removal of the mechanical seal. Once the resistive force of the plug was lower than the downward force on the plug it thrust the plug down the oily riser into the large gaseous void.



(g) Simultaneously, the transient and sudden loss of habitat pressure caused the sea water to rush up into the habitat, pouring into the 30" diameter riser at a rate of 54 gal/sec at a velocity of 4 ft/sec, creating a free vortex sucking all personnel and loose equipment into the riser. Gravity, habitat supply air from the compressor, large gaseous void and an endless supply of water

perpetuated this vortex in the riser, until the Differential

Pressure (ΔP) equalised and the system stabilised.



(h) LMCS Method Statement 116 items 56 and 57 pertaining to the removal of the migration barrier and inflatable plug could only have been applied safely, if a ΔΡ condition was not present. This was

characterized as a grave oversight by both Paria and LMCS.

 (i) The removal of contents with respect to quantity and method in SL 36 between Berths #5 and #6 was determined as the underlying

this that led to factor This removal accident. created a gaseous void in the riser and sea line, setting up a latent differential pressure (ΔP) condition between the habitat and a large gaseous void in the riser and sea level, when the mechanical seal and inflatable plug were installed and the habitat pressurized. See SK1 above.

- (j) LMCS's original Method Statement submitted with the proposal (identified in this Report as not really a MS but a PEP⁶⁹) under Section A Procedure for Removal of Line Content between Berths #5 and #6 on page 6 provided for:
 - (a) using air driven pump, pump out approximately300bls of line content; and

- (b) once level in the riser dropped to 35' below sea level, a line plug will be installed.
- (a) and (b) are contradictory, as removal of the line contents to 35 feet below sea level in the riser, been have would to equivalent approximately 30 bbls of oil removal, with no gaseous void formation on installation of the mechanical seal and inflatable plug. On the other hand, as stated by LMCS (a) pumping out 300 bbls (actually, as we have found, more) with an air pump does not equate to dropping the level in the riser to 35 feet below sea level. Khan this noted that discrepancy not was

⁶⁹ Project Execution Plan

addressed in Paria's Bid Evaluation.

(k) The technique of air blowing from Berth 5 to 6 would have "definitely removed way in excess of the optimum quantity of oil from the line", thus creating а significant continuous gaseous void between Berths #5 and #6 together with empty risers. Khan's report makes clear that this method would have introduced a very dangerous latent differential condition as soon as the inflatable plug and mechanical seal were installed in the line and the habitat placed and pressurized. This latent hazardous condition existed very early in the job execution, but was activated on 25 February 2022 when the five divers were in the process of deflating the riser

plug for its removal. (our emphasis)

(I) He went on to record in his report that changing the method of oil removal from the line from using an air driven pump as per LMCS's MS, to forced air blowing from Berth #5 resulted in a dramatic increase in the risk profile of the job.

Khan's Report included diagrams which illustrated various stages of the works and the incident (as shown above). They were prepared on the assumption that 300 bbls of line content was removed. At the time of preparing his report, Khan did not have Paria's Work Instruction, Paria's Daily Work Reports or LMCS' Method Statements (MS 115) in relation to the line clearing.

In his report, Khan made several recommendations, which included the following:

- (a) Working in differential pressure (ΔP) environments necessitate an engineering risk analysis by a competent person. Differential pressure *can be assumed* to exist when:
- Water levels vary between adjoining areas;
- ii. Water is next to a gaseous void;
- iii. High pressure air is next to low pressure air;
- iv. Positive pressure (i.e. above atmosphere) is next to atmospheric pressure (o psig)
- (b) Lack of knowledge and communication on the issue would have also contributed because the ΔP was not active, but latent and only became activated when the plug was deflated. The divers were *most likely unaware* of the hazard that existed behind the plugs.

- (c) All risk factors must be considered whilst working in a positive pressure environment similar to a habitat. Where possible, actions must be taken to avoid these risks. Some of these risks include:
 - i. Loss of positive pressure.
 - Possibility of establishing flow conditions, from areas of high pressure to areas of low pressure.
 - iii. Faulty operation of seals.
 - iv. Improper installation and retrieval of seals.
 - v. Creation of large gaseous
 voids on the low pressure
 side of seals or plugs in a
 differential pressure
 condition.
- (d) Differential pressureproblems can be adequatelyminimized by the following:

(g) Have real time video and audio contact. (h) In risk assessment forms pertaining to Diving Work Operations, a section should included. "Differential Pressure Conditions and Hazards.".

be

- (i) Suitable qualified and equipped rescue personnel should be at hand at all times.
- (j) Inspect and certify the habitat before use, name tag with maximum internal pressure limits should be installed.
- (k) Inspect and certify all seals before use
- (I) Clean all mating surfaces between the seal and

- i. Back pressure or equalizing the pressure on both sides of the seal.
- ii. Maintaining а physical barrier.
- iii. Avoidance of creating flow conditions be it liquid, vapour or air.
- iv. Avoidance of creating empty spaces or gaseous voids on the low pressure side of seals.

(our emphasis)

- (e) In high risk jobs always ensure that JSAs are not generic. They must address a particular task with in-depth analysis of potential hazards mitigation and necessary steps to be adopted. Work permits must also reference the applicable JSAs.
- (f) All changes to original procedures should be carefully managed and appropriate JSAs developed.

Having and executing а robust management of change "MOC" procedure is essential.

substrate, be it a pipe, nozzle or vessel

(m) Pressurization of seals are to be done in accordance with OEM specifications.

We are ready to adopt many of those recommendations as our own and have addressed some of them in the body of this Report.

Recommendation 45

All designated high-risk jobs must ensure that the JSA is not generic. It must address the particular task with in-depth analysis of all and the hazards potential necessary mitigation steps to be adopted. Specifically, in relation to Operations, a section Diving included. titled should be "Differential Pressure Conditions and Hazards".

Recommendation 46

Work permits must also reference applicable JSA and all the personnel must sign that they have read it. Where specific hazards such as ΔP are identified in the JSA they should appear on the Work Permit as having been considered neutralized either or and ameliorated. What is essential is that everyone knows there is a potential latent ΔP hazard where they are working.

Recommendation 47

Any changes to original procedures set out in an MS and JSA should be carefully managed and a new or amended MS and JSA developed. Having and executing a robust management of change "MOC" procedure is essential in ensuring effective communication and safety.

The Commissioners invited Khan to provide a supplemental Expert

Report⁷⁰ in relation to certain matters and Khan responded⁷¹ setting out his advice on those matters as follows:

- (a) As a latent △P did exist within the system based on Paria's evidence, then Paria was duty bound to mitigate the risk and highlight it to all and sundry. In fact, Paria's own HSE safety guidelines which includes a "hierarchy of risk control" clearly specifies "Elimination" as the most effective method of risk mitigation.
- (b) Prior to Christopher Boodram's rescue, the entire system stabilized and equated itself at both ends of SL36 and thus allowed Mr. Boodram to negotiate the pipe without any disruptions, as the system was static. This condition was the best opportunity to attempt a

rescue as removing the blank at Berth 5 or shutting down the compressor would have released the stored potential energy from the compressed air and thus disturb the equilibrium and thereby imperil any divers in air pockets.

Khan informed the Commission⁷² that his report submitted to OSHA was on the basis of information and documents supplied by OSHA and that his report contained a caveat to this effect. He indicated that prior to the issuance of the report he did not receive other relevant information such as details surrounding the actual line content removal and methodology.

However, he further stated that that his basic conclusions and recommendations remained, although there was a need to revise some

⁷⁰ By letter dated 30 November 2023 (Supp.

Core Bundle Vol 1, page 1535)

⁷¹ By letter dated 6 December 2022 (*page 1533*)

⁷² By letter dated 28 December 2022 (*page 1536A*)

sketches in his report to reflect a more realistic picture.

The Commission further requested Khan's clarification in relation to the parameters of a model prepared by him to demonstrate how the latent ΔP operated once the plug was removed. The Commission provided Khan with the Daily Reports of Paria which recorded how much line content was being recovered on the slop barge/onshore tank farm during the Phase I and Phase II air blowing exercise. The Commission requested Khan's opinion as to how much line content he estimated was removed.

In respect of these requests, Khan informed the Commission⁷³ as follows:

- (a) He clarified that he built a to demonstrate model several scenarios pertaining The the accident. to parameters considered were to simulate, as close as possible, the various aspects of the job, leading up to and inclusive of the accident. The parameters included sea levels, rider positions, subsea line, air supply and habitat flange and installation.
- (b) He concluded that at least 1252 bbls of line content was moved during the Phase I and II air blowing process as follows:

PHASES & DATES	BBLS REMOVED
PH	ASEI
18 January 2022	798
20 January 2022	Unknown quantity
21 January 2022	118
PHASE I Total	At least 916 BBLS

⁷³ By a letter dated 6 January 2023 (page 1536C)

01 February 2022		Set up for Phase II	
	PHASE I	(sub-sea)	1647 A
02 February 2022		276	
03 February 2022		60 in barge (not 100)	
04 February 2022		Unknown quantity	
PHASE II	Total	At least 336 BBLS	
PHASE I and II TOTAL		At least 1252 BBLS.	

- (c) He stated that out of the 916 bbls removed during the Phase I operation, it is estimated that 200 bbls was drained from the top-side piping leading to SL 66, so therefore 716 bbls was displaced from SL 36 risers and horizontal section. He estimated the topside piping to have contained approximately 200 barrels of line content, based on his recollection of its Phase configuration. Ш removal consisted of at least 336 bbls (sub-sea only).
- (d) In other words, he estimated that a total of 1052bbls was removed from the sub-sea

line during both Phase I and Phase II.

(e) He reiterated that the conclusions contained in his investigative report remained unchanged.

It is clear that there is a divergence of evidence here between the various different parties be it LMCS or Paria but we do not have to make a specific finding as to this divergence as the conclusions of Khan remain the same.

Khan also gave viva voce evidence before the Commission. He presented videos in which he illustrated by way of the model, the line clearing during Phases I and II based on the Paria Work Instruction and the LMCS' Method Statements for line clearing. He also illustrated using the model how the incident occurred on 25 February 2022 causing the men to be sucked into the pipeline.

He gave the following evidence in response to questions by Counsel to the Commission and the Chairman:

- (a) During Phase I, the air was introduced via a compressor through a valve at Berth #5 and the pressurized air pushed the line content down Berth #5, then horizontally through SL36 and then vertically to Berth #6 and through the manifold at Berth 6 into Sealine #66 to the onshore tank.
- (b) The measurements would have been taken at the onshore tank and recorded in the Daily Reports supplied by Paria;
- (c) A point would have been reached where more air than fuel would have been seen

coming from the control valves at Berth #6 and onshore where flow was being monitored and measured. This should have given an indication that a lot of fluid was being expunged from the line.

- (d) At the end of Phase I, pressure was locked in at Berth #5 and that supported a column of liquid inside there. Anyone taking a dip measurement at Berth #6 would have assumed that there was still material to move out not realizing that the section of the line was This would almost empty. false have given а impression of where the ullage was (assuming that is what was being sought to achieve).
- (e) Phase II was introduced by taking out the gooseneck pipe and elbow and

connecting a modified flange with a dip hose at Berth #6 to drain the remnants into the slop barge.

- (f) SL 36 was blind flanged at Berth #6 and Berth #5 was pressurized. The pressure within the line then forced the remnant fuel into the 6 inch dip hose to the storage. This continued until air with little fuel was seen emanating at the collection area at which time the dip hose was removed.
- (g) The air supply at Berth #5 was subsequently closed and the system stabilised. The remnant fuel oil was pushed up to a certain height in Berth #6 balanced by the locked-in back pressure at Berth #5 giving a false impression of the sub-sea level line being filled with oil and not realising that the line

was practically empty with a large gaseous void.

- (h) In his view, the purpose of putting a dip hose was to remove as much of the line content as possible and, further, the technique in Phase I and II clearly shows that the line was going to be emptied.
- (i) When the ullage of 30 to 35 feet was observed, they put in the plugs and this locked the condition of the pipe, thinking there was liquid filled in the pipe.
- (j) The gaseous void was along the way through the entire pipe because at that particular time almost 80% of the fuel oil in that line was removed.
- (k) When the flange on Berth #5 was opened on 25 February to conduct the carber test,

the pressure was released there and pulled down the liquid a little further and that created a vacuum on Berth #6 which accelerated or made the system yet more dangerous.

- (I) SL 36 sloped down to Berth #6 in that Berth #6 is four feet lower than at Berth #5. The elevations on either side, meant that if you were to just look inside the riser, and just pumped out a few barrels till it went down to the elbow and you looked inside the riser at Berth #5, it would be clear as if it went down to the bottom. Whereas at the riser at Berth #6, it would be four feet up above the ocean bed into the riser.
- (m) The pressure inside the pipe was released by the removal of the plugs. A ΔP vortex formed sucking the men into the pipeline. Initially, before

the vortex is formed, the velocity of the air is so much it will just pull them inside and the first man who goes inside there, he will drop down inside from the gravity alone and the water would have taken the others. So, the first person may have been more greatly injured.

- (n) When the system stabilized, there was ΔP, but not a ΔP event: something has to take place before a ΔP event is initiated.
- (o) Someone going into the pipeline to effect a rescue would not activate a ΔP event.
- (p) Opening the flange at Berth 5
 or moving the compressor
 would have created a ΔP
 event. This would cause the
 air pockets to move. CN 33:
 It follows that when the extra
 pipe was fitted and the

habitat removed on the evening of the 25th February 2022 any of the divers still alive were likely to be adversely affected by that action. Similarly, when the flange was removed at Berth #5.

- (q) Had the line been filled with water, there could have been a small gaseous void and even if the plug is deflated there would be no condition to establish a flow.
- (r) Whether it was 300 bbls of fuel oil or over 1052 bbls removed, there would have still been a latent ΔP hazard.

In response to questions by Ramadhar, Khan stated that men attempting a rescue was unlikely to have triggered a Delta P event.

In response to questions by both the Chairman and Persaud-Maraj, Khan stated that once the plug started to deflate, then it continued to deflate and there came a point when it is not creating a seal. He also agreed that for a vortex to perpetuate, it requires air and that breathable air from the compressor would have been sucked in the vortex with the water, the people and all the tools.

In response to a question by Mootoo. he stated that it took him about 3-4 months to complete his report. He agreed that LMCS being the contractor responsible for the air blowing process, ought to have been aware of the possibility of the creation of a gaseous void as a result of the air blowing process. He also stated that LMCS was asked to supply a compressor to pump out the line in accordance with the Work Instruction provided by Paria. This was sent to him after he issued his report. He also stated that the analysis which he did in his report could have been done on the night of 25 February 2022 by an engineer. He accepted that no one knew the state of the plug until it was recovered but he said some

engineering input could have been made.

In answer to questions from the Chairman, he accepted that had he been contacted by Paria on the night of the 25 February 2022 and given the information available to them at the time, he would have been able to advise that the men had been sucked into the pipe because of a ΔP event. He agreed that he would have been able to express a view as to whether or not there remained a ΔP feature within that pipe. He understood the word "clearing" as in clearing the line, in the Paria Instruction to mean get rid of the contents of the line.

He also agreed with the Chairman that if Paria's Work Instruction was to clear the entirety of the line on the face of it, there would have been no reason to pass on information about what was being removed to anyone, because they thought that all they were doing was clearing the line. He further agreed that if the Work Instruction had stated "only clear as much as is necessary to create a 35 foot ullage at either side", then the number of barrels being received at the other end would have been a factor.

In further answer to questions from Mootoo about whether he would have known the physical condition of the plug on 25 February 2022, Khan stated that he would have known for sure that the plug was deflated to an extent that it can travel through the line and negotiate an elbow. In response to a question as to whether there was any prospect at all that the plug could have created a barrier between different pressures on either side, he stated that as an Engineer, there was no such prospect - in his view the plug would not have created any issue with respect to anyone trying to conduct a rescue.

Khan's evidence was largely unchallenged and goes a long way to supporting the findings of this enquiry.

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THE REMAINING DAYS

SATURDAY 26 FEBRUARY 2022

According to LMCS, at about 9.00 am, Kazim Ali Snr, went to Paria's compound to discuss the rescue plans for the men. He says he discussed the LMCS rescue plan mostly with Catherine Balkissoon and that she seemed amenable to the plan but said that she would have to run it by Mushtaq Mohammed. Kazim Ali Snr. met with Mohammed in the afternoon who requested to speak with the diver Conan Beddoe, but Conan was in Sangre Grande at that time. The meeting was postponed for the next day Sunday 27 February 2022.

According to Paria, Kazim Ali Snr. at this meeting advised that he wanted to send a diver down at Berth #5 which the ICT did not think was feasible. Archbalds evidence in his witness statement was that he discussed the plan with Ali Snr and that at the end Ali Snr indicated that he is a practical man and he knew by then that it was a recovery.

At around 12 noon to about 1:00 hours, Mohammed along with the other members of Paria's management and Hon Stuart Young MP held a meeting at the Pointe-at-Pierre staff club with the divers' families.

Between 16:00 hours to 16:45 hours, Mushtaq Mohammed, attended a meeting with Colin Piper, Michael Wei and Heritage personnel Arlene Chow, CEO, Patricia King, Chief Operating Officer, Shameal Ali and others. The purpose of the meeting was to discuss the status of the ongoing response to the incident and the way forward.

At 17:15 a joint decision was made by Collin Piper and Mushtaq Mohammed for Paria to transition to recovery.

Mushtaq Mohammed says that he informed the families of the divers on the evening of 26 February 2022 about Paria's decision to transition from rescue to recovery. However, a number of family members indicated that they found out about the decision to transition through the media on Sunday 27 February 2022.

SUNDAY 27 FEBRUARY 2022

At about 3.38 am, while LMCS was attempting to remove the habitat (after having been given permission to do so) it fell to the sea floor.

Piper informed the members of the ICP at various times on the day of the decision to transition to recovery.

At around 10.00 am there was a meeting between LMCS and Paria. According to Paria, Kazim Ali Snr. stated, at this meeting, that he accepted that his son was dead and wanted to recover the bodies of the divers for the families. He proposed an exercise to remove the scuba tanks from the line and the diver Conan Beddoe in attendance was willing to perform the exercise. Paria requested a method statement, risk assessment and emergency response plan for the exercise.

According to LMCS, Kazim Ali Snr. was still proposing a rescue plan which was to enter the pipeline and remove the tanks to determine whether the men were still alive. Ali Snr. says he told the Paria officials that the divers may be dead, but LMCS still wanted a rescue plan because until it was proven that they were not alive, it would be a rescue.

Around mid-afternoon, Michael Wei and Colin Piper visited the field operations at Berths #5 and #6 where the filling of the riser at Berth #5 was in progress for the recovery operations.

LMCS emailed the method statement and risk assessment for the rescue at about 14.20.

At around 16:00. there was a meeting between LMCS and Paria, Dive experts Rolph Seales and Krishna Fuentes as well as Lt. Hargreaves. LMCS presented the method statement. Based on the recommendations of Seales, Fuentes and Hargreaves, Paria agreed that the proposed plan was too risky.

Paria held a media conference at 20:00 hrs to inform the public of the change from rescue to recovery.

After this media conference the emergency response plan went into full recovery mode and the planning began to ensure that the bodies were recovered in a respectful and humane manner. The planning for the recovery included the use of the water displacement method and devices to recover the bodies from the pipeline.

MONDAY 28 FEBRUARY 2022

At about 5:53pm the first body emerged, and at about 5:54pm two other bodies followed. Three scuba tanks and other diving equipment were also pumped out of the line. The bodies were identified as Kazim Ali Jr., Yusuf Henry and Fyzal Kurban.

The pumping/displacement resumed at around 6:45pm. However, the process was stopped 10 minutes later as the fourth body did not emerge and a substantial amount of oil was being discharged.

TUESDAY 1 MARCH 2022

Despite efforts on Tuesday, Paria was unable to recover the body of Rishi Nagassar.

WEDNESDAY 2 MARCH 2022.

At around 12:38am on Thursday 3 March, the fourth body was recovered and retrieved by TTCG. The body was identified as that of Rishi Nagassar. The inflatable plug, which was now deflated was also recovered at this time.

The bodies of Kazim Ali Jnr., Yusuf Henry and Fyzal Kurban were taken from the funeral home to the Forensic Science Centre and on 3 March postmortems were performed by Dr. Pramanik in the presence of TTPS officers.

The body of Rishi Nagassar was taken to the San Fernando General Hospital Mortuary on Thursday 3 March and subsequently moved to the Forensics Science Centre in St. James. Dr. Pramanik performed a post-mortem on Monday 7 March in the presence of TTPS officers.

Following the post-mortems, Dr. Pramanik handed samples and the post-mortem result certificates to the Police Officers in attendance. The TTPS submitted the samples to the Forensic Science Centre for analysis.

COMPENDIUM OF RECOMMENDATIONS

1. Recommendation 1

(Page 60)

It is essential to demonstrate that all the necessary permits, licences and approvals are in place and a person assigned to undertake that task (such as the Diving Client Representative). Here there was no Certificate of Environmental Clearance CEC which are crucial to regulatory compliance⁷⁴

2. Recommendation 2

(Page 60)

The company must make clear that they require any contractor to adhere to an internationally recognised commercial diving standard or at least the 1997 TTBS standard⁷⁵ that remains applicable although not compulsory in TT. This ought to be a contractual requirement not to be derogated from. STOW does not meet this requirement.⁷⁶

⁷⁴ This may have ensured the measuring of the material to be drained from the pipeline was both accurate and communicated. Adhering to procedures, regulations, and or legislation is a fundamental component of every project cycle, and it typically aligns with industry best practices for effective risk management. Works conducted within a framework of established guidelines, standards, and or legal requirements in the dayto-day operations of a business or project involves the consistent application of best practices and protocols for the reliability, safety, and efficiency of processes within a specific industry context. ⁷⁵ Infra

⁷⁶ Standards, Codes, Practices Regulations and Legislation are crafted with the intent to provide clear guidance for actions and serve as preventive measures against errors. These structured documents outline a systematic approach to tasks, delineating the steps to be taken and the standards to be upheld. By establishing safe to work practices, organizations promote Operational discipline in a framework that minimizes the likelihood of mistakes and promotes adherence to established and consistent protocols.

(Page 62)

Structured specified oversight by the company incorporating a robust procedure is an imperative to ensure that these types of operations are executed meticulously, safeguarding the well-being of all personnel and plant. This is in addition to the fulltime supervision of the works by the contractor.⁷⁷

4. Recommendation 4

(Page 63)

The company must employ either in-house or contracted a qualified and competent Diving Client Representative responsible for reviewing, approving, and ensuring the adherence to procedures throughout <u>all</u> stages of a Diving Operation.⁷⁸

5. Recommendation 5

(Page 65)

Contractors must engage a demonstrably qualified and competent Dive Supervisor relevant to the specific job being undertaken.⁷⁹

6. Recommendation 6

(Page 65)

A Daily Task Plan which sets out the specific jobs for the day or a shift ought to be considered by all companies to be undertaken instead of the current entry tasks

⁷⁷ Projects mandating process safety verifications, require oversight by competent individuals to systematically provide assurance for relevant and approved processes which align with the company's expectations and requirements on their facilities.

⁷⁸ Commercial diving is a safety-critical discipline, and it is imperative for operators to enlist the services of a competent Diving Client Representative to oversee and manage diving operations to their Operator Defined Diving Practice. Commercial Diving Codes, Guides. Procedures, Regulations and or Legislation and or a recognized standard. The role of a Diving Client Representative is to identify and manage risks associated with diving operations, provide assurance for all diving activities, adhere to established safety protocols, industry standards, and regulatory requirements.

⁷⁹ See later under Farah who was the unqualified Dive Supervisor on this job

on the Work Permit which would then simply refer to the DTP. It should not be deviated from without written consent is a more effective way of meeting the burden created by hazardous work carried out in a hazardous environment.

7. Recommendation 7

(Page 78)

 ΔP must be an ever-present hazard that needs to be identified as a standard item to be considered and dealt with in every case where subsea pipework is being worked upon and especially where a pressured environment is part of the methodoogy for the carrying out of the works.⁸⁰

8. Recommendation 8

(Page 85)

The Applicant under the PTW system utilised by Paria (or any other Company using a similar system) must be able to properly supervise the job. This means it either has to be an in-house expert (Client Representative) or an independent expert or the Contractor themselves but, if it is the contractor then this needs to be spelt out specifically, as they are unable to carry out all the functions under the PTW system.

9. Recommendation 9

(Page 86)

If the PTW system is to retained or emulated elsewhere in other Companies the extent to which monitoring by the Applicant is to be undertaken must be completely clear. If it is to be "continuous" then it must specify what that is to entail by

⁸⁰ Diving in the vicinity of pipelines, water intakes, and discharge points where the potential to cause suction or turbulence is an activity known in industry where items of plant may significantly impact the safety of divers. Paramount to this type of operation is the consideration and meticulous management of safety measures to ensure the well-being of divers. The inherent risks associated with underwater operations in such locations necessitate a thorough assessment of potential hazards, including suction and turbulence effects

identifying the periods over which monitoring by the Site Authority or Applicant or equivalent will be carried out. Consideration needs to be given to that course of action by the parties when identifying the work for the day.

10. Recommendation 10

(Page 88)

Specifically, for Paria they need to have an introspective look at their operations and make changes to the PTW system to effectively reshape the roles, obligations, processes, and behaviours, so they reflect the auditable aims of the PTW system's safety practices. Precision and simplicity of language is key to the understanding of all those engaged in the use of the system.

- f. Ensuring that only pre-approved and competent commercial diving companies are engaged, by creating an Approved Vendor List (AVL) or equivalent mechanism be established. This AVL should consist of companies whose Diving Health, Safety, Security, and Environment (HSSE) capabilities have been rigorously assessed and validated by a Commercial Diving Subject Matter Expert.
- g. Greater space needs to be available or a separate document created to ensure there is sufficient space to write all that needs to be written in the "Specific Tasks" part of section A on the Work Permit.
- h. Section B 1 of the Work Permit under the heading Requirements for Equipment Isolation and Clearance needs to have a separate line for Delta P with a consequent checklist created to address Delta P situations.
- i. The Isolation Checklist and Certificate system must be implemented.
- j. The Applicant must be either an independent person contracted in for the purpose or employed by Paria in the role as a competent Diving Client Representative.

 k. Ensuring that the Contractor Official signing the Work Permit on behalf of the Contractors is on site.⁸¹

11. Recommendation 11

(Page 91)

All Companies who seek to rely on Contractors to provide commercial diving operations must ensure they have a well-established Diving Safety Management System (DSMS)⁸² which follows a known industry standard beyond requiring a STOW certification⁸³.

12. **Recommendation 12**

(Page 118)

The MS or Task Plan procedure should incorporate where applicable, a mandatory verification "hold" or "witness point" where the work cannot proceed without designated company authorisation. These are called hold or witness points and allow an additional safety feature that permits everyone to know what has been done and what happens next.

⁸¹ Rudolph Gonzales was LMCS's Contractor Official for 25 February yet he was on Berth #5 not #6 ⁸² The Diving Safety Management System (DSMS) serves as a comprehensive document detailing how a diving contractor will execute diving projects and the integrated systems designed to manage the health and safety of personnel, as well as conduct thorough hazard identification and risk management. It is an industry framework which outlines the methodologies, protocols, and procedures that will be employed throughout all stages of diving operations.

⁸³ STOW can be summarized as minimum HSE prequalification requirements for the T&T energy sector. It is not adequate, nor can it be so considered to match the mature processes achieved in verification and assurance systems required to manage the safety critical operations of commercial diving. Paria should rely on the significance of entrusting its diving operations to contractors with well-established Diving Safety Management Systems (DSMS) who follow a known industry standard.

(Page 119)

The precision of language is essential and if an ullage is being sought it must be writ large all over the documentation so that those carrying out the work can be in no doubt what is being asked of them.⁸⁴

14. Recommendation 14

(Page 119)

A proper estimate of identifying how material is to be removed from the line must be given and an accurate method by which that can be measured especially as all one is looking for is a modest ullage. A slop barge is more than adequate for those purposes.

15. Recommendation 15

(Page 119)

Any change in methodology must be accompanied by a new risk profile so as to accurately reflect the possible additional hazards. This is often referred to as a Management of Change⁸⁵ Process.

⁸⁴ Procedures are standardized methods that represent established and recognized approaches to tasks commonly undertaken in the context of diving. Procedures are articulated in clear and defined language, presenting a sequential set of steps with minimal room for ambiguity. By adhering to procedures in support of diving operations, individuals ensure a consistent and reliable approach to various safety aspects of diving activities. Procedures encompass a range of practices, including equipment use, safety protocols, emergency response, and other critical elements that rely on the precision of language.

⁸⁵ <u>Management of Change (MOC)</u> is a systematic and structured approach employed by organizations to plan, implement, and control modifications in their processes, systems, structures, or technologies. It helps organizations navigate transitions successfully while minimizing potential negative impacts on their operations and stakeholders. This is also recommended by Khan in his Incorrtech report.

(Page 119)

An expert Dive Client Representative is essential to act as an independent assessor of the works being undertaken, the risk profiles they throw up and in ensuring a monitoring regime that that all parties understand.

<u>17.</u> **Recommendation 17**

(Page 120)

Companies are to be expected to provide timely and comprehensive responses to Occupational Health and Safety Officers. The creation of a separate offence within the OSHA regime for failing to comply adequately or at all, with a legitimate request for information by an investigating officer of the OSH Agency.

18. Recommendation 18

(Page 127)

Any Method Statement must be agreed in writing by the Company. It would be helpful and wise to have a box next to each step which can be initialled by the Company as having been considered and approved. It is also here where the "Hold and Witness" lines can be drawn so that the works are halted until the Company approve moving to the next step. This can be captured in what is referred to as a bridging document.⁸⁶ No diving operation should commence without the bridging document.

⁸⁶ <u>The Bridging Document</u> serves as a comprehensive and integrated framework designed to establish a unified approach to managing diving operations. It acts as a critical link between the various entities involved in the project, including the Operator, Worksite, third parties, and contractors, by harmonizing their respective management control processes and safety management systems. The document acts as a vital tool for risk mitigation, promoting a shared commitment to safety, and fostering a collective responsibility for the successful execution of diving operations at the worksite. Such a document is in common usage in the wider industry.

(Page 130)

Consideration should be given to a documented "Go-no-Go" Process.⁸⁷ But as a minimum all meetings relevant to the works to be completed should at least be noted on a standard form designed for the purpose and signed by the parties as being an accurate record of what was discussed.

20. Recommendation 20

(Page 139)

All safety documentation (such as the JSA/JHA) which provides for a checklist of potential hazards in a commercial diving environment must have as one of the criteria to be considered ΔP . Next to that issue, must be a column which demonstrates, the manner by which, the hazard will be eliminated completely or reduced to a bare minimum. Any emergency procedure must include a plan for how to deal with the hazard.

21. Recommendation 21

(Page 139)

Ensure that the separate roles of dive supervisor, dive attendant, standby diver and operations manager are held by separate individuals who understand the limit of their responsibilities.

⁸⁷ It serves as a decisive framework determining whether to advance or halt a project, ensuring that all stages and components are thoroughly assessed and addressed until closure. This comprehensive approach involves evaluating key factors such as feasibility, resource availability, risk analysis, stakeholder alignment, and adherence to project objectives. The decision to proceed or not is contingent upon the fulfillment of predefined criteria, providing a systematic and informed basis for project progression or termination.

(Page 140)

The new TT draft dive standard to be made compulsory immediately. With a 12 month review to be conducted so as to bring same up to date with the most modern approach to Health and Safety.

23. Recommendation 23

(Page 140)

If it is thought truly necessary to have a commercial scuba diving requirement, which we are unconvinced that it is, that must be incorporated in the compulsory dive standards, setting out the very limited circumstances in which that is proper and the conditions to be applied. This should be part of the review process referred to above.

24. Recommendation 24

(Page 144)

The Competent Person must be capable of examining, and actually examine, the MS (step-by-step guide to the works) to identify any deficiencies therein and the potential adverse consequences of those works being carried out in that manner.

25. Recommendation 25

(Page 153)

The MS "step-by-step" plan for the works must be signed by both Contractor and Company as the approved common working document. Similarly, any amendment must also be signed by both parties as the new common working document.

(Page 153)

The PTW is stated explicitly to be part of the contract between the parties only to be derogated from in writing by the parties so that everyone knows who is in which roll.

27. Recommendation 27

(Page 154)

Where works are being conducted in more than one location at a time there should be a Simultaneous Plan.

28. Recommendation 28

(Page 154)

No one should sign the TBM document if not present at the time of delivery of it.

29. Recommendation 29

(Page 154)

No work to be commenced by the contractor until the TBM document is completed.

30. Recommendation 30

(Page 154)

Method Statement attached to the Work Permit is to be read and understood by all parties but especially, the Contractor Official, the Competent Person, the Site Authority and the Applicant, alongside the Task Plan.

(Page 154)

Definition given to what "periodic checking" is meant to entail for each particular job. Similarly "monitoring" needs to be made plain as to its meaning and to what extent it is to be continuous or otherwise.

32. Recommendation 32

(Page 169)

There must be an Isolation Procedure adopted by any company where pipework and other potential energy hazards need to be isolated before works can begin. This must include a Certificate of Compliance annexed to the PTW.⁸⁸

33. Recommendation 33

(Page 180)

It is essential that a hyperbaric dive chamber for divers underwater for long periods be made available as close to the site as possible. The diving contractor bears the responsibility to ensure the provision of adequate decompression facilities to enable the recompression of a diver in the event of an emergency, should such a situation arise. A "hyperbaric" Doctor must be in place to deal with every foreseeable scenario^{89.}

⁸⁸ An isolation certificate is a critical supplemental document to a Permit to Work, especially in industries where the isolation of equipment or systems is necessary for safety during maintenance, repair, or other tasks. An isolation procedure describes the steps for the specified equipment or system, including any lockout-tagout (meaning lock the isolated component from being used), electrical, or mechanical isolation steps.

The critical importance of <u>any isolation</u> will not allow any work to proceed until the isolation has been confirmed to be in place and effective. The same is for when the isolation is being removed.

⁸⁹ The scenario wherein a member of the dive team sustains an injury or falls ill, and a doctor is not readily available at the worksite, necessitates careful consideration. In such circumstances, proactive measures must be in place to facilitate effective communication and timely access to medical advice. This contingency planning is critical to ensuring the well-being of the injured or unwell diver.

To address this, the diving contractor should establish a comprehensive plan that allows personnel at the worksite to communicate swiftly with the diving contractor's designated medical adviser. This

(Page 184)

Drilling, Drilling and Drilling. For any ICS to succeed it is dependent on regular drilling of the ICT. This is something that should happen at least once a year.⁹⁰

⁹⁰ Conducting drills or tabletop exercises is essential for IMTs within the ICS framework for several reasons: Drills and tabletop exercises are invaluable tools for Incident Management Teams operating within the Incident Command System. They help ensure that teams are well-prepared, organized, and capable of responding effectively to a wide range of incidents, ultimately contributing to the safety and well-being of whom they serve.

Familiarity with Roles and Responsibilities:

Drills allow team members to become familiar with their specific roles and responsibilities within the IMT structure. This includes understanding the chain of command, communication protocols, and the decision-making process.

Testing the ICS Structure:

Tabletop exercises provide an opportunity to test the effectiveness of the ICS structure in a simulated environment. This ensures that the team is well-organized and can seamlessly integrate with other responding agencies.

Improving Communication:

Effective communication is paramount during an incident. Drills enable IMTs to practice communication protocols, ensuring that information flows accurately and efficiently between team members and with external agencies. This includes the use of standardized terminology and communication tools.

Coordination and Collaboration:

Tabletop exercises involve multiple stakeholders, allowing for the practice of coordination and collaboration with external agencies, fostering a unified and integrated response to the incident.

Decision-Making Practice:

Responding to incidents often requires rapid decision-making. Drills provide IMTs with opportunities to practice making critical decisions under simulated pressure. This helps team members become more adept at assessing situations, analyzing information, and making timely decisions.

Resource Management:

IMTs need to efficiently manage resources during an incident, including personnel, equipment, and supplies. Through drills, teams can assess their ability to allocate and deploy resources effectively, ensuring that they are adequately prepared to handle the demands of a real incident.

Identifying Weaknesses and Areas for Improvement:

Conducting drills allows IMTs to identify weaknesses, gaps, or areas for improvement in their response plans and procedures.

Enhancing Team Cohesion:

Regular drills contribute to building a sense of teamwork and cohesion within the IMT.

communication can be facilitated through radio or telephone systems, ensuring that crucial information reaches the medical adviser promptly.

It is essential to pre-agree upon a suitable and efficient method for transferring information from the worksite Peculiar to the medical adviser. This may involve establishing clear protocols for relaying medical data, including the injured or ill diver's condition, vital signs, and any other relevant information. The agreed-upon method should prioritize accuracy and speed, enabling the medical adviser to make informed decisions and provide guidance on the appropriate course of action.

Regular drills and training sessions should be conducted to familiarize the dive team with the established communication protocols and information transfer methods. This proactive approach should dictate that in the event of an actual emergency, the team can execute the established procedures confidently and efficiently.

This level of preparedness is integral to the overall risk management strategy and aligns with industry best practices for ensuring the highest standards of safety during diving operations.

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An ICS requires a well oiled Unified Command within it, that must be clearly defined, include all outside agencies that are likely to be necessary in an emergency, but must include a contractor representative in the IMT. They must be drilled at least annually.⁹¹

<u>36.</u> **Recommendation 36**

(Page 280)

That compulsory regulation be introduced with a regime of financial penalties and criminal sanctions for companies and individuals failing to adhere to them.

37. Recommendation 37

(Page 284)

Companies that operate in dangerous environments must have a protocol for dealing with the families of victims of industrial accidents and incidents. Once an ICS is established there needs to be a proper procedure to keep the immediate families of those who are directly affected properly informed.

⁹¹ The Unified Command structure is instrumental in ensuring effective decision-making and resource management during emergencies, and this is facilitated through regular drills conducted by their Incident Command teams. An integral and forward-thinking aspect of these drills is the deliberate inclusion of external entities to enhance collaboration and coordination.

In recognizing the complexity and interconnectedness of emergency situations, incorporating external entities into the drill scenarios ensures a more comprehensive and realistic simulation. This collaborative approach enables the Unified Command structure to test not only internal communication and response mechanisms but also the interoperability with external partners such as emergency services, government agencies, and community organizations.

An integral aspect of evaluating the proficiency of these drills is the capacity to furnish auditable evidence showcasing the outcomes. This documentation is essential for identifying any gaps in the emergency response procedures and facilitating continuous improvement in performance.

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Additionally, where there is the prospect of delay and or a rescue attempt to be made, providing sanctuary away from the public and the media to the immediate relatives, on site, seems to us not to require any protocol, just common humanity.

39. Recommendation 39

(Page 284)

Lastly, in situations where families have had their loved ones and breadwinners snatched away from them in circumstances such as these, or any tragedy real consideration needs to be given to assisting the families in the immediate aftermath of the incident to help them with the financial burden that they have been catapulted into. This does not have to involve any admission of liability merely the recognition that the families of those who have died, or been seriously injured, may need help.

40. Recommendation 40

(Page 295)

We recommend to the Director of Public Prosecutions that on the evidence before this tribunal we find that there are sufficient grounds to conclude that Paria's negligence could be characterised as gross negligence and consequently criminal we do not conclude that the same is true of LMCS as we are of the view that they were effectively prevented from pursuing a rescue by Paria.

41. Recommendation 41

(Page 295)

That the DPP consider charging Paria with what is commonly known as Corporate Manslaughter.

(Page 296)

That the 6 month time limit be extended to 12 months on the application of OSH Authority to the Industrial Court where they can show good reason.

43. Recommendation 43

(Page 297)

That the 2 year time limit be extended to 3 years on the application of the OSH Authority to the Industrial Court where they can show good reason.

44. Recommendation 44

(Page 301)

That OSH Agency complete their investigation if they have not already done so

That OSH Authority then consider instigating summary proceedings against those we have herein identified. NOTE: with the limited timescale now available to them (ie 24 February 2024).

45. **Recommendation 45**

(Page 312)

All designated "high-risk jobs" must ensure that JSA is not generic. It must address the particular task with in-depth analysis of all potential hazards and the necessary mitigation steps to be adopted. Specifically, in relation to Diving Operations, a section should be included, titled "Differential Pressure Conditions and Hazards".

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Work permits must also reference the applicable JSA and all personnel must sign that they have read it. Where specific hazards such as ΔP are identified in the JSA they should appear on the Work Permit as having been considered and either neutralized or ameliorated. What is essential is that everyone knows there is a potential latent ΔP hazard where they are working.

47. Recommendation 47

(Page 312)

Any changes to original procedures set out in an MS and JSA should be carefully managed and a new or amended MS and JSA developed. Having and executing a robust management of change "MOC" procedure is essential in ensuring effective communication and safety.

FURTHER OVERARCHING RECOMMENDATIONS

From the initial project planning and risk assessment to the execution, monitoring, and eventual closure, each phase of the diving project life cycle plays a crucial role in safe and compliant delivery.

Safe and compliant commercial diving operations are not static but dynamic endeavors that benefit from a structured approach in alignment with established frameworks which promote safety satisfying the most effective, efficient, and proven methods, processes, or approaches that are widely accepted and endorsed by relevant experts, professionals, and organizations in industry.

The objective of these recommendations is to guide initiatives that stem from principles deeply rooted in industry best practices for implementation of improvement programs to anticipate, prevent, catch, or recover from errors.

- 1) Minimize the occurrence of errors across all levels of Operator, Contractor and any organization utilizing Commercial Diving.
- 2) Strengthen the integrity of defenses, barriers, controls, or safeguards that are identified as weak or absent.
- Mitigate latent organizational weaknesses in the management control systems of both Operator and Contractor focusing on critical risk control systems to incorporate industry learnings.

The interconnected stages of a Diving Campaign with any safe to work framework particularly in this instance, cannot ignore Human Error though not a cause of failure alone, but rather highlights the serious symptoms of deeper issues in the systems and processes of Operators and Contractors.

Poorly designed activities are unacceptable even if "successfully" executed. The convergence of errors is a formidable challenge, often arising from a combination of factors that can put lives and the integrity of a project at risk. A poorly designed activity might be prone to a combination of errors and more than one solution may be necessary.

We are of the view both Paria and LMCS should augment their management systems with preventative and reliability processes. These measures should specifically target the direct, contributing, and root causes to ensure comprehensive system improvements. This analytical approach ensures that the highest return is obtained from any industry analysis of the event.

At a high level, we recommend operators and contractors conduct due diligence on and integrate the following overarching guiding principles for the effective management of Commercial Diving:

RECOMMENDATION 48

Diving Practice

In the absence of compulsory diving regulation, the TTBS CODE OF PRACTICE FOR SAFETY IN COMMERCIAL DIVING OPERATIONS TTS 539: 1997 must be followed as a minimum.

- A. Paria must develop a Defined Diving Practice framework with key elements essential for the management of safe and efficient execution of commercial diving operations on their facilities.
- B. LMCS must develop a Diving Safety Management System tailored to their elected modes of diving. This involves creating detailed safety plans and protocols specific to the unique challenges and characteristics of their operations.

These frameworks must undergo periodic review and be subjected to audits for efficacy and improvements, ensuring alignment with any updates in industry best practices.

RECOMMENDATION 49

Fatal Risk Protocol

Paria to Implement a Fatal Risk Protocol where mandatory requirements (procedural, equipment and people) must be in place to eliminate the potential occurrence of a Fatal Risk event(s). This must undergo periodic review and be subjected to audits for efficacy and improvements.

RECOMMENDATION 50

Training

Operational Discipline:

Both Paria and LMCS should Implement robust Operational Discipline programs to enhance process safety performance⁹².

Cultural Transformation:

Paria and LMCS should implement a strategic program geared towards amplifying awareness and understanding of the organization's core values, effective execution of their processes, procedures, and rules⁹³.

RECOMMENDATION 51

Peer Review

Another recommendation where both Operator and Contactor should seek to employ, is a Peer Review. Safety-critical projects are rarely static; they evolve with time and experience⁹⁴.

RECOMMENDATION 52

Paria to implement After-Action Reviews (AARs) after each exercise to review the Incident Command Team's performance, identify lessons learned, and outline

⁹² This includes fostering a culture of consistent human behavior in complying with required systems, procedures, and or processes ensuring adherence every time. This approach aims to consistently achieve organizational goals and uphold overall safety and no harm to people.

⁹³ Identify situations where they are not in alignment with their organization's values, and safety frameworks subsequently developing actionable plans to communicate and encourage the adoption of any necessary change.

⁹⁴ Peer reviews are instrumental in collecting feedback and data for the continual improvement of safety measures and protocols. This practice functions as a form of self-regulation in industry and provides a structured learning process where critical analysis of the Scope of Work could identify implications of hazards and risks via sharing of Industry Best Practice.

areas for improvement. Industry best practices for Crisis Management leverage AAR findings as auditable evidence of the team's commitment efficacy⁹⁵.

⁹⁵ It's important for Operators and Contractors alike in the oil and gas sector to stay informed about the latest industry standards and regulatory requirements in their specific locations, as these can evolve. Consulting with industry associations, regulatory agencies, and legal experts familiar with the relevant jurisdiction can provide more tailored guidance.

Extensions of time – Summary of press statements

The Commission's instrument of appointment directed that the Final Report be provided to the President within a period of six (6) months from the first sitting of the Commission. As such the Report was initially due by 31 May 2023. The Commission wrote to Her Excellency, the President on two (2) occasions seeking an extension of time.

First, by letter dated 4 May 2023 seeking an extension of time from the original deadline date of 31 May 2023 to 31 August 2023 and secondly, by letter dated 28 August 2023 seeking a further extension of time to 30 November 2023. Her Excellency graciously granted both extensions of time.

Media release dated 5 May 2023

By letter dated 4 May 2023, the Commission sought an extension of time to 31 August 2023 from Her Excellency, the President. This extension of time was necessary to facilitate the issuing of Salmon letters which were initially timetabled for 28 April 2023 but were unable to be provided to all those adversely affected until May and June 2023 and in order to allow sufficient time for their responses.

Media Release dated 14 July 2023

The purpose was to provide an explanation of what the Commission was doing in the light of a recent case in the Court of Appeal that we have referred to as the Las Alturas Housing case in which guidelines for the proper procedure to be adopted in Commissions of Enquiry was given. This has inevitably delayed the preparation of our Report.



COMMISSION OF ENQUIRY appointed to enquire into the tragic incidents which occurred on 25" February 2022 at facilities owned by Paria Fuel Trading Co. Ltd located at No. 36 Sealine Riter on Berth No. 6. Pointe-a-Pierre

Secretarian Office Southern Academy for the Performing Arts (SAPA) Todd Street, San Fernando E-mmi: commissionsecretariat.a coel022.com Tel: -1 (868) 709-5477 Website: www.coel022.com

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MEDIA RELEASE

14th July 2023

FINAL REPORT- UPDATE

FOR IMMEDIATE RELEASE

The Media will be concerned to know when the Report will be finalised given that the Commission's Chairman said that he hoped to have the Report concluded sometime in July and that the Commissioners are working hard to make that happen. However, there has recently been a number of decisions dealing with the importance of the proper procedure to be adopted in Commissions of Enquiry. From the United Kingdom. <u>R (Hexpress Healthcare Ltd) -v- Care Quality Commission [2023] EWCA Civ 238</u> and from Trinidad and Tobago. Civil Appeal P 286 of 2020 between Hart -v- The Commission of Enquiry-La Alturas Housing and Others.

These cases deal with a range of issues to ensure fairness to everyone and that the parties have a fair opportunity to make their case in particular where there are to be criticisms of individuals that may affect their careers and lead to recommendations as to criminal conduct or a potential for the breach of a duty of care. This Commission of Enquiry has sought to ensure that very outcome and everything it has done has been to ensure that no one is shut out.

Mr. Jerome Lunch KC: Chairman of the Commission Mr. Gregory Wilson: Commissioner These cases provide valuable guidance to ensure the Commission's findings will not be made the subject of a successful judicial review application which may have the effect of further delaying or nullifying portions of the Report. To that end the Commission has and continues to permit those involved the widest possible latitude to make representations whilst at the same time bearing in mind that this Report needs to be concluded as swiftly as justice can provide. To that end the Commission has given the parties extra time to provide their written responses where they have asked and the Commission still awaits some.

At present the Commission is in receipt of circa 400 pages of detailed responses to its provisional findings and a number of legal arguments which we will need to address. This process generates delay but it is a price worth paying to ensure a robust Report insulated from unfairness. We continue to work to have this report completed within the timetable provided and we are confident we will, albeit marginally later, than hoped.

For your convenience, attached is the latest letter (which is on the Commission's websitewww.coe2022.com) that we have sent to all the parties.

END

Mr. Jerome Lynch KC: Chairman of the Commission Mr. Gregory Wilson: Commissioner

Media Release dated 28 August 2023

The public was advised that a further extension of time was sought to 30 November 2023 as the original deadline date of 31st August 2023 could not have been realized following which there was a press conference to provide a further update and explanation, the details of which are set out below:

PRESS CONFERENCE

6 SEPTEMBER 2023

The Chairman - Mr. Jerome Lynch KC

Well, good morning, everybody. On the 28 August of this year I applied to the President for an extension to the deadline for producing the Report and made that application public. On 30 August of this year, some of the family members of Yusuf Henry, Rishi Nagassar and Fyzal Kurban, together with Christopher Boodram and no doubt keenly felt by Kazim Ali Jnr. . 's family, issued a statement which in part said the following, (I have edited out the more emotive language aimed at the company, Paria). They said this:

"The darkness still exists, even after more than a year. Our families struggle to deal with the murder of our loved ones, the permanent disruption of our livelihoods, the flashbacks, sleepless nights and haunting images of what happened or may have happened in that pipeline as a result of the actions of the management of Paria Fuel Trading Company Limited. It is, therefore, an angering, irksome, unwelcome, insulting and unjust development for the Commission of Enquiry to request a further extension for the submission of the report... The Commissioners, staff and other involved agencies would have been well aware of their initial deadline of August the 31st and should have been working in such fashion to ensure the meeting of this deadline. The undertaking of responsibilities associated with this Commission's report cannot be seen as simply a job, but rather viewed as a critical component in the delivery of justice."

Whilst we do not accept that their criticism is an entirely fair one, we can and do understand their deep sense of frustration at this further delay and I therefore want to apologize to them, first and foremost. That apology is extended to everyone awaiting the final outcome of this Report. It is clear from the families and others that they have already formed the view that they hold Paria responsible. We do not have the luxury of prejudging.

We must approach this in an unbiased, objective way, examining all of the evidence before reaching our view of the facts and what that means for the people involved. Whilst we have a very considerable degree of flexibility in how we approach that task, we are bound by the law. The procedure for our Commission of Enquiry is derived from the Commissions of Enquiry Act, our Procedural Rules as Gazetted on the 22nd of July of 2022 and the common law rules of natural justice. The touchstone, really, is fairness.

It is exactly a year and a day since I opened this Commission of Enquiry, and you will recall that I told everyone we hoped to have the report ready by Easter of 2023. That was ambitious but I believed then that it was achievable. At that time I did not know that we would have 78 witnesses generating around 3,350 pages of detailed evidence and about 13 and a half thousand pages of exhibits. I leave aside videos, audios, pictures, transcripts, letters and other correspondence. In truth, at the time, I knew little of the material we would have to work through but I

was and remained optimistic of an expeditious timetable, in the interest of those most affected by this tragedy, I was not prepared to brook delay.

In drafting the Report, it became clear that this would take longer than planned and I made an application to the President to extend the time needed on the 4th of May to the date at the end of August 2023. On the 9th of June this year, the Court of Appeal in Trinidad handed down a judgement in what I should call for shorthand the Las Alturas Housing matter. Unusually they issued guidelines that went well beyond the judgement needed to determine the case. They set out how a Commission of Enquiry should conduct themselves so as to achieve procedural fairness, acting prudently to ensure that all parties had every opportunity to make their case and deal with any criticisms that may arise.

We have been much assisted by that judgment. We have determined that the procedural fairness we have strived to achieve from the outset can properly be augmented by taking into account the learning from the Court of Appeal. That we will do. Albeit it will generate some further delay as they themselves recognized. At this stage of the Enquiry, the proceedings have to be in private. You know that we have sought to be as open as good practice, good conscience and the law permit, by placing all correspondence and every document on the website; live-streaming the evidence called and then making transcripts of the evidence available to everyone, but after that and prior to the Report being concluded, it has to be in private, and that's where we are now.

This is how it works. We draft a preliminary Report. That is detailed and analytical work. It necessarily involves making a number of preliminary findings. It is currently in the 200-page range. That has been done. Where those findings may adversely affect any particular party, be it company or individual, we must identify the issue, tell them what the preliminary finding is and upon what it is based. Whilst

I cannot tell you to who, or whom, letters have been sent, it is not an insignificant number. That has been done.

Next, we must then give them a proper opportunity to respond. That takes time, especially where the criticisms are lengthy and detailed. It would be unwise to curtail a reasonable request for time to provide those responses. We are in receipt of hundreds of pages of detailed responses, which themselves reference many other documents and the evidence. That has also been done.

Now that we have received all responses we must collate that material, crossreference it and consider whether the response ought properly to affect our preliminary views. That is in the process of being done.

And then, finally, we have to determine that once complete we ought to provide a further opportunity to any of those whom we may seek to criticize, to make any further submissions as to why that should not happen. This also takes time. It is this additional layer of consultation that has played a part in dictating our request of the President for further time. We will provide each party, where appropriate, with a summary or an extract of the proposed Report for them to respond to. We would take that into account and then decide whether or not we can sustain that criticism or whether it needs further refinement in the light of submissions made. Clearly, that has yet to be done.

Before I open the floor to any questions, there are a couple of other observations I would like to make. There has been some media speculation that the cause of the delay has been as a result of either political or company (Paria in particular) interference, in some way. I can state categorically that that is not the case. If there were even a whiff of such an approach, I would make that very public indeed.

After our initial hiccups with the necessary facilities, the government, and, in particular, the Honourable Stuart Young MP have done all they can to facilitate and expedite this Report and I am confident that they will wish to publish it in short order once concluded and submitted. Similarly, we place no blame at anyone else's door for this delay. The delay, such as it is, is mine.

I have decided that we will take a little more time and add additional safeguards so as to ensure fairness to all and limit the potential for any further litigation aimed at thwarting the legitimate aim of this Enquiry.

But, it would be remiss of us, and not in keeping with the purpose of this press conference to bring you up to date, not to tell you that we have received letters from lawyers representing Kenson's employees on the 2nd of August (and previously) and from lawyers representing Heritage and Paria yesterday. Both suggest they have been unfairly treated and that the Commissioners, I suspect primarily me, have displayed an apparent bias and that we should be recused. I do not deal with the merits of those complaints now as they have yet to be fully articulated and a press conference is not the right forum for making such decision.

Whilst I wholeheartedly reject those allegations, I would have thought that if there was to be an application for recusal on the grounds of apparent bias it is normal, in the first instance, for that to be made before the tribunal engaged in the process, in other words, to me. As yet, no request has been made for the Commission of Enquiry to resume sitting to hear such an application and no such application has been put before us. So that's where we are today.

The Procedure Adopted by this Commission of Enquiry

On the 22 April 2022 the Commission of Enquiry was established by the President appointing retired judge, the Honourable Mr C. Dennis Morrison OJ CD KC as Chairman and Mr Gregory Wilson as the Commissioners. Hon. Dennis Morrison resigned as Chairman on 23 June 2022 and the President appointed Jerome Lynch QC (now KC) as the new Chairman on the 6 July 2022. Thus, time was lost. Both the government and the public at large were most anxious for this enquiry to get underway. As such we pledged to do all we could to make-up time and carry out our duties with diligence and speed, without taking short-cuts or in haste. We note that the President required the COE to report back to her within just 6 months of the first sitting of the Commission.

To that end we adopted a particular procedure which we believed would meet that desire whilst providing all those affected with every opportunity to be heard and make their representations. There is always a tension between the desire to act swiftly and economically with providing adequate time and consideration to the parties.

We first considered the mandate we were given by the President to conduct the COE which included making "such findings, observations and recommendations arising out of [our] deliberations as [we] deemed appropriate". We took the view that this was deliberately broad and extended to breaches of duty and whether criminal proceedings should be initiated and the Chairman said as much in his opening remarks on the first day of the enquiry on 7 September 2022. It follows that anyone engaged in the enquiry would have appreciated the seriousness of the position and that the full range of opprobrium, should it be necessary, against anyone involved in these tragic events was open to us - from mild criticism to recommending criminal sanction.

At a press conference on 7 July 2022 conducted by the Chairman following his appointment, he called for all those who had some part to play or were affected by the tragic events of the 25 February 2022 to come forward and provide statements.

Letters were sent out between 19 July 2022 and 29 July 2022 to all those we could identify as having a role to play in the enquiry asking for them to provide all the documents and statements they had in their possession. To which we are happy to report we received a positive response from the parties and members of the public.

From the outset we were determined that all materials be made available to all persons and created a website which gave access to everyone. This was open from 21 July 2022 and was updated on virtually a daily basis. The Commissioners were anxious to ensure the public knew what was happening, and when, and why, and the Chairman conducted media briefings whenever the need arose.

We drafted and published the rules of the COE on 15 July 2022. This included an investigation stage to gather the materials and determine which witnesses would be called to give live evidence.

Rule 14 states:

The Enquiry by the Commission has commenced and will continue with an investigation by the Commission, including obtaining information and documents in relation to the Terms of Reference. The principal objective of the investigation is to identify the witnesses for the evidentiary hearing.

Unfortunately, all witnesses from Heritage, Paria and Kenson chose not to attend upon the legal counsel of the COE for interview, thus eschewing the opportunity to discover those matters with which the COE were then interested. We were left with little alternative but to require virtually all of them to give evidence at the Enquiry itself. This meant that the hearings themselves were longer than had been hoped and spanned a greater number of days into 2023 concluding on 13 January 2023.

By the Rules under Part 4 any person, or entity, who wished to be represented at the Enquiry's evidential hearings was required to apply for standing, although that was not required if all that Counsel sought to do was to look after their client during the giving of their evidence, but if they wished to be permitted to cross-examine anyone else on behalf of their client they need standing. There were a number of applications from various sources – none were refused. Counsel for Kenson never applied for standing but attended virtually every day of the Enquiry and participated in every respect as if he had been given standing.

The gathering of Evidence under Part 4 of the Rules provided a wide power to obtain statements, interviews and documentary evidence. The Commissions of Enquiry Act provides that we have the same rules as the Supreme Court for compelling the recalcitrant. We did issue a number of subpoenas to attend the hearings but decided not to do so in relation to the interview process as this was likely to derail the commencement of the fixed sitting days and it appeared to us, that this was a deliberate policy adopted by those working for or at Paria.

Any person granted standing could apply to call any witness they regard as important to the Enquiry's work or to assist them in putting forward their case as to the facts. Only one such application was made and allowed. It is to be remembered that this is NOT a trial – we are not interested in one side or another's "legal case", we seek only to establish the facts as we see them based on the evidence we have

heard. This inevitably involves making judgements as to honesty, accuracy and integrity of the witnesses. The Commission is not bound by the ordinary rules of evidence that apply in a court of law and we are entitled to give such weight to any evidence as we see fit.

The hearings were live broadcast by TTT and streamed live on the Commission's website every day the Commission sat. Same has been recorded for posterity and much is readily available on line today.

During the hearings each witness was called by the legal team for the enquiry, primarily Mr Maharaj SC. Their witness statement and/or their interview with the legal team before giving evidence was summarised, in their presence and at the hearing and they were asked if they agreed it was a fair reflection of their evidence. They were generally then asked further questions by Counsel to the Enquiry and others were permitted to cross-examine them, including their own Counsel (who was invariably given the opportunity of the last word, so that they could deal with anything that had arisen). The only exception were the relatives of the divers who died, as it seemed to us both insensitive and unnecessary.

Part 6 of the Rules deals with any findings that the COE may make in respect of any individual or entity. In particular,

53. The Commissioners shall not make a finding of misconduct on the part of any person unless that person (including if the person is deceased, his estate), has had reasonable notice of the substance of the alleged misconduct and has been given a full opportunity **during the Enguiry** to be heard in person or by counsel.

54. Any notices of alleged misconduct shall be delivered on a confidential basis to the person to whom the allegations of misconduct refer or his counsel, together with **a summary of the allegations** with such particularity as to enable the person to understand and appreciate the allegations and answer them.

These Rules are there because the law requires it. It would be quite unfair for anyone to be criticised for misconduct of any kind without having an opportunity to rebut those allegations. We have highlighted these two passages because there seems to us to be some kind of misunderstanding as to what they mean.

"...during the Enquiry ... "

They mean that anyone the subject of <u>misconduct</u> (we have interpreted that to include any <u>criticism</u>) should be given a proper opportunity during the Enquiry to be heard either by himself or his counsel, does not mean **before** he makes a statement, nor does it mean **before** he gives evidence, nor does it mean **before** the hearings conclude: it means what it says, "during the Enquiry" – the Enquiry has not yet concluded and will not, until this Report is handed to the President.

"...a summary of the allegations ... "

The Rules and the law requires, that the person or entity, the subject of criticism, should be given a *summary of the allegations* and that this should be with such *particularity* so that they understand it. What we have in fact done is to provide schedules to the "Salmon" letters which literally extracted parts of the draft report so that they could see exactly what was being suggested in draft form and the context in which it was being suggested. We regard this as going above and beyond what the law requires, but we also regarded it as fairer way of dealing with the potential criticisms.

What are Salmon Letters?

These are letters which are sent to persons or entities which are subject to criticism and/or misconduct. They were devised by Lord Justice Salmon, who, chaired a Royal Commission on Tribunals of Inquiry from which six cardinal principles of fair procedure under the UK's Tribunals and Inquiries Act 1921 were identified. It is right to say that they have been widely adopted by many common law jurisdictions. The second of these rules⁹⁶ is one which has been prayed in aid of allegations of unfairness:

Before any person who is involved in an inquiry is <u>called as a witness</u>, they should be informed of any allegations made against them and the substance of the evidence in support of them.

It is as well to remember that those rules were devised 57 years ago in the wake of much disquiet about Lord Denning's "unsatisfactory" handling of his inquiry into the Profumo affair which was credited with bringing down the Macmillan Government. In that report, he described his role as "detective, inquisitor, advocate and judge". The process was conducted in private; and witnesses did not hear the evidence given against them or have any opportunity to challenge that evidence. They had precious little knowledge of what was even being investigated.

Much has changed since then. There has been much learning on the principles of fairness from many cases in the Court of Appeal both here in Trinidad and Tobago

⁹⁶ The others are; 1. Before any person becomes involved in an inquiry, the tribunal must be satisfied that there are circumstances which affect them and which the tribunal proposes to investigate. 3. They should be given an adequate opportunity to prepare their case and of being assisted by legal advisers and their legal expenses should normally be met out of public funds. 4. They should have the opportunity of being examined by their own solicitor or counsel and of stating their case in public at the inquiry. 5. Any material witnesses they wish to call at the inquiry should, if reasonably practicable, be heard. 6. They should have the opportunity of testing by cross-examination conducted by their own solicitor or counsel any evidence which may affect them.

and elsewhere⁹⁷. This is a very different Enquiry. We had no preconceived notions of fault directed at any one person or entity, there simply was not any "*allegations made against them…*" or anyone – we proceed with a completely open mind and did so until we had gathered and heard all of the evidence. In a judgement by Ramcharan J in 2023⁹⁸ he said:

The Claimant suggested that the Commission ought to have apprised him of the possibility of adverse findings <u>prior to the hearing of the Enquiry</u>. <u>The</u> <u>Court does not agree</u>. The Terms of Reference made it clear that the Commission could make adverse findings and recommendation, and further, <u>it</u> <u>would have only been after the receipt of all the evidence, that the</u> <u>Commission would know the nature of the recommendations and/or</u> <u>findings it was likely to make</u>. What would be of significance would be whether the Claimant was given a chance to answer proposed findings and/or recommendations <u>before</u> they were made.

We have endeavoured to give all who may be the subject of criticism the opportunity to respond to the detailed Salmon letters we have sent them. Where

⁹⁷See: F Hoffmann La Roche & Co AG v Secretary of State for Trade and Industry [1975] AC 295 where Lord Diplock stated at p.368D-E: "... I would accept that it is the duty of the commissioners to observe the rules of natural justice in the course of their investigation - which means no more than that they must act fairly by giving to the person whose activities are being investigated a reasonable opportunity to put forward facts and arguments in justification of his conduct of these activities before they reach a conclusion which may adversely affect him." We have also had regard to R v Secretary of State for the Home Department, Ex p Doody [1994] 1 AC 531 per Lord Mustill, The standards of fairness are not immutable. They may change with the passage of time. both in the general and in their application to decisions of a particular type. The principles of fairness are not to be applied by rote identically in every situation. What fairness demands is dependent on the context of the decision, and this is to be taken into account in all its aspects. Further the case of R (on the application of Hoffman) v Commissioner of Inquiry and Governor of Turks & Caicos [2012] UKPC 17 in which the Privy Council said, The Salmon principles cannot be inflexibly applied and the requirements of fairness must be tailored in a manner that has regard to all the circumstances of the particular Inquiry. The Court of Appeal in the UK as recently as this year in R (on the application of Hexpress Healthcare Ltd) v Care Quality Commission [2023] EWCA Civ 238 approved of that approach, dealt with Salmon and Maxwell letters concluding that "the requirements of procedural fairness are variable and case specific".

⁹⁸ CV2016-04288 between Noel Garcia v Justice Ibrahim and others paras 167

they have asked for more time, we afforded it. Moreover, by Order made on the 1 May 2023 we indicated we were prepared to hear, *in camera*, oral submissions on the Salmon letters from anyone who wished to make them and certain days were set aside for the purpose. That was not taken up by any of the counsel seeking to complain about unfairness to their clients.

If they had wished to have a witness recalled or to rely on some other evidence as yet un-adduced they had only to make the application and we would have heard them and made a determination. That was not sought by anyone.

On the 9 June 2023 Rajkumar JA in the Court of Appeal¹ in Trinidad & Tobago handed down judgement in the **Las Alturas Housing** matter setting out the law as now understood for procedural fairness of Public Enquiries. Unusually they issued guidelines that went well beyond the judgement needed to determine that case. They set out how a CoE should conduct themselves so as to achieve procedural fairness, acting prudently to ensure that all parties had every opportunity to make their case and deal with any criticisms that may arise. We have been much assisted by that judgement. We determined that the procedural fairness we have strived to achieve from the outset could be properly augmented by taking into account the learning from the Court of Appeal.

As to the second of Lord Salmon's cardinal principles they said this under the rubric of General Observations:

1. Although Salmon principle ii) in particular, **is not to be applied inflexibly** it remains a useful **guide** to a Commission striving to ensure its procedures are fair.

2. There may be cases where a Commission may not have issued a Salmon letter for understandable reasons. In such a case the issue of whether

¹ Court of Appeal in Civil Appeal P286 of 2020 between <u>John Calder Hart v The Commission of</u> <u>Enquiry into the Entire Process which led to the Construction of the Las Alturas Housing Towers</u> <u>and others.</u>

fairness was otherwise observed in the specific circumstances may be examinable.

We regarded it as entirely appropriate to issue our Salmon letters *after* having conducted the hearings. At no point was anyone shut out and we welcomed the copious responses we have received from all parties to the issuance of Salmon letters. In some cases, we made significant changes to the Report; in many we made adjustments; we often included the arguments in the Report; and in some cases, we made no change at all. Every single representation was considered not just on its own but how it fit into other, sometimes competing representations. This took time but it was the right thing to do given some of the serious failings we have identified in this Report.

The Court of Appeal went on to invite all Commissions of Enquiry to consider the use of a Maxwell Letter before finally concluding that any criticism should stand.

What is a Maxwell Letter?

"Maxwellisation" is the process by which people who may be subject to criticism in public reports can comment on those proposed criticisms before the report is published even if that person has already had an opportunity to respond to the criticisms of him. It gets its name from challenges made by the media mogul Robert Maxwell to public criticisms of him.

As a result, a person conducting an inquiry is now generally expected to conduct a [Maxwellisation] Process; it has become "standard practice". In a report conducted at the behest of the UK Treasury Committee into Maxwellisation the authors said "*This goes beyond what the law requires.* The adoption of this practice is probably the result of caution on the part of those conducting, or

commissioning, public inquiries so as to avoid similar legal challenges to those mounted, unsuccessfully, by Mr Maxwell."² They concluded that:

- a. The common law imposes no rigid requirement that a [Maxwellisation] must always be conducted. What is required is that a person be given a fair opportunity to respond to criticism prior to its publication in a report.
- b. It follows that, if a person has already been given a fair opportunity to respond to the substance of a proposed criticism contained in a draft report (such opportunity being given at the evidence-gathering stage of an inquiry), there is no need to give that person a further opportunity to make any representations prior to publication of the report.
- c. It is important that those conducting inquiries have flexibility to determine the procedures (including any procedures relating to the [Maxwellisation]) to be adopted for the purpose of fulfilling the terms of reference of the particular inquiry in a way that is fair, while recognising the importance of expedition and cost efficiency.

Be that as it may we have taken the view that the Court of Appeal here in Trinidad & Tobago regard it as prudent to ensure fairness by adopting (in the right case) the Maxwellisation approach, and we have. Not only have those who have been the subject of specific misconduct allegations been given a final opportunity to respond to those allegations but even those where mere criticism, of varying degrees have been made, they too been afforded a similar opportunity. All has been taken into account, even when the submissions were received very late, without consent and in some cases, without even applying for more time.

² Blackstone Chambers Review of Maxwellisation commissioned by the UK Treasury Committee dated 2016

LISTING OF KEY PERSONNEL

Paria Fuel Trading Company Limited "Paria"	
1. Randolph Archbald	HSEQ (Health, Safety, Security and Quality Lead/ Planning Section Chief
2. Manmohan Balkaran	Maintenance Lead
3. Catherine Balkissoon	Technical Lead (Ag.)/ Operations Section Chief
4. Shan Balkissoon	HSE Technician
5. Visham Harrichan	Former Operations Team Lead (Ag.)/ Operations Section Chief (no longer in the employ of Paria)
6. Mushtaq Mohammed	Terminal and Trading General Manager
7. Collin Piper	Terminal Operations Manager/ Incident Commander
8. Johnathan Ramdhan	Operations Team Supervisor
9. Terrance Rampersadsingh	Planner (no longer in the employ of Paria)
10. Michael Wei	Technical and Maintenance Manager/ Logistics Section Chief
11. Paul Yearwood	HSE Coordinator/ HSE Officer
Heritage Petroleum Company Limited "Heritage"	

12. Osei Flemming- Holder	Operations HSSE Manager
	LMCS Limited "LMCS"
13. Ahamad Ali	Health, Safety and Environment (HSE)
	Manager
14. Kazim Ali Snr	Managing Director
15. Christopher Boodram	Sole Survivor/ Commercial Diver
16. Victor Dhillpaul	Field Health and Safety Officer
17. Andrew Farah	Dive Supervisor
18. Dexter Guerra	Construction Supervisor
	rvices & Kenson Production Services Lt "Kenson"
	"Kenson"
Kenson Operational Se	"Kenson" Health, Safety and Environment Technician
Kenson Operational Se	
Kenson Operational Se	"Kenson" Health, Safety and Environment Technician
Kenson Operational Se 19. Andrew Dopson 20. Rajiv Mangalee	"Kenson"Health, Safety and Environment TechnicianMaintenance Technician
Kenson Operational Se 19. Andrew Dopson 20. Rajiv Mangalee 21. Houston Marjadsingh	 "Kenson" Health, Safety and Environment Technician Maintenance Technician Maintenance Technician
Kenson Operational Se 19. Andrew Dopson 20. Rajiv Mangalee 21. Houston Marjadsingh 22. Kirt Scott 23. Rolph Seales	 "Kenson" Health, Safety and Environment Technician Maintenance Technician Maintenance Technician Offshore Operator Diving Operations- Supervisor/Client

05 01	
25. Dion Lawrence	Former Safety and Health Inspector (no
	longer in the employ of OSHA)
	5
26. Jason Loorkhoor	Senior Inspector
ine irinio	dad and Tobago Coast Guard
	"TTCG"
27. Lt. Edric Hargreaves	Diving Officer/ Officer in Charge on the date
Er Ed Edito Hargi caves	
	of the incident (currently on resettlement in
	Barbados)
28. Andre Leidgewood	Leading Sea Man
	Rescue Divers
29. Conan Beddoe	Certified Saturation Diver- Self Employed
30. Michael Kurban	Commercial Diver/ Son of Fyzal Kurban- Self
	Employed
	Expert Witness
31. Zaid Khan	CEO/President of In-Corr-Tech Limited

Glossary of Key Terms, Acronyms and Abbreviations

36SL	36 Sealine Riser
ΔP/Delta P	The differential pressure to the drop of pressure in a piping system, a heat exchange or another machine, where liquid is passing through.
ADCI	The Association of Diving Contractors International Inc. based in Houston Texas.
Air Blowing	A varied process by which gases or fluids move from high pressure areas to low pressure areas.
Air Pocket	A small area filled with air that prevents the flow of a liquid or gas.
API	American Petroleum Institute
Bathymetric Survey	Measures the depth of a water body as well as map the underwater features of a water body.
Bbls	Barrels – usually of oil.
Berth 5	Paria Fuel Trading Company Limited's Berth 5 Platform
Berth 6	Paria Fuel Trading Company Limited's Berth 6 Platform
Borescope Camera	Enables you to observe areas that are too cramped, too far away or out of reach and to inspect industrial systems and equipment for its conditions.
Bureau of Standards	Trinidad and Tobago Bureau of Standard
CADC	Canadian Association of Diving Contractors
Carber Plug	A Loose O-ring material that the operator needs to cut and glue to make the seal work.
Carber Test	A tool that fits inside the pipe and creates two seals on either side of the weld.
CARIRI	Caribbean Industrial Research Institute
Chain Block	contains a lifting chain, a hand chain and a grabbing hook.

Chain Hoist	A mechanism that exerts a force for lifting or lowering an object by utilizing a drum or lift wheel around which a rope or chain wraps.
Chamber	A compressed chamber that is not intended to be submerged.
COE	Commission of Enquiry
Command Centre	A combination of people tasked with managing and averting crisis during and emergency and non-emergency situations.
Commercial Diver	Divers who are skilled professionally to perform tasks underwater from maintenance to repairs.
Containment Boom	A temporary floating barrier used to contain an oil spill.
Crawler	A camera robot remotely controlled that traverse through a pipe on wheels.
DCBC	Divers Certification Board of Canada
Decompression Chamber	A pressure vessel for human occupancy used in surface supplied diving to allow divers to complete their decompression stops at the end of a dive on the surface rather than underwater.
Delta Ρ/ ΔΡ	The differential pressure to the drop of pressure in a piping system, a heat exchange or another machine, where liquid is passing through.
Differential Pressure	The difference in pressure between two given points.
Differential Pressure Hazard	This occurs when water moves from an area of high pressure to one of low pressure.
Dive Support Vessel	A ship that is used as a floating base for professional diving projects.
DSMS	Diving Safety Management System
DTP	Daily Task Plan
Eastern/ EERSL	Eastern Emergency Response Services Limited
EMA	Environmental Management Authority

Emergency Response Plan	A document that lays out the series of steps an organization will take during a critical event to ensure employees' safety and minimize the impact on critical operations.
EMT	Emergency Medical Technician
EPR	Emergency Preparedness and Response
ERP	Emergency Response/ Rescue Plan
ETA	Estimated Time of Arrival
FHSO	Fire Health and Safety Officer
Flange	Connecting pipes, valves, pumps and other equipment to form a piping system which is usually welded or screwed.
Full Suit	A waterproof suit used by divers, having a heavy detachable helmet and an air supply.
Gantt Chart	A horizontal bar chart used to visually represent a project plan over time.
GIGO	Garbage in, Garbage Out – the quality of output is determined by the quality of input
Go/No-Go	Criteria identified by both the dive team and facility operator which is used to determine if a dive is conducted or not.
GTT or GMRTT	Global Medical Response of Trinidad and Tobago.
Habitat	A positive pressure enclosure or isolation chamber used to provide a safe work environment for performing hot works in the presence of explosive gases or vapours.
Hazmat Suit	Protects divers while working in nuclear facilities, oil spills and waste treatment plants.
Heritage	Heritage Petroleum Company Limited
HHSL	HHSL Safety Systems Limited
Hot Works	Use of open fires, flames on work involving the application of heat by means of tools and equipment.

Hot Work Certificate/ Permit	A permit to work system that issues an authorization to perform hot work, along with enlisting all safety procedures to be followed.
HSE	Health and Safety Environment
HSEQ	Health, Safety, Environment and Quality
HSSEQ	Health, Safety, Security, Environmental and Quality
Hull Support or HSSL	Hull Support Services Limited
Hyperbaric Chamber	A sealed diving chamber with closed bell or dry bell with hatches large enough for people to enter and exit which supplies a level of oxygen for the users.
Hydrocarbon Vapour	The volatile organic compounds in the vapour, including any entrained organic liquid.
In-Corr-Tech	In-Corr-Tech Limited.
Incident Commander	Person responsible for setting up communication channels and inviting the appropriate people into those channels during an incident.
ICP	Incident Command Post
ICS	Incident Command System – a systematic tool for command, control and coordination of an emergency response.
ICT	Incident Command Team – a rostered group of ICS-qualified personnel.
ILO	International Labour Organization
IMCA	International Marine Contractors Association.
IMCA Certified	Certified for offshore diving and life support technicians.
IMO	International Maritime Organization
ICT	Incident Management Technician
Inflatable Plug	Made with reinforced rubber to seal gravity pipelines or to perform leak test on pipelines.
ITF	Industrial Transport Workers' Federation

ITUC	International Trade Union Confederation
JHA	Job Hazard Analysis meaning a process that focus on job tasks as a way to identify hazards before they result in injury.
JSA	Job Safety Analysis. A systematic procedure that breaks each job/ task into key training sequences, identifies safety elements of each job/tasks and coaches the employee on how to avoid potential safety hazards.
Kick-off Meeting	The first official meeting of a group of people who will be working together on a project.
КМВ	Also known as band mask – Used in mixed gas diving as well as shallow water air diving.
LMCS	LMCS Limited
Lifeline	Line connecting the diver to the surface, with which he can signal to the surface as well as be signaled to, from the surface.
Line Clearing	Pipeline purging using compressed air or nitrogen to drive out impurities.
Line Drain	To maintain sufficient air pressure inside the drain line to aid the free flow of matter.
LT	Lieutenant
Maritime Industry	Everything connected to the sea or waterways throughout the world.
MEEI	Ministry of Energy and Energy Industries
Mechanical Plug	Used for isolation barriers and pressure testing tools to seal off pipelines through mechanical sealing.
Method Statement	A document that details exactly how to carry out work safely.
Miami Divers	Company changed its name to Subsea Global Solutions, LLC (SGS Trinidad)
Migration Barrier	Mechanical and Inflatable Plugs

Mitchell	Mitchell Professional Diving Services Company
MS	Method Statement
NDA	Non-Disclosure Agreement
NEBOSH	National Examination Board in Occupational Safety and Health
NIOSH	National Institute for Occupational Safety & Health
NOC	National Operations Centre
NORM	Naturally Occurring Radioactive Material
ODPM	Office of Disaster Preparedness and Management
Offshore Dock	A floating dock used for cleaning and repairing medium-sized vessels.
OSHA	Occupational Safety & Health Agency
OTSL	Offshore Technology Solutions Limited
OWTU	Oilfield Workers' Trade Union
PADI	Professional Association of Diving Instructors
PADI Certification	The first level of scuba certification.
Paria	Paria Fuel Trading Company Limited
Penetration Diving	Diving involving the entry of a diver into an enclosed compartment or confined space from the external environment.
PISL	Professional Inspection Services Limited
PTW	Permit to Work - Authorizes certain persons to carry out specific work at certain times and places.
Point-á-Pierre Tank Farm	Receives oil from the oilfields in the country.
Power Gen	The Power Generation Company of Trinidad & Tobago Ltd
PPE	Personal Protective Equipment
Pre-Dive Checklist	Allows you to double check that your equipment is on correctly and functioning and ready to dive.

Pressure Test	A test to ensure the safety, reliability and the leak tightness of a pressure system.
Pressurization	To confine the contents of under a pressure greater than that of the outside atmosphere.
PSI	Pound per square inch.
PSI Pressure	The pressure that results when a 1-pound force is applied to a unit area of 1 square inch.
PSIG	PSIG stands for pounds per square inch gauge. Gauge pressure is pressure relative to atmospheric pressure.
PT	Penetrant Test – to detect surface breaking flaws
Push Rod Camera	A highly maneuverable system that allows the operator to inspect pipes easily even in highly challenging situation.
Riser	Vertical section at the end of each Berth.
Risk Analysis	The process of identifying and analyzing potential future events that may adversely impact a company.
Risk Assessment	A process to identify potential hazards and analyze what could happen if a hazard occurs.
Rescue Plan	A strategy or procedure, planned in advance to retrieve a person safely.
ROV	Remotely Operated Vehicle
S&J Diving	S&J Diving Inc.
SAPA	Southern Academy of the Performing Arts
Saturation Diver	A person who can remain underwater at a certain depth for long periods.
Scope of Works	The area in an agreement where the work to be performed is described and a timeline for all deliverables.
Sea Level	The base level for measuring elevation and depth of the Earth.
Slip Blank	A type of flange used to seal off a pipeline or other opening.
Slip on Flange	A ring that is placed over the pipe end with the flange face extending from the end of the

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	pipe with enough distance to apply a weld bead on the inside diameter.
Slop Barge	Collects waste from the port.
Solid Blank	A short section of plain tubing used to separate or space out specialized components in a completion assembly.
SOP	Safe Operating Procedure
Standby Diver	A diver at the location available to assist a diver in the water.
Subsea Global	Subsea Global Solutions, LLC (SGS Trinidad)
Subsea Maintenance	The exploration, drilling and development of oil and gas fields underwater locations.
Subsea Works	Works being done below the surface of the sea.
Surface Supplied Air	Diving in water using equipment's supplied with breathing gas using a diver's umbilical from surface, either from the shore or from a diving support vessel.
Stove pipe	Surface casing used to protect loose surface formation and to enable circulation of the drilling fluid.
STOW	Safe to work.
Storm Mooring	Chains, anchors and offshore ropes used to stabilize and position floating production and storage facilities.
SWRHA	South-West Regional Health Authority
SWWTU	Seamen and Waterfront Workers Union
Tank Farm	Area used for storage of oil/ petrochemical products in large tanks.
ТВМ	Tool Box Meeting
Tell-Tale	A device or object that automatically gives a visual identification of the state or presence of differential pressure. String mop heads, lines, or ribbons on poles are examples of diver-held tell-tales.

Toolbox Meeting – TBM	A briefing of safety measures to supervisors, workers and safety team held every morning before commencing their respective duties.
Toolbox Talk - TTT	Informal group discussion that focus on safety issues.
Topside Supervisor	Person who delegates and supervises the deck team and all routine activities to be executed by his team.
TPHL	Trinidad Petroleum Holdings Limited
Trindive Underwater	Trindive Underwater Services Ltd
TTCG	Trinidad and Tobago Coast Guard
TTDF	Trinidad and Tobago Defence Force
TTFS	Trinidad and Tobago Fire Service
TTPS	Trinidad and Tobago Police Service
ТТТ	Trinidad and Tobago Television
Turnkey Project	Project delivery method in which a single entity/ contractor/ works with a project owner under a single contract to complete all stages of a project.
UDeCOTT	Urban Development Corporation of Trinidad and Tobago
Ullage	The amount by which a container falls short of being full.
Umbilical	A composite hose or cable capable of supplying a breathing mixture.
Umbilical Management	Procedure or physical controls to limit the Umbilical and diver to areas free of differential pressure sources.
UWI	University of the West Indies
Vacuum Truck	Used to remove, break up, collect and haul away soil and other debris.
Vapour Space	The volume above the liquid level also know as an air space or air pocket.
VOC	Volatile Organic Compound
Vortex	the rotational motion of fluid around a common center-line. The fluid circulated

around rotationally as the speed increases as the vortex is approached and pressure decreases.

Visual Test - inspect equipment for flaws.

The joining of work pieces made similar or dissimilar along a continuous seam.

World Health Organization

Represents the formal road map for a project.

VT

Weld Seam

WHO

Work Plan

BREAKDOWN OF COSTS FOR THE COMMISSION

Fees to Commissioners and Legal Team (Counsel to the Commission and his Assistants).

- The total sum in fees paid to the Commissioners and the Legal Team as at 8 November 2023 amount to \$10,790,000 (of which \$4,034,274.31 was paid to the Commissioners and \$5,584,274.31 was paid to the Legal Team). There are further invoices from the Legal Team totalling \$1,171,250.00 for the final stage of the Enquiry. These figures are from the Secretary's records.
- These fees covered the three stages of the Enquiry which were (1) the investigative stage (2) the evidentiary hearings stage and (3) post evidentiary hearings dates, all of which were conducted on an expedited basis.
- 3. With respect to the fees of the Legal Team, the services rendered by them included:
 - (a) The first stage included services rendered for: reviewing of the terms of reference of the Commission, preparing the procedural rules, several conferences with the Commissioners, identification of persons and

entities to be invited to submit statements or submissions to the Commission, reviewing of the statements and correspondence submitted from individuals and organizations (comprising over 20,000 pages), reviewing applications and letters to the Commission, advising the Commissioners, preparing letters to be issued by the Commission, attendance at the procedural hearing on 7 September 2022, identifying persons to be interviewed and the interviewing of 23 persons, preparation of statements for persons interviewed and the interview of expert witnesses and evaluation of their evidence.

(b) The second stage included services rendered for: preparation of an opening statement by Counsel to the Commission, preparation of witness summaries to be read as part of the examination of chief of each witness in accordance with the procedure for evidentiary hearings as determined by the Commissioners, conferences with the Commissioners, liaising with the Secretariat, reviewing witness statements and summaries to determine order of witnesses, reviewing evidence and making recommendations with respect to the issuing of witness summaries, reviewing applications and letters to the Commission, making recommendations to the Commissioners, preparation of correspondence issued by the Commission, recommendations for disclosure/discovery, attendance at the 19 in-person evidentiary hearings of the Commission,

daily review conferences during the hearings, daily conferences with Commissioners during the hearings, site visits to Paria, consideration of evidence for the preparation of Salmon Letters and preparation of a closing statement.

(c) The third stage included services rendered for: preparation of written advice given to the Commissioners in respect of issues arising from the evidence, preparation of salmon letters to 24 persons/ organizations, considering the responses from each person/organizations, preparation of recommendations to the Commissioners in relation to those responses, preparation of Maxwell Letters to 24 persons and/or organizations, considering their responses to the Maxwell Letters and preparing recommendations to the Commissioners, considering correspondence and applications made to the Commissioners, advising the Commissioners and preparing letters to be issued by the Commission.

Administrative Costs

4. The total costs estimated to be paid as at November 2023 in administrative costs was \$3,591,835.91. This figure comes from the breakdown on costs prepared by the Auditor General.

5. These costs include among other things payments made for the outfitting of the office space at SAPA, office supplies and equipment, expert fees for In-Corr-Tech Ltd, accommodation for the Commissioners, flights for the Chairman, publications of notices in the media, payments made to TTT and Media 21 Limited to carry the proceedings live and for transcription services.

Salaries paid to Secretariat Staff

6. The total costs paid to Secretariat Staff to November 2023 based on records of the Auditor General and our estimate is \$807,174.43 There were ten (10) members of staff initially but the staff was reduced to eight (8) members for the majority of the time

Total Costs

7. The total costs based on the records of the Auditor General and the Secretary's records in terms of costs is rounded up as follows:

ltem	Cost		
Fees to Commissioners and Legal Team	\$10,790,000		
Administrative Costs as at June 2023	\$ 3,565,000		

Estimated to November 2023	\$ 27,000
Salaries to Staff as at June 2023	\$ 502,000
Estimated to November 2023	\$ 305,000
Contingency	\$ 500,000
Total	\$15,689,000

These costs are subject to a final cost as determined by the Auditor General.

HOW DOES THIS COMPARE WITH OTHER COMMISSIONS OF ENQUIRY?

- 8. In an article "*Are Commissions of Enquiry worth it*" by Joel Julien published in the Trinidad Guardian on 22 March 2022, it was reported as follows:
 - (a) The last four Commissions of Enquiry which were held in this country have cost taxpayers in excess of \$600 million. They have not led to a single arrest or anyone being held to account.
 - (b) The lion's share of that bill was the Commission of Enquiry into the failure of CL Financial, Colonial Life Insurance Company, Clico Bank and the Hindu Credit Union Cooperative Society which began in March 2011 and ended in May 2013 ("the CLICO Enquiry").
 - (c) The cost of the CLICO Enquiry was over \$500 million (this was stated by the then Attorney General the Hon. Faris AI -Rawi in the House of Representatives on 9 March 2019).

- (d) The second most expensive enquiry was the Enquiry into the particular aspects of this country's construction section, including the practices and methods of the Urban Development Corporation of T&T (UDeCOTT), and to make recommendations and observations to promote among other things value for money, high standards of workmanship and integrity and transparency ("the UDeCOTT Enquiry").
- (e) The cost of the UDeCOTT enquiry was \$46.2 million (as stated in the House of Representatives by then Minister of Housing and the Environment Dr. Roodal Moonilal).
- (f) The third most expensive was the Commission of Enquiry into the attempted Coup ("the Coup Enquiry").
- (g) The cost of the Coup Enquiry was \$31.8 million (as stated in the Upper House by then Attorney General Anand Ramlogan).
- (h) In addition, there was the Enquiry into the Las Alturas residential towers "(the Alturas Enquiry)".
- (i) The cost of the Alturas Enquiry was \$24.5 million (as stated by the Hon. Prime Minister on September 8, 2016 in addressing a post Cabinet news conference).
- 9. With respect to the Commission of Enquiry into the San Fernando/Point Fortin Highway ("Highway Enquiry"), that Commission of Enquiry has cost

\$11 million to date (as stated by the MEEI Minister Stuart Young at a Standing Finance Committee in Parliament). That Commission has not yet started its evidential hearings.

10. The following table summarises the costs of the above-mentioned Commissions of Enquiry.

Commissions of Enquiry	Cost
CLICO Enquiry	Over \$500 million
3 years 8 months	
UDeCOTT Enquiry	\$46. 2 million
18 months	
Coup Enquiry	\$31.8 Million
3 ¹ ⁄ ₂ Years	
Las Alturas Enquiry	\$24.5 million
1 year 8 months	
Ongoing Highway Enquiry	\$11 million and continuing.
Paria Fuel Trading Enquiry	\$15,689,000
1 year 4 months	

^{11.} It is clear from the above analysis, that this Commission of Enquiry (being the Country's most recently appointed Enquiry) has achieved its work within an unprecedented period of time and at a comparatively reasonable

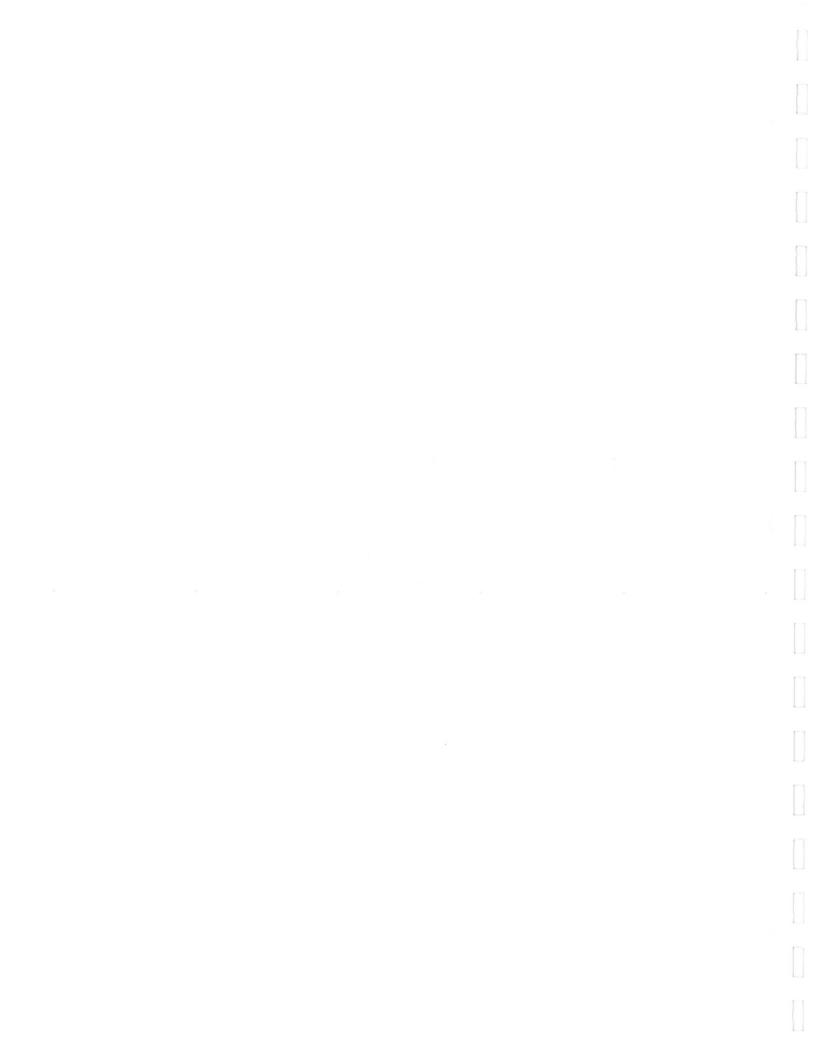
cost to tax payers notwithstanding that a value cannot truly be placed on the need for the public and the families of the divers knowing the circumstances which led to these very tragic events and for the need to have policies, measures, mechanisms and systems implemented to prevent a recurrence of such tragic events.





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SCOPE OF WORK TECHNICAL

MISCELLANEOUS REPAIRS AND REFURBISHMENT WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND SERVICING OF MOORING BUOYS

PARIA FUEL TRADING COMPANY LIMITED POINTE-A-PIERRE



DEPARTMENT	÷	MAINTENANCE SERVICES.
DATE	;	2021 APRIL 29
LOCATION	:	POINTE-A-PIERRE
JOB DESCRIPTION	N :	MISCELLANEOUS REPAIRS AND REFURBISHMENT
		WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND
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SCOPE OF WORK

TECHNICAL

1.0 INTRODUCTION

Paria Fuel Trading Company Limited (Paria) is seeking to engage the services of a experienced and qualified Construction and Fabrication Contractors for the execution of miscellaneous works detailed below:

Section A: Change out Section of Subsea Riser and Tie-In Piping on Sealine No.36 at Berth #5 and Berth #6.

Section B: Removal, Servicing/Repairs and Reinstallation of Marker Buoys and Storm Mooring Buoys located at Pointe-a-Pierre Harbour.

Section C: Fabrication and Replacement of 300ft of Main Walkways on the Main Viaduct

Bidders must demonstrate their ability to execute works by including in their submission resources, equipment and personnel deemed necessary. Failure to submit at a minimum, listed resumes, equipment, Method Statement, and experience will render submission non-compliant and invalid.

Award of this contract shall be on the basis of the Bid, which is in the sole and absolute judgement of Paria and shall serve its best interest.

2.0 GENERAL

The successful Contractor shall supply all labour, materials, equipment, project engineering, supervision, inspection services, transportation, consumables, and insurance required unless stated otherwise to perform the works in accordance with the following:

- a) Scope of Works
- b) Piping sketches (not to scale) and photos (Refer to Attachment 8.1 & 8.2)
- c) Relevant codes and standards (Refer to 8.3 Technical Specifications)

The riser and associated piping will be changed out as it becomes available from operations.

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2.1 BID EVALUATION / VALIDITY

Elements of this project includes but is not limited to:

- 2.1.1 Removal of Fuel Oil from Line with Zero Spill
- 2.1.2 Refurbishment of Aerial Piping
- 2.1.3 Replacement of Section of Subsea Risers, Minimum 20 feet Below Sea Level
- 2.1.4 Recovery, Refurbishment and Reinstallation of Marine Marker and Storm Mooring Buoys
- 2.1.5 Fabrication and Replacement of Derelict Walkways

Contractors submitting a tender for this project are required to demonstrate that they possess the experience and resources (equipment, personnel, and technical capability) to successfully complete the project.

NOTE: The following requirement must be satisfied for the bid proposal to be considered responsive and valid. Only valid bids shall be entertained. Bids are considered valid with the following submissions:

- STOW Certification or an Audited H.S.E. Management System for High-Risk Offshore Services Inclusive of:
 - I. Diving Services
 - II. Lifting Services/Cranes
 - III. Piling Works
 - IV. Pipeline Construction & Repairs
 - V. Installation of Anodes
- HSE Plan
- Quality Assurance Plan
- Completed and Signed Bidding Documents (Technical, Commercial and any Addendum (as applicable))
- Commercial Document must be filled out in its entirety
- Detailed Schedule (Microsoft Project) for Entire Project
- Contractor to Show Documented Evidence of having Successfully Completed Projects of Similar Discipline and Complexity dealing with Hyperbaric Welding within the Last Four (4) Years.
- List of Resumes for Key Personnel and their Experience in Similar Projects, **Including** but not Limited to:

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- I. Project Manager
- II. Civil/Marine Engineer
- III. Construction Supervisor
- IV. Crane Barge Supervisor
- V. Crane Barge Operator
- VI. Marine Piling Engineer
- VII. HSE Officer
- VIII. Quality Control Officer
- 1X. Subsea Welder Having Executed Subsea Weld in the Last Three (3) Years
- X. Subsea Fabricator Having Executed Subsea Weld in the Last Three (3) Years
- List Equipment with specification and availability, detailing major equipment, showing whether owned or lease agreement for duration of the job.
 - I. Dive Equipment
 - II. Crane Barge
 - III. Tug
 - IV. Piling Hammer
- Bidder to submit a detailed Method Statement identifying elements of the project inclusive of safety considerations, Lift Plan, Dive Plan, Quality Assurance, Safety Analysis and JHA which shows Contractor's procedures for:
 - 1.0 Removal of Hydrocarbon from Line with Zero Spill.
 - 2.0 Details of the Hyperbaric Chamber Installation and Welding in the Chamber including safety condsiderations.
 - 3.0 Fabrication of Riser and Topside Piping.
 - 4.0 Support Pile Construction and Installation.
- Any Bidder Found to be Involved in Another Bid will Result in Both being Disqualified.

2.2 ISSUING OF JOB

Prior to the commencement of the Job, the Parties shall hold a meeting at which the scheduled commencement date will be agreed upon along with other details. The scheduled completion date shall be 20 working days from the scheduled commencement date. The Price for the Job shall be fixed by agreement, recorded in writing and signed by the Parties' duly authorized representatives.

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2.3 PROJECT MANAGEMENT

The Project Management Team must satisfy the Control Strategy for the Project by providing but not being limited to the following:

- 2.3.1 Safety Management inclusive of COVID -19 safety plan, lifting plan.
- 2.3.2 Quality Assurance / Quality Control.
 - Quality Plan and Handover Package
- 2.3.3 Progress Control and Monitoring.
 - Project Schedule (level 3) showing a summary of each discipline.
- 2.3.4 Resource Management.
 - Manpower and Equipment
- 2.3.5 Clear lines of Authority and Responsibility for key project deliverables.
- 2.3.6 Technical guidance to complete works in accordance with the Company Specifications and Codes

2.4 MOBILIZATION

- 2.4.1 Identify with colour codes isolation points, vents, bleeds, line for renewal.
- 2.4.2 Identify with colour code lines and sections to be prepared and coated.
- 2.4.3 Prepare the necessary blinds.
- 2.4.4 Test welders. Refer Technical Specification Appendix 4A.
- 2.4.5 Mobilize equipment, tools and temporary infrastructure.
- 2.4.6 Provide self-standing multi-gas monitors (e.g. crowcon) to be placed upwind/downwind for entire project duration.
- 2.4.7 Provide safety signage and flags (divers) for all applicable works (e.g. "Hot work in progress", "Muster Point" etc.).
- 2.4.8 Collect material for fabrication of piping identified for renewal.
- 2.4.9 On completion of works, de-mobilize all tools, equipment and temporary infrastructure.
- 2.4.10 Clean-up site.

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3.0 SCOPE OF WORK

SECTION A: CHANGE OUT SECTION OF SUBSEA RISER AND TIE-IN PIPING ON SEALINE NO.36 AT BERTH #5 AND BERTH #6. (*Refer to 3.1, 3.2 and 3.3*)

ISOLATION LIST

1 30Ø 150	Berth No.5	and the second se	
	Derti No.5		
2 30Ø 1507	Berth No.6		
	Containment		

3.1 RENEWAL OF A SECTION OF SL №.36 RISER PIPING WITH MODIFIED TIE-IN BENT AND RISER SUPPORT PLATFORM (30" DIAMETER PIPING) AT BERTH 6 AND REAPIRS TO ABOVE SEA LEVEL RISER AND TIE-IN PIPING AT BERTH 5

The Contractors shall execute the following:

- 3.1.1 Collect all 30^{°°} pipe, fittings and materials from within the Industrial and Terminal environment at Pointe-a-Pierre.
- 3.1.2 Mobilize all tools and equipment onsite.
- 3.1.3 Erect scaffolding to facilitate inspection, repair and testing works (*Refer to 8.3.2 Scaffolding*).
- 3.1.4 Verify all measurements/information onsite prior to fabrication and removal of riser piping section.
- 3.1.5 Properly coordinate works with Paria Operations, Maintenance and H.S.E. personnel to perform the following activities including but not limited to; isolation/ de-isolation, depressurization/ pressurization and draining/ filling product from line SL 36 at Berth 6 and Berth 5.
- 3.1.6 Abrasive blast all pipe work, fittings, clamps, supports and prime. (Refer to 8.3.3 Surface Preparation and Coating).
- 3.1.7 Cut, remove and renew existing support clamp and support brace members. Abrasive blast and coat new clamps and braces with Paria's approved coating (3 coat system and glass flake epoxy).
- 3.1.8 Renew existing riser with modified riser platform tie-in piping (Tee and vent). Refer to Sketch No. 01.

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- 3.1.9 Cut, fabricate, weld and install the new modified 30" diameter schedule 20 pipe spool. Refer to Sketch No.01.
- 3.1.10 Carry out inspection requirements on the spool section 100% (VT, PT, RT and hydro test as required).
- 3.1.11 Remove concrete coating around existing riser pipeline and expose line an estimated ten feet (10[°]) below the clamp area. Conduct Ultra Sound testing (minimum of eight (8) readings on the circumference) at proposed point of cut and cold cut pipeline in sound metal area. *Paria's representative to review video of area and UT report prior to approving cut point*.
- 3.1.12 Cut, insert migration barrier and install a 30" Ø flange onto the existing line. Inspection requirement for the flange 100% PT (including root passes), VT and Hydro Test. *Note video stream to be provided top side during work activity for Paria's representative.*
- 3.1.13 Measure, fabricate (roll) and weld a full encirclement sleeve for the top side clamp area using ½" mild steel plate, around the circumference of the new spool extending a minimum of three (3") on either sides of the support clamp. Inspection requirement for the clamp support and full encirclement sleeve is 100% VT, PT. MT. (*Refer to photos 8.1*)
- 3.1.14 Paint new riser spool section with Paria's appropriate coating (3 coat system with glass flake epoxy). Refer to 8.3.3 Surface Preparation and Coating.
- 3.1.15 Supply and install an estimated eleven feet (11') of protective wrap in the splash zone area. (6ft above the mean tidal mark and 5ft below). Abrasive blast preparation must be used. Refer to 8.10 Paria's approve wrap.
- 3.1.16 Supply and install cathodic protection (sacrificial anodes) with the necessary clamps and brackets for securing them onto the piping. Ensure proper connections and no coating getting onto the sacrificial anode surfaces.
- 3.1.17 Abrasive blast, prime and paint area of newly installed flange (3 coat system with glass flake epoxy) with Paria appropriate coating. (Refer to 8.3.3 Surface Preparation and Coating)
- 3.1.18 Install newly fabricated 30"Ø spool and guarantee flanges. Clean and coat bolting hardware. Apply a protective wrap on the assembly. Wrap system to be approved by Paria's representative.
- 3.1.19 Fabricate and install 36" Ø riser support pile and brace approximately 4 feet from riser.
- 3.1.20 Contractor to provide coverage to correct leaks when service testing of line.

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SERVICING OF MOORING BUOYS

- 3.1.21 The contractor shall supply video footage during the subsea works. And this video must form part of the handover package.
- 3.1.22 Touch paint any areas where the coating may have been damaged during transportation and handling.
- 3.1.23 Remove scrap material from onsite to approved dumping site or as directed by the maintenance supervisor.
- 3.1.24 At Berth 5, remove tie-in spool and refurbish.
- 3.1.25 Strip concrete coating approximately 20 inches from flange and check pipe condition (thickness and corrosion) and replace corroded pipe.
- 3.1.26 In the event riser pipe is not suitable, strip a further five feet and install subsea flange.
- 3.1.27 Fabricate and install replacement riser and tie-in piping.

3.2 MISCELLANEOUS WORKS.

The contractors shall execute the following work:

- 3.2.1 Mobilize all tools and equipment on site.
- 3.2.2 Lift and support SL 36 off the six (6) north/south pipe support on the eastern side of Berth #6. (from riser bend to manifold flanges). (*Refer to photos 8.1- Berth #6 SL #36 North/South pipe supports*).
- 3.2.3 Screen off and abrasive blast (SSPC SP6) the support and pipe contact areas and areas with bad to moderate corrosion.
- 3.2.4 Install on rise top side piping to Berth No. 5 and No. 6 manifolds, suitable size reducer, valves and flanges to allow for future inspection and draining of line. Maintenance Department to advise on location and sizing of inspection ports.
- 3.2.5 Prime and coat pipe and supports using Paria's three (3) coat system from newly installed riser elbow section to manifold flanges.
- 3.2.6 Repaint all piping identification using yellow background and black lettering (4").
- 3.2.7 On completion, replace piping on support ensuring proper alignment of piping.
- 3.2.8 After repairs of riser, procure 10 no. 725lbs Galvalum III anodes.
- 3.2.9 Dive and install anodes on riser and support structures.
- 3.2.10 Monitor anodes for a period of one (1) year, at four (4) month intervals, for effectiveness.

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SECTION B: REFURBISHMENT OF HARBOUR BUOYS (Refer to 3.5 and 3.6)

3.3 REFURBISHMENT OF TEN (10) OFF CHANNEL MARKER BUOYS

Navigation marker buoys are strategically positioned at the shipping channels in the Paria Pointea-Pierre Harbour. There are ten (10) floating buoys which are kept in position via mooring chains and deadman anchors on the seabed.

Proposals are requested from contractors for:

- The removal of each complete navigation buoy, inclusive of chain and anchors out of the water
- Repairs of the same, inclusive of anchoring hardware (chain, swivel, shackle)
- Repairs to anchor (approximately five tons (5T) when submerged)

No channel is to be left unmarked for more than twelve (12) hours, to this end Paria will supply two (2) new buoys. The contractor will supply hardware and anchors to replace the two (2) existing with new.

The contractors shall execute the following work:

- 3.3.1 Receive two (2) new buoys at Paria stores.
- 3.3.2 Supply chain, swivels, shackles and anchors to outfit two (2) buoys.
- 3.3.3 Assemble marker buoys system for inspection prior to installation.
- 3.3.4 Replace two (2) existing buoys with new buoys.
- 3.3.5 Take recovered buoys, inclusive of anchors and chain, to shore.
- 3.3.6 Clean buoys by scraping and water blasting.
- 3.3.7 Coat in existing colour and apply anti-fouling paint to the normally submerged area.
- 3.3.8 Repair anchors as necessary.
- 3.3.9 Supply new chain, swivels and shackles and reassemble marker buoy system.
- 3.3.10 Take two (2) existing buoys and replace them, recovering existing for repairs.
- 3.3.11 Repeat to execute change out of ten (10) markers using recovered buoys.
- 3.3.12 Cater for supply of three (3) anchors in the event of excessive repairs needed, weight of anchor in water is five tons (5T).

3.3.13 Each position to be confirmed and accepted by Paria.

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3.4 REFURBISHMENT OF TWO (2) STORM MOORING BUOYS

The contractors shall execute the following work:

- 3.4.1 Recover one (1) storm mooring buoy, inclusive of anchors and anchor chain.
- 3.4.2 Mark position with temporary floating marker.
- 3.4.3 Collect newly fabricated buoys and:
 - I. Fabricate two (2) manhole covers for each.
 - II. Install covers and pressure test buoy as per Paria's inspection requirements.
 - III. Blast to SSPC10 and coat entire buoy with 30mils Glass Flake epoxy. Coat above water section with polyurethane hardtop and coat normally submerged section with anti-fouling paint (SeaForce 90 and Safe Guard Universal).
 - IV. Install fender rubber salvaged from recovered buoy.
 - V. Supply and install one-and-one-half inch (1.5") thick grating on deck of buoy as per recovered buoy.
 - VI. Carry out repairs to anchor, concrete and anchor lugs.
 - VII. Service hook.
 - VIII. Procure one inch (1[°]) stud link anchor chain and shackles and assemble storm mooring offsite for inspection.
 - IX. Deploy anchor in location.
 - X. Recover second storm mooring buoy and repeat steps I to IX.
- 3.4.4 Cater to provide one (1) new anchor block of submerged weight ten tons (10T) in the event of excessive repairs to existing.
- 3.4.5 Scrape and pressure wash recovered buoys and place in Paria's storage.

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<u>SECTION C</u>: FABRICATION AND REPLACEMENT OF 300FT OF MAIN WALKWAYS ON THE MAIN VIADUCT

3.5 FABRICATION AND REPLACEMENT OF 300FT OF MAIN WALKWAYS ON THE MAIN VIADUCT

The Contractor shall execute the following:

- 3.5.1 Conduct site visit to location and capture accurate measurements between piles bents for each walkway.
- 3.5.2 Fabricate walkway section offsite (length of walkway approximately 30 ft.)
- 3.5.3 Supply material, fabricate, abrasive blast and coat each section of walkway as per sketch drawing. (Refer to 8.3)
- 3.5.4 Abrasive blast to SSPC-SP10 (Near White) and paint with 3 coat system as instructed by Paria's Inspection.
- 3.5.5 Mobilize tools and equipment onsite
- 3.5.6 Remove any light poles attached to handrails in affected section and attach to temporary support which change out is in effect.
- 3.5.7 Shift electrical conduits/cables from walkway and reposition temporarily under supervision of Paria's Electrical.
- 3.5.8 Removed deteriorated section of walkway and install newly fabricated replacement section and secure each section individually.
- 3.5.9 Reinstall/ reposition all lamp posts and conduits/cables along walkway.
- 3.5.10 Via Duct shall be left in operation at the end of each day.
- 3.5.11 Touch paint any areas where the coating may have been damaged.
- 3.5.12 Dispose of derelict walkway to location within Paria as directed by Paria
- 3.5.13 Clean up area and demobilize.

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4.0 PARIA'S RESPONSIBILITY

- 4.1 Supply personnel for organizing all work permits/ certificates, monitoring contractor's performance & work standards, approving work done by the contractor and carrying out quality assurance audits.
- 4.2 Supply all pipe, fittings, gaskets, studs and nuts for permanent use.
- 4.3 Provide slop barge (capacity 40 barrels) to assist in the removal of line content.
- 4.4 Provide personnel for acceptance of work executed.
- 4.5 Provide personnel to oversee isolation/ de-isolation, depressurization/ pressurization and draining/ filling product from lines at Berth #5 and Berth #6

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5.0 CONTRACTOR'S RESPONSIBILITY

- 5.1 Supply adequate, competent and certified/ licensed labour for the specific job functions, full time supervision, materials, tools/equipment (crane barge, hyperbaric chamber etc), transport (land & sea), scaffolding and other consumables for timely completion of the scoped work.
- 5.2 Provide the necessary inspection to ensure that all the works are carried out to recommended specification and industry standard. Including NACE level 2 inspector during coating application.
- 5.3 Provide a designated safety officer at all work sites.
- 5.4 Provide live video feed during the subsea works.
- 5.5 Provide certified Scaffolding if or when required to execute works.
- 5.6 Perform work so as not to interfere or disrupt other works within the Paria Facilities.
- 5.7 All safety signs, barriers, caution tape, rope, safety equipment, personnel protective equipment, lighting, fire extinguishers (Dry powder, minimum 20lb certified to be in good working condition fit for its intended use), spark arrestors, industrial water hoses, screens, supports, etc. required to execute the scoped works in a safe manner.
- 5.8 Provide spill containment equipment and spill management systems to minimize the effects of any hydrocarbon leaks.
- 5.9 Supply portable H₂S/ SO₂ monitoring alarms for personnel at work sites and gas monitor for site hot work areas. Gas monitors used for hot work must have a sensor for flammability expressed in LEL%. Ensure that calibration certificates are available on the work site for checks by Paria's Personnel.
- 5.10 To arrange daily passes for workers/access at Security Gates.
- 5.11 To have a designated person on site who can report on activities and progress to Paria's Maintenance and Operations personnel.
- 5.12 To maintain permits to execute the entire job. The Contractor shall become familiar with and conform to Paria's Permit-to-Work Procedure, at his own expense, any limitations, provisions or requirements in or pertaining to the permits.
- 5.13 All personnel must be certified in PLEA or equivalent HSE training.
- 5.14 Fire Extinguishers to be used shall be inspected and certified. Paria's HSE Representative hold the right to approve Fire Extinguishers in use.
- 5.15 To maintain all documentation and submit relevant details to Paria on completion of all work.

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- 5.16 Prepare a Job Hazard Analysis (JHA) and Risk Assessment for review by Paria.
- 5.17 Work Schedule
 - Supply Work Schedule for the Entire Project with Daily Updates in Microsoft Project Format <u>before work execution.</u>
 - ii. Supply Daily Look-Ahead Schedule to Paria's Representative and report on job progress and expected completion.
- 5.18 Follow all guidelines within Paria's HSE Requirements for Contractors (*Refer to* Attachment 8.9).

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6.0 PARTICULAR CONDITIONS

6.1 GENERAL

- 6.1.1 The Contractor shall instruct his personnel on the safety regulations, safe working practices and conditions that are required for an Industrial/ Marine Environment, and he may seek advice on safety matters from Paria's Representatives.
- 6.1.2 The Contractor shall provide and maintain all safety equipment and requirements necessary for his personnel and for execution of work and he shall instruct his personnel on their proper use and maintenance.
- 6.1.3 Contractor's personnel must wear coveralls which clearly identify the Contracting Firm and the Worker's Name.
- 6.1.4 Contractor's equipment must be marked in a manner so that they can be readily distinguished from that owned by Paria.
- 6.1.5 The Contractor shall take all precautions necessary to ensure that the movements of his employees are limited to the site at which work is to be performed or other areas designated in the specifications for off-site work.
- 6.1.6 The areas of work, including platforms, walkways, temporary off-site offices, facilities and workshops shall at all times be maintained in a clean and safe condition during execution of the work and on completion of the work.
- 6.1.7 The Contractor will provide access (i.e. scaffolding, ladders, etc.) for all activities unless otherwise stated.
- 6.1.8 The Contractor is required to work on a 12 hour per day basis or as agreed to with Paria Representatives. Changes in the schedule are to be managed by Paria.
- 6.1.9 The scheduled completion date shall be 20 working days for the riser from the scheduled commencement date.
- 6.1.10 The Contractor shall give the Company 8 hours' notice of request for permits, equipment, material etc. which are to be supplied under the terms of the contract.
- 6.1.11 The Contractor will be given 24 hours' notice to commence job after award of contract.
- 6.1.12 The Contractor will suspend or recommence any part of the job on 8 hours' notice without any additional cost to the Company.
- 6.1.13 The Contractor will supply in writing daily, at the start of each shift the number and type of resources to be utilized on each shift. This listing shall be supplied to Operations and Maintenance.
- 6.1.14 The Contractor shall adhere to all Company Policies and Procedures during execution of the scope work and while on the Company's premises.
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6.2 HANDLING AND TRANSPORT EQUIPMENT/MATERIALS

- 6.2.1 The Contractor shall provide the necessary resources, equipment and transport for collecting, delivering, stacking and disposing of materials. Limits of travel shall be within the Industrial and Terminal environment at Pointe-a-Pierre.
- 6.2.2 The Contractor shall supply all land-based and marine transport for the completion of the works.
- 6.2.3 The Contractor shall deposit all waste material including but not limited to debris, wood and paper products at an external dump site approved by Paria.
- 6.2.4 The Contractor shall deposit all condemned equipment as directed by Paria's personnel.

6.3 SAFETY

- 6.3.1 All works are to be executed in accordance with the Company's safety requirements as specified by Paria's **HSE Requirements for Contractors** (*Refer to Attachment 8.9*).
- 6.3.2 The Contractor is responsible for ensuring that all his workmen are properly attired at all times with suitable apparel throughout the duration of the works, i.e. safety footwear, safety hats, safety glasses, flame resistant coveralls (FRC), life jackets and any other safety apparel or equipment identified as per Work Permit or Job Hazard Analysis.
- 6.3.3 All Contractor personnel must have attended Paria's HSE Orientation and must attend a Project Specific HSE Orientation course/refresher, prior to execution of works.
- 6.3.4 The Contractor shall conduct daily toolbox talks and weekly safety talk meetings on site and submit minutes of the meetings to Paria's Technical and Maintenance Department at progress meetings, clearly indicating date, topic discussed, presenter and list of attendees. Accident free man hours must be presented weekly.
- 6.3.5 All Contractor equipment and transport, before being brought on site and/or before any activity requiring its use onsite commences, must have all valid Safety and Regulatory Inspection Certificate(s). N.B: All lifting equipment and air vessels **MUST** be certified by an authorized body).
- 6.3.6 All diesel driven equipment/vehicles must be fitted with an approved spark arrestor prior to entering any Industrial Area.
- 6.3.7 The contractor shall supply Fire Watch and/or Hole Watch for Hot Work/Confined Space Entry Certificates where required.
- 6.3.8 The contractor is responsible for provision of the Job Safety Method Statement, Job Hazard Analysis and Risk Assessment which will be reviewed by Paria's Representative.

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6.3.9 The contractor is responsible for assigning a full-time competent point person that must be present on site at all times. An alternate must also be provided.

7.0 INSTRUCTIONS TO BIDDERS

Paria Fuel Trading Company Limited invites the submission of Bids from the short-listed Contractors for the performance of certain Works namely **MISCELLANEOUS REPAIRS AND REFURBISHMENT WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND SERVICING OF MOORING BUOYS** at the Company's Facility. for which a bid is to be submitted in accordance with all preconditions relating hereto.

7.1 A mandatory site visit shall be conducted for the Tender.

- 7.2 In submitting a Tender, the BIDDER warrants he has thoroughly examined these documents, understands and has the capabilities for executing the works and/or providing the services specified and is familiar with conditions at site and in the general area applicable to the works and/or services.
- 7.3 In each case the conditions and terms of the documents issued herewith, supplemented by the particulars provided by the BIDDER in his Form of Bid and its enclosures and finally negotiated and agreed by Company and BIDDER, are intended to be included without further amendment in the Contract between the Company and the BIDDER.
- 7.4 It is the BIDDER'S responsibility to review the specifications (including drawings where applicable) and to present any and all exceptions, suggested modifications and substitutions in a separate and independent section of his Bid proposal. Failure to do so shall in no way relieve the BIDDER of his responsibility to provide a complete and operable facility in accordance with the proper intent hereof and with standards of quality generally accepted in the industry.
- 7.5 <u>SUBMISSION OF BIDS</u> Bidders shall prepare one (1) bid one (1) e-mail with two
 (2) attachments clearly distinguishing the Technical (All Non-Cost Information) and Commercial (All Cost Information) attachments which must be sent to the email account:
 ITB_Responses@paria-tt.com ONLY.

Queries should be emailed to: contract_services_enquiries@paria-tt.com ONLY.

- 7.6 The Bidder shall ensure that all Bid Attachments are clearly labelled with the Job Title as well as, "Technical" and "Commercial" respectively.
- 7.7 Paria Fuel Trading Company Limited reserves the right to negotiate with Bidder.

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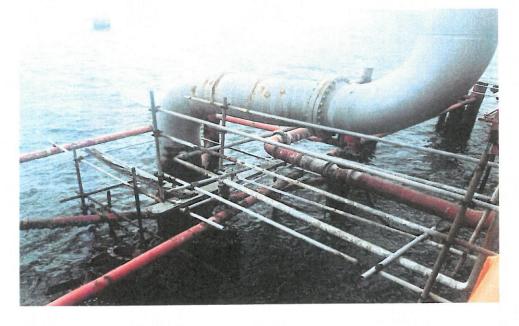
8.0 ATTACHMENTS

8.1 PHOTOGRAPH OF SEA LINE #36 RISER – BERTH No.6

Existing Riser Pipe And Elbow



Existing Elbow Riser And Riser Support Braces



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Existing Riser Support Clamp



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Berth # 6 - SL 36 North /South pipe support



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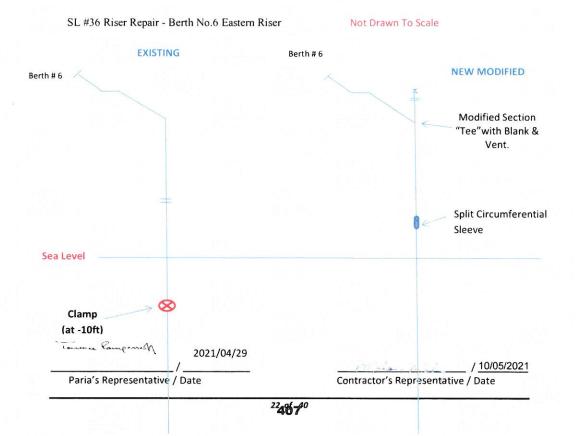
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Berth #6 – SL 36 North /South pipe support



8.2 SEA LINE #36 RISER - BERTH #6 (Sketch No.01)



Berth #5

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Cut & Install 1 - 30" 150# R.F. Flange

Berth #5

SEA LINE #36 RISER - BERTH #6 (Sketch No.01) 8.3

Sketch of Walkway with Handrails

Berth # 5

Service - Fuel Oil Berth # 5

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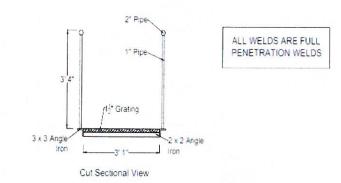
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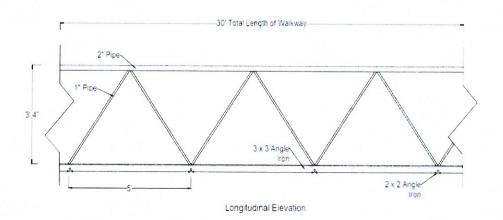
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Attached Pictures of Walkways on MVD

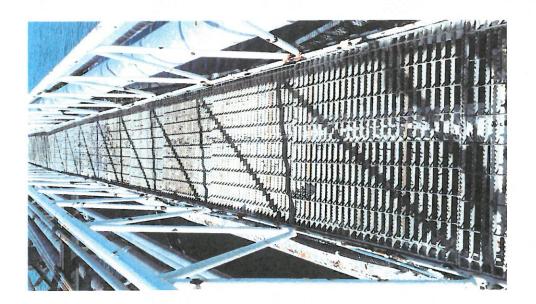
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8.3 TECHNICAL SPECIFICATION

8.3.1 CODES AND STANDARDS

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The following are some of the codes and standards which shall be considered part of this specification: -

API 1104 Standard for Welding Pipelines and Related Facilities.

API RP 1110 Recommended Practice for the Pressure Testing of Liquid Lines.

API 5L Line Pipe.

ASTM A 233-58T Storage and Handling of Welding Electrodes.

ANSI B 16.5 Steel Pipe Flanges and Flanged Fittings.

ANSI B16.11 Forged Steel Fittings, Socket Welded and Threaded.

ANSI B31.3 Process Piping.

ANSI B 16.47 Steel Pipe Flanges and Flanged Fittings

ASME B31.4 Pipeline Transportation System for Liquid Hydrocarbons and Other Liquids.

SSPC-SP10 Near White Blast Cleaning.

API RP 521 Guide for Pressure Relief and Depressuring Systems.

AWS D1.1 Structural Welding Code - Steel.

TTB5 21-10-506 Labelling of pipelines and conduits.

ASME B16.20 Metallic Gaskets for Pipe Flanges.

ASTM A 53 Specification for welded and Seamless Steel Pipe.

ASTM A 105 Specification for Forgings, Carbon Steel, for Piping Components.

ASTM A 194 Specification for Carbon and Alloy Steel Nuts for Bolts.

The related codes, specifications and standards referred to herein shall be the latest edition including all addenda and supplemental.

Deviation from the above codes and standards would <u>ONLY</u> be allowed with prior written approval from the Paria.

8.3.2 SCAFFOLDING

a) Cater to provide scaffolding for the riser and topside piping inspection, repair, testing and installation works and /or for the riser repair works, as required.

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b) Ensure that scaffolding is erected and approved by certified and experienced scaffolding erectors as required by OSHA regulation (29 CFR 1910.28 / 1926.451) or equivalent standard.

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- c) Ensure that all scaffolding members, clamps, planks and bolts shall be of the approved design and specification as required by OSHA regulation (29 CFR 1910.28 / 1926.451) or equivalent standard and shall be in good condition and fit for use.
- *d)* Ensure that scaffolding shall comprise of properly crected pipe frame, including handrail, and secured plank flooring, and appropriate ladder access from location deck to flooring area of scaffolding.
- *e)* Ensure that for riser repair and protection works, scaffolding shall be mounted and certified at least one (1) day prior to proposed execution of said works.
- *f)* Inspect the erected scaffolding on a daily basis and to make necessary adjustments to ensure its continued safety for the duration on the works.

8.3.3 SURFACE PREPARATION AND COATING

8.3.3.1 General

- *a)* The Contractor shall ensure all flanged gasket faces are protected adequately during all blasting and coating operations.
- *b)* The Contractor shall allow for inspection of the blasted surface and the painting systems by Paria Inspection personnel prior to acceptance of that portion of the work.
- c) All lines must be coated in an approved colour and colour coded identifying line contents, sizes and destination consistent with TTBS Specification for the Identification of the Contents of Pipelines, Piping, Ducts and Conduits TT570:2002.
- *d)* Care should be taken during transportation of finished coated piping to prevent coating damage. In the event coating is damaged (scraped, chipped etc.) Paria will determine if the piping is to be re-blasted and re-coated, which shall be done at the Contractor's expense.

8.3.3.2 Abrasive Blasting Operations

 a) All surfaces shall have all weld slags, splatter and sharp edges removed by grinding. Temporary welds shall be removed and the surface ground smooth. Visible deposits of oil

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and grease shall be removed prior to blasting by solvent cleaning in accordance with SSPC-SP1 - Solvent Cleaning.

- *b)* After removal of oil and grease, all surfaces shall be blast cleaned in accordance with the surface preparation requirements as listed in the coating schedule.
- c) The abrasive used for blast cleaning shall be grit or sharp abrasive with uniform distribution of particle sizes selected to achieve the surface profile depths (anchor pattern) specified. Black beauty, metallic or synthetic materials listed by SSPC are acceptable. They shall be free of salts, dust, dirt, clay and other extraneous matter. Where metallic abrasives are used, they shall be angular and hard.
- *d)* The blasting shall achieve a sharp anchor profile (not rounded) of 1.5 3 mils. The profile depth shall be checked by a Kean Tator or a Clemex comparator.
- e) After blasting, the surface shall have all dust and abrasive removed and shall be kept free of oil, grease, dirt and moisture until protective coating is applied. Any surfaces becoming contaminated shall be washed with fresh water or an emulsifier and reblasted. Any clean surfaces left overnight without painting shall be re-blasted before application of any paint.

8.3.3.3 Coating Systems

- a) Coating system used shall be selected from Paria's approved list of coatings (*Refer to* Attachment 8.10). Additional coatings may be used once approved by Paria.
- b) Paints shall be thinned and mixed according to the manufacturer's specifications and used before the end of their stated pot life. The manufacturer's specifications regarding recoat intervals, drying and curing shall be strictly observed.
- c) Special attention shall be given to all welds and edges to ensure that the specified film build is achieved.
- d) Minimize lap marks by 'feathering' out the paint along edges.

8.3.3.4 Painting Inspection and Testing

Paria shall be the overall authority for all painting inspection and testing. Causes for rejection of painting systems shall include, but shall not be limited to:

- *a)* Surface preparation considered unsatisfactory for any reason, including flash rusting, mpresence of dust or unnecessary extended period of time between cleaning and coating.
- b) Failure of the Contractor to observe the minimum specified drying time between coats.
- c) Failure of the Contractor to perform such additional operations as may be necessary to properly prepare coated surfaces as regards to time and temperature.

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d) Inadequate drying, curing and hardening of coating.

- *c)* Use of unidentified coating or a different coating system without the approval of the Company (Paria).
- *f)* Dry film thickness is less than the minimum requirement of this specification.
- *g)* Abrasive blasting or application of coating without notifying and having Paria's Representatives on site to witness and/ or inspect surfaces during said activities.
- h) The Contractor shall give required access to Paria's Personnel associated with this job to perform or conduct inspection and rejection or approval of work being done if and when required.

8.3.4 RISER/ CLAMP PROTECTION

- a) Install riser protection utilizing Paria Operations approved riser protection system in according to the manufacturer's specification or Paria's Inspection personnel. All exposed riser/ pipeline metal surfaces below the mean high level water mark and within the splash zone shall be grit blasted, primed, coated with Paria's approved glass flake reinforced epoxy as instructed by Paria's Inspection personnel.
- *b)* All clamps and support members shall be grit blasted, primed and coated with glass flake reinforced epoxy as instructed by Paria's Inspection personnel.
- *c)* The Manufacturers/ Suppliers of the product shall provide all supervision for the proper installation of the protection system. The product warranty period shall be provided in writing to Paria Operations and shall not be less than one (1) year.

8.3.5 WELDING

8.3.5.1 General

- a) All welders to be used on the works shall be certified for the current year of operation.
- *b)* Welding shall not be done when the quality of the completed weld would be impaired by the weather conditions. Weather protection devices shall be used where necessary.
- c) Ares shall be struck only on fusion faces and not on other areas of the pipe.
- d) Electrode holders shall be of the fully insulated type.
- e) All welding must be to API 570/ 1104, as such the Paria's Representative will determine the methods of inspection, and an independent inspection company shall determine weld quality. The Contractor is bound by the interpretation of said independent Inspection

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Company. If defective welding is found, the Contractor will be required to repair it and have it re-inspected at his own expense until a satisfactory weld is obtained.

100% radiographic inspection on all welds. D

8.3.5.2 Weld Preparation

- a) All bevelled welding ends and the outer diameter (OD) and inner diameter (ID) of the pipe for a distance of two inches (2") adjacent to the bevel, shall be cleaned by power tools to a bright finish prior to line up.
- b) Burrs, small nicks or irregularities on the bevelled weld edges shall be removed with the aid of a rotating flexible grinding disc.

8.3.5.3 Pipe Alignment

a) The ends of the pipe shall be aligned within the tolerance of ASME B31.4, ASME B31.3, and relevant welding procedure.

8.3.5.4 Electrodes

- a) The electrodes to be used on the works shall comply with ASTM Designation: A 233-58T, AWS Specification A 5.1 - 58T or ASME Boiler and Pressure Vessel code Specification No: SA-233.
- b) The Contractor shall have adequate facilities for the storage, handling, drying and baking of coated electrodes. Different grades shall be completely segregated during drying and storage.
- c) Relevant welding procedure.

8.4 PRESSURE TESTING

- a) The piping shall be tested in accordance with API RP1110 Recommended Practice for the Pressure Testing of Liquid Petroleum Lines and ASME B31.4 - Pipeline Transportation System for Liquid Hydrocarbons and Other Liquids.
- b) The Contractor shall be required to pressure test all piping to the specified pressure for a period of four (4) hours. During this period the pressure shall be constant. The Contractor shall provide Paria Inspection with records of all pressure tests on certified pressure recorder charts properly certified and stamped. Pressure testing shall be carried out with a certified pressure recorder calibrated for +/- one (1) psi error to operate between 40% and

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80% of the chart range. The pressure displayed by the recorder shall be deemed to be the correct pressure.

c) Testing pressure for various pipe spools shall be as follows:

- ANSI #150 450 psi.
- Old to new welds one and a half $(1 \frac{1}{2})$ times the operating pressure.
- *d)* The Contractor shall supply, install and then remove all temporary fittings and connections used for hydrostatic testing. Paria shall be the sole authority on all inspection and pressure testing and can modify the above as sees fit.

8.5 MATERIALS

8.5.1 CONTRACTOR SUPPLY

- *a)* Unless otherwise specified, the Contractor shall supply all materials for the completion of the works. Paria shall provide pipes, flanges, gaskets, fittings, bolts and nuts for permanent construction.
- *b)* In the event that the materials supplied are more than required, the Contractor shall be required to hold same in his safe keeping and return same to Paria on completion of the works.
- c) The Contractor shall supply ALL materials required for the pressure testing works inclusive of gaskets and blinds, certified recorder and pressure gauge, pump, valves, fittings and any other equipment or material to carry out these works as per API RP 1110.
- d) The Contractor shall supply all other material and consumables required for the successful completion of the works including, but not limited to paints, primers, thinners, wrap, welding rods, gas for oxyacetylene cutting, cathodic protection anodes, construction steel for supports and clamps, neoprene rubber.
- e) The Contractor shall ensure that all materials purchased are in good condition, in the quantity required and with proper documentation. If the Contractor is in doubt as to the quality of the materials supplied by Paria, the Contractor shall immediately inform the Paria's Representative. Paria shall carry out an assessment. The Contractor will be guided by said assessment. The Contractor shall be responsible for all materials supplied to him by Paria and shall make good any subsequent loss or damage at his expense.

8.6 EQUIPMENT

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- *a)* All make or brand of materials not particularly specified must bear certification or stamp of approval by U.L, CSA, NEMA, ANSI or any other internationally recognized certification body.
- *b)* All equipment and materials shall be of proven design, manufactured and tested in accordance with the minimum requirements of the codes and standards referred to herein.
- c) All equipment and materials shall be approved for their specific purpose, environment and application and shall be suitably labelled or listed as complying with the applicable standards and tests.

8.7 INSPECTION

- a) All works performed by the Contractor and all materials furnished by the Contractor shall be subjected to inspection by Paria's Representative. The Contractor shall furnish Paria's Representative access to the works at all times whenever it is in progress and shall furnish every reasonable facility for inspection activity.
- b) The decision of Paria's Representative shall be conclusive upon the Contractor as to the performance of the work and the furnishing of materials. If it is found that either materials furnished by the Contractor or work performed by him are faulty or fail to comply with or meet the requirements of the Contract Specifications, then the Contractor shall at his own expense make good to the satisfaction of Paria's Representative all work or material of a faulty nature faulty nature.

8.8 PROJECT MANAGEMENT AND PROCEDURES

- 8.8.1 Timeline The Project Management of the fabrication and installation of the Work will be reviewed to properly assess the Contractor's capability to successfully plan and execute the Work for each Job. Hence a proper timeline (Job Execution Schedule) is required and must be presented using Microsoft Project software.
- 8.8.2 Personnel The Contractor shall provide competent and qualified management and technical personnel required for completing the following tasks:
 - a) Material procurement, handling and storage.
 - b) Preparation and maintenance of schedules.
 - c) Checking accuracy/completeness, recording and cataloguing all NDT inspection and test reports.

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d) Production of shop drawings.

e) Fabrication and erection including temporary erection aids.

f) Quality control/assurance and non-destructive testing.

h) Project Management, Gantt Charts, and Project Execution Plan.

i) Participate in the preparation of Risk assessment Matrix.

i) Lift plan, dive plan and equipment certification

k) Inspection Test Plan.

- 8.8.3 The Contractor shall submit to the Paria's Representative daily progress reports. This is to include a report of the previous day's activities as well as planned activities to take place on the day the report is given. The report is to be submitted by 8:00 am each morning. The progress reports are to be measured against the Work Schedule and Base Line Plan, which must be submitted for each Job and approved prior to the start of each Job.
- 8.8.4 Dossier Submissions The Contractor shall retain and submit to Paria at a minimum all the items requested below:

a) Table of Contents

b) Method Statement

c) Gantt Chart (Proposed vs Actual)

d) Mill certificates and traceability maps for pipe and fittings.

e) All NDE Procedures

f) Welding Procedures used (WPS) with all supporting PQRs

g) Welders performance qualification and welders list

h) Weld inspection records including weld and NDT maps.

i) Calibration certificates for all NDE equipment

j) NDE examiners certifications

k) Data sheets for all coatings

l) Coating inspection records

m) Inspection Test Plan

n) Results of all NDE Performed

o) As-Built Drawings (AutoCAD)

p) Video of subsea works– cut point, root pass, PT, finish weld, hydro test, flange integrity and finish protective coating.

All documents to be signed and stamped as required.

One (1) hard copy and one (1) soft copy of the dossier is to be supplied to Paria. A three (3) ring binder shall be used with separators and plastic sheet protectors.

Commentampersety	2021/04/29		
	/		/ 10/05/2021
Paria's Representative ,	/ Date	Contractor's Represen	cative / Date



DEPARTMENT	:	MAINTENANCE SERVICES.
DATE	1	2021 APRIL 29
LOCATION	:	POINTE-A-PIERRE
JOB DESCRIPTIO	N :	MISCELLANEOUS REPAIRS AND REFURBISHMENT
		WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND
		SERVICING OF MOORING BUOYS

8.9 HSE REQUIREMENTS FOR CONTRACTORS

These HSE requirements are provided to reduce the risk to personnel, plant, the public and the environment and must be followed by all contractor and contracted employees.

1.0 HSE MANAGEMENT SYSTEM

Contractors shall implement an appropriate HSE Management System for their operations.

2.0 HSE LEGISLATION

All persons are required to comply with the requirements of HSE related legislation which include, but are not limited to, the Occupational Safety and Health Act 2004 (Amended 2006) and the Environmental Management Act 2000 and associated Regulations.

3.0 BASIC HSE PRINCIPLES

Contractors and contracted personnel are required to obey Paria's Basic HSE Principles at all times. These are:

1.Follow the Safe System of Work at all times

Risk assessments must be done for all activities; and all contractor and maintenance jobs must follow the Permit to Work System

- 2.Mechanical lifting must not be executed unless an assessment is done by a competent person and the necessary precautions implemented
- 3. Do not work on heights unless adequate precautions are implemented
- 4.No one must be under the influence of alcohol or illegal drugs while on Paria's premises
- Follow safe driving rules Use seatbelts. Do not use mobile phones while driving. Obey traffic signs.

6. Use appropriate PPE at all times

7. Report all incidents and hazards promptly

2021/04/29

/ 10/05/2021 Contractor's Representative / Date

Paria's Representative / Date

DEPARTMENT	:	MAINTENANCE SERVICES.
DATE	:	2021 APRIL 29
LOCATION	:	POINTE-A-PIERRE
JOB DESCRIPTIC	DN :	MISCELLANEOUS REPAIRS AND REFURBISHMENT
		WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND
		SERVICING OF MOORING BUOYS

4.0 RISK ASSESSMENT/JHA AND JOB SAFETY METHOD STATEMENT

Contractors must conduct suitable and sufficient risk assessments or Job Hazard Analyses (JHAs) for all activities and for all Work Permits. Appropriate controls shall be developed and implemented to ensure that the risk is As Low As Reasonably Practicable. Any change in conditions, emergence of relevant information or any HSE incidents renders the risk assessment void and must be redone taking into consideration the changes or gaps identified. **The Contractor shall provide a Job Safety Method Statements for all works.**

5.0 AWARENESS, TRAINING AND CERTIFICATION

All contractors and contracted employees must undergo mandatory HSSE Orientation Training to ensure that they are knowledgeable about the HSE rules and requirements for working at Paria. The HSSE Orientation program includes information on Permit to Work Procedure, PPE requirements, Incident Reporting and Near Miss Reporting.

The contractor shall conduct Tool Box talks daily prior to the commencement of work and provide evidence of these (Attendance Sheets, Minutes, Topics discussed, etc.) to Paria's representative whenever required.

The contractor shall ensure that all personnel have the required training and certification to carry out their duties in safe manner (Standard Operating Procedures, Defensive Driving, Emergency Response, Scaffolding erection and inspection, etc.).

6.0 CHEMICAL SAFETY MANAGEMENT

Contractors must have suitable and sufficient procedures in place to manage the use, handling, storage, transportation and disposal of chemicals. All requirements must be adequately addressed in the risk assessments. The Safety Data Sheets for chemicals must be on site and all relevant persons must be trained in the contents of the SDS.

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2021/04/29

Paria's Representative / Date

/ 10/05/2021 Contractor's Representative / Date

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DEPARTMENT :	MAINTENANCE SERVICES.
DATE :	2021 APRIL 29
LOCATION :	POINTE-A-PIERRE
JOB DESCRIPTION:	MISCELLANEOUS REPAIRS AND REFURBISHMENT
	WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND
	SERVICING OF MOORING BUOYS

7.0 EMERGENCY RESPONSE PLANS

Medical Emergency Response Plan - Contractors must have an appropriate Medical Emergency Response Plan for their personnel for medical injuries or illnesses. This plan will be reviewed by Paria's HSSE personnel for adequacy prior to the commencement of any work.

Other HSE emergencies - Contractors must have Emergency Response Plans for fires, gascous emissions, spills and any other credible scenario. These Plans must be in full alignment with Paria's ERPs and must clearly identify emergency response personnel and emergency response equipment.

In the event of an emergency (e.g., fire or spill) external to the job that requires evacuation, Paria personnel shall notify the contractor employees to stop work and evacuate. The contractor supervisor must ensure that all personnel safely evacuate to the Muster Point and are accounted for.

8.0 PERMIT TO WORK/STANDARD WORK INSTRUCTIONS/SAFETY RULES

Contractors and contracted personnel are required to follow the Permit to Work Procedure and Standard Work Instructions (SWI) at all times. Contractors shall ensure that all relevant employees receive the Permit to Work training prior to commencement of the job. All works are to be executed in accordance with the Company's safety rules and requirements.

9.0 SUPERVISION

The contractor shall provide competent supervision at all times during the execution of the job. Contractor supervision must ensure that all employees on the job are aware of the hazards related to the job and the relevant control measures.

----- Kamproneth 2021/04/29

Paria's Representative / Date

DEPARTMENT	:	MAINTENANCE SERVICES.
DATE	:	2021 APRIL 29
LOCATION	-	POINTE-A-PIERRE
JOB DESCRIPTIO	N :	MISCELLANEOUS REPAIRS AND REFURBISHMENT
		WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND
		SERVICING OF MOORING BUOYS

10.0 VEHICLES AND EQUIPMENT

All Contractor vehicles, tools and equipment must be in good working order and used in accordance with manufacturer's specifications. Diesel driven equipment should be used and fitted with a Paria approved spark arrestor. All electrical equipment must meet the NFPA 70 area classification requirements applicable to the concentration of flammable vapors present. The contractor shall ensure that their tools and equipment are inspected before each use to ensure that it is fit for purpose and that there are no defects.

All relevant documentation inclusive of government and third-party inspections must be provided to the Company prior to commencement of works. Vehicles, tools and equipment shall be subject to inspections/audits by HSEQ personnel at any time.

11.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) AND SAFETY EQUIPMENT

The contractor shall ensure that their employees are provided with the required PPE to perform their job tasks in accordance with the Job risk assessment and Paria's PPE requirements. The contractor shall also ensure that their employees wear and use their PPE as and when required. All PPE must meet ANSI or other internationally accepted standard. Standard PPE for Paria's industrial areas is fire resistant clothing, safety glasses, safety footwear and safety helmet.

The Contractor shall provide all safety devices, emergency response equipment and other equipment required for the job as identified by the task risk assessment or Job Hazard Analysis / Risk Assessment.

The contractor is required to provide gas monitoring equipment in accordance with the requirements of the OSH Act and the risk assessment. All such equipment must be calibrated and fit for purpose.

12.0 WELFARE

The contractor shall provide adequate welfare facilities for their employees in accordance with the requirements of the OSH Act and the risk assessment. These requirements include, change room, separate area for meals, toilet facilities, hand wash area, drinking water, etc.

13.0 DRUG AND ALCOHOL TESTING

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2021/04/29

Paria's Representative / Date

Contractor's Representative / Date

DEPARTMENT :	MAINTENANCE SERVICES.
DATE :	2021 APRIL 29
LOCATION :	POINTE-A-PIERRE
JOB DESCRIPTION:	MISCELLANEOUS REPAIRS AND REFURBISHMENT
	WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND
	SERVICING OF MOORING BUOYS

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The contractor shall conduct random and discretionary drug and alcohol testing on employees and provide the test results to Paria.

14.0 MEDICAL SURVEILLANCE

The contractor shall conduct medical surveillance of their employees in accordance with the requirements of the OSH Act and the risk assessment.

15.0 WASTE MANAGEMENT

The contractor shall comply with Paria's waste disposal requirements. All waste disposal activities must be reviewed and approved by Paria's HSEQ Department.

16.0 INCIDENT REPORTING

Contractor personnel are required to immediately report any HSE incidents to the Company supervisor in accordance with Paria's Incident Reporting Procedure.

17.0 NEAR MISSES AND HSE OBSERVATIONS

Contractors and contracted personnel are required to report near Misses and HSE Observations in accordance with Paria's Near Miss reporting Procedure.

18.0 WEEKLY HSE PERFORMANCE

Contractors are required to submit regular updates on their HSE performance on Paria's Contractor Weekly HSE Report Form.

19.0 DESIGNATED WORK AREAS

There shall be designated work areas, Muster Points, access and egress routes for the job. Contractor employees shall not transgress beyond these designated areas. Contractor employees shall be transported to and from the designated work area.

----- Concom 2021/04/29

/ 10/05/2021 Contractor's Representative / Date

Paria's Representative / Date

8.10 PARIA APPROVED LIST OF COATINGS

Pipe wrap :Armor Plate 360 MP (Surface preparation -Grit Blast- SSP SP10)

ASSOC. PIP CTSE1000	EXTERNAL	COATING SYST	EMS PIP CT	SE1000-D115
co/	ATING SYSTEM	NO. 15	11.5.	GE 1 OF 2
Inarganic	Zind/Epoxy Mat	tic/Uretnane		RUARY 2006
	17/FM/UR		1	
	ESCRIPTION	B	Y CHECKED	APPROVE
NO. DATE REVISION D	ATTACHMENT #			
Hole ICCO	211 2 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
			-	
			PROJECT NO.	
ACILITY NAME Further Refinery				
OCATION Cointe-a-Everro				
ESCRIPTION				
regard zone personal light with epoxy mastic, released a	delo M) and two-p	ackage a phatic u	rethand for so (0.90)	
-				
URFACES:				
larbon steel. Do not apply to stimuloss steel or nicke a	ai bys			
SURFACE PREPARATION:				
ensive blast to SSPC 3P-10 (Sa 2.5) with a nominal	profile of 2 s to	e para		
	1.000			
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Mixing and Thinning: Mix according to manufacturer's instructions and SSEC PA 1

Application: Apply around no to manufacturars instructions and PIF CTSE/000

Job Stencil Required: Yes 🗍 No 🗌

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/ 10/05/2021 Contractor's Representative / Date

Paria's Representative / Date

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DEPARTMENT	:	MAINTENANCE SERVICES.
DATE	÷	2021 APRIL 29
LOCATION	÷	POINTE-A-PIERRE
JOB DESCRIPTION	1:	MISCELLANEOUS REPAIRS AND REFURBISHMENT
		WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND

3

SERVICING OF MOORING BUOYS

		SSOC. PIP CTSE1000	EXTERNAL COATING SYSTEM	MS PIP CTSE1000-D115
			DATING SYSTEM NO 15 ic Zinc/Epoxy Mastic/Uretharie 12/EM/UR	PAGE 2 OF 2 FEBRUARY 2006
FACILITY NAME	Petroton Retin	?r/		PROJECT NO
LOCATION	Pointe a Pierre			
Repair				

Manufacturer	Coat 1 Inorganic Zinc	Coat 2 Epoxy Mastic	Coat 3 Aliphatic Urethane
Addeson	Dimetoote SHIS	Americok 406	Americast 450 MS
Carbohna	Carbo Zinc 11 HS	Carbomastic 15	Carbolhane 134 HS
Jevoe	Catha Coat 304V	Sar-Rust 236	Devthane 379
semper'	Galvosil 1568	Hempedur 4515	55951/ Some
efen aliansi	Inforcing 22 KIS	interseal 386 FP	Inferthane 990 US
otun	Hesist G II	Jolus Mastic 87	Hard Top AS
Sherwin-Williams	Zinc Clad II HS	Macropoxy HS 856-400	865-306 Senes
Sigmu	Silguard MC II 7551(JS	Sigmecover 7476	Sigmadur VI::5A 5529
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Notes.

1) Finish Colour shall be determined as per Attachment # 2 of this BM - Refinery Piping Colour Codes

2) . Each coal of paint shall be of a contristing colour to indicate the extent of coverage

2021/04/29

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 Costing maturals used in the same system shall be supplied by the same manufacturer unless attendise approved by Petrotion

4) The latest issue of the coating monufacturer's procled dista spects: approaction instructions and MSOS shall be available at the punctury site and completed with during painting operations.

 All blast ulwaned surfaces shall be inspected by PETROTRIN inspection. Department for proper cleaning before painting.

Tomme Ramponson

Paria's Representative / Date



MISCELLANEOUS REPAIRS AND REFURBISHMENT WORKS AT #5 & #6 BERTHS

AND MAIN VIADUCT

<u>ADDENDUM I</u>

The following are queries raised with clarifications. This addendum has to be signed and submitted with the Technical tender submission.

1. Query - Who is responsible for pumping back from the berths to "clear" the lines with water?

Response – The Contractor is responsible for the safe removal of hydrocarbon contents from the line and to ensure that the line is clear and dry.

2. Query - Who is supplying the packer to seal the line?

Response – The Contractor is responsible to supply <u>ALL</u> resources (Manpower, Tools and Equipment) to safely execute the job.

3. Query - Who is responsible for supplying pumping equipment to clean the lines?

Response: The Contractor is responsible to supply <u>ALL</u> resources (Manpower, Tools and Equipment) to safely execute the job.

4. Query - Will the line be "pig", if yes who is responsible?

Response: This is based on the method statement provided by the contractor as they will be responsible to supply <u>ALL</u> resources (Manpower, Tools and Equipment) to safely execute the job.

5. Query - What depth of penetration do they want on the support pile?

Response: The total length of the support pile is 140 ft, with approximately 80 ft penetration into the seabed.

6. Query -Where does the pipeline go to? Bent 80?

Response: The pipeline runs from: Berth No. 6 and Berth No. 5 to Pile Bend 80 and then to the storage onshore.

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17/05/2021

Paria's Representative / Date

Contractor's Representative / Date

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Page 1 of 4

7. Query -What is the water depth at berths 5 & 6 and the storm moorings?

Response: The water depth varies between approximately 60ft - 70ft.

8. Query - In light of the Covid lock down, when will the site visit be?

Response: At the virtual site visit meeting held, all vendors requiring a physical site visit was requested to send email correspondence to our Paria representative on or before Friday 7th May 20 informing us of same and was also limited to one person due to Covid-19 restrictions. This email was required for arranging of security clearance and offshore transport.

- 9. With reference to page 8 of 40 of the Technical documents, Item no. 3.1.9 Cut, fabricate, weld and install the new modified 30" diameter schedule 20 pipe spool *Please confirm length of pile*.
 - Response: The length of the new modified 30" diameter schedule 20 pipe spool is approximate 40 ft.
 - The total length of the support pile is 140ft long x 36" diameter x 1.25" wall thickness, with approximately 80ft penetration into the seabed.
- 10. Can the closing date for submission of bids be extended?
 - Response: Due to Paria's urgency in getting these works competed we are unable to extend the deadline for submission of bids at this time.
- 11. Query The drawing on pages 23 and 24 are not clear. They are incomplete or missing something.

Response: Please see below for entire sketch.

Tenence Compensel 2021/05/14

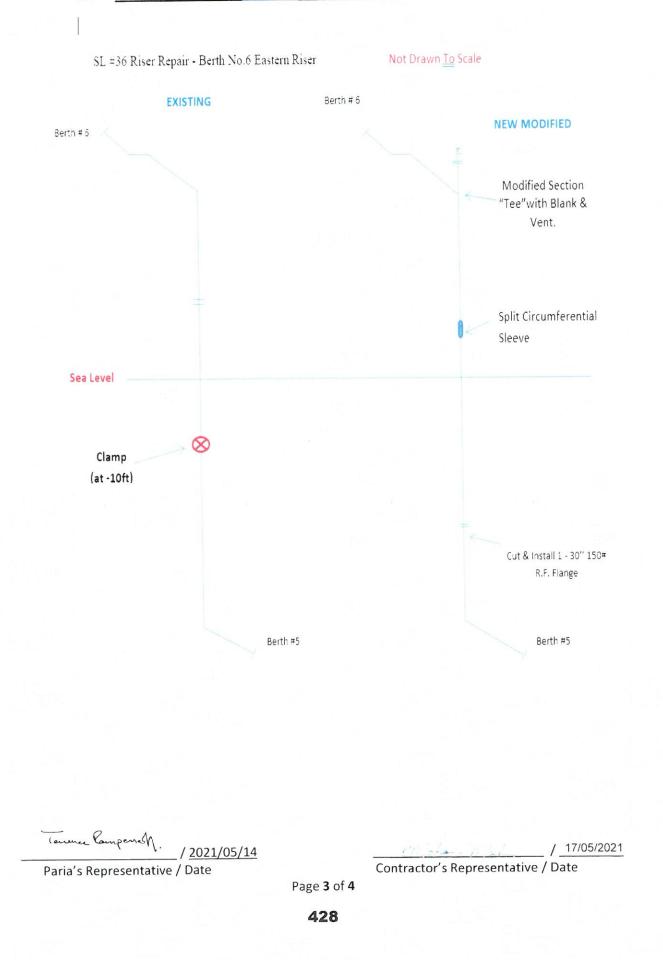
/ 17/05/2021

Paria's Representative / Date

Contractor's Representative / Date

Page 2 of 4

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- 12. With reference to page 8 of 40 of the Technical documents, Item no. 3.1.9 Cut, fabricate, weld and install the new modified 30" diameter schedule 20 pipe spool *Please confirm length of pile*.
 - Response: The length of the new modified 30" diameter schedule 20 pipe spool is approximate 40 ft.
 - The total length of the support pile is 140ft long x 36" diameter x 1.25" wall thickness, with approximately 80ft penetration into the seabed.

Other Clarification Note:

a) 2.2 <u>ISSUING OF JOB</u>

Prior to the commencement of the Job, the Parties shall hold a meeting at which the scheduled commencement date will be agreed upon along with other details. The scheduled completion date shall be 20 working days from the scheduled commencement date. The Price for the Job shall be fixed by agreement, recorded in writing and signed by the Parties' duly authorized representatives.

Note: With reference to the above section 2.2 of the Technical Bid please see the following:

The total duration for the entire job shall be no more than forty-five (45) working days.

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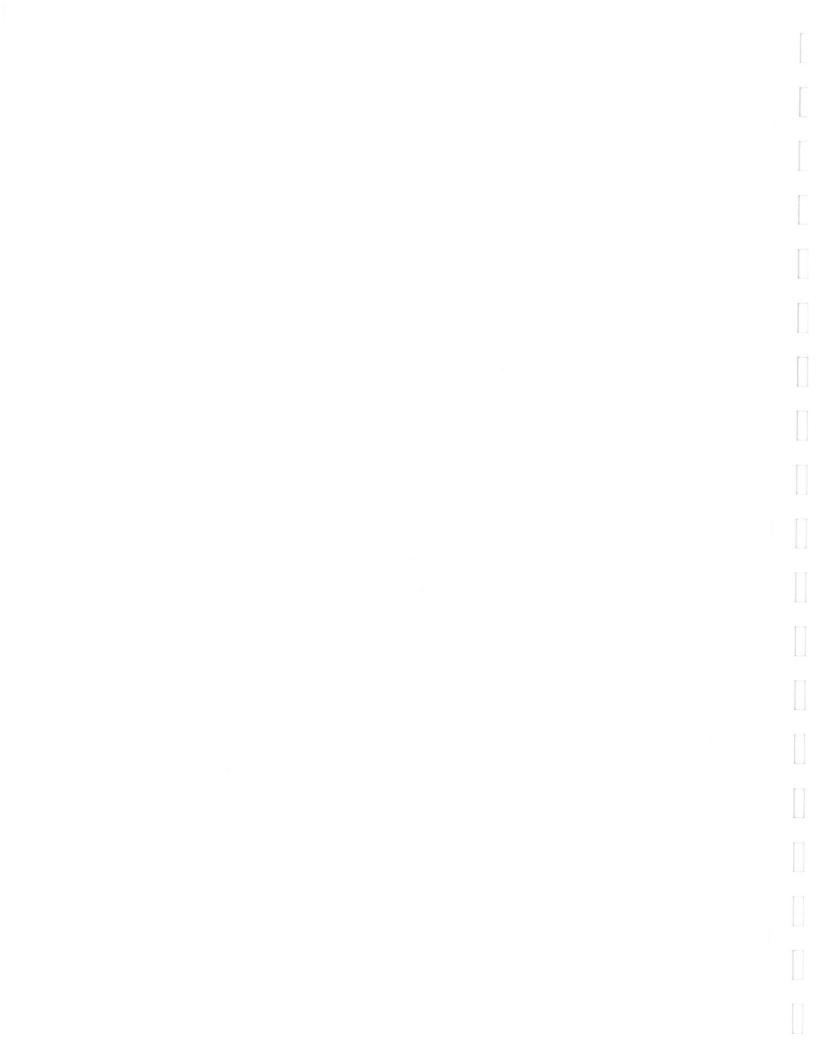
Paria's Representative / Date

Contractor's Representative / Date

Page 4 of 4

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PARIA FUEL TRADING COMPANY LIMITED

Title	;	PERMIT TO WORK PROCEDURE
Effective Date	:	2019 October 01
Date of Next Review	:	2020 September 30
Document Number	:	HSE 02

The signatures below confirm that this Procedure has been approved for release and implementation.

Custodian	Name	Signature Date		
(HSEQ Lead)	Randolph Archbald	Randiph Frechold 2019/12/1		
Approving Authority (General Manager)	Lisa Ali	Alibe Al	21/10/19	

PERMIT TO WORK PROCEDURE

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5.0	Roles and Responsibilities	4-8
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PERMIT TO WORK (PTW) PROCEDURE

1.0 Purpose

Paria Fuel Trading Company Limited (Paria) supplies petroleum products to the local and regional markets; and also provides Terminal and Bunkering Services to its customers. This Permit to Work (PTW) Procedure has been developed to provide a formal documented process for controlling risks associated with certain work activities such as contractor and maintenance works. A Permit to Work Procedure does not replace a risk assessment and does not eliminate all the hazards related to a job. All parties must ensure that all risks are considered; and that appropriate controls are developed, implemented and monitored during the job. It is intended that this Procedure will:

- establish the requirements for identifying critical information on jobs such as the nature • and extent of the work to be done, the exact location of the job, the equipment to be used, the hazards involved and the precautions to be taken
- facilitate adequate communication among all relevant parties such as the asset owner, • facility supervision, operators and those personnel carrying out the work
- prevent incompatible work from taking place simultaneously
- clearly identify who makes the application to do a job, who authorizes the job, who develops the necessary precautions, and who gives approval for work to commence
- ensure that work is not carried out unless there is proper authorization
- have clear instructions for issue, use and closure of the Permit and associated Certificates
- clearly identify high hazard work and the requirements/precautions to be followed
- establish monitoring and auditing requirements for Permit jobs

2.0 Scope

This Permit to Work Procedure applies to contractor, maintenance, civil, inspection and Turnaround related activities as well as other abnormal work activities being carried out at the facilities of Paria Fuel Trading Company Limited. Certain high risk activities such as Hot Work, Confined Space Entry and Electrical Works require additional precautions and as such, provision is made in this Procedure for Safety Certificates to also be used in the execution of such high hazard jobs.

3.0 Authority

This Procedure is authorized by the General Manager of Paria Fuel Trading Company Limited and covers all related activities and facilities.

The HSEQ Lead is the Custodian of the Permit to Work Procedure and shall:

- provide administrative support and guidance to all users 0
- continually monitor the use of the Permit to Work Procedure and facilitate consultation to improve efficiency and safety
- develop, authorize and publish Safe Work Instructions for compliance by all users.

The Asset Map shall identify all areas belonging to Paria, the managers to whom these areas are assigned, and any other areas on the PAP estate managed by other entities.

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4.0 Definitions

Asset Map	A map clearly identifying the geographical areas at PAP and the organisations responsible for each area.
Clearance	The process of removing hazardous materials from process equipment and lines, which normally involves de-pressuring and draining, followed by flushing, steaming out or purging with an inert medium
Competent	An individual who has the required training, knowledge, experience
Person	and qualifications to identify the hazards and develop effective precautions to mitigate those hazards
Confined Space	An area or space which, by design, has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants or an oxygen deficient atmosphere; and which is not intended for continuous worker occupancy.
Excavation	Any man-made cut, cavity, trench, or depression in the Earth's surface formed by earth removal, e.g., a trench, ditch, shaft, well, or tunnel.
Hazard	A source or situation with a potential for adverse effects such as human injury or ill-health, property damage or harm to the environment
Hot Work	Any activity or use of any equipment that introduces a source of ignition, such as cutting, welding, brazing, grinding, high temperatures, engines and open flames. Hot Work activities in Class I areas or in the presence of sufficient flammable or combustible materials to result in fire or explosion require a Hot Work Certificate.
Job Hazard Analysis	A documented break down of all the discrete steps in a job; the hazards associated with each step; and the mitigation measures for the hazards identified. The JHA is developed by the persons doing the job, subject matter experts and Company supervision.
Method Statement	A document that details the step-by-step approach a task or process or procedure is to be executed. It outlines the hazards associated with each step. This is also called a Safe Work Method Statement or Safe Work Procedure.
Risk	The combination of the likelihood that a hazard can cause harm or loss (to person, property, the environment or reputation) and the severity of the resulting loss or harm.
Risk Assessment	The output document of the risk assessment process.
Risk Assessment Process	The process of identifying the hazards, the risk receptors and existing controls associated with a facility or activity; evaluating/assessing the risk associated with the hazards; and developing additional controls to mitigate the risk
Work Permit	The official document that permits maintenance work or contractor work to take place after it has been duly authorized.

5.0 Roles and Responsibilities

Whenever work is to be done within the Asset/Operations, the Operations representative makes a request to the Technical and Maintenance Department or Vessel Coordinator (for work on marine vessels) for the specific work to be executed. The Technical and Maintenance Dept or Vessel Coordinator then plans the work in conjunction with Operations.

Before the work can be started, all the requirements of the Permit to Work System must be followed. These requirements include:

- All signatories on the PTW documents must be adequately trained and authorized to sign these documents.
- Work does not start until the Work Permit is properly authorised and issued.
- All persons on the job must receive a briefing from the appropriate supervision on the work to be done
- All persons on the job must understand the hazards of the job and the precautions to be taken before they start work.
- Follow the instructions specified on the Work Permit, Certificates and JHA.
- STOP the job and consult with the supervisor if there is any doubt on the job steps or safety precautions; or if conditions change.
- Two different persons must audit the Safety Certificates, i.e., an individual CANNOT sign as Competent Person and Area Authority on the same Certificate.

The roles and responsibilities of key personnel under Paria's Permit to Work System are identified below.

5.1 Applicant:

The *Applicant* is the person who initiates the job/activity by completing Section A of the Work Permit or Certificate. The Applicant must have the necessary competence to execute the job, or to supervise the execution of the job. He shall be knowledgeable of the hazards associated with the job and the necessary controls for these hazards. He shall be responsible for the job and for the safety of people who work on the job. The Applicant is appointed by the respective department manager and is typically from the Technical and Maintenance Department; but may also be a representative from the HSEQ Department or the Vessel Coordinator (for work on marine vessels). The Applicant cannot be the Site Authority on the same Permit.

The Applicant shall:

- Ensure that the JHA/Risk assessment and Method Statement are completed and signed before the job begins
- Ensure that the tools and equipment to be used are fit for purpose, have the required third party inspections, where applicable, and are listed on the JHA/Risk assessment
- Receive the Work Permit from the Site Authority and indicate to the Site Authority if any of the requirements are ambiguous or unclear
- Sign the Work Permit before work commences thereby accepting all precautions and controls stipulated in the Work Permit and all documents referenced on the Work Permit
- Ensure that the necessary precautions have been put in place
- Verify that the contractor representatives are authorized PTW signatories
- Ensure that pre-start meetings are conducted with the work crew to discuss the job

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- Ensure that all relevant personnel read and understand the JHA/Risk Assessment and Work Permit; and acknowledge this by signing the JHA/Risk Assessment Acknowledgement Form
- Inform HSEQ personnel of the work prior to commencement
- Stop the job if, in his opinion, the personnel performing the work fail to demonstrate the adequate skill, training or competence to execute the job safely
- Continually monitor the job to ensure that it is performed in a safe manner and within the conditions prescribed in the Work Permit, Certificates and JHA/Risk Assessment. He may sign the Renewal Section indicating that he has audited the job.
- Stop the work if there are changes in site conditions that increase the risk or if new hazards are identified; and promptly notify the Site Authority of these changes
- Ensure that all waste generated from the job is disposed of in accordance with HSE requirements
- Sign off the Work Permit in Section D when the work is completed
- Ensure that the area and equipment are handed over in a safe and acceptable condition to the Site Authority when the work is completed
- Suspend the work (on the back of the Work Permit Form) at the end of the work day
- Return the Work Permit to the Site Authority when the work is suspended, completed, or stopped due to an unsafe situation

5.2 Competent Person

A *Competent Person* in Paria's Permit to Work System is an individual who has the required training, knowledge, experience and qualifications to identify the hazards and to develop effective precautions for high hazard activities such as Hot Work, Confined Space Entry and Electrical Works.

Competent Persons must have adequate knowledge of the processes and equipment in the facilities; and of the activities to be carried out. Competent Persons are appointed by the Terminal Operations Manager or Technical and Maintenance Manager after they have undergone the required training and assessments.

The Competent Person shall:

- Identify and assess the hazards associated with high risk jobs (such as Hot Work, Confined Space Entry and Electrical Works activities) and the site and develop precautions to mitigate the hazards
- Identify any deficiencies in equipment or Method Statement for the job; and the potential adverse consequences
- Specify the required precautions in Section B of the relevant Safety Certificate
- Conduct air quality monitoring (oxygen, toxic gases, hydrocarbons) as required by the Certificate or as the need arises
- Confirm and certify in Section E of the Certificates that the site and equipment are gas free and that all precautions have been implemented before the job begins
- Ensure that the Site Authority understands the precautions identified on the Certificate
- Periodically check the site and equipment to ensure that the conditions for certification have not changed

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• Re-certify that the precautions are in place and the area is gas free for work to resume after any interruption of work.

5.3 Site Authority

The *Site Authority* is the person directly responsible for the site/facility. Under the Permit to Work System he is the person with the authority to issue the Work Permit. He authorizes the commencement of the job by signing Section B5 of the Work Permit after ensuring that the necessary precautions have been implemented that allow the job to be done safely.

The Site Authority is appointed by the Senior Area Authority (Terminal Operations Manager or Technical and Maintenance Manager) and is responsible for ensuring that conditions required for the safe conduct of the job are maintained, or that the permitted activities are promptly stopped if there are any changes or violation of any prescribed condition.

For the Work Permit, the Site Authority may be any supervisory position.

The Site Authority shall:

- Ensure that a suitable and sufficient JHA has been prepared for the job
- Ensure that all necessary supporting safety certificates, job hazard analyses and drawings are completed and attached to the Permit.
- Confirm that all operational preparations, including process clearance and isolations have been completed
- Specify on the permit any additional precautions to be taken during the work, including the use of safety equipment and PPE
- Identify any conflicts between the proposed work and other activities in the area, ensuring that the risks due to simultaneous operations are managed
- Inform all persons who may be affected by the work
- Inform HSE personnel of the work prior to commencement
- Ensure by face-to-face discussion and/or site visit, that the person in charge of the activities at the job site knows:
 - the exact location of the work
 - all the hazards that may be present
 - all the precautions to be taken during the work. This includes the discussion of the Job Hazard Analysis (JHA) with the person receiving the permit
- Sign and issue/re-issue the permit after ensuring that the site is safe to work
- Verify that the persons signing the Permit and Certificates are authorized PTW signatories
- Periodically monitor ongoing work, either in person or through his team, to determine whether site conditions and precautions have been maintained
- Suspend the job if unsafe conditions have developed or are likely to develop
- Communicate the status to the incoming shift at shift handover
- Manage the Permit to Work Display Board
- Sign off the Permit when the job is completed and withdraw the Permit when work is stopped or aborted
- Hand over closed Work Permits and attachments to HSEQ

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5.4 Area Authority

The *Area Authority* is the facility owner who audits the precautions/conditions laid out in the Safety Certificate (by the **Competent Person**) to ensure that they are adequate for the job, taking into consideration simultaneous activities on the facility.

For the Permit to Work System, the Area Authority shall be someone holding the position of Lead, or any equivalent or higher designation, and is appointed by the respective manager.

The Area Authority shall:

- Audit and specify additional conditions where necessary on the Safety Certificates taking into consideration legal requirements, Company rules and business objectives
- Approve the list of precautions on the Safety Certificates
- Review the JHA for adequacy
- Coordinate all jobs under his area of control

5.5 Senior Area Authority

The *Senior Area Authority* is the overall asset owner having responsibility for more than one facility in an area as identified in the Asset Map.

For the Work Permit System, the Senior Area Authority shall be the Terminal Operations Manager or Technical and Maintenance Manager.

The Senior Area Authority shall:

- Ensure that the risks created by simultaneous operations in different facilities are adequately managed
- Specify any additional precautions to be taken during the work
- Periodically audit the conditions laid out in the Certificates, taking into consideration simultaneous activities throughout the Asset/area under his control
- Ensure that all persons under his control who are signatories on the PTW system undergo the training and certification requirements established by the HSEQ Lead.

5.6 Contractor Official

The *Contractor Official* is responsible for all contractor workers (including sub-contractors) associated with the job.

The Contractor Official is officially nominated by the Contractor as the signatory on the Work Permit and Certificates and must be at least the level of a supervisor. The Contractor Official shall:

- Have a clear understanding of the job and the different steps involved
- Be knowledgeable of the hazards associated with the job and the necessary controls.
- Be responsible for the work and for the safety of all contractor employees associated with the job.
- Maintain a log of persons on each work site (for accounting for persons in emergencies)
- Ensure that all equipment is suitable for the job and in good working condition
- Remain on site at all times or be represented on site by a suitably competent and authorized alternate
- Ensure that contractor workers comply with all precautions on the Work Permit and

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Certificates

- Promptly notify the Applicant and Site Authority of any hazards that may arise or of any changes in conditions that increase risk
- Promptly notify the Applicant and Site Authority of any changes in personnel
- Sign off the Work Permit on completion of the job and ensure that that the work area is left in a safe and acceptable manner
- Return all Permit documents to the Applicant when the work is stopped, suspended or aborted.

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6.0 Training, Certification and Authorisation of PTW Signatories

All PTW signatories must undergo PTW Training and Authorisation. Training, Certification and Authorisation of PTW Signatories shall be coordinated by the HSEQ Lead.

6.1 Training for PTW Signatories

Training shall be provided to all persons nominated as signatories in the Permit to Work System to ensure that they fully understand their roles and responsibilities; and to facilitate a consistent and uniform approach to executing the Permit to Work requirements. This training shall include:

- 1. Pre-planning and identification of hazards. Job Hazard Analysis
- ii. Typical hazards associated with welding, cranes, mechanical equipment, electrical equipment, excavations, radiation, confined spaces
- m. Risk controls
- iv. Gas testing (theory and practical)
- v. Company safety regulations
- vi. Relevant legislation
- vii. Permit to Work system and responsibilities of signatories
- viii. Practical training in filling out permits and safety certificates

6.2 Authorisation/Certification of PTW Signatories

Applicant, Competent Person, Site Authority, Area Authority

Nominees for roles of Applicant, Competent Person, Site Authority and Area Authority may be submitted by the respective Line Manager to the HSEQ Lead. Training will be arranged and conducted for the nominees and candidates will be evaluated according to the criteria developed by the HSEQ Lead. Successful candidates will be certified competent by the HSEQ Lead and appointed by the relevant Line Manager.

Senior Area Authority

Training will be arranged and conducted for persons fulfilling the role of Senior Area Authority. These candidates will be evaluated by the HSEQ Lead and successful candidates will be permitted to function as the Senior Area Authority.

Contractor Official

Nominees deemed competent by Contractors for the role of Contractor Official may be submitted to the HSEQ Lead. Training will be arranged and conducted for these candidates and successful candidates will be certified competent in the PTW System by the HSEQ Lead.

6.3 Refresher Training

Refresher training in all PTW roles must be done every two years.

6.4 Records

The Support Services Manager will ensure that a PTW Register of all certified PTW signatories is maintained.

7.0 The Permit to Work Process

The Permit to Work System uses one Work Permit document, which is valid for seven (7) days, and associated Safety Certificates for high-hazard work. These Certificates include:

- Hot Work Certificate
- Confined Space Entry Certificate
- Electrical Isolation Certificate

Whenever work is to be done within the Asset/Operations, the Operations representative makes a request (SAP Notification) to the Technical and Maintenance Department for the specific work to be executed. The Maintenance Planner schedules the job in accordance with its priority and available resources. Once the work is planned and all other resources and requirements are in place, the Work Permit Form is initiated by the Applicant to perform the required work.

Note: The work, the work area and the equipment to be worked on must be clearly defined. Operations and Maintenance personnel must work together to carry out the preparatory steps to ensure the safe and efficient execution of the work.

1	 Task Develop a clearly defined Scope of Work Identify resources required (personnel, equipment, materials) Identify any simultaneous operations taking place and their compatibility with the work Contractor or Maintenance crew to produce relevant Job Procedures / Risk Assessments / JHA / Method Statement for the job 	Responsible Parties Site Authority, Applicant, Contractor
2	Review Job Procedures / Risk Assessments / JHA / Method	
	Statement	HSE, Applicant
3	Generate Permit Documents – Section A	Applicant
4	Site Authority ensures process isolation and clearance -	Site Authority
	Section B1	
5	Site Authority identifies residual hazards that exist even after	Site Authority
	process isolation – Section B2	
6	Site Authority identifies the relevant Certificates – Section B3.	Site Authority,
	The Applicant prepares the Certificates	Applicant
7	The Site Authority identifies precautions to be implemented -	Site Authority
	Section B4	
8	Site Authority issues Work Permit – Section B5	Site Authority
9	The <i>Site Authority</i> explains to the Applicant the hazards and required precautions, including those on the attached Certificates. When satisfied that the Applicant is fully informed, he signs and issues the Work Permit. Acceptance – Section C	
-	The Applicant and Contractor Official accept the site, the	Applicant,
	conditions and the precautions. The original and duplicate copies	

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	Task	Responsible Parties
	of the Work Permit are now separated - the Applicant takes the Original Work Permit and the attachments (Certificates, JHA, drawings, etc) and gives it to the Contractor Official to be kept on the job site. The <i>Site Authority</i> will put the copy on the Permit to Work	Official
	display board. The job can now begin.	
10	The Contractor executes the work. The Applicant and Site Authority monitors the work and re-endorses the work.	Contractor/ Sit Authority
11	Continuous work / Change of Shift.	rumorny
1 1	Where the work continues after the Site Authority or Applicant's shift has ended and another Site Authority or Applicant has taken up work, the work shall be inspected by the incoming Site Authority/ Applicant as soon as practicable and, if all conditions are satisfactory, the Work Permit shall be revalidated by the incoming Site Authority/Applicant. This inspection must be done by the Site Authority (or his representative), the Applicant and Contractor Official. Where there is a change in the Contractor crew, work must stop and the Site Authority, Applicant and Contractor Official must revalidate the work conditions and all persons must sign the Work Permit before work recommences. Changes in Company personnel do not require the Work Permit to	Site Authorit Applicant, Contractor Official
	be suspended.	
	Note - If the Work Permit has expired, the on shift Site Authority, Applicant and Contractor Official shall prepare new Permit documents for the work to recommence.	
12	Hand back/Close-Out of Permit – Section D When the work is completed, the Applicant and the Contractor Official certify that the work is complete and the area is clean by signing Section D. The Site Authority inspects the site and work and accepts the site by signing Section D if it is satisfactory. The Site Official keeps the Permit documents.	Applicant, Contractor, Site Authority

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Task

Responsible Parties

13 Suspension and Renewal of Permit

At the end of each work period, or if site conditions change, the Applicant and Contractor Official will return the original Work Permit to the Site Authority and all persons shall sign the DAILY WORK SUSPENSION SECTION at the back of the Work Permit.

The Work Permit will be held in the PTW display board when the work is suspended. All conditions outlined in the documents shall be revalidated prior to job resumption.

Before the job is resumed the Work Permit will be renewed by the Contractor Official and Site Authority in the DAILY/ SHIFT RENEWAL SECTION at the back of the Work Permit subject to a maximum of seven (7) calendar days from the date of Initial Acceptance. Extension sheets may be used as required.

The Applicant is required to visit the work site as soon as practicable after the job is resumed (or prior to resumption if this is specified as a condition by the Site Authority – see Note below) to verify that all precautions are in place and sign the RENEWAL SECTION of the Permit.

Note The Site Authority may, based on his assessment of the job, set as a requirement that the Applicant must visit the work site to ensure precautions are in place prior to the contractor resuming work.

Site Authority, Applicant, Contractor

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8.0 Inter-Asset Work / Work with Dual Responsibilities

This applies to work to be done on a facility or equipment or lines that belong to one area/Company but is located in another area/Company. In situations where there is work of dual responsibilities or across boundaries, e.g., Guaracara Refinery personnel working on a hydrant line or electrical system on Paria's real estate, or Paria's personnel doing work on a tank in Guaracara's area. Examples include pipe racks, tanks, and electrical substations.

The Asset Map will be used to establish the boundaries for ownership and responsibilities.

	Action parties for Work Permit	Responsibilities	Work Permit
1	Applicant	Applies for Work Permit	Section A
2	Site Authority - process inputs	Reviews and authorises Work Permit	Section B5
3	Site Authority(2) – location of line or equipment	Reviews and authorises Work Permit	Section B5
4	Applicant Both Site Authorities	Applicant - responsible for the job being done on the line or equipment. Site Authorities - responsible for the process inputs to the line or equipment and for the area where the line or equipment is located	Daily Shift Renewal Daily Work Suspension

	Action parties for Hot Work Certificate	Responsibilities	Hot Work Certificate
1	Applicant	Initiates Hot Work Certificate	Section A
2	Competent Person – process inputs and	Develops the necessary conditions	
	location of equipment or line		Section B
3		Reviews and signs Hot Work Certificate and consults with Area Authority (2) in charge of area. Includes additional controls as necessary.	
4	responsible for	Reviews and signs Hot Work Certificate and	Section C
5	Applicant	Examines and certifies that the equipment to be used is suitable and adequate	Section D
6	Competent Person	Certifies that equipment and area are gas free	Section E
7	Applicant, Site		
	Authority, Competent Person (1)	necessary precautions are in place	Section F

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9.0 **Projects and Turnarounds**

The PTW System shall apply to the execution of special projects and Turnarounds. For Projects and Turnarounds, the Work Permit will be authorised once daily instead of per shift and will be valid for thirty (30) days instead of seven (7) days. The Permit can be suspended at any time due to changes in site conditions or identification of new hazards. The HSEQ Lead shall develop appropriate controls whenever necessary to manage the works on Projects and Turnarounds.

10.0 Deviation from the PTW Procedure

Deviations from the Permit to Work Procedure may be allowed in emergency situations (e.g., oil spills and fires) or for routine low risk activities (e.g., janitorial works). In such situations, the deviation shall be supported by standard maintenance procedures, emergency response plans and suitable and sufficient risk assessments approved by the HSEQ Lead and Terminal Operations Manager.

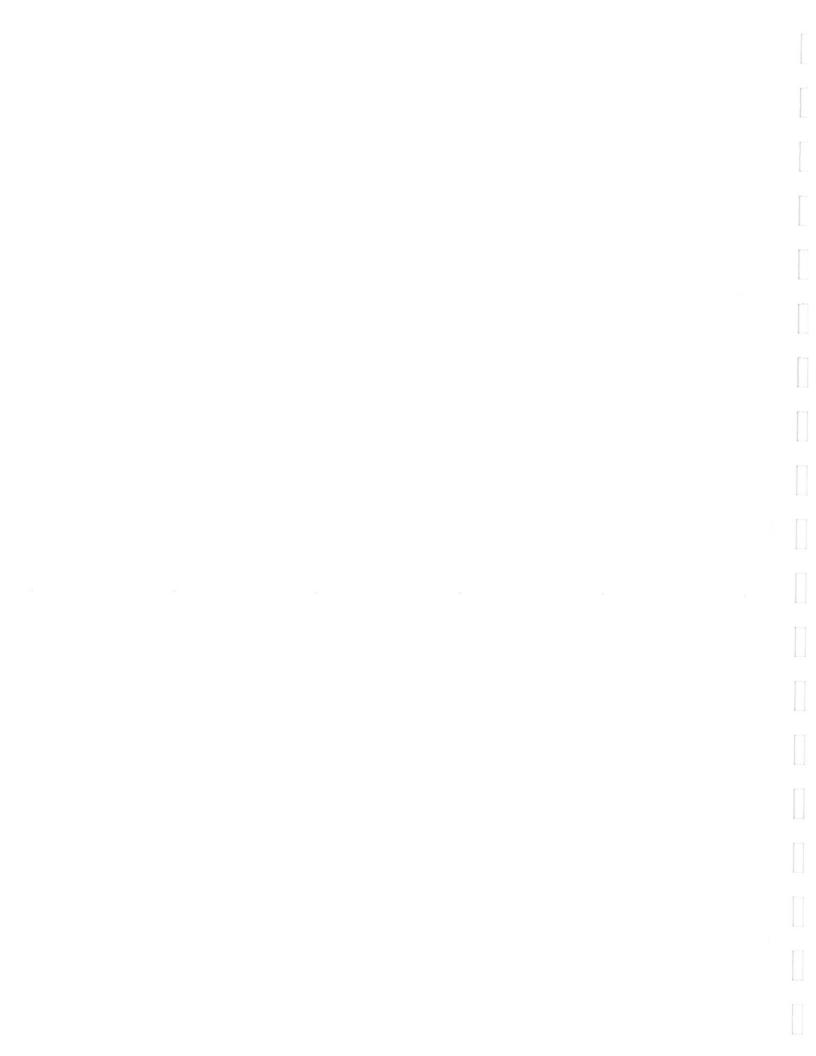
11.0 Records

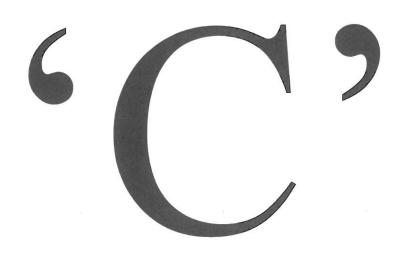
The Site Authority is responsible for handing over all Permit documents (Work Permit, JHA, Safety Certificates, Drawings, etc.) to the HSEQ Lead on completion of the job. These documents will be retained by the HSEQ Lead for at least three (3) months after the Work Permit is closed out. In the event of any incident or high potential Near Miss on the job, the Site Authority shall promptly take possession of the Permit documents and hand them over to the HSEQ Lead.

12.0 Monitoring and Review of the PTW System

The HSEQ Lead shall be responsible for coordinating periodic audits of the PTW System to assess compliance, identify areas of improvement, increase efficiency and improve safety. The PTW System shall be periodically reviewed to facilitate improvements as well as to address any pertinent changes, such as changes in the organization, law, policy or risk. This review shall be done annually or as directed by the HSEQ Lead.

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Client - Paria Fuel Trading Company Limited

MISCELLANEOUS REPAIRS AND REFURBISHMENT WORKS AT #5 & #6 BERTHS, MAIN VIADUCT AND SERVICING OF MOORING BUOYS

PROJECT EXECUTION PLAN

INTRODUCTION

This Project Execution plan outlines strategic issues for meeting the specific customer requirements as defined in the Scope of Works.

The intent of this plan is to approach in a general way all the elements involved so as to form a basis upon which the operational plans can be built.

GENERAL

The Work entails the provision of labour, equipment, material as specified, and supervision for the Civil Works required for the above captioned project.

RELATIONSHIP

WITH MEMBERS OF THE PROJECT

LMCS Ltd will maintain a good working relationship with the members of Paria Fuel Trading Company Limited's Project Team and Operation personnel on site, at all levels. Points of disagreement will be resolved by interaction and mutual discussion amicably.

WITH EMPLOYEES

LMCS Limited will encourage a safe, harmonious, productive and proactive working relationship among the entire work force to bring the project to successful completion.

The information provided in this Execution Plan is to be interpreted as a guideline only. Whilst every effort will be made to adhere to the procedures outlined, LMCS Ltd reserves the right to modify same where such modifications will enhance the execution of the Works with full consideration to Safety, Quality and the Environment.

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MOBILIZATION

SITE FACILITIES

LMCS Ltd will supply adequate welfare/working facilities as required for the number of personnel that will be engaged on the project.

TRANSPORTATION

Transportation will be provided in the required numbers and type to facilitate movement of materials to and from the work site. Working crews will be transported to and from the work site using approved transportation onshore and offshore.

COMMUNICATIONS

Effective communication facilities will be maintained for the entire duration of the Project, provided by way of the following:

- (a) Telephone
- (b) Fax Machine
- (c) E-Mail

SAFETY ORIENTATION

LMCS Limited's HSE Representative will co-ordinate with Paria Fuel Trading Company Limited's Safety Representative to conduct Safety Orientation sessions, in keeping with the requirements for admission to the site.

TRAINING

The Project Management Team will undergo training to be familiar with all documentation related to this project. Training will be evidenced by:

- (a) Being in possession of and reading the documents
- (b) Attendance at the pre-job conference/meeting

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The information provided in this Execution Plan is to be interpreted as a guideline only. Whilst every effort will be made to adhere to the procedures outlined, LMCS Ltd reserves the right to modify same where such modifications will enhance the execution of the Works with full consideration to Safety, Quality and the Environment.



Lower level personnel will receive on the job instruction from the Project Management Team.

START UP MEETING

Start-Up/Kick-off meetings will be held between LMCS Ltd and PARIA FUEL TRADING COMPANY LIMITED for a "meeting of the minds" to introduce members of the team to discuss co-ordination efforts and determine frequency and attendance of progress meetings.

PROJECT CONTROLS

PROGRESS MEASUREMENT AND REPORTING

Progress measurement and reporting frequency /formats will be determined by the LMCS Ltd and Paria Fuel Trading Company Limited Project Teams. Our site management allocated to specific work areas will fill in their reports on a daily basis.

PROGRESS CONTROL AND MONITORING

The Daily Report will be utilized to provide written feedback on what works have been executed for that period including any problems or constraints affecting work progress.

DOCUMENT CONTROL

Control of all documents will be the responsibility of Projects Control through which all official documents will be received and issued. Documents received will be transmitted internally in accordance with a Distribution Matrix and all obsolete documents withdrawn/destroyed. A Master Document Register will be maintained showing latest issue and status. All confidential documents will be controlled in accordance with the approved procedure.

MATERIALS CONTROL

As applicable, the prime responsibility for Material Control will rest with the Material Coordinator assigned to the project.

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Tender No.:

The Material Coordinator will ensure proper documentation of material receipt, receiving inspection; ensure traceability and usage records are maintained in accordance with project procedures.

QUALITY ASSURANCE / QUALITY CONTROL

The Quality Assurance/Quality Control Manual, Project Quality Control Plan and approved procedures, as applicable, will form the basis for the way QA/QC is administered on this project.

HEALTH, SAFETY AND ENVIRONMENT

LMCS Ltd will ensure compliance with Paria Fuel Trading Company Limited's HSE Policies and Procedures as indicated in the Tender documents. LMCS Ltd. will appoint a dedicated HSE Officer for the duration of the works.

COVID-19

Due to the current, global pandemic, COVID-19, as formally declared by the World Health Organization (WHO), as of 11/03/2020, LMCS Limited will ensure, safe working practices, will be deployed, throughout the execution of the project to prevent the transmission of the virus; Some of these measures include;

- 1. Education ensure accurate knowledge about the virus and its attributes are disseminated in an efficient manner;
- 2. Ensuring workplaces are clean and hygienic;
- 3. Promote regular and thorough hand-washing by all who frequent the worksite and its affected areas;
- 4. Use of face masks.

These measures are described in much more detail in LMCS Limited's 'Health and Safety Work Plans.'

The information provided in this Execution Plan is to be interpreted as a guideline only. Whilst every effort will be made to adhere to the procedures outlined, LMCS Ltd reserves the right to modify same where such modifications will enhance the execution of the Works with full consideration to Safety, Quality and the Environment.

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LMCS Ltd



WORK METHOD

The overall work method is focused/based on:

- Implementation of HSE Policies, Plans and Procedures with the goal of prevention of health, safety and environmental (HSE) incidents in the execution of the works. The objective is to have zero (0) loss time incidents/accidents and zero potentially environmentally damaging discharges/emissions.
- Execution of Quality Assurance/Control Plan to assure the quality of the works
- Close communication and coordination between Paria Fuel Trading Company Limited and LMCS Limited to plan and execute the works to accommodate Paria Fuel Trading Company Limited's ongoing Operations
- Minimization of site works by maximum prefabrication of structures.

The work plan would be carried out as follows:

- LMCS Limited will work with Paria Fuel Trading Company Limited to confirm all engineering requirements (including quality control/assurance activities) for the contract prior to placement of the purchase orders for equipment and materials.
- LMCS Limited will provide the required Insurances and Bonds within the time limits required by the Contract.
- Paria Fuel Trading Company Limited and LMCS Limited will conduct Job Hazard Analyses (JHA's) and Risk Assessments as required for all activities associated with the Project.
- The execution shall provide methodologies for the following requirements
 - Section A Change out Section of Subsea Riser and Tie-In Piping on Sealine No.36 at Berth #5 and Berth #6;
 - Section B: Removal, Servicing/Repairs and Reinstallation of Marker Buoys and Storm Mooring Buoys located at Pointe-a-Pierre Harbour;
 - Section C: Fabrication and Replacement of 300ft of Main Walkways on the Main Viaduct.

The information provided in this Execution Plan is to be interpreted as a guideline only. Whilst every effort will be made to adhere to the procedures outlined, LMCS Ltd reserves the right to modify same where such modifications will enhance the execution of the Works with full consideration to Safety, Quality and the Environment.

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PROJECT WORK STATEMENT

SL-36, Ø-30" fuel oil transfer line between Berth 6, Berth 5 and PB-80 was found to be leaking on the eastern riser at Berth 5 at around Mid-Tide Level. LMCS Limited, in response to a Request for Proposal, issued by the Client (Paria Fuel Trading Company Limited), is pleased to submit a proposal to;

- 1. Remove fuel oil in section of line between Berth 6 and Berth 5;
- 2. Remove topside piping from Risers at Berth 5 & Berth 6 and, take to OSSD for refurbishment works;
- 3. Remove corroded section of riser by cutting and locating a sound section of pipe evidenced by thickness gauge on both risers located at Berth-5 and Berth 6;
- 4. Install a subsea slip-on flange by welding at Bert #6 and butt weld 3' section at Berth-5;
- 5. Fabricating replacement section of Riser and installing same;
- 6. Reinstalling top-side Piping thus rendering line ready for service.

<u>Section A - Change Out Section of Subsea Riser and Tie-In Piping on Sealine</u> <u>No.36 At Berth #5 And Berth #6;</u>

PROCEDURE for REMOVAL of LINE CONTENT BETWEEN BERTH 5 & BERTH 6

- <u>Removal of Liquid Content from Sea Line-36 (Diameter-30" Line.) Sufficient removal</u> to allow replacement of corroded section;
 - Secure Valves on Berth 5 and Berth 6;
 - Remove tie-in piping between top of riser and the Berths and blanking the flanges on the both Berths;
 - Slack bolts, install drip tray at flange at top of riser and collect content of topside #36 Spool;
 - Remove spool completely once drained;
 - Using air driven pump, pump out approximately 300 Barrels of line content. Content to be pumped in Paria Fuel Trading Company Limited slops barge and ferried over to Lube Oil Jetty where it, line content, will be removed by Paria Fuel Trading Company Limited supplied Vacuum Truck;
 - Once level in the riser has dropped to 35' below sea level, a line plug will be installed. (See Figures 1 & 2 depicting line plugs).

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The information provided in this Execution Plan is to be interpreted as a guideline only. Whilst every effort will be made to adhere to the procedures outlined, LMCS Ltd reserves the right to modify same where such modifications will enhance the execution of the Works with full consideration to Safety, Quality and the Environment.





Figure 1: Inflatable Line Plug

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Figure 2: Mechanical Line Plug

PROCEDURE FOR RISER REPLACEMENT REPAIRS TO 30" RISER AND TOPSIDE PIPING.

- 1. RISER PRE-FABRICATION
 - a. Collect Paria Fuel Trading Company Limited supplied Ø-30" Pipe and Flanges;
 - b. Weld flange on end of and Pressure Test weld to 450 psi;
 - c. Blast spool to near white and coat 30 mils Glass Flake Epoxy (See Coating Specifications);
- 2. <u>HYPERBARIC CHAMBER (See Figure 3)</u>
 - a. Procure and outfit hyperbaric chamber;
 - **b.** On completion of removal of part line content and plug installation, install chamber over riser.
 - c. Test Air quality within the chamber and ensure it is gas-free
 - d. Test welder with Ø-6" butt weld in chamber;
 - e. Cut and inspect riser pipe by conducting thickness gauge to locate sound pipe for welding;
 - f. Install flange on riser in chamber. Dye penetration test to be conducted on first pass;
 - g. <u>Pressure test</u> flanges (*See attached procedure for CARBER Weld Testing for LMCS SL-36-30'' Weld Test*) and temporarily blank. Prepare surface and coat section;

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- **h.** Open top of chamber and install Prefabricated replacement section;
- i. Remove chamber;
- j. Adjust length of riser replacement spool and install top flange;
- **k.** Reinstall Tie-in section.

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Tender No.:

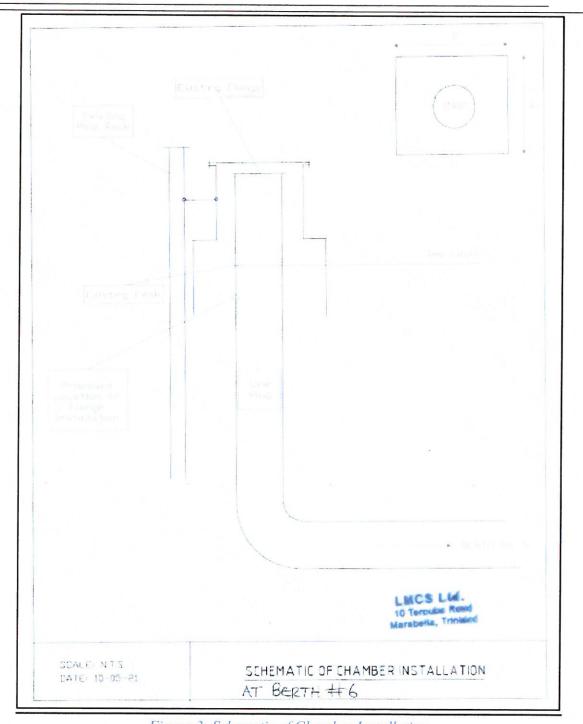


Figure 3: Schematic of Chamber Installation

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PROCEDURE FOR CHANGEOUT OF RISER SECTION & TOPSIDE PIPING AT BERTH #6

- a. Remove Hydrocarbon from topside and tie-in piping. (See above procedures delineating the aforementioned)
- b. Remove topside piping from top of riser to Berth piping.
- c. Repair and modify Tie-in Spool as per sketch / drawing.
- d. Removal of Hydrocarbon from line between #5 & #6 Berths.
- e. Strip concrete to ten feet (10') below existing leak on riser.
- f. Conduct thickness gauging at minimum ten (10) spots to determine area of sound piping.
- g. Install Chamber onto riser and test breathing air quality.
- h. Cut off and remove defective section of line, and gas free after removal.
- i. Install slip on flange and pressure test to one hundred and fifty pounds per square inch (150psi).
- j. Fabricate and install replacement riser and topside piping.

PROCEDURE FOR CHANGEOUT OF RISER SECTION & TOPSIDE PIPING AT BERTH #5

- a. Remove topside and tie-in piping and repair by replacing defective sections.
- b. Strip concrete coating and expose above water section of riser and replace corroded section
- c. Or progressively strip concrete weight coat until sound piping is located.
- d. Reinstall riser section and tie-in piping.

PROCEDURE FOR SUPPORT PILE (140' * Ø36") (See Attached Lift Plan)

- a. Collect Paria supplied material (ø36" Steel Pile)
- b. Fabricate and install thirty-six-inch diameter (Ø36"); one hundred and forty feet (140') long Pile.
- c. Take site measurements and install clamp and support brace between pile and riser.

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Tender No.:

Designation and the settless		IN VIADUCI AN	D SERVICING	6 OF MOORING E	UOYS
Works At	eous Repairs and F #5 & #6 Berths, M		Date:	2021 May 06	
-	of Mooring Buoys I Trading Company	Limited	Locatio	on: Pointe-a-Pier	re, Trinidi
Crane Make/Model:	American Hoist & Derrick Co. (M- 9310 – Ser. # - 19412)	Crane Capacity:	225 tons	Boom Length:	140 fee
Proposed Crane Opera	tor:		Steve	Joseph	
Description of Lift (Worst Case):	140' Long - Ø-36"	Steel Pile			
	Static load calculat	ted at 30 tons			
Lift Radius:	30 feet	Maximum Load	@ Lift Radius	: 77.5 tons (d	vnamic)
Power Lines Overhead obstacles Underwater obstacles Unstable ground Confined space	No No No No No				
Restricted access	No				
Load Hazards/Actions					
Conclusion		culated at 44.5 to ius. Lift is not high		safe working load a	at the
Personnel Carrying Out	Assessment				

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PROCEDURE FOR FINISHING WORKS

a. Lift line on Berth off rack, grit blast pad and support area, and coat and reposition line.

PROCEDURE FOR COMMISSIONING

a. Have Fitters and Divers on standby for line commissioning.

PROCEDURE FOR INSTALLATION & TESTING OF ANODE (See Figures 4 & 5)

- a. Supply and install seven hundred- and twenty-five-pound (725lb) anode to Riser & Dolphin at Berth #6. (See Figure 4 Anode Drawing)
- b. Test anode using the following probe;
 - a. PolaTrak CP Gun (See attached Product Overview Sheet)

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Tender No.:

POLATRAK® CP GUN" BATHYCORROMETER-STYLE CORROSION-TESTING PROBE FOR DIVERS

THE CP GUN IS THE MOST USER-FRIENDLY DIVER-HELD CATHODIC-PROTECTION PROBE ON THE MARKET.

The CP Gun outperforms all other available bathycorrometer-type devices in both accuracy and convenience. Longer battery life, interchangeable freshwater i seawater electrodes and ultra-bright LED displays [for limited-visibility conditions] make the CP Gun the most user-friendly diver-held CP probe on the market. The dual electrode elements and readouts combined with a self-calibration capability make it the most accurate unit offered. Each probe kit comes with a full complement of spare parts, and replacements are readily available.

A single set of disposable alkaline batteries provides up to 150 hours of continuous survey operation, and a convenient on-off switch allowing display only when actually probing provides even longer life. The CP Gun is rated to deoths of up to 300 m (~1000 ft), and is designed for situations where a few contact CP readings are required. The unit, like all Polatrak probes, has twin elements and dual readouts, which provides an unparalleled level of accuracy and redundancy.

The CP Gun kit comes complete with operating and calibration instructions and a comprehensive supply of spare parts.

Guaranteed accuracy

Many common sources for errors are eliminated with the twin element configuration. The dual silver / silver chlonde (Ag/AgCI) electrodes provide internal redundancy and on-line calibration, which allows the probe to be reliably tested and serviced in the field.

Season-long hattery life

The CP Gun has two standard, replaceable 9V batteries and a convenient switch that allows the probe to be used for the entire dive season without maintenance. Season-long life is unique to the CP Gun. The length of life among similar proces is a fraction of that time.

Rugged construction

The sturdy design of the CP (Sun allows easy replacement of wom or damaged parts without having to replace the entire probe. It can be serviced easily in the field, and Deepwater also offers repair services.

Ag/AgCI or Cu/CuSO4 Electrodes

Interchangeable CurCuSO4 reference elements for the CP Gun probe now allow diver or ROV surveys to be performed in brackish or fresh water rivers and lakes where silver chloride electrodes are not compatible.

Ultra-bright LED readouts

The CP Gun is the only diver-held probe with bright, backlit LED readouts that allows the diver to interrogate CP readings in conditions with low visibility, such as river crossings and brackish-water areas.

More info al www.stoprust.com



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TTP READ

CP GUN"

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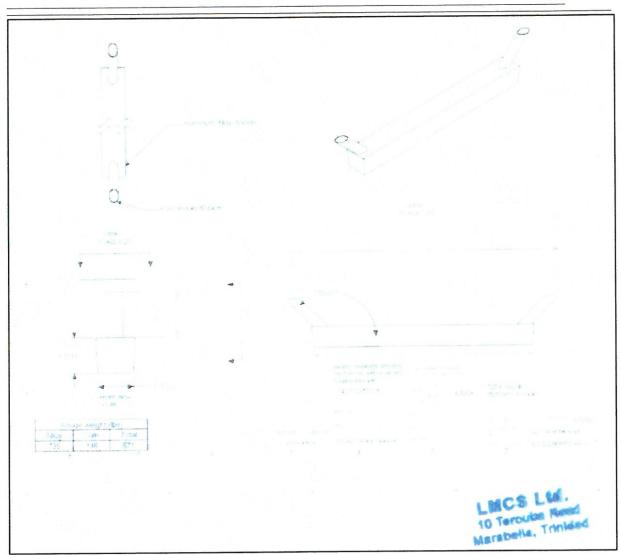


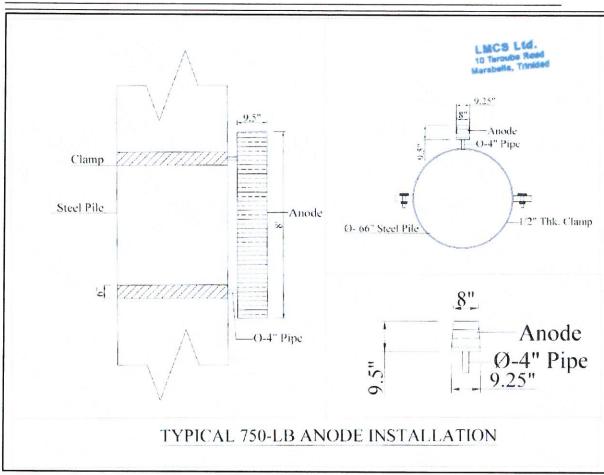
Figure 4: Anode Drawing

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Tender No.:





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LMCS Ltd



Section B: Removal, Servicing/Repairs and Reinstallation of Marker Buoys and Storm Mooring Buoys located at Pointe-a-Pierre Harbour;

PROCEDURE FOR REPLACEMENT OF CHANNEL MARKER BUOYS (See Figure 6)

- a. Collect two (2) new Markers Buoys from Paria.
- b. Fabricate three (3) five-ton (5T) (weight in water) anchors.
- c. Supply chain shackles, swivel, and anchor and prepare two (2) new markers.
- d. Remove completely two (2) existing buoys and install new Markers, ensuring precise placement.
- e. Clean recovered Buoys and paint in existing colors, apply anti-fouling paint to areas normally submerged.
- f. Assemble two (2) new Markers using repaired Buoys; repaired anchors; and Contractor supplied chains, swivel, and shackles.
- g. Recover two (2) other existing Markers and replace with two (2) serviced Markers.
- h. Clean recovered Buoys and paint in existing colors, apply anti-fouling paint to areas normally submerged.
- i. Assemble two (2) new Markers using repaired Buoys; repaired anchors; and Contractor supplied chains, swivel, and shackles.
- j. Recover two (2) other existing Markers and replace with two (2) serviced Markers.
- k. Clean recovered Buoys and paint in existing colors, apply anti-fouling paint to areas normally submerged.
- 1. Assemble two (2) new Markers using repaired Buoys; repaired anchors; and Contractor supplied chains, swivel, and shackles.
- m. Recover two (2) other existing Markers and replace with two (2) serviced Markers.
- n. Clean recovered Buoys and paint in existing colors, apply anti-fouling paint to areas normally submerged.
- o. Assemble two (2) new Markers using repaired Buoys; repaired anchors; and Contractor supplied chains, swivel, and shackles.
- p. Clean unused recovered Buoys and place in Paria Salvage.

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Tender No.:

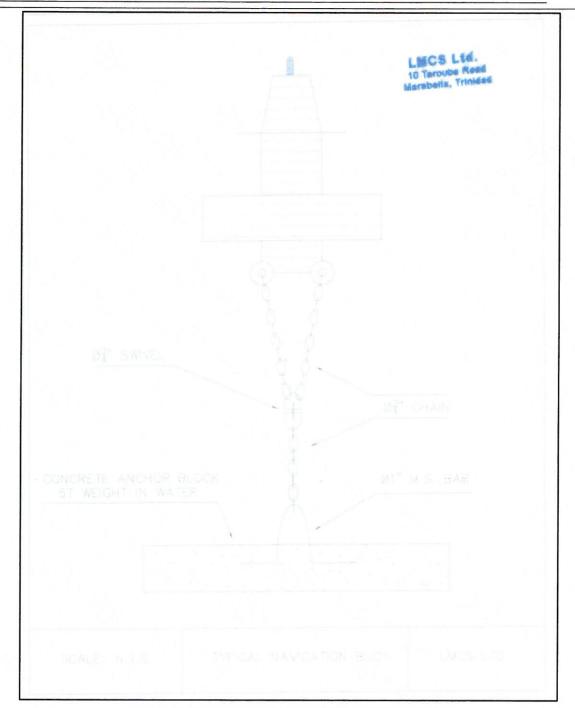


Figure 6: Typical Assembly for Channel Marker Buoy

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PROCEDURE FOR REPLACEMENT OF STORM MOORING BUOYS (See Figure 7)

- a. Receive two (2) Storm Mooring Buoys from Paria.
- b. Fabricate Manhole Covers, Pressure Test, Blast, and Coat to thirty millimeters (30mil) Glass Flake Epoxy.
- c. Supply shot of stud link anchor chain, and one-and-one-eighth inch (1¹/₈") shackles for Buoy.
- d. Recover one (1) Storm Mooring Buoy complete with anchor and transport to Offshore Services Dock (OSSD). Salvage Fendering, hook, and anchor and assemble replacement mooring using new Buoy. (See attached Lift Plan)
- e. Install newly assembled Storm Mooring in original location.
- f. Recover second Storm Mooring and repeat Item A.4.
- g. Reinstall second Storm Mooring.
- h. Fabricate one ten-ton (10T) (weight in water) anchor complete with anchoring lugs.
- i. Clean recovered Buoys and place in Paria Salvage.

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Tender No.:

	R #0 DERTINS, IMA	IN VIADOCI AN	D SERVICING	OF MOORING BUOY	15
Works At	neous Repairs and 1#5 & #6 Berths, M	lain Viaduct and	Date:	2021 May 14	
	of Mooring Buoys I Trading Company		Locatio	n: Pointe-a-Pierre, Ti	rinida
Crane Make/Model:	American Hoist & Derrick Co. (M- 9310 – Ser. # - 19412)	Crane Capacity:	225 tons	Boom Length: 14	0 fee
Proposed Crane Opera			Steve	Joseph	
Description of Lift (Worst Case):	Submerged Ancho	r (Storm Mooring			
Lift Weight:	Static load calculat	ted at 20 tons			
Lift Radius:	20 feet	Maximum Load	@ Lift Radius:	90.0 tons (dynam	nic)
Power Lines Overhead obstacles Underwater obstacles Unstable ground	No No No				
Confined space	No				
Restricted access	No				
Load Hazards/Actions					
				e working load at the	

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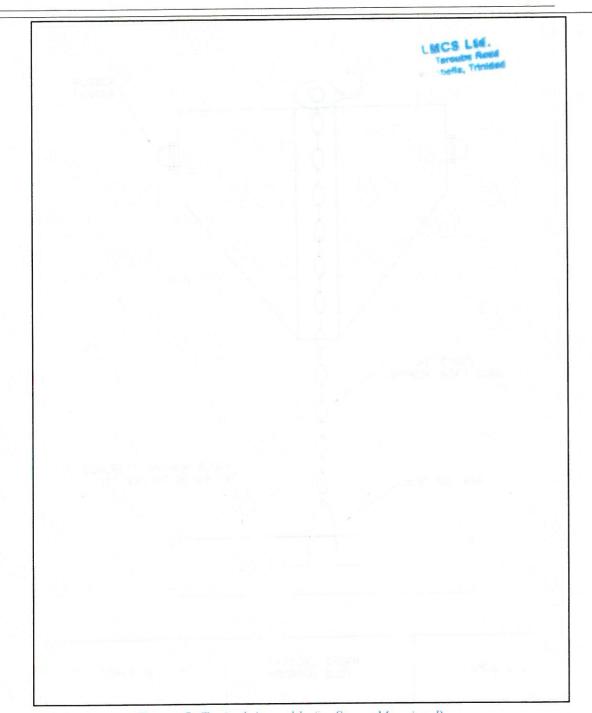


Figure 7: Typical Assembly for Storm Mooring Buoy

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<u>Section C: Fabrication and Replacement of 300ft of Main Walkways on the</u> <u>Main Viaduct</u>

PROCEDURE FOR OF WALKWAY ON MAIN VIADUCT

- a. Take accurate measurements of each section of walkway to be replaced.
- b. Supply material, Fabricate, Blast, and Coat each section of walkway.
- c. Prepare existing sections for removal by shifting cables and lights attached to walkway under supervision of Paria Electrical Department using crane barge
- d. Remove walkway section and install replacement, and restore cables and lights to original.
- e. Dispose of derelict walkway to location within Paria as directed by Paria.
- f. LMCS Limited will ensure that access will be totally restored at the end of each work day and access is not hindered for more than one (1) hour at any time;
- **g.** The change out of walkway will require barge mooring in proximity of subsea lines. LMCS Limited will conduct underwater survey to ensure safe deployment of Barge anchors.

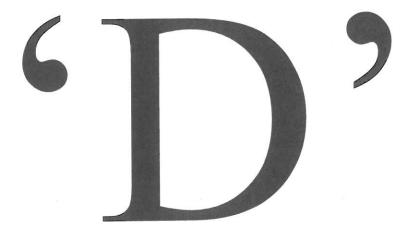
PROJECT DURATION

It is anticipated that the works will take a duration of 45 days.

NB: On-site works i.e. installation of pre-fabricated elements will be executed once granted access to the site by the Client (Paria Fuel Trading Company Limited),

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	FUEL TRACING
DEPARTMENT: TERMINAL OPERATIONS	SECTION NO.: QOFW: 001
SECTION: OFFSHORE TYPE:WORK INSTRUCTION	REVISION NO.:0
	EFFECTIVE DATE:05 TH Jan 2022
TITLE: CLEARING OF 36SL SECTION BETWEEN BERTH#5 AND BERTH#6	SUPERCEDES: 0
BERTH#5 AND BERTH#0	Page No: 1 of 6

1.0 PURPOSE

Paria intends to change out #36 sealine riser at berth #6 to return the section of line to service for crude transfers. This is necessary to facilitate repair works on #66 sealine crude oil line at foreshore area.

2.0 SCOPE:

Clearing of #36s/l section between berth #5 and berth #6.

3.0 RESPONSIBILITIES

- 3.1 The Terminal Operations Manager has the overall responsibility for ensuring that this procedure is established by:
 - Reviewing and approving this work instruction
 - Ensuring the Offshore Team Lead understand the requirements of this work instruction

3.2 The Offshore Team Lead has direct responsibility to ensure compliance with the procedure by;

- Reviewing and approving this work instruction
- Ensuring Offshore Operations Team Supervisor understand the requirements of this work instruction

4.0 **DEFINITION**

Low Sulphur Fuel Oil (LSFO) is Fuel Oil with a 15 ppm Max Sulphur.

5.0 REFERENCE:

None.

6.0 **PROCEDURE**:

The following are the steps that should be followed for the clearing of #36 sealine between berth #5 and berth #6.

REVIEWED BY:	APPROVED BY:	AUTHORIZED BY:
Alternichen	Lason Bodels.	chth
DATE: 2022-01-07	DATE: 07/01/2022	DATE:

QUALITY MANAGEMENT SYSTEM		pana
DEPARTMENT: TERMINAL OPERATIONS SECTION: OFFSHORE	SECTION NO.: QOFW: 001	
TYPE:WORK INSTRUCTION	REVISION NO.:0	
TITLE, CLEADING OF AGE OF CTION PETUTEN	E: CLEARING OF 36SL SECTION BETWEEN BERTH#5 AND BERTH#6 EFFECTIVE DATE:05 TH Jan 2022 SUPERCEDES: 0	
BERTH#5 AND BERTH#6		
	Page No: 2 of 6	

1

6.1. PREPARATION FOR INSTALLATION OF SLIP BLANK AT BERTH #5

1. Install containment booms around 36sl risers at Berth#5 and Berth#6.

DADIA FUEL TRADING COMP

- 2. Mobilize air compressor on the main deck of Berth#5.
- 3. Connect air hose to the stub-in pipe on the western riser at Berth#5. Keep valves closed until all preparation works at Berth#5 and Berth#6 are completed.
- 4. Close and lash block valve on 36sl riser (to berth#6) at Berth#5.
- 5. Close main block valve on 66sl at Berth #6, located on #66sl (30" dia) main line into Berth #6
- 6. At Manifold #4 on Berth #6 (most easterly), open 12" dia valves for 36sl (2 valves) and 33sl (2 valves)
- 7. Open stub-in valve on 36sl riser at Berth#5
- 8. Start compressor unit at Berth#5 and open discharge valve from unit.
- 9. Allow pressure to build in the line to approximately 40psi. Monitor pressure gauge on the 33sl at Berth #6
- 10. Open main block valve on 66sl at Berth #6, located on #66sl (30" dia) main line into Berth #6
- 11. Monitor cargo flow at Berth #6 at manifold area (connecting 36sl into 33sl) via stub in on manifold header or manifold bleed off valve.
- 12. Open tank 111 valve to receive line content of 66sl
- 13. Monitor tank 111 levels and gauge pressure

REVIEWED BY:	APPROVED BY:	AUTHORIZED BY:
Alterichon	Lason Bodeles.	chill
DATE: 2022-01-07	DATE: 07/01/2022	DATE:

	FUEL TRADING
DEPARTMENT: TERMINAL OPERATIONS	SECTION NO.: QOFW: 001
SECTION: OFFSHORE TYPE:WORK INSTRUCTION	REVISION NO.:0
TITLE: CLEARING OF 36SL SECTION BETWEEN BERTH#5 AND BERTH#6	EFFECTIVE DATE:05 TH Jan 2022
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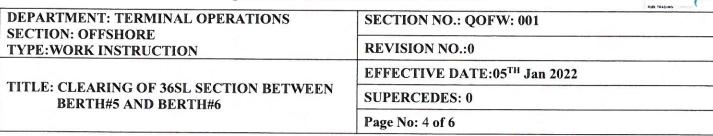
6.2. PRE-BLOWING AND DRAINING CONDITIONS

- 1. System inclusive of #36 Sealine contains LSFO.
- 2. System inclusive of #66 Sealine to Tank 111 to contain CRUDE OIL
- 3. Tanks 111 must be opened gauged.
- 4. Remove slip from manifold area connecting #36sl and #33sl at Berth #6.
- 5. Contractor to be on stand-by to address any leaks (flange, valve etc.) on the LSFO system as identified during the clearing of #36s/l riser at berth #6.
- 6. OTS to request additional manpower if necessary, basis projected workload during the clearing of #36s/l riser at berth #6.
- 7. Onshore operations to have personnel on standby with radio communication at the following location: Tank 111.
- 8. Offshore operations to have personnel on standby with radio communication at the following location: Berth #5 and Berth #6.

6.3. INSTALLATION OF SLIP BLANK ON 36SL RISER AT #5 BERTH

- 1. Once sufficient cargo has been deemed to have been cleared from 36sl line section.
 - i. Close tank 111 valve
 - ii. Close main block valve on 66sl at Berth #6
 - iii. Close 12" dia valves for 36sl (2 valves) and 33sl (2 valves) at Manifold #4 on Berth #6 (most easterly).

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DATE: 2022-01-07	DATE: 07/01/2022	DATE:



- iv. Close valve on stub-in for 36sl riser at Berth #5
- v. Shut down compressor.
- 2. Position slops barge with catchment and drain hose.
- 3. Drain the upper section of the riser at Berth#5 (branch line to Berth#6) to the slops barge. Loosen nuts on the flange located on the western side of the block valve and allow to drain into slops barge via catchment drum and hose.
- 4. Install slip blank on western side of the block valve located on the riser at Berth#5

6.4. REMOVAL OF ELBOW ON 36 SL RISER AT BERTH #6

- 1. Position slops barge with catchment and drain hose
- 2. Drain the upper section of the 36sl riser to the slops barge. Open valve on the stub-in section location below the flanges on the vertical section of the riser.
- 3. Unbolt, rig, and remove elbow section of 36sl riser.
- 4. Install solid blank on 36sl header pipe into Berth#6.
- 5. Install blank on riser section of 36sl, equipped with suction hose, gauging port, venting ports and pressure gauge.
- 6. Connect 6" hose from the blank on 36sl riser to the stub-in of 66sl riser, ensure hose is fitted with an appropriate check valve. Keep stub-in valve closed at this time

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Alternichon	Lason Bodeles.	chill
DATE: 2022-01-07	DATE: 07/01/2022	DATE:

	PULLTRACING
DEPARTMENT: TERMINAL OPERATIONS	SECTION NO.: QOFW: 001
SECTION: OFFSHORE TYPE:WORK INSTRUCTION	REVISION NO.:0
	EFFECTIVE DATE:05 TH Jan 2022
TITLE: CLEARING OF 36SL SECTION BETWEEN BERTH#5 AND BERTH#6	SUPERCEDES: 0
	Page No: 5 of 6

6.5. RE-COMMENCEMENT OF AIR BLOWING AT BERTH #5

- 1. Ensure 66sl block valve to Berth#6 is closed and tied off
- 2. Open stub-in valve on 36sl riser at Berth#5
- 3. Start compressor unit at Berth#5 and open discharge valve.
- 4. Allow pressure to build in the riser line to approximately 40psi. Monitor pressure gauge on the riser at Berth#6
- 5. Open stub-in valve to 66sl riser.
- 6. Open tank 111 valve to receive line content of 66sl.
- 7. Monitor tank 111 levels and gauge pressure.
- 8. Periodically monitor the level of product in the riser via the gauging port.

6.6. POST AIR BLOWING

- 1. Close tank 111 valve.
- 2. Close stub-in valve on 66sl riser.
- 3. Close valve on stub-in for 36sl riser at Berth #5
- 4. Shut down compressor.
- 5. Demobilize drain hose and compressor in preparation for riser renewal.

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DATE: 2022-01-07	DATE: 07/01/2022	DATE:

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DEPARTMENT: TERMINAL OPERATIONS SECTION: OFFSHORE	SECTION NO.: QOFW: 001
TYPE:WORK INSTRUCTION	REVISION NO.:0
	EFFECTIVE DATE:05 TH Jan 2022
TITLE: CLEARING OF 36SL SECTION BETWEEN BERTH#5 AND BERTH#6	SUPERCEDES: 0
	Page No: 6 of 6

7.0 RECORDS:

• Isolation checklist – to be in effect & updated accordingly during and after completion of works.

8.0 ATTACHMENTS:

- 1. Isolation checklist
- 2. Drawing 1: Line clearing on 36 SL and inserting slip blank at Berth#5
- 3. Diagram 2: Removal of elbow on 36 SL riser at Berth#6 and continuation of line clearing

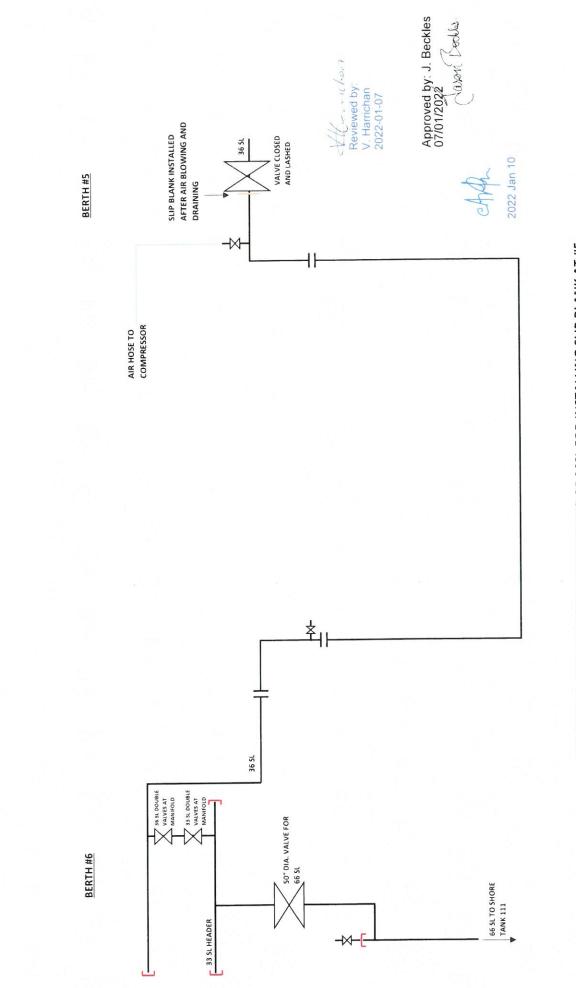
9.0 RISKS:

a) All risks associated with this job covered under JSA108 36sl Draining Btn Berths 5 & 6 Phase I (01Dec2021)

10.0 RESOURCES

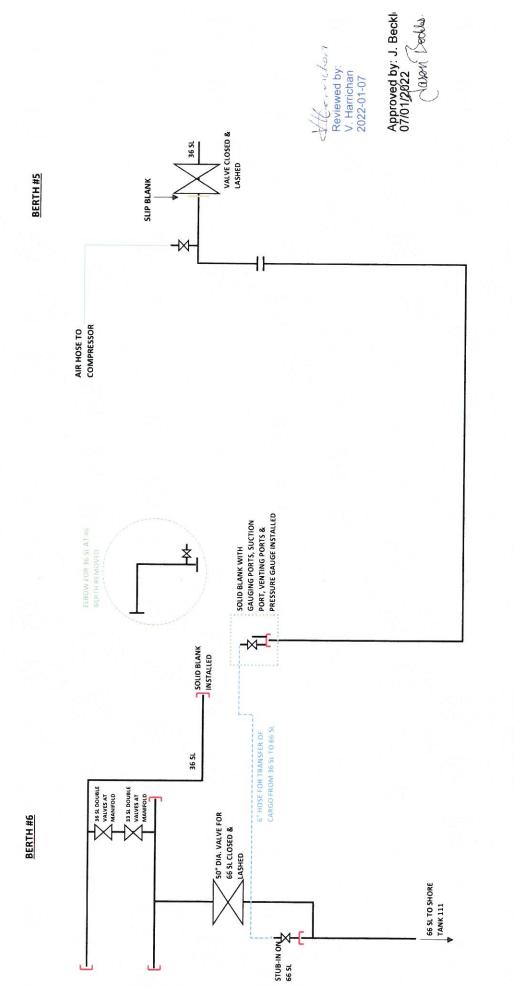
- 1. Manpower Operator to be assigned for monitoring & emergency response, required manpower to conduct works by contractor
- 2. Radios Radio communication required by both Operations & Maintenance personnel
- 3. Tugboat where applicable

REVIEWED BY:	APPROVED BY:	AUTHORIZED BY:
Allemichon	Jason Dodels.	cha
DATE: 2022-01-07	DATE: 07/01/2022	DATE:



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DRAWING 1: LINE DIAGRAM FOR CLEARING OF 36SL FOR INSTALLING SLIP BLANK AT #5



DRAWING 2: LINE DIAGRAM FOR REMOVAL OF ELBOW AT #6 AND CONTINUED CLEARING ON 36 SL

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METHOD STATEMENT 115 (Revision 1):

To Remove Contents of SL36 Between Berths 5 and 6 – Phase II.

ALL STEPS BELOW SHALL ONLY BE CARRIED OUT IN FULL COMPLIANCE WITH PARIA'S PTW SYSTEM.

- 1. Mobilize personnel, tools, equipment, and crew boat at OSSD.
- Perform pre-use inspection of all equipment to be utilized, and document findings on individual Inspection Checklist record forms. Retire any equipment or tools found to be defective.

I. To Load Material and Equipment onto Barge:

- 3. Review Lift Assessment with involved parties, identify load(s) to be lifted, and its destination (Barge deck).
- 4. Position lifting appliance as per Lift Assessment.
- 5. With direction from banksman, position arm over load.
- 6. With direction from banksman, lower hook to appropriate height.
- 7. Rig material to be picked up as per Lift Assessment, including tag line(s).
- 8. Perform test lift and adjust rigging as needed.
- 9. With direction from banksman, slowly lift, swing, and lower load onto destination.Ensure smooth movement over a route clear of personnel.
- 10. Secure loaded material from moving / rolling.
- 11. De-rig load.
- 12. Repeat Steps '4' '11' until Barge is loaded.

II. To Prepare for Phase II of Blowing (at both Berths 5 & 6):

- 13. Identify topside piping earmarked for removal as per Paria Procedure (sections of this piping exists on both Berths' piping).
- 14. Manually loosen fasteners (bolt and nut) around specified flanges.
- 15. With direction from banksman, position arm over load.
- 16. With direction from banksman, lower hook to appropriate height.
- 17. Rig material to be picked up as per Lift Assessment, including tag line(s).
- 18. Carefully raise hoist until main line holds tension through rigging.
- 19. Fully release all line fasteners holding section in place and uncouple flange faces.
- 20. Perform test lift (short lift and hold position to observe) and adjust rigging as needed.
- 21. With direction from banksman, slowly lift, swing, and lower pipe onto Barge.
- 22. Rig replacement end cap blank with dip tube fitting as per Lift Assessment.
- 23. With direction from banksman, lift, swing, and lower cap onto open riser top (at location topside piping was removed from).
- 24. Manually install and secure fasteners.



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25. At Berth 6, only: Install six-inch (6") piping from top of SL66's topside piping 'T', over Berth 6 to near SL36 (See <u>Drawing 1)</u>.

III. To Prepare for Line Contents Blowing:

- 26. Deploy hydrocarbon containment booms aroundSL36 Risers at sea level off both Berth 5 and Berth 6.
- 27. Secure booms from drift by attaching to fixed structure(s) in vicinity (Berth structure, nearby piles, other risers, etc.).
- 28. Remain on-site to monitor effectiveness of booms until otherwise advised by Client.
 Deploy additional booms to shore up containment as necessary.
- 29. Communicate with Paria representative(s) to make necessary manifold adjustments to allow contents of SL36 to be displaced into SL66, and then to shore.
- 30. Manually connect air compressor outlet to inlet on air injection manifold.

IV. To Air Blow Line Contents to Clear Line Segment:

- 31. Perform pre-startup inspection of air compressor and document findings daily.
- 32. Allow pressure within SL36 to build to forty pounds per square inch (40PSI).
- 33. Communicate with Paria representative(s) when ready to commence displacement.
 - Ensure Spill Response equipment is readily available before moving forward.
- 34. Monitor line during blowing works for signs of leakage.
 - If necessary, shut down compressor and communicate with Paria in case of leak.
 - If necessary, deploy pre-fabricated line clamps to arrest detected leaks.
- 35. Monitor oil level through inspection port periodically.

V. After Air Blowing Has Been Deemed Complete:

- 36. Remove end cap blank with dip tube.
- 37. Replace with gasketed blind flange end.
- 38. Manually thread, catch, and tighten fasteners to secure in place.

VI. On Completion of Work Activities:

- 39. Clean up Site(s) used which may have been affected by work activities.
- 40. Demobilize personnel, tools, equipment, and crew boats.

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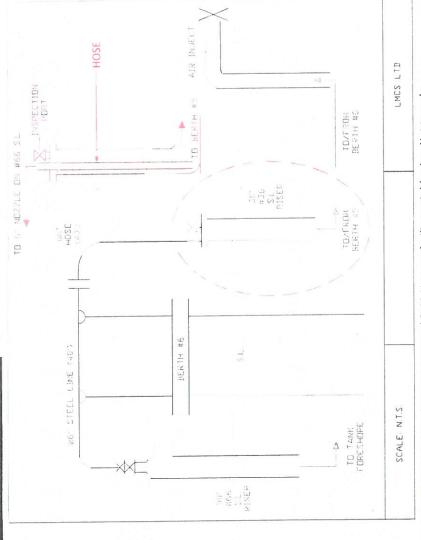
5 February 2022 | Page 2 of 3 MS115_SL36 Draining Btn Berths 5 & 6 Phase II_05FEB2022 R1



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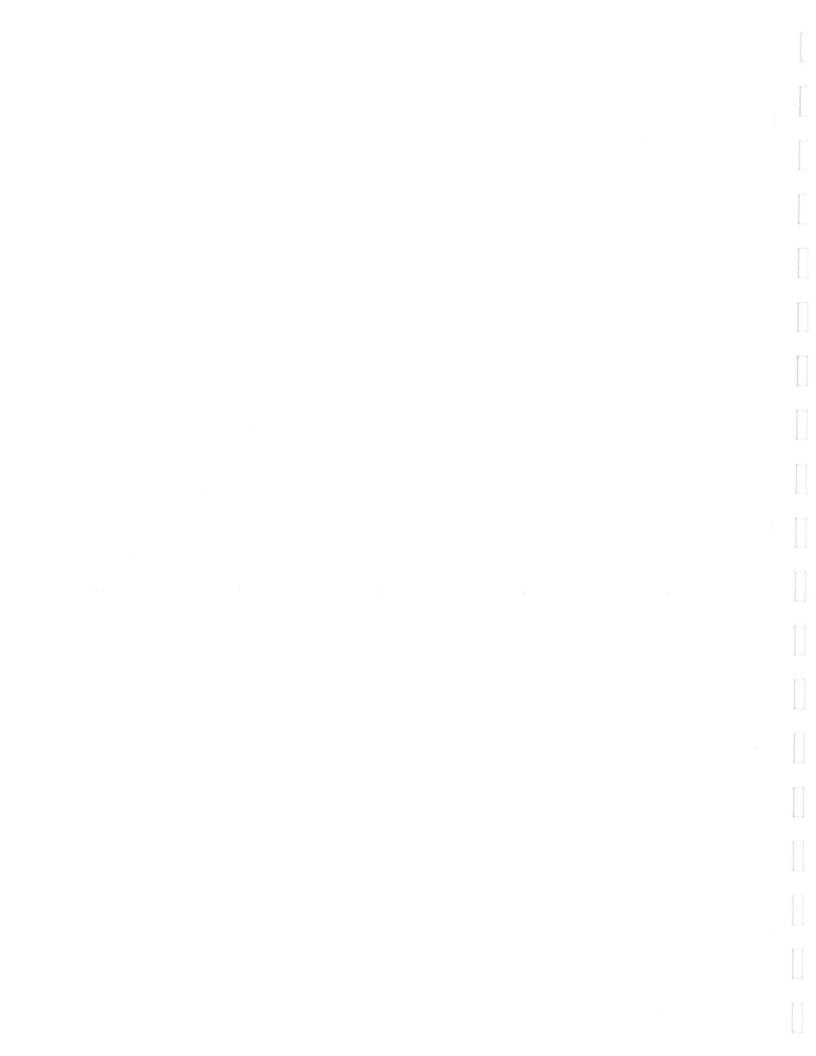


Drawing 1: Details of piping between SL36 and SL66 Risers to facilitate air blowing. Not to scale.

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METHOD STATEMENT 116 (Revision 0):

To Install Subsea Slip-on Flange on Ø30" Sea Line #36 (SL36) at Berth 6.

All steps below shall ONLY be carried out in full compliance with PARIA's PTW System.

This Phase commences on completions of:

- i. Removal of Fuel Oil from SL36 between Berths 5 & 6,
- ii. Installation of Riser Support Pile at Berth 6, and
- iii. Removal of tie-in piping
- 1. Mobilize personnel, tools, equipment, and crew boat and Barge Adventuerer I at OSSD.
- 2. Perform inspection of tools and equipment, and document findings of equipment inspection. Retire any equipment or tools found to be defective.

I. To Load Equipment and Material onto Barge:

- Review Lift Assessment(s)/Plan(s) for hyperbaric chamber and Riser section with involved parties, identify load(s) to be lifted (various), and their destination (Barge deck).
- 4. With direction from banksman, position boom over load.
- 5. With direction from banksman, lower hook to appropriate height.
- 6. Rig material as per Lift Assessment or Plan.
- 7. Attach tag line(s).
- 8. Perform test lift and adjust rigging as needed.
- 9. With direction from banksman, slowly lift, swing, and maneuver load to destination.
- Ensure smooth movement over a route clear of personnel.
- 10. Ascertain load is stable at its intended drop-off location.
- 11. De-rig load.
- 12. Repeat as necessary until Barge is fully loaded.

II. To Prepare Line for Works:

- 13. Manually remove fasteners holding end flange onto rider top side.
- 14. Remove end flange from riser.
- 15. With direction from banksman, position crane boom over semi-inflated line plug.
- 16. Rig plug to lowered main block.
- 17. With direction from banksman, lift, swing, and position plug within open riser by lowering from above.



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- 18. When plug reaches necessary depth (approximately five feet (5') below proposed new flange level), stop lowering and hold in place.
- 19. Connect plug to air compressor (already in place from previous air blowing works).
- 20. Operate air compressor to inflate plug to necessary level as indicated by manufacturer instructions.
- 21. Once inflated, depower compressor and disconnect from plug.
- 22. Lower main block to visually release tension from rigging and observe.
 - If rigging eventually re-tensions with no action from crane, assume plug has slipped. Reposition and re-inflate. Repeat observation.
 - If no change is noted, assume plug is holding in place and continue with works.
- 23. De-rig plug.
- 24. Return crane boom to position over Barge.
- 25. Repeat Steps '15' to '17' to bring mechanical migration barrier over top of open riser.
- 26. Lower migration barrier until it sits just above the inflated line plug.
- 27. Using extended manual tools, adjust bolts until barrier seals against pipe walls.
- 28. After barrier seals against pipe wall, introduce one foot (1") of water into open riser.
- 29. De-rig migration barrier and return crane boom to Barge.

III. To Install and Prepare Hyperbaric Chamber:

- 30. Review Lift Assessment/Plan with involved parties, identify load to be lifted (hyperbaric chamber), and its destination (over top of SL36 riser).
- 31. Repeat Steps '4' to '11' for the chamber, taking it from its transport position on Barge to sitting above the vertical riser. Ensure the hanging ends of slings are inserted into riser before lowering chamber all the way (as per <u>Sketches</u>).
- 32. Allow chamber to settle in position while held by crane. Some time may be necessary to allow chamber interior to fully flood and reduce buoyancy.
- 33. Once stable, manually tension fasteners on clamps on riser support pile and riser to hold chamber in place.
- 34. Connect air injection line to air compressor.
- 35. Operate air compressor to pump air into chamber and displace all flooding sea water (aka 'blow down' chamber).
- 36. Test air quality at chamber vent for breathability using Breathing Air Test Kit, and record results (test to be done daily or after re-starting compressor after prolonged inactivity).

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IV. To Remove Leaking Section of Riser:

- 37. Perform pre-dive checks with Dive Attendant and Divers.
- 38. Hoist dive flag.
- 39. Communicate intent to enter water to Paria Port Coordinator.
- 40. Dispatch divers to chamber.
- 41. Working inside chamber, measure and mark locations for rigging windows and attachment points on existing riser.
- 42. Using powered grinding tool, cut out riser segments as guided.
- 43. Connect slings (lowered internally down riser) to newly created rigging attachment points and tension slings.
- 44. Measure and mark location of new flange connection on existing riser.
- 45. By powered grinding tool, sever riser at proposed flange location.
- 46. Lift cut section to separate it from bottom piping (approximately thirty inches (~30") straight up) and secure by anchoring to anchor lugs outside chamber.
 - Ensure chamber workers move clear of riser prior to lift.
 - Wire rope slings themselves will be clamped outside of chamber to prevent sling slippage.
- 47. Check squareness of cut face and, using powered grinding tool, prepare riser pipe to receive slip-on flange by cleaning buildup off surfaces.
- 48. Manually position slip-on flange and tack weld in place.
- 49. Check alignment and make adjustments as necessary using hand tools.
- 50. By welding, perform root pass on flange/pipe joint.
- 51. Perform Dye Penetration Test on welds to determine acceptability.
 - 52. Thoroughly clean and dry area to be tested.
 - 53. Perform dye penetration test according to product specifications.
 - Steps include application of dye, removal of excess dye, application of developer, and post inspection cleaning. Specifics vary by dye and developer used. Guided by Inspection requirements and overseen by an approved Inspector in real-time.
 - If inspection is not passed: Address failure criteria in weld procedure, re-weld and retest.
 - If inspection is passed: Proceed to clean weld and continue fabrication process.
- 54. On completion of weld, conduct pressure test on flange weld.
 - Pressure testing shall be performed under real-time instruction from overseeing technicians, using their equipment and methodology.
- 55. On acceptance, remove test hardware.

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- 56. Manually remove migration barrier from line.
- 57. Manually deflate line plug and remove from line.
- 58. Manually install blind flange on riser by positioning end flange on newly installed slip-on flange and securing with fasteners.
- 59. Chamber crew to demobilize and return to exterior.
- 60. Disengage air supply and allow chamber to flood.
- 61. Unbolt fifty-inch (50") flange at top of chamber 'stove pipe'.
- 62. Perform test lift and adjust rigging as needed.
- 63. With direction from banksman, remove 50" flange, complete with rigged cut-off riser, to Barge deck.
- 64. Secure cut riser section from movement by chocking.
- 65. De-rig riser section.

V. To Install New Riser Section:

- 66. Rig replacement riser section to underside of 50" flange.
- 67. Perform test lift and adjust rigging as needed.
- 68. With directions from banksman, lift new riser section, swing in place, and lower into chamber.
- 69. Continue lowering until 50" flange makes contact with its pipe.
- 70. Replace and secure fasteners on 50" flange to re-seal chamber.
- 71. Operate air compressor to blow down chamber.
- 72. Test air quality at chamber vent for breathability using Breathing Air Test Kit, and record results (test to be done daily or after re-starting compressor after prolonged inactivity).
- 73. Remove blind flange from new riser flange.
- 74. Lower replacement riser section (with its own flange face already installed) onto awaiting new flange face.
- 75. Align flange faces, install gasket & bolts, and close flange.
- 76. Manually tension bolts to seal coupling.
- 77. By powered grinding tool with bristle head attached, clean thirty-inch (30") riser pipe below new flange affected by installation.
- 78. Apply coating on cleaned riser & flange as per Client specification 10 Tarouba Road
- 79. Demobilize chamber crew.



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VI. To Complete Riser Installation Topside:

- 80. Rig hyperbaric chamber as per Lift Assessment / Plan.
- 81. Hoist line to tension rigging.
- 82. Disengage clamps keeping chamber secured to support pile and riser.
- 83. With directions from banksman, remove chamber to Barge deck.
- 84. Secure chamber from movement on deck, and de-rig it.
- 85. Measure and mark the location for a new topside piping flange on the newly installed vertical riser section.
- 86. Repeat Steps '15' to '28' to install migration barrier and mechanical plug just below proposed location of new topside flange.
- 87. Rig upper end of new riser and raise hoist to tension rigging.
- 88. By powered grinding tool and/or flame torch cutting, carefully sever upper section of riser at new flange position.
- 89. With direction from banksman, lift, swing, and deposit cut section onto Barge deck.
- 90. Secure section from movement by chocking, and de-rig it.
- 91. Repeat Steps '46' to '54' to install new flange face.
- 92. Manually disengage and remove migration barrier.
- 93. Install blind flange onto new flange face, and secure fasteners.

VII. On Completion of Work Activities:

- 94. Clean up Site(s) used which may have been affected by work activities.
- 95. Await repairs to tie-in piping and installation.

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KAZIM ALI (LMCS Ltd.) DIGITAL SIGNATURE

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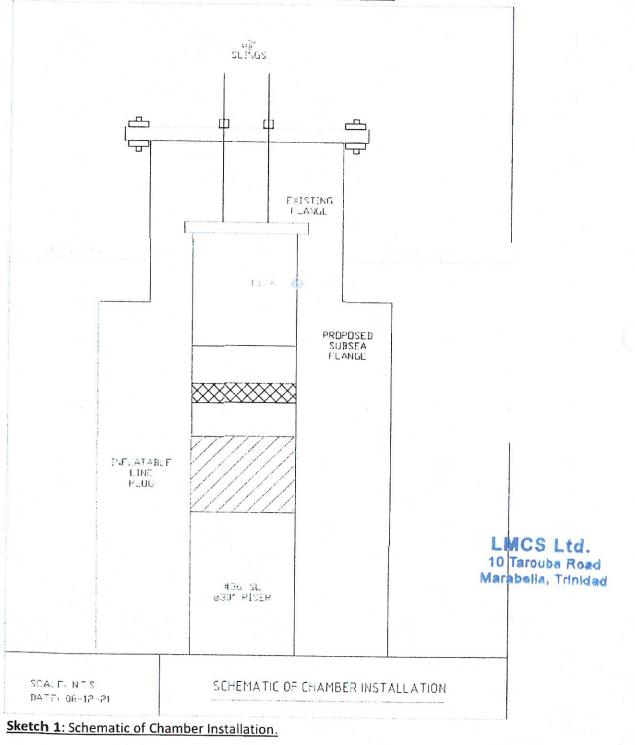


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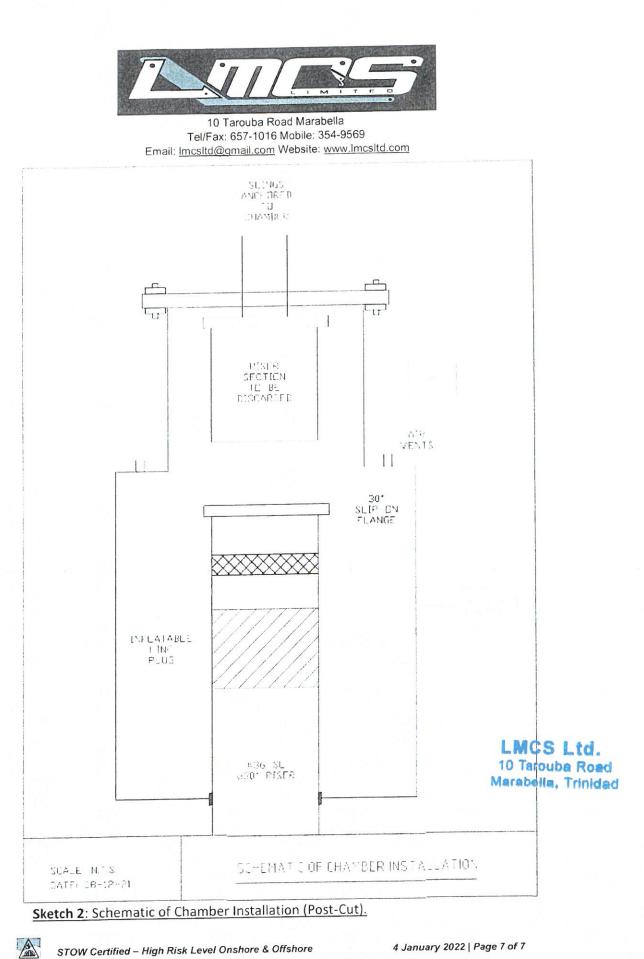






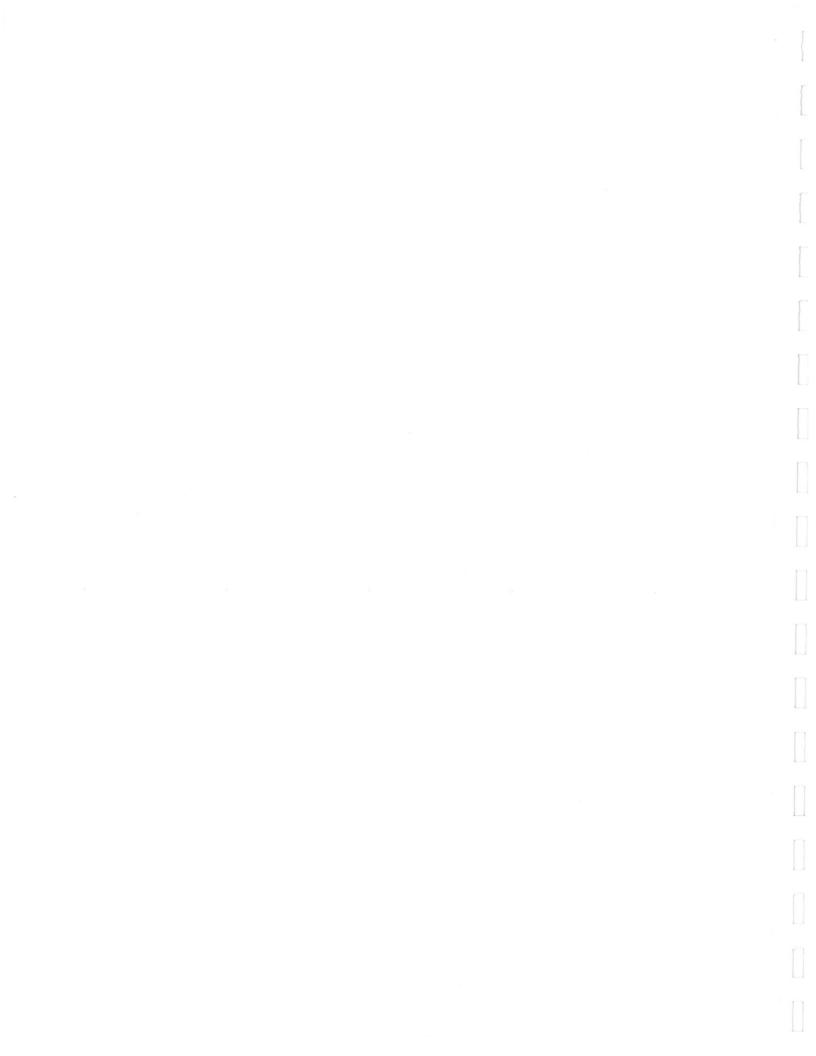
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DAILY/SHIFT RENEWAL/REVALIDATION

Work Permit Renewal Revalidation must be done when there changes to the work site, e.g., Change in Site Authority, Change in Contractor Official, Start of a new workday/shift, Char

	Thereby confirm that the process equipment and the work area are safe for the proposed work		Thereby confirm that I understand the conditions and precations required and undertake to execute the works accordingly	l hereby confirm that I visited the work site and all precautions continue to be in place
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DAILY WORK SUSPENSION

At the end of each work period, or if site conditions change, the Applicant and Contractor Official MUST return the

original Work Permit to the Site Authority and all persons shall sign this DAR'S WORK SUSPENSION SECTION. DATE CONTRACTOR APPLICANT / TIME SITE AUTHORITY / SITE AUTHORIES OFFICIAL / TIME TIME 1 m (2) 12/2/2052 1900 mrs -5). hu nool 14/01/202 RM 14och s

HANDBACK/CLOSEOUT (Af The work done on the equipment work left safe and clean	ter work is completed) k area covered by this Permit has been	satisfactorily completed and the area has
Contractor Official	ID No	Date Time
Applicant Accepted by	ID No.	Date Time
Site Authority	ID No	Date Time
Site Authority (2) Remarks	ID No	Date Time

DATE	TIME	D.25.9 4 19 170
		REMARKS

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PARIA FUEL TRADING COMPANY LIMITED WORK PERMIT

P-301



	WORKI	PERMIT		A A A A A A A A A A A A A A A A A A A		
Woi	k Order No.:	I	Permit	Nº 9320		
	APPLICATION (PLEASE PRINT) Department MANTENANCE Contractor Location BERTH ± 6 Job <u>VARIOUS MANTENANCE</u> WOR Specific Tasks TO REMOVE I INSTALL SO" E REMOVE JO" SOLID BLANE, CONDUCT P REMOVE CHAMBER AND BLANE Applicant HOUSTON MARJADSING H	TESSARE TE	OVE & INSTALL	30° RISER PIPE		
1.	REQUIREMENTS FOR EQUIPMENT ISOLATION AND CLEARANCE					
	The equipment MUST be:	Yes/No/NA	Comments			
	Isolated by blind flanges/ blanks/spool removal/valves	No	line drain	en		
	Cleared of process/hazardous materials	Yes.	Migratian	Barrier to be set		
	Free of process/hazardous materials	No	0			
	Isolated from motive power (electrically)	Na				
	Isolated from motive power (mechanically)	NA:				
2.	RESIDUAL HAZARDS/REMARKS:					
3.	CERTIFICATES/CHECKLISTS REQUIRED NOTE : A Job Hazard Analysis/Risk Assessment is re- Standard Maintenance Procedures may be used for ro			personnel.		
	Indicate below which Documents are required.					
	Cert. No. / NA	·		Cert. No. / NA		
	Hot Work Certificate 2634 Confined Space Certificate NA (No cert ou		al Isolation Certificate	NA		
	Confined Space Certificate NH (NO Certificate	Lift Plan		See attached		
	Safe Work Method Statement	1 111		See attached		
4.	PERSONAL PROTECTIVE EQUIPMENT AND WORKPLACE REQUIREMENTS PPE Requirements (Yes/No, Type) Work Place Requirements (Yes/No)					
	PPE Requirements (Yes/No, Type) FR clothing, Helmet, Glasses, Footwear	Barriers m	Signs must be installed nust be installed			
	Respiratory Protection Goggles, Face shield, Apron	the second s	s must be covered latform fit for purpose			
	Gloves		oring equipment require	ed		
	Hearing Protection Additional Precautions Care to be take	uter	weather c	orditions change		
5.	AUTHORIZATION The process equipment to be worked on and the work Section B4 and conditions on certificates listed in Section Site Authority		l.	providing the precautions in tte/Time 25/02/2022 ©*		
		ID No		te/Tíme		
	ACCEPTANCE I/we understand the conditions and precautions required Applicant HoustonARJADSINGH	and undertake to	execute the required wo	orks accordingly		

DAILY/SHIFT RENEWAL/REVALIDATION

Work Permit Renewal/Revalidation must be done when there changes to the work site, e.g., Change in Site Authority, Change in Contractor Official, Start of a new workday/shift, Change in conditions, etc.

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	I hereby confirm that the process equipment and the work area are safe for the proposed work		I hereby confirm that I understand the conditions and precations required and undertake to execute the works accordingly	1 hereby confirm that 1 visited the work site and aff precautions continue to be in place
DATE	SITE AUTHORITY / TIME	SITE AUTHORITY (2)	CONTRACTOR OFFICIAL /TIME	APPLICANT / TIME
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DAILY WORK SUSPENSION

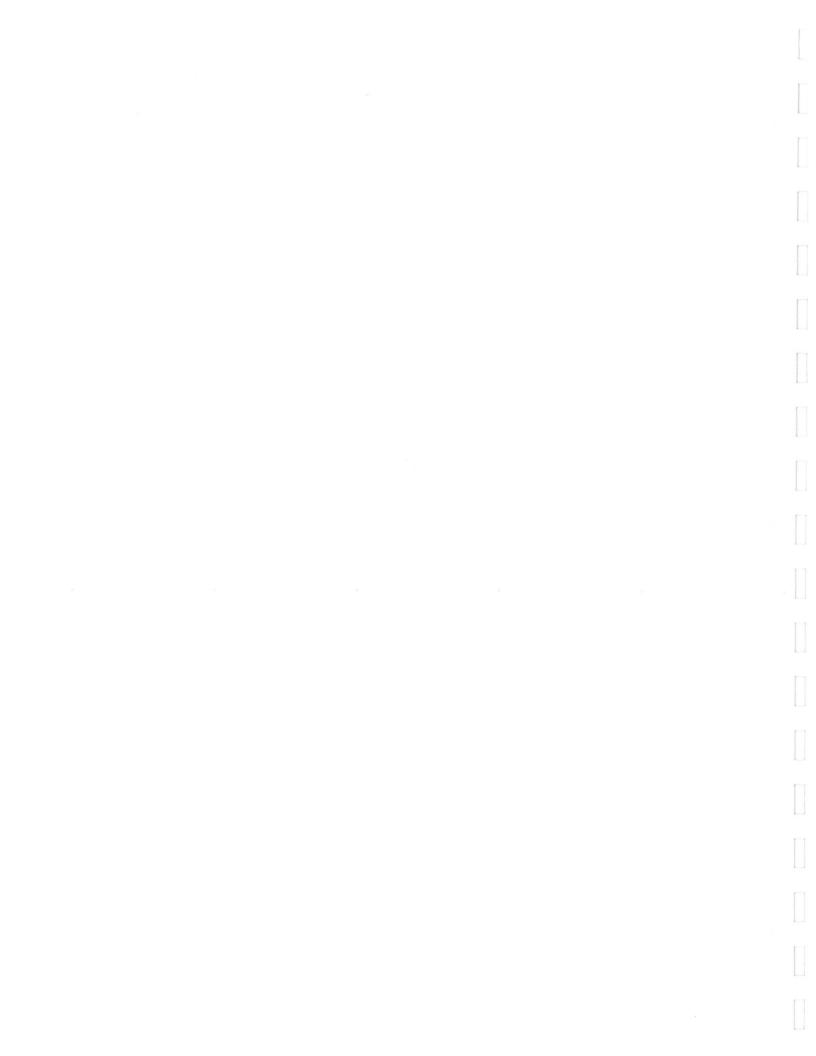
At the end of each work period, or 0 site conditions change, the Applicant and Contractor Official MUST return the original Work Permit to the Site Authority and all persons shall sign this DAU Y WORK SUSPENSION SECTION.

DATE	APPLICANT / TIME	CONTRACTOR OFFICIAL / TIME	SITE AUTHORITY / TIME	SITE AUTHORITY (2)
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The work done on the equipment work left safe and clean.	area covered by this Permit has been	satisfactorily completed and the area ha
Contractor Official	ID No	Date/Time
Applicant		
Accepted by		
Site Authority	ID No	Date/Time
Site Authority (2)		
Remarks		

DATE	TIME	REMARKS





7. Current and Planned Objectives:

Life Safety

Conduct operational risk assessment of situation

Prevent exposure to public and other non-essential staff.

Minimize Impact

- Conduct Onshore site surveys to further assess the incident
- Conduct Offshore site surveys to assess incident
- Coastal Survey
- **Incident Stabilization**
- Identify cause of incident

8. Current a	and Planned Actions, Strategies, and Tactics:
Time:	Actions:
1415hrs	Five (5) divers entered the chamber. Kazim Ali, Rishi Nagesar, Yusif Henry, Fyzol Kurban, Christopher Boodram.
1445hrs	LMCS Diver (Andrew Farah) was informed that the visual camera is non-functional. Line is 30 inches
1455hrs	A.Farah informed no signs of divers or cylinders in the Chamber.
1518hrs	HSE A.Richardson informed of the emergency and respond to the tug landing
1527hrs	HSE personnel arrived at the tug landing via ambulance and informed HSE personnel at #6 Berth
1540hrs	Coast Guard informed
1543hrs	OSHA contacted by Randy Archbald (HSEQ Lead) and informed of the incident.
1548hrs	HSE personnel reported chances of survival are slim
1549hrs	S. Ramkissoon informed from A. Farah that additional LMCS divers were called in.
1551hrs	N. Bachoo (HSE) reported GMRTT on Standby
1553hrs	S. Ramkissoon reported that Victor Paul Singh Reported the incident
1603hrs	TTFS DFO Sampson contacted by Randy Archbald (HSEQ Lead) and requested rescue support.
1606hrs	MEEI contacted by Randy Archbald (HSEQ Lead) and appraised about the incident.
1610hrs	Ag Sub Officer Sterling Deo Arrived onsite
1617hrs	HSE Co-Ordinator instructed HSE personnel to switch to Channel #2
1625hrs	Security personnel informed via radio Level 2 emergency
1648hrs	S. Ramkissoon reported heard divers knocking
1745hrs	C.Piper informed the ICP that 1 person was rescued and is being brought to shore.
	LMCS Diver Michael Kurban brought him up.
1752hrs	Mr. Dion Callender: Heritage ambulance- Santa Flora on it's way to PaP.
1800hrs	Diver Michael Kurban recovered the "Go Pro" and Cylinder from the pipe.
1803hrs	Christopher Boodram LMCS confirmed as the first person rescued
1804hrs	OSH personnel Dion Lawrence, Shevon Ali arrived onsite
1810hrs	C.Boodram tended to by EMTs of GMRTT ambulance. Treated for muscular injury, patient was alert and conscious. Complained on pain on right shoulder.
1818hrs	Christoper Boodram LMCS sent to SFGH
1818hrs	C.Piper- requested breathing air for 4 other personnel
1821hrs	Rescue division section- coast guard and TTFS
1825hrs	C.Piper requested that Security to secure the incident area of the
1826hrs	GRMTT and TTFS ambulance arrived onsite. Currently 4 ambulances onsite (2 GMRTT, 2 TTFS)

1824hrs	Leading Sea Man Coast Guard requested by GM to take control of the rescue operations.
	Staubles Bay additional team will be onsite ETA 1924hrs.
	TTCG doesn't have the equipment or diving personnel at present to rescue.
1831hrs	TTFS Fire personnel- 1 diver will be deployed.
1855hrs	Divers and diving equipment arrived onsite
1915hrs	Russel Sooknanan, Wendel Solomon- TTFS search and rescue arrived on site.
1930hrs	Request for food and water for persons at #6 Berth made
1937hrs	1-ROV-Subsea 7's boat with 2 ROVs leaving Chaguaramas and can arrive onsite in 2 hours.
	Lat and Long radio frequency and hazards communicated to crew by Pat King. Primary contact is C. Balkissoon 2907216. ETA 2-8 divers- one full crew on Gulf Stream Eagle, left Main Field to mobilise to PaP in 90-120mins. The other diving crew to arrive at PaP, within 2012hrs. Diving crew names Fitzroy King, Ashton Campo, Patches Roberts, Ricardo Elcock, Henry Arnold, Derek James.
	Line crawlers- Camera already on site and deployed. CEO stood down the ALNG camera.
	Underwater Lights- On OTSL's Gulf Stream and which will include compressed air and rescue oxygen.
	The Santa Flora ambulance will arrive in twenty minutes with two EMTs Steven Ochoa and Rodney McMeo- Ambulance PCS 1460.
	San Fernando Hospital Informed.
1940hrs	Dive crew confirmed that the don't have the borescope
1959hrs	Faint knocking being heard ever so often reported via radio personnel
2002hrs	Divers at Berth 5 awaiting a vessel to go to berth 6
2007hrs	Requested a tugboat with a crane at #6 Berth. No divers activity happening at Berth 6. No borescope at the time at #6berth.
2009hrs	Informed that TTCG ETA 2054hrs with full rescue and borescope.
2012hrs	Heritage at #5 berth.
2019hrs	Gulf Stream eagle vessel requires clearance.
2035hrs	HSE Shan Balkissoon proceed to SFGH to interview the C.Boodram.
2050hrs	C. Piper instructed C.Balkissoon to discuss with TTCG both options of bolting on raiser extension and remove flange of other end or awaiting on next Coast Guard vessel. TTCG to conduct the assessment and provide feedback.
2053hrs	Update on C.Boodram – Stable condition
2101hrs	Heritage personnel (Osei) suggest to use ROV onsite to conduct an underwater survey. ROV was too big to enter.
2103hrs	TTCG Lieutenant Hargreaves asked C. Piper if there is another option besides sending TTCG divers down into the pipe to perform the rescue as he don't think it's safe to send a diver down. He asked C.Piper to provide other recommendations and options.
2106hrs	In discussion with Kazim Ali Sn.(LMCS), Catherine Balkissoon (onsite) and the PFTC team (C. Piper, Mushtaq Mohammed, Michael Wei, Randy Archbald); a decision was taken to install riser spool at Berth#6 to bring the end above water to atmosphere and thereafter to remove the flange on the riser at Berth #5.
	Information from K.Ali (LMCS) according to LMCS personnel onsite, they were hearing knocking on the line below in response to knocking on the line above water.
2141hrs	Discussions with Heritage personnel
2143hrs	GM contacted Dr Maryam Abdool-Richards to assist on getting the information
2147hrs	Patient C. Boodram interview- did not get to speak. S. Balkissoon to call back.

2158hrs	Patient C.Boodram telephone interview- provided information to the ICT.
	 Informed the ICT that he was about 40 feet from the rafter.
	 He felt two weld seams on his journey out.
	He came across two air pockets.
	 He crossed "Blacks" as he was unresponsive. They (four others) started making their way out the pipe. They were helping Kazim Ali as he appeared to have a broken arm and foot.
	 They came across an air pocket and after the first air pocket one person less was with them.
	After the second air pocket they lost Kazim Ali.
	"Fyzie" was behind him until her reached the elbow then he didn't see him.
2205hrs	Update from C. Balkissoon- Bolting the riser. IC provided information from the interview to CB and
2218hrs	Arlene (Heritage)- person found washed on and on his way to the hospital. N.Feveck investigate information.
2238hrs	TTCG Lieutenant Hargreaves contacted the ICT to discuss way forward. Will discuss with his senior and get back to the IC. ICT asked that his decision be made as soon as possible.
2242hrs	Atlantic LNG personnel (R.O'Rosco, Richard Ramsaran) arrived to ICP with rescue equipment including the borescope. IC appraising of incident.
2249hrs	IC- asked that a launch collect the ALNG persons to take them to the incident site. Borescope has to be utilized to assess the pipeline.
2350hrs	TTCG Lieutenant Hargreaves informed IC that they will not dive.
2302hrs	GM spoke to Pat King (COO Heritage) to discuss the incident and possible ways forward.
203hrs	Flange is not leaking- verified by IC.
2304hrs	IC: Recovery plans to be drafted.
	Scenario 1- All four persons non-responsive
	Scenario 2- Found responsive
	Scenario 3- Nonresponsive and submerged.
	Scenario 4- Nonresponsive air pocket.
2309hrs	Catherine Balkissoon reported- Divers exhausted
	K.Ali informed that the cameras can't go into the riser because the spool is too close to the chamber.
2317hrs	IC informed K.Ali to remove the top of the Chamber to send the camera down. ET 2147hrs.
	IC gave instructions to CB and C.Balkissonn NOT remove the flange.
2324hrs	Mobilize pumps.
2333hrs	Patient Update- C. Boodram resting comfortable, only complaint is a pain to his shoulder.
2339hrs	HSSL confirmed that they will not perform rescue
2340hrs	M. Wei: Pipe crawler- ET 0100hrs (FEB 26, 2022)
2347hrs	ALNG personnel arrived on berth #6, awaiting for the removal of the top of the chamber to send down the camera.
2358hrs	Update from ALNG camera team- 40' in vertically and 20' horizontally, nothing seen.
2359hrs	ROV arrived onsite
0002hrs	Update from ALNG camera team- 40' in vertically and 30' horizontally, camera cannot go further than the 40", they saw clear water. Unable to see if there were air pockets as the camera is positioned at the
2022 Feb 26	base of the pipe. ALNG team removed the camera added an attachment to send it further down the pipeline.
0022hrs	C.Balkisson asked IC if the flange should be unbolted?
	IC instructed no flange to be removed. Waiting on the camera assessment.
0028hrs	Update from ALNG camera team- 40" in vertically and 30" horizontally. Same update. Clear water seen and came to a scuba tank and markings on the tank can be seen and indicated blockage.
0045hrs	IC asked for the camera to go down again and try to assess further. Divers are to deploy and assess the pipeline blockage and provide information of the assessment. Rolph Seales to liaise with the divers (OTSL and Mitchell Divers) to provide feedback on their willingness to perform the job.

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0055hrs	Crawler ET 0110hrs.
0056hrs	Rolph Seales indicated to ICP that no divers were willing to perform a dive.
0110hrs	Water is seen at the top of the pipe.
0113hrs	IC asked Catherine Balkissoon -What is the height of the water in the riser? Harrichan- it's at Sea water level.
0115hrs	V. Harrichan- Water level is above the flange. Visham to send a video of a visual to M.Wei.
0117hrs	Borescope footage confirms it's at sea level
0118hrs	Crawler location required. IC wants the crawler to assess the line from #6 Berth.
0135hrs	S.Subero (Security) to assess the site again to ensure that it is protected.
0137hrs	Eastern Divers rescue techs, HHSL robotics crawler operator and emergency technician team arrived a ICP.
0148hrs	HHSL 7-man crew: dispatched to Berth #6 after debriefing.
0205hrs	Update from Dr. Hassanili. C. Boodram in stable condition- Cariology, Neurosurgery, Scope ENT, General Surgery assessed him and provided that feedback. Dr. Coombs (Hyperbaric Chamber Specialist) recommended that he updergo Hyperbaric Chamber Therapy. Heritage ambulance will transfer him to the location.
0212hrs	Two eastern divers debriefed at ICP.
0226hrs	They suggest a rescue operation.
0316hrs	C. Balkissoon informed that HHSL deployed the crawler.
0327hrs	 IC- Persons on the scene at the time of the incident. Kurt Scott- witness at the time the incident occurred. He saw a splash on the camera and then no visual seen. V.Harrichan, C. Balkissoon- Operations Site personnel Jonathon Ramdan (OTS)- responded Leeandra Singh Port Coordinator
0329hrs	Crawler came back out of the pipe. ICP awaiting assessment.
0333hrs	2 IOCL pumps to be mobilized. ETA 0430hrs Customs granted IC permission to use the Lorena B to pump into. Will be at berth #5.
0346hrs	Crawler deployed again. Line was tangling initially.
0424hrs	At 35'-45' horizontally two cylinders seen using the crawler. The equipment attempted to dislodge them but futile. HHSL attempting to dislodge the cylinders.
0 <mark>433hrs</mark>	Attempts futile to dislodge the cylinders. IC made the decision (communicated to C. Balkissoon) to remove the flange at #5 berth.
0435hrs	IC request an engineering team to assess the incident. ETA 0700hrs.
0445hrs	ICT informed J.Beckles that an airline be sent down with the crawler at berth #6 at the location of the 2 cylinders.
0500hrs	Flange on Berth 5 to be removed Crawler to be moved from Berth #5 to Berth #6 Pumps to be installed at Berth #5 and Berth #6 C. Boodram to be taken for decompression (Hull) by Heritage @7:30am from the San Fernando General Hospital ROV post berthing- to look for plug (external survey)
0600hrs	Flange was removed and entry made into Berth#5 by the crawler, however, visibility was low due to the presence of oil at approximately 60ft and crawler was unable to go any further.

Prepared	by: Name: Shelly Ann Maharaj Position/Title: Signature:
1410hrs	Carib valley arrives on berth #6 with pump on LMCS vessel Adventure x
354hrs	IOCL documents and permits in order. Pumps being loaded onto vessel.
340hrs	Mr. Niron brown and Mr. Philip from Heritage arrived at the Landing stage to provide additional support with the ambulance
1311hrs	Business continuity decision to continue loading operations at the main via duct.
227hrs	1- 15x15 tent, 3- 6ft tables and 12 chairs set up at the triage area at Lube Oil Jetty Launch Landing
1211hrs	Request for security vessel to berth 6. Unknown vessel (Sheriff Lobo) circling taking photos.
1210hrs	M. Diptee and R. Ramai-Peters arrived and were briefed on status thus far.
1200hrs	Pump still onshore. Awaiting further information from IOCL before pump can be taken to the berth.
1138hrs	Tent arrived for triage
1131hrs	Notified Dion Callendar of OSH and Marc Rudder of MEEI that we may need to remove the hyperbaric chamber as part of the ongoing efforts. Clearance was granted. Photos to be taken of the area.
1058hrs	Senior doctors at San Fernando Hospital reviewed the case and his covid status and no longer recommend decompression chamber and have decided to keep Mr. Boodram for observation foe 24 to 48 hrs.
1040hrs	C. Boodram was found to be covid positive and arrangements for another ambulance to be made to take Mr. Boodram to Hull Services. Hull Services has no issues with accepting Mr. Boodram for treatment.
0945hrs	C. Boodram was picked up at approximately 0930hrs to be taken for decompression.
0912hrs	R.Archbald informed MEEI, OSH Agency of the incident via email.
0908hrs	EAP arrived at shipping to discuss emotional support services. Awaiting crane to carry out the pumps.
0840hrs	EMT delayed and C. Boodram to be picked up at approximately 0900hrs Eastern Divers to be contacted to determine specifications for platform needed to perform the rescue operation.
	IOCL to utilize one of their pumps on Berth #5. The other pump is to be dropped off at Berth #6 to be kept on standby. Pumping to take place on Berth #5 to the Lorena B.
0807hrs	Crane operator to be utilized to take pumps to berths. IOCL indicated their pumps have a 6-inch hose and diesel capacity to pump for a total of 12 hours
0750hrs	Lorena B to transfer to free up tank space (approx. 3hrs) before oil can be pumped. Pilot to board at 0800hrs and berthing will take place in approx. 1 hr. Launch Gull and Carib valley to assist Lorena B as they have one engine functional (Port side engine)
0735hrs	IOCL arrived with pumps (centrifugal). EMT delayed and C. Boodram to be picked up at 0830hrs.
	 IOCL to bring pumps in approximately 1 hour @0800hrs. OTSL left the site. HHSL indicated that the crawler was able to go 220ft into the pipe from Berth #6 and encountered a tank and a yellow and white object (unable to identify). The crawler was submerged in oil and has to be de oiled. Once this is done the footage will be sent across to Paria. Footage on a go pro camera. Asked for it to be secured. Contractor crew (LMCS and Trinity) to be taken off site and emotional support services to be provided.
0700hrs	Eastern Divers left to discuss and develop a confined space rescue plan. Risk Assessment to also be completed to cover the rescue operations. Oil to be pumped out from Berth #5.

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