

TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	1 OF 20

PANDEMIC RESPONSE PLAN

INTRODUCTION	2
Purpose	2
Background	2
Scope	2
Responsibility and Enforcement	3
METHODOLOGY	3
Risk Assessment & Mitigation	3
Operational Level of Risk Assignment	4
Low Risk	4
Medium Risk	4
High Risk.....	5
Pre-Cruise Planning Risk Assessment	5
PREVENTION OF SPREAD	6
Pre-Cruise	6
Quarantine Best Practices.....	7
Crew Arrival to Vessel	8
Testing Regime – COVID-19.....	9
Underway	9
Monitoring	10
Safety Measures.....	10
General	10
Consider cohort groups.....	11
Food Handling	11
Pilot Onboard.....	12
Ongoing Training	12
Port Call	12
Safety Measures.....	12
Personnel Change	13
Extended Port Operations & Shipyard	13
General	13
Safety Measures.....	13
Vendors	14
OUTBREAK MANAGEMENT PLAN	15
Underway Measures	15
Protective Measures	15
Prevent Further Spread	16
Medical Evacuation	17
Disinfection Guidance.....	18
In-Port Measures	18
Reporting	18
USCG	19
CDC.....	19
ACKNOWLEDGEMENT FORM	20

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	2 OF 20

INTRODUCTION

Purpose

The purpose of this directive is to publish the Marine Center’s Pandemic Response Plan. This Plan is to be referred to and implemented during any declared pandemic, epidemic, or public emergency (World Health Organization (WHO), Centers for Disease Control (CDC), National Institutes of Health (NIH), Occupational Safety and Health Administration (OSHA), and any other State or Federal Officials, in response to an airborne infectious disease that has an infection rate such that it could affect vessel operations and the health of those onboard.

This Plan and associated worksheets, documents, etc. are Administrative Controls¹ for airborne infectious disease, and shall be updated and maintained by the Marine Operations Supervisor, as per CDC and OSHA.

Throughout this document, COVID-19 is referred to as the principal risk, but this Plan shall be utilized during any airborne infectious disease event.

Background

In early 2020, a newly identified type of severe acute respiratory syndrome coronavirus (SARS-CoV-2) caused an outbreak of respiratory disease, COVID-19².

No vaccine is currently available³, and the focus of health authorities worldwide has been suppression of the virus through preventative measures to limit and slow down widespread transmission. Because the virus can be transmitted by asymptomatic persons, it is especially dangerous in the confines of a ship⁴. The WHO has declared the outbreak a pandemic and a Public Health Emergency of International Concern. In response to the pandemic, CDC and UNOLS have promulgated guidance for ship operators.

Scope

The CDC has mandated that all cruise ships prepare a COVID-19 plan to prevent, mitigate and respond to the spread of COVID-19 onboard their vessels⁵. The University-National Oceanographic Laboratory System (UNOLS) has provided guidance that takes into account preparation for restarting seagoing science operations onboard US Academic

¹ <https://www.osha.gov/shpguidelines/hazard-prevention.html#ai1>

² As of 5/19/2020, there have been 4.9 million reported cases worldwide, resulting in 321,000 deaths, of which 92,000 are Americans.

³ In late February 2020, the World Health Organization (WHO) said it did not expect a vaccine against SARS-CoV-2, the causative virus, to become available in less than 18 months (~Aug 2021).

⁴ In February 2020, among the 3,711 Diamond Princess cruise ship passengers and crew, 712 had positive test results for COVID-19. Of these, 331 were asymptomatic at the time of testing. Among 381 symptomatic patients, 37 required intensive care, and 9 died.

⁵ https://www.cdc.gov/quarantine/pdf/No-Sail-Order-Cruise-Ships_Extension_4-9-20-encrypted.pdf

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	3 OF 20

Research Fleet vessels. Because research ships have onboard facilities and interactions that are similar to cruise ships, this Plan has been developed to meet the CDC requirements within the guidelines provided by UNOLS.

Responsibility and Enforcement

1. The Marine Operations Superintendent (MarOpsSup), in addition to maintaining this Plan and associated documents, is overall tasked with determining the Level of Risk and communicating with the Chief Scientist and Master regarding appropriate response and plans. Also, the MAROPSSUP, or designee, is required to communicate with the operating institution and specific funding program of the Level of Risk for a specific cruise, and any decisions regarding whether or not the cruise is to be conducted.
2. The Master is responsible for implementing the Plan, as per the assigned Level of Risk, while the vessel is in pre-cruise planning, underway, and during daily port operations and/or shipyard periods.
3. The Chief Scientist is responsible for taking into consideration the Level of Risk and other UNOLS guidelines⁶, prior to getting underway.
4. Each crew and science party member is responsible for being familiar and complying with this Response Plan and all other associated plans and procedures related to health protection, particularly those related to actions to take if any persons on board display symptoms of the subject virus in order to initiate management of the potential outbreak.
 - All crew and science party members shall sign the attached Acknowledgement Form indicating that they have read, understand and agree to comply with this Plan and all associated protocols.

METHODOLOGY

Risk Assessment & Mitigation

The determination of the risks associated with an infectious disease outbreak is to be done during pre-cruise planning, shipyard periods, and for underway operations.

- A. Assign Operational Level of Risk based on logistical parameters
- B. Conduct Pre-Cruise Planning Risk Assessment
- C. Implement Prevention & Mitigation Strategies as appropriate

⁶ UNOLS.org document, 4/15/2020 [Coronavirus \(COVID-19\) Considerations for Making Decisions Regarding Conducting Science Onboard US Academic Research Fleet Vessels](#)

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	4 OF 20

Operational Level of Risk Assignment

Prior to the Pre-Cruise Planning Risk Assessment, a base Operational Level of Risk shall be assigned to any scheduled cruise based on the following:

Low Risk

- a. Accurate RT-PCR (or CDC approved & recommended for subject virus) testing regime is available for entire existing and oncoming crew and science party members.
- b. Underway science operations are within a 2-day transit back to a U.S. port, ideally from where the cruise originated.
- c. Underway science operations originate or make port calls in a geographic area with “Limited Community Transmission”, as identified by the CDC.⁷
- d. Crew or science party change will take place in an area that does not restrict crew change for the individuals’ originating location(s).⁸
- e. Local / state COVID-19 regulations and guidelines do not prohibit personnel working on the ship, nor the cruise departing the dock.
- f. Local crew and science personnel have strictly adhered to local governmental self-isolation guidelines / regulations.
- g. Non-local personnel, i.e. crew and science party who have traveled by air to the port have successfully isolated, as per Self-Isolation Guidelines contained herein.
- h. The Science party has been reduced to the minimum necessary to carry out the work, as per UNOLS guidelines.

Cruises assessed as Low Risk may be conducted after the considerations and guidelines in this Plan are implemented to the satisfaction of the MAROPSSUP.

Medium Risk

- a. Accurate RT-PCR (or CDC approved & recommended for subject virus) testing regime is available for entire existing and oncoming crew and science party members.
- b. Underway science operations are within a 5-day transit back to a U.S. port, ideally from where the cruise originated.
- c. Underway science operations originate or make port calls in a geographic area with “Limited Community Transmission”, as identified by the CDC.⁹
- d. Crew or science party change will take place in an area that does not restrict crew change for the individuals’ originating location(s).¹⁰
- e. Local / state COVID-19 regulations and guidelines do not prohibit personnel working on the ship, nor the cruise departing the dock.

⁷ <https://www.cdc.gov/coronavirus/2019-ncov/travelers/map-and-travel-notice.html>

⁸ <https://wilhelmsen.com/ships-agency/campaigns/coronavirus/coronavirus-map/>

⁹ <https://www.cdc.gov/coronavirus/2019-ncov/travelers/map-and-travel-notice.html>

¹⁰ <https://wilhelmsen.com/ships-agency/campaigns/coronavirus/coronavirus-map/>

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	5 OF 20

- f. Local crew and science personnel have strictly adhered to local governmental self-isolation guidelines / regulations.
- g. Non-local personnel, i.e. crew and science party who have traveled by air to the port have successfully isolated, as per Self-Isolation Guidelines, contained herein.
- h. The Science party has been reduced to the minimum necessary to carry out the work, as per UNOLS guidelines.

Cruises assessed as Medium Risk may be conducted after the considerations and guidelines in this Plan are implemented to the satisfaction of the MAROPSSUP.

High Risk

- a. Accurate RT-PCR (or CDC approved & recommended for subject virus) testing regime is not available for entire existing and oncoming crew and science party members.
- b. Underway science operations are greater than a 5-day transit back to a U.S. port or the schedule includes a non-U.S. port call.
- c. Underway science operations originate or call in a geographic area with “Ongoing Community Transmission” or higher, as per the CDC.¹¹
- d. Crew or science party change will take place in an area that restricts crew change for the individuals’ originating location(s).¹²
- e. Local crew and science personnel have not strictly adhered to local governmental self-isolation guidelines / regulations.
- f. Non-local personnel, i.e. crew and science party who have traveled by air to the port have not or cannot successfully isolate, as per Self-Isolation Guidelines, contained herein.

Any cruise that is identified as High Risk shall not be conducted until the following information is gathered and criteria has been met:

- The progression of the pandemic is such that there is reasonable certainty that the specific risk to personnel onboard is low.
- A vaccination program for the identified disease is available and implemented as per current WHO, CDC, NIH guidelines.

Pre-Cruise Planning Risk Assessment

After the Operational Level of Risk assignment, the MAROPSSUP and Chief Scientist shall utilize 1MCSP-2.1-16-F3 PRECRUISE PLANNING RISK ASSESSMENT WORKSHEET to assist in pre-cruise planning.

Considerations listed in the 1MCSP-2.1-16-F3 PRECRUISE PLANNING RISK ASSESSMENT WORKSHEET include, but are not limited to:

- Is effective virus testing available?

¹¹ <https://www.cdc.gov/coronavirus/2019-ncov/travelers/map-and-travel-notice.html>

¹² <https://wilhelmsen.com/ships-agency/campaigns/coronavirus/coronavirus-map/>

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	6 OF 20

- What are the virus infection rates and epidemic curves at local and planned port call areas?
- Are there any “Shelter In Place” or Quarantine orders active?
- What are current rules (federal, state, local) regarding isolation or quarantine?
- Can Telepresence be used to reduce the number of required onboard participants?

PREVENTION OF SPREAD

Until a pandemic has passed, the MarOpsSup effective means of preventing transmission is through self-isolation and social distancing, with possible PPE, as recommended by the CDC.

It will be up to the MAROPSSUP to determine the appropriate level of isolation, PPE and monitoring required, and those levels will likely change according to the current operations.

- Pre-Cruise
- Crew Arrival
- Underway
- Port Call
- Extended Port Operations & Shipyard
 - Vendors/Contractors

Pre-Cruise

As stated above, preventing the spread of a highly contagious virus may mean self-isolation prior to arrival to the ship. Self-Isolation means staying indoors and completely avoiding contact with other people. Local and Federal guidelines for effective self-isolation times will be pandemic specific and based on known incubation periods.^{13 14}

- All planned crew and science members should be made aware, as early as possible, whether or not the documentation¹⁵ of self-isolation, monitoring of temperature and other symptoms, etc. will be required prior to arrival.
- The *Crew-Up Quarantine / Isolation / Declaration of Health requirements Decision Making Matrix* in 1MCSP-2.1-16-F3 PRECRUISE PLANNING RISK ASSESSMENT WORKSHEET should be used to determine if an arriving crew or science party member should quarantine, document temperature, etc. prior to arrival to the ship.

¹³ For COVID-19, the CDC has set 14 days as a quarantine period. The Governor of Hawaii has mandated a 14-day self-quarantine for both residents and visitors, arriving or returning to Hawai‘i

¹⁴ 4/17/20 <https://governor.hawaii.gov/featured/governor-orders-quarantine-for-arrivals-state-shutdown/>

¹⁵ 1MCSP-2.1-16-F1 DECLARATION OF HEALTH FORM

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	7 OF 20

Quarantine Best Practices

1. Length of the quarantine period shall be based on the latest data regarding incubation periods of the virus¹⁶.
2. The quarantine will be a no-contact isolation, requiring individuals to remain in their domiciles or hotel rooms either having all food on hand, or having the food delivered to the place of residence, during the entire quarantine period.
3. If the team member going through quarantine has co-habitants living in the same residence, those co-habitants must abide by the same rules or the team member will need to be fully isolated separately, in order to pass quarantine. It is understood that some team members have family members who will not be able to support this requirement. Those team members will go through quarantine in provided lodging at a local to the vessel hotel or rented home. Since having all meals delivered to team members in a hotel room would be an abnormal expense for the individual, having them complete quarantine in a local to the vessel hotel or home allows that cost to be recouped via per diem and, more importantly, further reduces risk to the team as a whole by reducing the number of personnel transiting after quarantine.
4. It is understood unintended events may occur resulting in a team member breaking quarantine. There will be no repercussions should this occur. The team member must inform their supervisor, and, for the safety of the other team members, they will not be able to participate in the cruise without completing a full-length quarantine.
5. Backup personnel will be placed in quarantine. These personnel will step in should a positive test result be received on a team member, or the team member has to break quarantine for any reason. At the end of quarantine, these personnel will revert to normal local governmental requirements for isolation/stay-at-home, etc. at the end of quarantine if they are not going on the cruise.
6. The number of Team members embarked should be minimized to reduce overall risk¹⁷. Every person we do not send to sea on the ship will have a significant reduction in risk overall to those participating in the cruise. Also, minimizing the number of people on the ship reduces the number of people that can be affected should an outbreak occur.
7. The number of personnel that are added to the cruise in between legs will be minimized to the greatest extent possible. Additional work requiring additional team members should be front-loaded so the additional team members can leave at the next return to port. This reduces the complexity of managing multiple stages of quarantine and testing.
8. Should a person develop symptoms consistent with the subject virus while on board the ship, all activities WILL IMMEDIATELY stop, and actions will be taken to quarantine the individual onboard (see Outbreak Management Plan below).
9. Pre-Cruise Testing regime (see below) shall be followed, in accordance with latest CDC recommendations.

¹⁶ As of June 2020, this is 14 days for COVID-19.

¹⁷ May 2020 anecdotal evidence from WA state commercial fishing industry participating in quarantine with testing before and after a 14-day quarantine indicated a 2% positive test result rate before the quarantine and a 2.5% positive test result rate after the quarantine.

TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	8 OF 20

10. If the cruise is given the approval to proceed, team members shall transit to the vessel in as few vehicles as possible, and head straight to the ship, with only one relief/gas break, subject to the notification of the MarOpsSup, while in transit. For example, if transiting from the North Shore to the Marine Terminal in Honolulu Harbor, the vehicles should only be exited while in transit to operate a gas pump or relieve oneself, no food or drinks should be purchased in transit as team members should bring food and drinks with them. Every attempt possible should be made to avoid any large travel centers as those have the highest probabilities of disease transmittal.

Crew Arrival to Vessel

After an individual arrives to the vessel, they may be required to further monitor & document their health, and / or be required to wear a face mask or other PPE, in accordance with current CDC and local requirements.

- These requirements will be determined by the MAROPSSUP and based on current CDC and UNOLS guidelines.
- If testing is available, a crew or science member that proves to pose no risk of being an asymptomatic carrier may have lessened PPE or health monitoring requirements, as per current CDC guidelines.
- These determinations will be promulgated to the crew and/or science party members by the Master and/or Chief Scientist.
- Prior to getting underway, an all-hands training session will occur and recorded on a 1MCSP-2.1-04-F1 ATTENDANCE RECORD. Topics shall include, but are not limited to:
 - signs and symptoms of the subject virus and the importance reporting any influenzas like symptoms immediately.
 - Fever or chills
 - Cough
 - Shortness of breath or difficulty breathing
 - Fatigue
 - Muscle or body aches
 - Headache
 - New loss of taste or smell
 - Sore throat
 - Congestion or runny nose
 - Nausea or vomiting
 - Diarrhea
 - Virus prevention, mitigation and response
 - Hand washing technique (use of soap and water, rubbing hands for at least 20 seconds etc.)
 - When hand washing is essential (e.g. after contact with environmental surfaces they may have contaminated etc.)

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	9 OF 20

- When hand rubbing with an antiseptic can be used, instead of hand washing and how this can be done
 - Use of hypochlorous acid as hand sanitizer
- Respiratory etiquette during coughing and sneezing with disposable tissues or clothing
- Appropriate waste disposal
- Proper donning, doffing, use & disposal of gloves, medical masks or respirators and other PPE
- Avoiding close contact with people suffering from acute respiratory infections
- Disinfection of all work spaces often, especially before, during and after watch change
 - Proper and safe use of hypochlorous acid as disinfectant

Testing Regime – COVID-19

Testing, along with home isolation, and symptom monitoring can reduce the risk of COVID-19, and other highly infectious viruses, from getting onboard the vessel and will be incorporated into the Crew Arrival requirements. As of May 20, 2020 and until such time as either a vaccine is available, or other data becomes available, the University of Hawaii mandates the following testing regime¹⁸:

- All tests are Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) tests which identify if members have COVID-19 Virus shedding.
- Two-prong approach: conduct two tests for oncoming crewmembers and scientists to verify there is no COVID-19 virus shedding plus a test at the conclusion of the cruise to verify the crew and science party remain virus free.
- Test #1 will be conducted at least 14 days prior to the crew or science member joining the vessel.
- Test #2 will be conducted at approximately 1-2 days prior to the crew or science member joining the vessel determined by time it takes to receive results back from the lab

Underway

Prior to getting underway, the Master shall ensure that the vessel has adequate medical supplies and equipment.

- PPE including gloves, impermeable long-sleeved gown, goggles or face shields, medical masks and respirators.
- Biohazard bags & Sharp's Containers

Once underway, the Master will be in charge of the pandemic response plan and the continued prevention of the spread of a highly contagious virus. This will include:

- Monitoring of crew and science party members
- Implementing additional safety measures to help prevent the spread of a virus

¹⁸ COVID-19 TESTING REGIME MEMO, May 19, 2020, RADML (Ret.) Anita Lopez, DRVO

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	10 OF 20

- Ongoing training of all crew and science members of virus prevention, mitigation and response, which will be recorded on a 1MCSP-2.1-04-F1 ATTENDANCE RECORD.
- Ensure proper disinfection of all work spaces occurs often, especially before, during and after watch change
- Implement isolation and safety measures if a pilot is going to be onboard
- Report any possible cases of the subject virus to the MAROPSSUP / DP
- Implementing the Outbreak Management Plan should a possible case be discovered onboard

Monitoring

Ongoing monitoring of the health of the crew and science party will be required while underway.

- Temperature monitoring of each crew member shall be done at a minimum of once daily and logged in 1MCSP-2.1-16-F2 DAILY TEMPERATURE MONITORING RECORD.
- Additional health monitoring may be implemented, based on CDC guidelines.

Safety Measures

General

The following safety measures may be implemented by the Master to help reduce the spread of any possible virus. The level and extent of implementation will be based on CDC, WHO, or other relevant personal protective health guidelines.

- Wear a cloth face covering when outside of individual cabins when working in close proximity (< 6') of other personnel.
- Avoid sharing personal items such as blankets, laptops, tablets, and video games with other crew members
- Maintain a distance of at least 6 feet (2 meters) from others when working or moving through the ship
- Avoid physical contact with other people, including shaking hands, giving hugs, etc.
- Eliminate refills of personal water containers from communal sources to help prevent the spread of the virus.
- Avoid touching eyes, nose, and mouth with unwashed hands
- Wash hands often with soap and water for at least 20 seconds
- Use hand sanitizer (containing at least 60% alcohol or Hypochlorous Acid (HOCl)) if soap and water are not available
- Crew and science party members may be asked to remain in individual staterooms as much as possible during non-working hours
- Secure doors and hatches in an open position, where safe & appropriate, to reduce touching of knobs and handles.

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	11 OF 20

- For watch-standers, it is especially important that all high-touch areas, such as equipment, radios, computers, etc. are disinfected often, especially prior to a watch change. It is recommended that both the outgoing watch and then the incoming watch disinfect their work area.

Consider cohort groups

The shipboard environment presents a unique challenge to containing highly contagious airborne viruses because of the close quarters and enclosed spaces. For this reason, public health measures must be adapted to the shipboard environment. Small, segregated cohorts decrease probability of symptomatic cases and spread of the disease. Implementation of the following measures should be considered during underway periods, especially during the first 14 days (or CDC recommended duration) after departure:

- Divide crew and science party members into cohorts or work groups.
- Cohorts should be assigned based on workspace, duties and shifts.
- Cohorts should be as small as possible, but do not all need to be the same size. Size will likely be different depending on the role of the personnel and available berthing.
- Cohorted teams should not mix with other teams, to the maximum extent possible.

Food Handling

Any or all of the following additional food safety measures may be implemented by the Master:

- Galley crewmembers are to use a barrier such as tongs, gloves, or other utensil to prevent direct hand contact with food.
- There should be no buffet / self-service style food options, and galley crew should dish and serve food on the line for each individual as they arrive to the mess area.
- All food contact surfaces such as utensils, cutting boards, and serving ware are to be washed, rinsed, and sanitized at an increased frequency.
- All nonfood contact surfaces, such as equipment, counters, booths, doorknobs, tables, chairs, doors, etc. will be cleaned of spills as needed and sanitized before, between and after each meal shift.
- There should be a separate wiping cloth and sanitizing solution for sanitizing the mess area vs the galley area.
- Any decorative / not easily cleanable objects should be removed from counters and booth tops to allow for thorough sanitization of unobstructed surfaces.
- Condiment containers and other items should be sanitized before, between and after each meal shift.
- Only crew members are allowed to access the galley in port. No visitors including scientists, vendors, contractors, are allowed in the galley even during loading and unloading of science expeditions. are allowed in the galley. At the Master's discretion box lunches can be provided to non-crew members if available.

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	12 OF 20

Pilot Onboard

The following measures shall be implemented during heightened response to a pandemic if the vessel must take a pilot onboard:

- The head on the bridge shall be disinfected and labeled for Pilot Use Only.
- All equipment, radars, radios, binoculars, laminated Pilot Card, horizontal surfaces, etc. should be thoroughly disinfected just prior to the Pilot boarding.
- The bridge shall be manned by essential watchkeepers only. A reduction in prescribed Watchkeeping Level shall NOT be an option, rather, keep non-essential people out of the pilothouse during the Pilot's time onboard.
- The pilot should be escorted to the bridge via an external route.
- Refer to current CDC guidelines for PPE, but generally:
 - If the Pilot is wearing a facemask, then watchkeepers do not need to wear one, or vice versa.
 - Offer the Pilot clean gloves, disinfectant wipes and hand sanitizer.
 - Do NOT fill any Pilot owned water bottle, mug, etc., as it has not been disinfected.
- Watchkeepers shall use equipment separate from the Pilot. If the Pilot needs assistance with operating a piece of equipment, ensure the person helping either vocally describes the operation, or dons gloves to manipulate the equipment, then immediately discards those gloves and uses hand sanitizer to avoid contaminating their own equipment.
- Immediately disinfect all bridge equipment, surfaces, the bridge head, etc. when the Pilot leaves the bridge to disembark.

The Pilot should be escorted to the ladder via an external route.

Ongoing Training

Once underway, the Chief Mate should provide ongoing training regarding the virus during one of the weekly SOLAS trainings. Training, which should be recorded on a 1MCSP-2.1-04-F1 ATTENDANCE RECORD, should include at a minimum the following topics:

- Signs and symptoms of the subject virus
- The importance of reporting any influenza like symptoms immediately
- How to don and correctly wear any required PPE
- The plan and procedures to following during the monitoring phase
- The plan and procedures to follow should an outbreak occur

Port Call

Safety Measures

During the Pre-Cruise Planning Risk Assessment, the MAROPSSUP and Chief Scientist will identify any increased risk associated with a planned port call. That level of risk, and

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	13 OF 20

associated mitigation measures may change, based on the epidemiological curve and local regulations at the subject port.

These measures may include, but are not limited to:

- Required PPE when interacting with anyone from the port, i.e. contractors, customs, ship agent, longshoremen, etc.
- Visitation policies for any of the above, including their required PPE, restricted access, i.e. closed mess deck for outside visitors, etc.
- The loading of stores and gear may be subject to de-contamination procedures, as per current CDC guidelines.

Personnel Change

Any new crew or science party members must be vetted by the MAROPSSUP and Chief Scientist as per the 1MCSP-2.1-16-F3 PRECRUISE PLANNING RISK ASSESSMENT WORKSHEET.

Extended Port Operations & Shipyard

General

Any extended port operations or shipyard period plan must take into account the same variable as an underway operation, with the added complexity of increased risk of exposure from external vectors.

Safety Measures

The MAROPSSUP and Master should implement appropriate safety measures, as promulgated in any CDC and local authority guidance. These measures should take into account:

- PPE recommendations
- Amount of PPE available
- Location of housing for crew, whether in hotel or onboard
- Ability to feed crew onboard, or if delivery option is available
- If social distancing is required by local authorities, has crew been living together long enough to constitute a “household”?
- What are the pandemic responses / guidelines implemented by the shipyard or local port authorities?
- What are the health monitoring guidelines for the subject virus?
- Clear signage at the gang plank indicating “no boarding without prior approval from the Master or MAROPSSUP”.

Any guidance and policy that is implemented by the MAROPSSUP and Master should be addressed and documented in a Safety Meeting.

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	14 OF 20

Contractors/Vendors

There will be times that contractors and or vendors will need to board the vessel to perform repairs. Ideally, any deliveries could be made without a vendor boarding a vessel.

In the event that a contractor or vendor must board a vessel, they must undergo the same screening as a crewmember boarding a vessel and be denied boarding if fever, respiratory issues or other symptoms are present, OR they have a high-risk COVID-19 exposure in the prior 14 days.

During the implementation of the Pandemic Response Plan, **no vendor is allowed to board the vessel without explicit prior approval from the Master or MAROPSSUP.**

The MAROPSSUP will ensure that the contractor or vendor has followed the Pandemic Response Plan requirements prior to arrival to the vessel. If the contractor or vendor has not followed requirements and presents an unacceptable risk to the vessel and crew, the MAROPSSUP will notify the Master and instruct them to deny permission to board.

Contractors or Vendors should be scheduled in only one area of the vessel at a time.

Limit the number of contractors and vendors accessing the vessel at the same time. All shore side personnel to include contractors, vendors, scientists, and shore side staff will require permission to access the vessel.

The Master must still carefully control the ingress and egress of approved all contractors or vendors from the vessel. Contractors or vendors should minimize the number of trips they must make – bringing tools and equipment as necessary. Any time a contractor or vendor enters or leaves a vessel, hand hygiene protocols must be followed. Gloves are a potential source of infection and should be removed after egress and hands washed or sanitized. Gloves should then be discarded or washed. While onboard, they shall wear the same PPE as required by the crew while onboard, at a minimum a facemask and face shield, and shall wash their hands or use hand sanitizer prior to boarding and after leaving.

Contractors and vendors and crew shall practice social distancing and remain 6 feet apart if possible. If working in a loud environment, find an alternate communication method to yelling. Yelling across a loud engine room is a dangerous practice that could spread a virus. Consider using radios. If working in an engine room, keep ventilation fans running for circulation, even at the dock. Try to allow contractors and vendors to work alone and use only the absolute minimum required number of workers in a space. Contractors and vendors should bring their own tools and not use onboard tools. If they must use onboard tools they must be disinfected prior to and after use.

If onboard for more than a few hours, contractors or vendors may wish to bring food on board rather than leave the vessel to eat. Remind contractors and vendors that they are not permitted in the Mess/Galley area and must eat either in an open space on deck or in a science bay if the weather is inclement.

After a contractor or vendor leaves, the ship should be disinfected with HOCL and all crew should wash hands.

Any runners, or those delivering supplies to a vessel, should be educated on social distancing and hand and cough hygiene protocols. If a delivery is made to the vessel, the contents should be disinfected with HOCL if possible before bringing on board.

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	15 OF 20

OUTBREAK MANAGEMENT PLAN

Underway Measures

If there are any suspected cases of the virus onboard, the Master shall immediately isolate the patient and notify the MAROPSSUP and /or DP.

Protective Measures

The following PPE should be used when evaluating, or potentially exposed to, patients at risk for the pandemic virus:

- Gown
 - Don a clean isolation gown before entry into the patient room or area; change or discard the gown if it becomes soiled.
 - Remove and discard the gown into a dedicated waste or linen container before leaving the patient room or care area.
 - Disposable gowns should be discarded after use; cloth gowns should be laundered after each use.
- Respiratory Protection
 - When evaluating patients at risk for the subject virus, use respiratory protection, at minimum a surgical mask. If training has been provided and fit testing completed, use a NIOSH-certified, disposable N95 filtering facemask respirator, or other CDC, OSHA, or WHO approved respirator or mask.
 - Don the respirator before entry into the patient room or care area.
 - Doff (remove) the respirator after exiting the patient's room or care area and closing the door.
 - Do not touch the front of the respirator when doffing; perform hand hygiene immediately after removal.
 - Disposable respirators should be discarded in a designated receptacle.
- Eye Protection
 - Splash-proof goggles, or disposable face shields that cover the front and sides of the face should be utilized whenever evaluating a suspected patient.
 - Don eye protection before entering the patient exam room or care area.
 - Doff eye protection before leaving the exam room or care area.
 - Reusable eye protection (e.g., goggles) must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use. Disposable eye protection should be discarded in a designated receptacle after use.
- Gloves
 - Perform hand hygiene, then don clean, non-sterile gloves before entry into the exam room or care area.
 - Change gloves if they become torn or heavily contaminated.

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	16 OF 20

- Remove and discard gloves before leaving the exam room or care area, and immediately perform hand hygiene.

Additionally, the Master shall immediately implement the following measures:

- Move the patient to a single occupancy stateroom
 - The patient should be classified as High Risk of having the subject virus, until either medical evacuation is possible, or a test can rule it out.
 - Have only a single caretaker in contact with the patient and that caretaker should be wearing PPE and decontaminating, all as per guidelines above, or as per CDC Health Care Professionals guidelines.
 - The patient’s previous stateroom (if moved) should be completely disinfected.
 - The patient’s current isolation stateroom should be cleaned and disinfected daily by a crewmember wearing CDC recommended PPE.
- Isolate, if possible in a separate single staterooms, any person onboard that is in the High Risk category:
 - Berthed in the same stateroom with a suspect/confirmed case
 - Has had close contact within 6 feet or was in a closed environment with a suspect/confirmed case
 - Participated in common, close quarters activities on board, i.e, lab work, ate meals at same booth, etc.

Prevent Further Spread

- Immediately notify all persons onboard that the Outbreak Response Plan is in effect
- Instruct crew and science party members to remain in staterooms as much as possible during non-working hours
- Cancel all face-to-face employee meetings, group events (such as employee trainings), or social gatherings
- Close any crew gathering areas, such as the crew lounge, gym, etc.
- Implement social distancing of crew and science party members when working or moving through the ship (maintaining at least 6 feet [2 meters] from others)
- Modify meal service to facilitate social distancing (e.g., stagger mealtimes and limit the number allowed to one per booth)
- Eliminate self-serve dining options
- If appropriate the Master may close all mess areas and have one crewmember deliver box lunches to the outside of crew and science party stateroom doors.
- Promote respiratory and hand hygiene and cough etiquette
- Place hand sanitizer (containing at least 60% alcohol or Hypochlorous Acid (HOCl)) in multiple locations and in sufficient quantities to encourage hand hygiene
- Ensure handwashing facilities are well-stocked with soap and paper towels
- Complete vessel sanitization rounds should occur at a minimum of every 6 hours:

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	17 OF 20

- Sanitizing crew should wear appropriate PPE to avoid possible contact with trace virus
- Hypochlorous Acid (HOCl) 200ppm solution should be used
- Sanitization should include all “high touch” areas such as handrails, countertops, tabletops in labs, common use tools or equipment
- Watchkeeping areas, such as the bridge, laboratory, engine workspaces should be sanitized at a minimum of every watch change.

Medical Evacuation

The MAROPSSUP and/or DP will facilitate the medical evacuation of the patient, in accordance with USCG, local governing authorities and under the advice of the incumbent Medical Advisor. This may be at sea, or the vessel may transit to port.

Disinfection Guidance

As soon as the suspect case had been removed from the ship, disinfection procedures should begin.

- Cleaning crew should be trained to clean surfaces contaminated with infectious agents using PPE.
- Laundry, food service utensils and waste from stateroom of suspect cases and contacts should be handled as infectious.

The following disinfection guidance can be used for MarOpsSup coronavirus type disinfection, (but CDC specific sanitation guidelines should be consulted¹⁹):

1. Disinfection/Decontamination: Recommendations for shipboard disinfection are to use hypochlorous acid (HOCL)²⁰.
 - Although HOCL is non-toxic and non-hazardous, the Decontamination Team should be wearing PPE to avoid contact with trace subject virus.
 - HOCL can be used as a liquid surface cleaner or fog for large-scale interior space disinfection
 - Use 200ppm solution for both fog and liquid applications
 - Fog interior spaces (staterooms, labs, etc.) and let stand for a minimum of 10 minutes prior to re-entry
 - Use liquid solution for contact surfaces
 - Containers should be clearly labeled with the solution, date, and time of preparation.
 - HOCL shelf-life can be 3-6 months if stored in a closed container protected from the oxygen in the air.
 - Containers that block out UV light may have a small effect on extending shelf-life.

¹⁹ <https://www.cdc.gov/quarantine/maritime/recommendations-for-ships.html>

²⁰ Park, G.W. (2007). Evaluation of Liquid- and Fog-Based Application of Sterilox Hypochlorous Acid Solution for Surface Inactivation of Human Norovirus. *Applied & Environmental Microbiology*, July 2007, p 4463-4468

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	18 OF 20

If there is any concern for active transmission of COVID-19 or other persistent virus / subsequent disease aboard ship, disinfection utilizing the above methods should be immediately conducted in all high-traffic and/or high-volume areas (e.g., berthing, heads, galleys, passageways, high-volume work spaces, etc.).

Disinfection should be conducted, at a minimum, daily (or more frequently as directed by current CDC guidelines) to minimize persistence of any viral particles. Regular cleaning and disinfection should continue until all concern for transmission of the virus is over, per the advice of GWU Maritime Medical, or local governing / health authorities.

The vessel may be required to remain in port until health authorities release it. No crew or science party members should be allowed to depart the vessel until specific permission from USCG, CDC, local health department, etc. has been received.

In-Port Measures

Should there be a suspected case of the subject virus during port operations, the local medical authorities shall be immediately contacted and told of the suspected infection.

All in-port activities will be suspended until such time that the Master, MAROPSSUP and any local governing bodies can ascertain the risk of further outbreak.

Once the decision has been made to continue in-port operations, at a minimum, the Master shall implement the same safety and sanitization measures as above.

Any guidance and policy that is implemented by the MAROPSSUP and Master should be addressed and documented in a Safety Meeting.

Reporting

Per 33 CFR 160.216, the Master, operator or person in charge must immediately report persons who present signs / symptoms consistent with a pandemic declared virus / disease, i.e., COVID-19, to the United States Coast Guard (USCG) and the Centers for Disease Control and Prevention (CDC).

42 CFR 71.1 defines an ill person onboard a vessel as one that has:

- A. Fever (has a measured temperature of 100.4 °F [38 °C] or greater; or feels warm to the touch; or gives a history of feeling feverish) accompanied by one or more of the following:
 - skin rash,
 - difficulty breathing or suspected or confirmed pneumonia,
 - persistent cough or cough with bloody sputum,
 - decreased consciousness or confusion of recent onset,
 - new unexplained bruising or bleeding (without previous injury),
 - persistent vomiting (other than sea sickness)

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	19 OF 20

- headache with stiff neck;
- B. Fever that has persisted for more than 48 hours;
- C. Acute gastroenteritis, which means either:
 - diarrhea, defined as three or more episodes of loose stools in a 24-hour period or what is above normal for the individual, or
 - vomiting accompanied by one or more of the following: one or more episodes of loose stools in a 24-hour period, abdominal cramps, headache, muscle aches, or fever (temperature of 100.4 °F [38 °C] or greater);

USCG

Notify the nearest²¹ Coast Guard Captain of the Port (COTP). Initial reporting can be done via landline contact with COTP. Utilize Form 2692-

CDC

Notify the CDC via the Maritime Conveyance Illness or Death Investigation Form²².

²¹

<https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=729d008770244f96b12fa5f6f339e62e&layerId=0>

²² <https://www.cdc.gov/quarantine/maritime/explanation-key-fields-maritime-conveyance-illness-death-investigation-form.html>

R/V KILO MOANA		SAFETY MANAGEMENT MANUAL	
TITLE	PREPARED BY:	REVISION NO.	PROCEDURE NO.
PANDEMIC RESPONSE PLAN	J. Russell/ A. Lopez	4	MCSP-2.1-16
	APPROVED BY:	DATE	PAGE:
	Barry Choy	06-26-2020	20 OF 20

ACKNOWLEDGEMENT FORM

In addition to the guidance promulgated in the PANDEMIC RESPONSE PLAN, all crew and science party members must follow the Safety Management System requirements related to the use of personal protective equipment, including the use of gloves, eye and face protection, and respiratory protection.

If you have any questions about the Safety Management System or the use of personal protective equipment, please contact the Marine Operations Superintendent or the vessel Master.

By signing this form, I acknowledge that I have read the PANDEMIC RESPONSE PLAN and that I understood it and agree to comply with it. This PLAN is not promissory and does not set terms or conditions of employment or create an employment contract.

I further acknowledge that I have been reminded of the safety policies included in the Safety Management System and understand that it is my responsibility to be familiar with it and abide by their terms.

Signature:

Printed Name:

Date: