

# OSRL COVID-19 Process Testing

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## 1. Executive Summary

Exercise Details		
Exercise Dates	Phase 1 - 29 <sup>th</sup> April – 30 <sup>th</sup> April Phase 2 - 30 <sup>th</sup> June – 1 <sup>st</sup> July Phase 3 – 13 <sup>th</sup> July – 17 <sup>th</sup> July	Phase 1 – 20 <sup>th</sup> July – 21 <sup>st</sup> July Phase 2 – 27 <sup>th</sup> July – 29 <sup>th</sup> July Phase 3 – 11 <sup>th</sup> – 21 <sup>st</sup> September
Exercise Location	United Kingdom	Singapore
Exercise Focus Area	Shoreline Deployment	Offshore Deployment
Number of attendees	25 across all three exercises	23 across all three exercises
Scope	<p>As part of OSRL’s readiness assurance process and in-line with current COVID-19 pandemic response, OSRL have developed COVID-19 specific procedures and guidelines to ensure responder safety during a response. Part of the process of developing these procedures was to test them in a controlled setting using a 3-Phase exercise programme. Different response techniques were deliberately exercised in both Southampton and Singapore with the aim to; validate the procedure using as real conditions as possible and via the input of the global pool of response personnel.</p> <p>Scope:</p> <ul style="list-style-type: none"> <li>◆ Detailed guidance, procedures, and processes have been developed to address the impact of COVID-19 on mobilisation and response activities.</li> <li>◆ To ensure these are fit for purpose and provided the required level of mitigation it is necessary to exercise<sup>1</sup> and drill<sup>2</sup> using the procedures, and identify any lessons learned.</li> <li>◆ The program was designed to test the newly developed COVID-19 processes and procedures for both shoreline and offshore response scenarios.</li> <li>◆ The exercises were developed in a phased approach allowing different drill elements of the COVID-19 procedures to be tested and refined in a step-wise manner with a final phase to include an in-field deployment to test the COVID-19 procedures in a holistic manner.</li> </ul> <p>The primary finding was; with robust procedures and processes in place covering the mitigations and controls to be followed, <b>it is still feasible to carry out a practical exercise or response to a spill whilst maintaining responder’s health and safety from those identified operational hazards covered in Risk Assessment as well as the new addition of the COVID-19 risks.</b> Social distancing can be maintained in most situations and additional control measures are put in place whenever it is not possible. Administrative controls and PPE proved to work well. Environmental and weather conditions with the added COVID-19 requirements should be considered when planning for operations.</p>	

<sup>1</sup> Exercise refers to Deliberate Practice

<sup>2</sup> Drill refers to Testing

## 2. Exercise Details

### a. Background

OSRL have developed procedures, processes, and guidelines to ensure due consideration is given to responding oil spill during COVID-19 period, taking into account regulatory requirements, health and safety of responders and communities, and adjustments that could be made to specific response techniques to minimise exposure risk. It is part of OSRL's readiness assurance process to test them in a controlled setting to address the impact of COVID-19 on mobilisation and response activities. Different response techniques were deliberately exercised across Southampton and Singapore bases with the aim to maximise learnings and to include as many responders as possible. It is purposefully conducted in three phases to ensure a) any gaps in our procedures did not result in COVID-19 exposure risk; b) to work in different environmental and weather conditions; c) to maximise the learnings available at each phase so they could be built into the next.

### b. Scope:

The program was designed to test the newly developed COVID-19 processes and procedures for both shoreline and offshore scenarios. The exercises then structured in a three-phase approach allowing different elements of the COVID-19 procedures to be tested in an escalating process where the final phase would include an off-site deployment and would test and evaluate the COVID-19 procedures in a holistic manner. Shoreline deployments were exercised in Southampton while offshore deployments happened in Singapore.

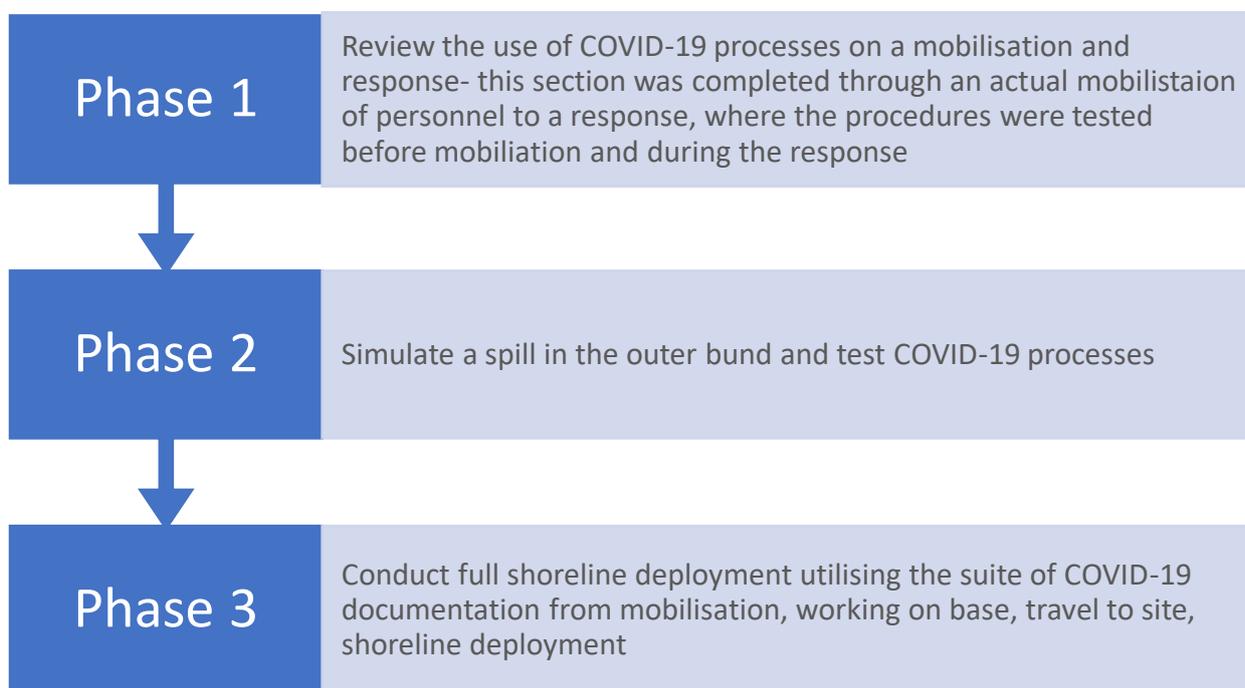
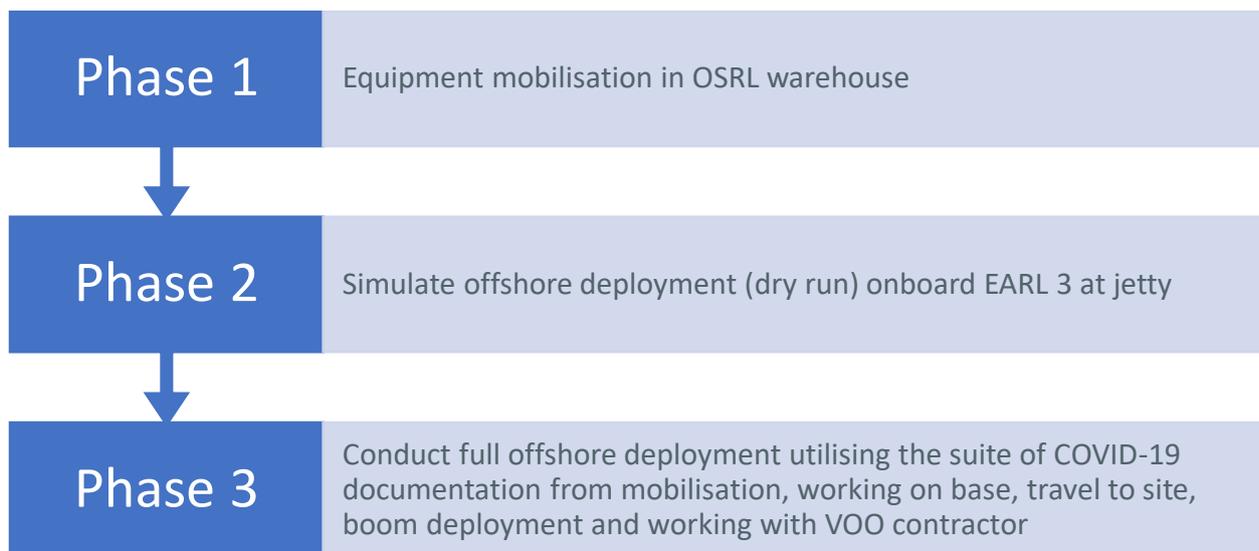


Figure 1: Phased approach followed to exercises implementation - Shoreline



**Figure 2: Phased approach followed to exercises implementation - Offshore**

The exercises tested several COVID-19 procedures, guidelines, and processes that have been developed by OSRL as well as ensuring that our standard health, safety, and wellbeing policies and procedures were also followed, these included:

#### COVID-19 Documents

- ◆ COVID-19 Respiratory Protection Guidance (RPE)
- ◆ Hand Hygiene Guidance COVID-19
- ◆ COVID-19 Shoreline operations field guide appendix
- ◆ COVID-19 At Sea Containment & Recovery Operational Considerations
- ◆ COVID-19 Specific Measures for In-field Response
- ◆ COVID-19 base distancing procedure and Tactical Recovery Plan
- ◆ Duty Team COVID-19 quick reference checklist
- ◆ COVID-19 Safe Distancing Procedure
- ◆ COVID-19 Safe Management Measures & Recovery Plan
- ◆ COVID-19 Visitor Screening Process
- ◆ COVID-19 Enhanced Base Cleaning Plan
- ◆ APAC (local) Working Guidelines with COVID-19 At-Risk Group
- ◆ Vulnerable person tracking process

#### Safety/Operation Documents

- ◆ Site Entry Protocol utilising electronic app
- ◆ All related Operational Working Instructions
- ◆ All related Safe Working Procedures
- ◆ Method Statements
- ◆ Risk Assessment process
- ◆ Toolbox Risk Identification Card
- ◆ Vessel Safety Management
- ◆ VOO Assessment Procedure

### c. Shoreline Deployment:

#### Phase 1

Whilst planning the initial phase 1 exercise, OSRL was mobilised to an actual incident for a member, this enabled the Phase 1 covid-19 procedures and processes to be tested through a technical Advisor mobilisation to a real incident; this tested several elements of the COVID-19 procedures and processes. A technical advisor was mobilised to a client IMT, and several responders were mobilised to carry out surveys in a vessel utilising gas monitors as well as responders sent to carry out a SCAT survey.

In addition to this during the mobilisation phase it was necessary to identify suitable personnel respond not to respond, typically based on skills required, medicals/vaccinations, and availability, it was necessary to also consider the COVID-19 specifics, which meant that person shielding, quarantining or deemed clinically vulnerable were not to be selected.

The mobilisation was successful with several surveys being completed and advice being provided to the client in their IMT whilst maintaining the controls and mitigations in place to reduce the risk of exposure to COVID-19.

#### Phase 2

Phase 2 involved a more in-depth exercise utilising zoning requirements and equipment (See Figure 3).

Date	Activity	Task
29 June (Mon)	Briefing	Virtual briefing using MS Teams
30 June (Tue)	Working in /entering base	Safe check into base <ul style="list-style-type: none"> <li>Reporting (safe-entry/temperature monitoring/trace together app/displaying of COVID-19 symptoms)</li> <li>Changing into PPE</li> </ul>
30 June (Tue)	Equipment preparation	<ul style="list-style-type: none"> <li>Select and prepare equipment to be deployed</li> </ul>
30 June (Tue)	Follow site entry protocol	Follow full site set up procedure + considering potential COVID-19 impact and mitigations <ul style="list-style-type: none"> <li>Utilise electronic app</li> <li>Gas monitoring</li> </ul>
30 June (Tue)	Site Set-up	Complete full site set-up with zones
30 June (Tue)	Working in Outer Bund	Simulate oil recovery and equipment operations <ul style="list-style-type: none"> <li>Connect powerpack and skimmer</li> <li>Set-up fast tank</li> <li>Working in Tyvek suit and appropriate PPE as responding to real oil spill</li> <li>Follow equipment sanitation and decontamination process for on-coming shift- move equipment between hot, warm, and cold zones.</li> <li>Follow COVID-19 specific in-field measurers document</li> </ul>
30 June (Tue)		Disinfecting the area of operation/ decontaminate equipment for next shift

**Figure 3: Phase 2 exercise Summary**

The exercise was conducted on OSRL’s Southampton base utilising the outside space in the Outer bund area (See Figure 4). The exercise aimed to progress on the learnings from phase 1, including careful consideration of the selection of personnel.



**Figure 4: Phase 2 Shoreline exercise location highlighted in blue**

Based on the learnings from phase 1, a new tool for helping responders to be aware of social distancing whilst not distracting from the task in-hand were utilised. Wearable proximity alarm devices were tested, utilising a signal they detect when another device was within close proximity and emitted a sound. They allowed responders to concentrate on the job in-hand whilst the safe distancing tool was monitoring proximity of others with device providing an audible warning if 2 metre distance was broken, thus allowing responders to maintain social distancing or where not possible due to the task they could ensure they have the correct PPE/RPE on.

The exercise was completed successfully, equipment was deployed in the outer-bund and a full site set-up was carried out.

The return to base process was implemented ready for the exercise and was followed by the team, this recognised that some personnel had been away from base for a period of time and it was necessary to do an induction and training on the new COVID-19 procedures before returning. Prior to entering base all personnel carried out the return to base training and assessment. Following the successful test in the exercise this was implemented site wide to all personnel.

Several points were taken across into phase 3:

- Safety Glasses steamed up with the masks on - possibly the use of respirators would vent the hot air and not push air up towards glasses
- Review of quantity of waste disposal and hand sanitiser with the sanitation stations

### **Phase 3**

Phase 3 involved a full shoreline deployment off base (See Figure 5). The scenario was based on a loading hose failure resulting in a release of light to medium oil that had impacted the shoreline.

This exercise aimed to test the recently published COVID-19 response guides, procedures and processes during a slow-time, small-scale mobilisation. It allowed us to test multiple facets of the new working procedures in tandem such as working on site, transport to site, site set up and deployment of equipment.



**Figure 5: Map of Exercise location at with overlaid booming plan**

Prior to loading equipment was selected using the guidance in the shoreline field guide COVID-19 appendix, this included taking into consideration the type of equipment to be deployed and how it will be deployed, i.e. using lighter sections of boom that required less manual handling thus enabling social distancing to be maintained where possible.

The team deployed to site following the updated RPE and in-field response measurers guidance. Upon arrival at site a briefing was conducted to discuss the safety and operational requirements of the task. During the deployment regular time-outs were held to cover any COVID-19 specific documents such as the shoreline field guide appendix and in-field response measures.

By phase 3 of the deployment the responders had been utilising the COVID-19 procedures for some time and they were proficient at ensuring the measures were followed, the additions of the pathfinders as trialed in phase 2 were of benefit during the physical deployment. The designated site safety lead also took on the responsibility for overseeing compliance with the COVID-19 procedures and guidelines, throughout the exercise these were followed successfully without impediment to the deployment.

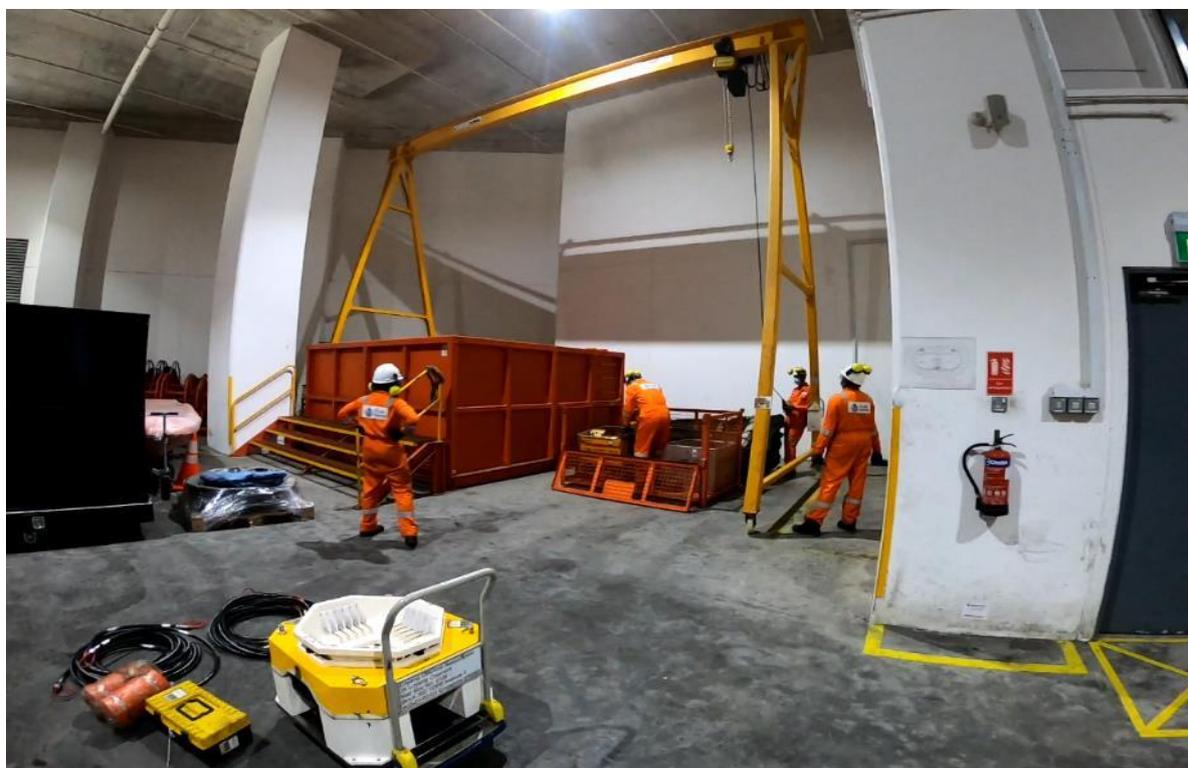
It proved a valuable exercise to identify some procedural gaps (rehab), opportunities for streamlining processes (site entry), conflicts between procedures (PPE - gloves). The department tested feasibility of resourcing from a reduced pool, social distancing and PPE ergonomics, highlighted skill fade as a challenge for returning to base and tested new equipment (hand washing station). The exercise also provided proof of concept for a larger team pooling resources to organise an exercise, reinforced remote working capability, and a greater inclusion of technology into theory & briefing sessions.

#### d. Offshore Deployment

##### Phase 1

Phase 1 was tested through equipment mobilisation in OSRL warehouse where responders were mobilised back to base and formed a loading team to prepare a selection of equipment such as aircraft pallets, power pack and dispersant IBC to laydown area (*See Figure 6*). Equipment function check was then performed to observe human behaviours when working close to one another. It tested several elements of the COVID-19 procedures and processes which safeguard our day to day work.

Recognising that most responders have not returned to OSRL base for work during this COVID-19 period, Phase 1 exercise was deliberately designed to get personnel working on simple tasks and be familiar with the environment as well as building up the momentum of responding in an event of oil spill incident. No external contractor was involved at this phase to reduce its complexity. All tasks were performed with personnel donning disposable surgical mask as indicated in the COVID-19 procedures and a requirement by local legislation at workplace.



**Figure 6: Equipment mobilisation in OSRL warehouse**

Longer time taken for task completion was anticipated and proven as wearing a mask to work is not a norm previously. Responders felt uncomfortable wearing the mask over a long period of time and there was a tendency for safety glasses to fog when they are working with surgical mask donned. More

rest breaks were scheduled to ensure people are hydrated and well rested. Time-outs were called at regular points of the exercise to review the previous phase of activity and confirm common understanding for the next phase.

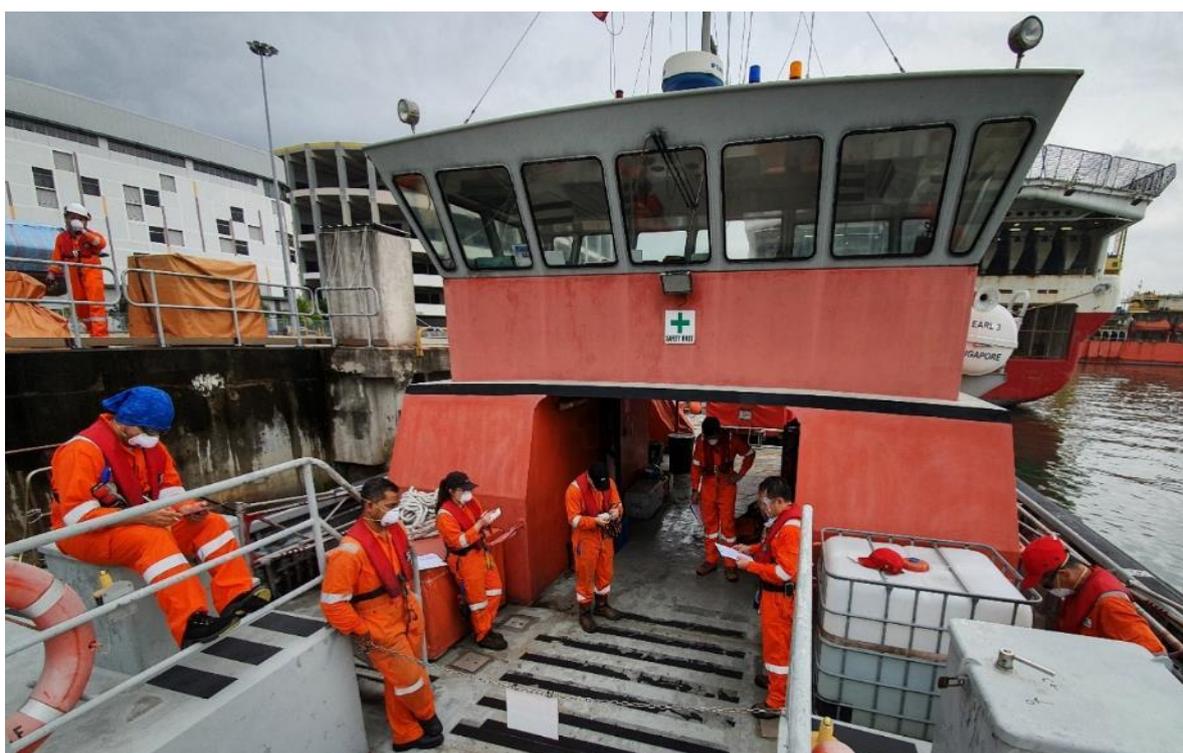
Certain activities such as manual handling of heavy objects and troubleshooting of equipment created challenges in maintaining safe distancing of at least 2 metre apart from one another. Additional briefing was given on the spot to plan out the sequence of the work task for better efficiency and reduce the duration for people to work close together. A positive impact was observed to have a Safe Distancing Officer (SDO) on site to keep in view on the wellbeing and remind people on practising safe distancing.

Several points were taken across into phase 2:

- Time-outs were beneficial to keep personnel in the common operating picture
- Schedule of frequent and deliberate rest breaks was necessary to rejuvenate
- Challenges in keeping safe distancing of at least 2 metre for work activities – breaks task into bite size to reduce duration of clustering and have an SDO to oversee safety and wellbeing

## **Phase 2**

Phase 2 simulated an offshore deployment dry run onboard EARL 3 when she is docked and securely moored at jetty (*See Figure 7*). EARL 3 sailed for a short journey to conduct site entry protocol and returned to her mooring before the start of dry run. Zoning requirements and working in Tyvex suits were exercised and adhered to hot weather and COVID-19 procedures. No external contractor was involved at this phase but COVID-19 safety measures when working with external contractor was practised with responders donning N95 mask. Vessel master donned face shield while conducting vessel safety briefing. Prior to the commencement of Phase 2, mask fitting test for N95-model 8210 and half facepiece respirator masks had been conducted for all OSRL staff.



**Figure 7: Offshore deployment Dry Run on Earl 3**

As observed from previous phase, skill fading for response related activities was highlighted after a considerable break in carrying out exercise and deployment operations, and with a new focus on COVID-19 procedures. Theory session on equipment was then shared remotely and familiarisation on EARL 3 was conducted by vessel master and Exercise in-charge (IC) on the day before actual deployment. All OSRL staff was arranged to attend site induction program in small batches to get themselves familiar with changes made in OSRL base.

The exercise went well as work tasks were broken down into manageable parts and briefing was given before proceeding to next task. However, use of N95 mask reduced normal air intake which accelerated fatigue and short of breaths. Frequent rest breaks had to be scheduled and Exercise IC slowed down the pace of activity. Wearing N95 mask also muffled voices which draw responders to come together. Face shield was used to enable voices to carry and safe distancing to be maintained on the basis that it is key to safe operations where people can understand what is being said. Nonetheless, responders started to show awareness on keep safe distancing through constant reminders from Safe Distancing Officer and previous experience in Phase 1 exercise.

Several points were taken across into Phase 3:

- Conduct theory and practical sessions on response related activities after a considerable break from working in OSRL base
- Review on the mitigation controls in place for additional potential hazards of donning N95 mask

### **Phase 3**

Phase 3 involved a full offshore deployment utilising the suite of COVID-19 documentation from mobilisation, working at OSRL base, travel to site, boom deployment and working with VOO contractor (*See Figure 8*). Responders gained confidence working in base and vessel from previous phases, leading to the focus for Phase 3 was to validate the At Sea Containment and Recovery Operations (with COVID-19 Measures Field Guide) that had been formulated including working with external contractors on Vessel of Opportunity (VOO) while adhering to all other COVID-19 procedures that had been developed.

OSRL team went down to contractor's premises to view the vessel using Vessel of Opportunity assessment checklist and COVID-19 Operational Considerations Guide - At Sea Containment and Recovery Operation. The team adhered to the COVID-19 safety measures put in place by the contractor's company but noticed it was not as comprehensive and high standard as OSRL. The team then kept to the more rigorous of the measures in place – which were OSRL's. The checklist and guide were simple and easy to use but certain point was verified based on verbal confirmation such as vessel master has control measures to ensure vessel crew is healthy. It applied to the actual deployment day as well where the vessel master was on bridge communicating to Offshore IC using VHF radio device to reduce physical contact. The VOO selected met all criteria in the guide except for the deck space was less than the preferably area of 100m<sup>2</sup> due to the availability of VOO. The team used the VOO guide alongside OSRL's COVID-19 procedures to determine the vessel deck space was adequate for the operational activities whilst maintaining distancing.



**Figure 8: Offshore deployment on VOO**

With positive feedback on the theory and practical refresher sessions conducted in previous phases, Phase 3 followed through to conduct the sessions before the actual deployment. Responders were familiar to the COVID-19 procedures at this phase. The team managed to deploy and recover the offshore boom and skimmer successfully but there were challenges to maintain safe distancing of at least 2 metre apart from one another during inflating of boom and reeling boom onto reel. For instances where safe distancing was not possible, the team managed the exposure through RPE and increased surveillance of hand hygiene, whilst minimising the amount of time individuals were in close proximity.

Given that responders have not been working outdoor exposing to direct sunlight for some time and coupled with donning of N95 mask, this accelerated fatigue and body temperature. More rest and water breaks were scheduled to keep all hydrated and prevent heat stress injuries. One responder exhibited a temperature of 37.8°C during lunch time at noon. No other COVID-19 or heat stress injury symptoms was observed, and the individual did not experience any unease or unwell. The individual was then given a prolonged lunch break, hydrated and placed under a shaded area. The individual's temperature gradually subsided in parallel to the day's temperature and fully recovered. Appropriate notifications were made in line with OSRL procedures.

### 3. What Went Well across the exercises

- All participants were engaged and demonstrated good teamwork and communications.
- Willingness to adjust as a team to new guidance in order to deploy equipment safely
- COVID-19 Procedures and processes provided good controls to mitigate against COVID-19 risks whilst not introducing other risks or hazards.
- Field guide documents were simple to digest and easy to remember during the exercise
- Good use of timeouts to refer to new procedures
- Exercises were done at a comfortable pace, and introduction of equipment refresher session prior to start of operation allowed staff to be re-familiarised with key aspects of the task at a controlled pace.
- Use of wearable proximity alarm device was a good reminder of how close and easy it is to forget your distance.
- Positive impact with the presence of Safe Distancing Officer (SDO) to remind personnel on safe distancing and overseeing of well-being.
- Proper waste disposal was practised for putting used microbial wipes and surgical/N95 masks into a zip lock bag before throwing into common bin.

#### 4. Lessons Learned

	Lesson title	Context	Recommendations / considerations
01	Classification of Vulnerable Persons and storing of data	<ul style="list-style-type: none"> <li>a. During phase 1 a responder categorised as a COVID-19 “vulnerable person” was mobilised to carry out shoreline operations. The responder was willing to respond.</li> <li>b. There was confusion over the two levels of vulnerable persons, and this led to a misunderstand by both the responder and Duty Manager on whether the responder could respond/attend site.</li> <li>c. Data on vulnerable persons was recorded in multiple databases.</li> </ul>	<ul style="list-style-type: none"> <li>1. Ensure Criteria on vulnerable persons and limitations/restrictions on their capability to respond is clearly communicated to all persons.</li> <li>2. Ensure there is a single source of truth for such data and define responsibilities for maintaining and updating the records.</li> <li>3. Ensure all personnel are aware of the various categories of vulnerable people and the associated restrictions.</li> </ul>

02	New processes and Procedures	<ul style="list-style-type: none"> <li>d. Several staff members had not completed the return to base questionnaire before entering site for the exercise.</li> <li>e. There is a considerable amount of additional information above and beyond the standard HSE requirements and this may have factored into the oversight on some COVID-19 procedures.</li> <li>f. The COVID-19 procedures and guides are live documents and staff may not be aware on all changes from time to time.</li> </ul>	<ul style="list-style-type: none"> <li>4. Ensure all COVID-19 procedures and processes are rolled out with opportunity for all to attend. Use interactive webinars were possible to improve engagement.</li> <li>5. Conduct regular refresher sessions to keep all aware on the new changes made in COVID-19 procedures and processes.</li> <li>6. Develop a COVID-19 briefing checklist to be used prior to exercises/deployments.</li> <li>7. Consider the need to have someone separate from the deployment identified to ensure we are maintaining COVID-19 compliance (same as the safety lead).</li> </ul>
03	Safe distancing aids were used to help remind personnel of distancing requirements	<ul style="list-style-type: none"> <li>g. During phase 2 and 3 electronic safe distancing aids were used that emit an audible warning based on proximity to another device. This allows users to maintain social distancing requirements whilst allowing them to keep their focus on the task they are working on</li> </ul>	<ul style="list-style-type: none"> <li>8. Review and consider the use of safe distancing aids for use during maintenance, response's, and exercises</li> </ul>

04	PPE- COVID-19 mitigations and introducing new potential hazards	<ul style="list-style-type: none"> <li>h. During the exercise and when following the RPE guidelines often goggles, and safety specs would steam up due to the wearing of a face mask</li> <li>i. This reduced visibility and impaired the responder's visibility</li> <li>j. Ears hurt after wearing surgical mask for long period of time</li> <li>k. Use of N95 mask reduced normal air intake which accelerates fatigue and short of breaths</li> <li>l. Wearing N95 mask muffles voices which draw staff to come together and discuss, Potential concern in emergency situations when responder cannot hear each other well.</li> <li>m. Banksman required to raise the voice due to the mask which cause fatigue to set in sooner than usual.</li> <li>n. Repetitive use of sanitiser and washing hands can lead to dry skin</li> </ul>	<ul style="list-style-type: none"> <li>9. The use of an approved snood<sup>3</sup> instead of a face mask stopped safety glasses from steaming-up</li> <li>10. Consider use of anti-fog spray on safety glasses to prevent misting-up</li> <li>11. Consider to pair mask extender with surgical masks for better comfort</li> <li>12. Consider use of face shield<sup>4</sup> in specific circumstances (e.g. briefing) which enables voices to carry and safe distancing to be maintained</li> <li>13. Schedule frequent breaks and slow down the pace of activity</li> <li>14. Break down activities into manageable sections and conduct pre-brief and post-brief will be helpful</li> <li>15. Include hand cream to sanitation stations</li> </ul>
05	Additional Equipment/resources	<ul style="list-style-type: none"> <li>o. The COVID-19 procedures required additional and sometimes specific equipment/tools.</li> </ul>	<ul style="list-style-type: none"> <li>16. Develop packages of deployable sanitation stations</li> </ul>

<sup>3</sup> Snood used in UK.

<sup>4</sup> Face shield used in SG.

Different countries have different regulatory requirements / guidance surrounding mask use which impacts how we implement this type of consideration.

06	Exercise Theory Session	<p>p. A virtual exercise theory session was carried out prior to the exercise.</p>	<p>17. Working in breaks between theory sessions hopefully allowed everyone to stay fresh and engaged.</p> <p>18. Virtual briefing and theory sessions prior to exercise and deployments are a viable method of passing on information and obtaining engagement from all involved.</p>
07	Skill Fade/Re inducting back to site and response practical activities	<p>q. After a considerable break in carrying out exercise and deployment operations, and with a new focus on COVID-19 it was apparent that some of the simpler elements that are usually second nature were missed/overlooked. For example, there was an occasion where skills fade was noticed in a forklift driver's competency resulting in work being stopped and reorganised.</p> <p>r. Equipment not initially loaded on the day that was needed for the operations.</p>	<p>19. Consider that a certain amount of skill fade may have occurred due to the gap in practical activities, implement more virtual exercises and sessions to identify and cover the potential gaps.</p> <p>20. Identify a list of competent forklift/reach truck driver and conduct a refresher session for handling vehicle or equipment prior to start of operation</p> <p>21. Consider developing a re-induction program for all responders once returning to base to ensure any skill fade can be addressed</p> <p>22. Virtual training and table-top exercises to be carried out to mitigate any potential skill fade.</p> <p>23. Consider the use of checklists (E.g COVID-19 measures, Equipment, etc) - ensure briefings are detailed any may need to cover smaller details than previously considered pre-COVID</p>
08	Safe distancing challenges	<p>s. Natural tendency for staff to huddle together to discuss and troubleshoot equipment.</p> <p>t. Certain work tasks cannot be handled by an individual such as lifting/moving of heavy load (e.g booms, hydraulic hoses).</p>	<p>24. Have a safe Distancing Offer (SDO) who does not involve in deployment to remind everyone on safe distancing and other safety issues.</p> <p>25. Provide a guideline on how to manage the risk (E.g requirement of additional mitigation measures) when staff is unable to keep safe distancing of 2m apart.</p> <p>26. Practice good and proper usage of the RPE and kept conversations to a minimal.</p>

09	More healthcare waste generated during COVID-19	<ul style="list-style-type: none"> <li>u. Individually packed anti-microbial wipes were used to disinfect equipment and high touch points before and after use.</li> <li>v. Increase use of surgical and N95 masks, nitrile gloves and sanitisers.</li> </ul>	<ul style="list-style-type: none"> <li>27. Explore other disinfecting agent applications that can clean wider surface area (E.g. Ultra-Low Volume disinfectant spray)</li> <li>28. Rags and bottled disinfectant solutions used by OSRL contracted cleaners can be an alternative.</li> <li>29. Care should be taken to prolong useful life of the masks by using the correct donning and doffing procedures and storing them in a zip-lock bag or similar between uses when they have been removed.</li> </ul>
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## 5. Conclusion

The primary outcome from the assurance activity was successful verification of the effectiveness of the risk management procedures and processes developed to manage COVID-19 risk in operational situations.

The procedures and processes outline a hierarchy of controls. Below is a high-level summary of the key findings, organised by control:

Hierarchy of Controls	Key Adaptions for COVID-19	Comment on effectiveness
Elimination	Unable to achieve total removal of risk	Not applicable
Substitution/Isolation	Consider the appropriate selection of response equipment, single-vessel system to reduce the number of responders needed for shoreline and offshore operations	Partial effective with longer time required for deployment with fewer responders and frequent breaks need to be scheduled for fatigue management
Engineering Control	Use of engineering aids (Forklift, lighter anchors, pulley systems) to reduce the number of responders needed and to help maintain physical separation (Proximity alarm)	Effective with engineering aids in place to reduce manual handling and promote safe distancing (E.g. A wearable proximity alarm device emits a short audible alarm when wearers move within 2metres of one another)
Administration	Staggered rest breaks to minimise contact with others and appropriate rest areas for proper safe distancing measures. All equipment and common touch points should be wiped down and sterilised after each use. Training on COVID-19 safety measures to be included.	Effective as rest breaks help to rejuvenate and ease the discomfort of donning the mask over long hours. Training and refresher sessions proved to be beneficial after a considerable break from working in base and outdoor
PPE	Don RPE when responder cannot maintain 2 metres or suspect that they may be unable to maintain 2 metres	Effective to prevent direct contact but introduce additional risk on accelerated fatigue, fogging of safety glasses and short of breaths

In conclusion, the procedures and processes were found to be robust and fit for purpose. The controls – applied correctly – provide mitigations that assist in managing the impact of COVID-19 on typical response operations. Ultimately, the exercise found that it is feasible to carry out a practical exercise or response to a spill whilst maintaining responder’s health and safety both from typical operational hazards as well as the new addition of the COVID-19 risks.

## 6. Appendix – Photos

### Shoreline



OSRL Responder in full COVID-19 PPE with recently procured hand washing station



Equipment Setup (Stakes and boom)



Loading equipment onto response trailer



Removing required equipment from storage pallets

**Offshore**



Briefing with safe distancing measures observed



Disinfect high touch points before and after use



Disposal of microbial wipes and masks separately from general waste in a Ziplock bag



Demarcation of seats to keep safe distancing on Earl 3



Simulation of oiled boom recovery in full PPE



Boom deployment – note aspects where activity could not be adjusted to avoid close-proximity work, risk is managed through other controls inc. PPE.