

CALENDAR ITEM
C88

A: Statewide

08/19/03

S: Statewide

W 9777.234

G. Gregory

M. Meier

CONSIDER APPLICATION BY ROYAL CARIBBEAN CRUISES LTD.
FOR APPROVAL OF AN ALTERNATIVE
BALLAST WATER MANAGEMENT PRACTICE

PROPOSAL:

The Commission's Staff proposes that the Commission approve an alternative environmentally sound ballast water management practice for the Royal Caribbean Cruises Ltd. Vessels Monarch of the Seas, Vision of the Seas, Legend of the Seas, Infinity, Summit and Mercury under section 71204(a)(3) of Division 36 of the Public Resources Code (P.R.C.), entitled "Ballast Water Management for Control of Nonindigenous Species" (The Ballast Water Act).

BACKGROUND:

The Ballast Water Act establishes a program for the management and control of ballast water carried into the waters of the State. Its purpose is to curtail the introduction of nonindigenous species into California waters through the discharge of ballast water taken on board vessels in other parts of the world. Among its provisions are direct controls on the discharge of ballast water.

Under P.R.C. Section 71204(a), the master, operator or person in charge of a vessel must employ one of several specified management practices for ballast water carried into the waters of the state from areas outside the United States Exclusive Economic Zone (the EEZ). The five specified practices include the following:

1. Exchange ballast water outside the EEZ, from an area not less than 200 nautical miles from any shore, and in waters more than 2000 meters deep, before entering the waters of the state;
2. Retain the ballast water on board the vessel;
3. Use an alternative environmentally sound method of ballast water management that has been approved by the Commission before the vessel begins the voyage, and that is at least as effective as ballast water exchange in removing or killing nonindigenous species.
4. Discharge ballast water to an approved reception facility;

CALENDAR ITEM NO. C88 (CONT'D)

5. Under extraordinary conditions, conduct a ballast water exchange within an area agreed to by the Commission at the time of the request.

Royal Caribbean Cruises Ltd has requested the approval of an environmentally sound alternative ballast water management practice as described paragraph 3 above (P.R.C. Section 71204(a)(3)). The alternative would apply to vessels Monarch of the Seas, Vision of the Seas, Legend of the Seas, Infinity, Summit and Mercury. Currently only the Monarch of the Seas is trading in California at the Port of Los Angeles. The company has asked for the same alternative for all of the vessels should they be rotated into service to California ports.

The Monarch of the Seas is home ported in the Port of Los Angeles and maintains two separate cruise itineraries. The three-day itinerary begins each Friday and calls only at Ensenada, Mexico. The four-day itinerary begins each Monday and calls at San Diego, Santa Catalina Island and Ensenada, Mexico. During these cruises the vessel departs the EEZ but does not travel more than 200 miles offshore. Therefore it is impractical to conduct a mid-ocean exchange of their ballast water. Additionally, cruise ships are built and operated to very specific tolerances in terms of their stability, structural integrity and safety. These vessel operators are constantly adjusting liquids on board the vessel to ensure its stability. For example, as fuel is consumed, its volume and weight are replaced with other liquids such as ballast water and fresh water.

The Monarch of the Seas ballasting operations are based upon a two-week bunkering (fueling) cycle. When the bunkers are taken on board, ballast water is discharged to maintain the trim and stability of the vessel. Under the requested alternative, ballast water that is loaded on board the Monarch of the Seas would originate from an area between the berth in the Port of Los Angeles and the Port of Los Angeles breakwater. All of the deballasting activities related to that water occur alongside the berth in the Port of Los Angeles. All of this ballast water is loaded into dedicated tanks. There is no mixing of other ballast water or sediments.

Because all of the ballast water that is loaded on board the vessel originates from an area between the berth and the breakwater and all of the water is discharged alongside the berth, Royal Caribbean Cruises Ltd contends that there are no nonindigenous species and therefore this practice is at least as effective as a ballast water exchange. The staff agrees with this contention.

CALENDAR ITEM NO. C88 (CONT'D)

Further, the Ballast Water Act provides for several exemptions. One of those exemptions (P.R.C. Section 71202 (d)) states a vessel is exempt from the statute if it is: "A vessel that discharges ballast water or sediments only at the location where the ballast water or sediments originated, if the ballast water or sediments do not mix with ballast water or sediments from areas other than mid-ocean." Royal Caribbean Cruises Ltd staff believes that they could fall under this exemption. Under such an exemption, the company believes that it would not have to submit Ballast Water Report Forms to the State or pay the per voyage fee. The company's staff, however, indicates that they are supportive of the ballast water program and desire to continue to be part of the program by complying with all aspects of the Ballast Water Act.

The approved plan would also be in compliance with proposed legislation. Currently, AB 433, a bill to reauthorize the ballast water management program, which has been passed by the State Assembly and is now in the Senate, will provide for the uptake and discharge of ballast water in the same location as a specified ballast water management practice.

A copy of the Royal Caribbean Cruises Ltd request and a summary Ballast Water Management Plan for the Monarch of the Seas is attached.

Staff has studied the request and has reviewed previously submitted Ballast Water Report Forms. Staff believes the request is consistent with the Ballast Water Act and that it will provide as much protection from invasion of nonindigenous species as mid-ocean ballast water exchange. It is therefore recommended that the request be approved.

STATUTORY AND OTHER REFERENCES:

- A. Public Resources Code Section 6103
- B. Public Resources Code, Division 36, (Sections 71200 *et seq.*)

PERMIT STREAMLINING ACT DEADLINE:

N/A

CALENDAR ITEM NO. **C88** (CONT'D)

OTHER PERTINENT INFORMATION:

Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (14 Cal. Code Regs. 10561), the Commission Staff has determined that this activity is exempt from the requirements of the CEQA because the activity is not a "project" as defined by the CEQA and the State CEQA Guidelines.

Authority: Public Resources Code Section 21084 and 14 California Code Regulations. 15300.

EXHIBITS:

- A. Royal Caribbean Cruises Ltd letter of July 18, 2003 requesting an Environmentally Sound Alternative Ballast Water Management Practice.
- B. Monarch of the Seas' Ballast Water Management Plan

IT IS RECOMMENDED THAT THE COMMISSION:

1. FIND THAT THE ACTIVITY IS EXEMPT FROM THE REQUIREMENTS OF CEQA PURSUANT TO TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15061 BECAUSE THE ACTIVITY IS NOT A PROJECT AS DEFINED BY PUBLIC RESOURCES CODE SECTION 21065 AND TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15378.
2. APPROVE THE ALTERNATIVE BALLAST WATER MANAGEMENT PRACTICE AS SET FORTH IN EXHIBIT B.
3. DIRECT STAFF TO TAKE WHATEVER ACTION IS NECESSARY AND APPROPRIATE TO ENSURE COMPLIANCE WITH THE APPROVED ALTERNATIVE BALLAST WATER MANAGEMENT PRACTICE SET FORTH IN EXHIBIT B.
4. AUTHORIZE STAFF TO APPROVE MINOR MODIFICATION IN THE ALTERNATIVE BALLAST WATER MANAGEMENT PRACTICE SET FORTH IN EXHIBIT B, PROVIDED THAT STAFF DETERMINES THAT THE MODIFIED PRACTICE IS AT LEAST AS EFFECTIVE IN PREVENTING THE INTRODUCTION OF NONINDIGENOUS SPECIES AS THE PRACTICE SET FORTH IN EXHIBIT B.

Royal Caribbean Cruises Ltd.

009777.234
-243

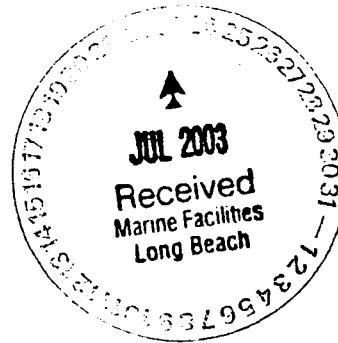
1050 Caribbean Way
Miami, FL 33132.2096 USA

EXHIBIT A

tel: 305.539.6000
fax: 305.539.4645
www.royalcaribbean.com

July 18, 2003

Mr. Gary Gregory
Chief, Marine Facilities Division
California State Lands Commission
200 Oceangate, Suite 900
Long Beach, CA 90802



Dear Mr. Gregory,

Under the provisions of California AB 703, Section 71204 Paragraph (a) (3), we propose the below alternative environmentally sound method of ballast water management for your review. If this method is acceptable, please provide us with your approval at your earliest possible convenience.

At times, Royal Caribbean Cruises Ltd.'s ships *Monarch of the Seas*, *Vision of the Seas*, *Legend of the Seas*, *Radiance of the Seas*, *Infinity*, *Summit* and *Mercury* may, while in port, elect to take on ballast water to an empty tank, or a tank containing ballast water, of which 100% has come from the same location where additional ballast water is being taken on. Ballast water in this tank will not be co-mingled with ballast water from any other location other than where the ballast water was taken on. The ship may discharge this ballast water while in port at the same location where it was taken on, even after having left the United States EEZ during their voyages.

Please find enclosed the Ballast Water Management Policy for all of our ships. In addition, the above management method will be employed by those vessels calling on a California port.

Sincerely,

Richard M. Pruitt
Director, Environmental Programs

BALLAST WATER MANAGEMENT PLAN

Revision 4, July 1st, 2003

MONARCH OF THE SEAS

This plan is made to meet the requirements and recommendations of

- **IMO RESOLUTION A.868(20)**

Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens.

The structure and significant parts of the content has been taken from a sample Ballast Water Management Plan published by Intertanko and International Chamber of Shipping. Unilateral laws and regulations have been taken into consideration, as has the definitions of ecological areas as published by DNV in its MARMIL report.

The function of the Ballast Water Management Plan is to assist in complying with quarantine measures intended to minimise the risk of transplanting harmful aquatic organisms and pathogens from ships' ballast water and associated sediments, while maintaining ship safety.

As part of this function the plan will provide information to quarantine officers who wish to learn about the ship's ballast handling system, or to confirm that ballast management has been effectively planned.

The plan should not be used or regarded as a guide to ballasting as required by stability or other safety related matters. Neither is this the responsibility of the Ballast management officer. The safety of the ship, its passengers and crew is always of paramount importance. Nothing in this plan will set aside any Load Line-, SOLAS-, Class- or SQM requirements.

The ship and itinerary specific plan as outlined under part 5B is the day-to-day plan on how to manage the ballast water in accordance with the policy. It is the Ballast water management officers' responsibility to keep that part current. A plan covering the voyage ahead shall be presented to the bridge team before the voyage commences. The plan may well cover several voyages and/or be repetitive, but should as a minimum cover the various stages from one bunkering port to the next.

When setting up the day-to-day plan, the first priority is to comply with any local or national regulation. You will find these under part 11 of this plan. The next priority is to avoid discharging any incompatible water. Water to or from an area at least 200nm offshore and deeper than 2000m is considered compatible with everything. It is further natural to consider geographically separate seas or oceans as incompatible. In other words, avoid transporting water through Panama, Suez or Gibraltar unless you plan to discharge it at 2000m and 200nm offshore. Finally, have a look at the chart of ecological compatibility (as defined by DNV) and take these zones into consideration when planning where to ballast and de-ballast. You will find this under part 12 of this plan.

Ecological compatibility is not a very accurate science. A lot of research is still to be done in this area, and will be done over the next few years. Expect that things will change and firm up as the scientists learn more about it. Some of the measures we are taking now may later prove to be unnecessary. The point is that no-one knows for sure yet, and we need to be on the safe side – above and beyond compliance.

000526

CALENDAR PAGE

001543

MINUTE PAGE

PART A - Ship and RCI guidance

1. Ship particulars
2. Explanation of need for ballast water management, and reporting to port states
3. Ballast water arrangements
4. Safety Considerations
5. Procedures for managing ballast water
6. Ballast-water sampling points
7. Crew training and familiarisation
8. Duties of appointed ballast water management officer
9. Ballast water reporting form and handling log

PART B - National and international guidance

10. IMO Assembly Resolution A.868(20)
11. National and local ballast water management requirements
12. DNV definition of world-wide ecological zones

000527

CALENDAR PAGE

001544

MINUTE PAGE

SECTION 1 - SHIP PARTICULARS

SHIP'S NAME **MONARCH OF THE SEAS**

SHIP TYPE **Cruise ship**

PORT OF REGISTRY **OSLO**

FLAG **NIS**

INTERNATIONAL CALL SIGN **LAMU4**

IMO NUMBER **8819500**

OPERATOR **Royal Caribbean International**

1050 Caribbean Way

Miami, FL 33123, USA

GROSS TONNAGE **73937**

DEADWEIGHT **7347**

NET TONNAGE **47505**

DISPLACEMENT **35067**

TOTAL WATER BALLAST CAPACITY **2991 m³**

APPOINTED BALLAST WATER MANAGEMENT OFFICER **Chief Officer**

000528

CALENDAR PAGE

001545

MINUTE PAGE

SECTION 2 - EXPLANATION OF THE NEED FOR BALLAST WATER MANAGEMENT, AND FOR REPORTING TO PORT STATES

Introduction

Studies carried out in several countries have shown that many species of bacteria, plants and animals can survive in a viable form in the ballast water and sediment carried in ships, even after journeys of several weeks duration. Subsequent discharge of ballast water or sediment into the waters of port states may result in the establishment of colonies of harmful species and pathogens which can seriously upset the existing ecological balance. Although other methods have been identified by which organisms are transferred between geographically separated sea areas; ballast water discharge from ships appears to have been prominent among those identified.

The potential for ballast water discharge to cause harm has been recognised not only by the International Maritime Organization (IMO), but also by the World Health Organization (WHO) which is concerned about the role of ballast water as a medium for the spreading of epidemic disease bacteria.

Requirements

Some states have established controls on the discharge of ships' ballast water that will minimise the potential for colonisation of their rivers and estuaries by non-native species. The preferred option is mid-ocean ballast water exchange prior to arrival. Accordingly, the countries most concerned have promulgated advice to ships for ballast management, together with a request for their co-operation in applying the techniques voluntarily. Standard procedures have been developed that will be accepted by quarantine authorities as achieving the level of acceptability desired by the port state.

Conflict with safety

Unless applied carefully some of the measures being urged for ballast management can affect a ship's safety, either by creating shear or bending forces that are greater than the design parameters, or by compromising the stability of the ship. It is because of concern about this that the IMO became involved in what would otherwise be a purely quarantine matter. It has been recognised by governments and the shipping industry that individual countries' needs should be harmonised with the greater need to ensure the safety of ships, their crews and passengers.

IMO recommends that each ship should be provided with a Ballast Water Management Plan, detailing the way that the ship can comply with any measures demanded by a port state. All concerned with the operation and safe passage of the ship can thereby be assured that they are both protecting the marine environment and ensuring the safety of the ship and crew.

Summary of records required

To be able to demonstrate at the arrival port that the correct measures have been completed, it will be necessary to maintain a full and accurate ballast log. Even if a ship is not trading in an area where ballast water information is required, it may later prove worthwhile to have a history of what water has been carried.

000529

CALENDAR PAGE

001546

MINUTE PAGE

Reporting to port states

Several countries have become aware of the potential, through discharge of ships' ballast water, for the transfer into their coastal areas of what are found to be harmful aquatic organisms. Governments have recognised that, before devising mandatory controls on ships, it is necessary to know the scale of what has, until very recently, been an unrecorded procedure.

Concerned countries have therefore introduced a requirement which, though often differing in detail, generally calls for ships to report in advance to the national monitoring authority. How much ballast water will be on board on arrival, where it was taken on board, and whether a ballast management procedure has been followed. In most cases it is mandatory to make the report, even though the actual ballast exchange in mid-ocean (or other management procedure) remains voluntary.

To assist in this regard, wherever possible the plan contains the format of the relevant national reporting forms. The forms can be found in section 11 of this plan

000530

CALENDAR PAGE

001547

MINUTE PAGE

SECTION 3 - BALLAST WATER ARRANGEMENTS

Tank arrangement, and tank capacities

- TABLE SHOWING THE TANK NAME (AS USED IN NAPA), THE TANK NAME (AS INDICATED ON MANHOLE COVERS), CAPACITY OF EACH TANK, AND THE PUMPS AVAILABLE TO BE USED ON THAT TANK.
- TABLE SHOWING THE RATED CAPACITY OF THE PUMPS

Tank Compartment Capacity (m³)			Available pumps
1	SW 6020	712	QAA1, Q22, Q14A/B, MD6
2 P	SW 6223	133	QAA1, Q22, Q14A/B, MD6
2 SB	SW 6123	133	QAA1, Q22, Q14A/B, MD6
3 P	SW 6204	221	QAA1, Q22, Q14A/B, MD6
3 SB	SW 6104	221	QAA1, Q22, Q14A/B, MD6
4 P	SW 6214	220	QAA1, Q22, Q14A/B, MD6
4 SB	SW 6114	220	QAA1, Q22, Q14A/B, MD6
5 P	SW 6224	52	QAA1, Q22, Q14A/B, MD6
5 SB	SW 6124	52	QAA1, Q22, Q14A/B, MD6
6 P	SW 6215	59	QAA1, Q22, Q14A/B, MD6
6 SB	SW 6115	59	QAA1, Q22, Q14A/B, MD6
7 P	SW 6225	41	QAA1, Q22, Q14A/B, MD6
7 SB	SW 6125	41	QAA1, Q22, Q14A/B, MD6
8	SW 6018	333	QAA1, Q22, Q14A/B, MD6

HEELING:

1 P	SW 6232	160	QAA2A
1 SB	SW 6132	160	QAA2A
2 P	SW 6238	87	QAA2B
2 SB	SW 6138	87	QAA2B

Heeling tanks are included in these diagrams and tables.
Heeling tanks are normally separated from the remaining ballast system with a manually closed valve.

Pump	Capacity
QAA1	150 m³/h low speed and 220 m³/h high speed
Q22	240 m³/h
Q14A	250 m³/h
Q14B	250 m³/h
MD6	100 m³/h Originally used as ash ejector, now connected to ballast syst.
QAA2A	300 m³/h
QAA2B	300 m³/h

000531

CALENDAR PAGE

001548

MINUTE PAGE

- TANK PLAN SIDE VIEW AND TOP VIEW. BALLAST TANKS ARE HIGHLIGHTED
NEXT PAGE

- **BALLAST PIPING DIAGRAM**
NEXT PAGE

SECTION 4 – SAFETY CONSIDERATIONS

Appendix 2 of the IMO Resolution (reproduced in Section 10) includes guidance on safety aspects of ballast water exchange at sea. The safety points outlined below are intended to emphasise that the consequences of an inadvertent error at sea can be more significant than the same error made in port. Ballast water exchange at sea is a comparatively new development, and a sense of familiarity with the mechanics of ballasting should not be allowed to induce complacency in this new procedure.

Conditions in which ballast water exchange at sea is not to be undertaken:

- When the Master decides that internal or external conditions will cause intolerable concerns.

VENT VALVES

Routine checks of ballast vent valves and piping system shall be included as planned maintenance and kept track of in AMOS. The frequency of checking vent valves shall not exceed 12 months. Shorter intervals should be considered if the any problems are experienced with the valves

SECTION 5 – PROCEDURES FOR MANAGING BALLAST WATER

PART A – GENERAL PROCEDURES

INFORMING SHORE MANAGEMENT

Any Non-compliance with this plan shall be reported in the weekly environmental report.

Significant problems in complying with the Ballast Management procedures shall be reported by the Master to Director, Marine Nautical.

UPTAKE CONTROL MEASURES

Avoid the discharge or uptake of ballast water in areas within or that may directly affect marine sanctuaries, marine preserves, marine parks, or coral reefs.

Minimize or avoid uptake of ballast water in the following areas and situations:

- Areas known to have infestations or populations of harmful organisms and pathogens (e.g., toxic algal blooms).
- Areas near sewage outfalls.
- Areas near dredging operations.
- Areas where tidal flushing is known to be poor or times when a tidal stream is known to be more dirty.
- In darkness when bottom-dwelling organisms may rise up in the water column.
- Where propellers may stir up the sediment.

SEDIMENT REMOVAL

Sediment removal shall be included as planned maintenance and kept track of in AMOS. Entries shall also be made in the Ballast Water Handling Log. The frequency of sediment removal shall not exceed 12 months. Shorter intervals should be considered if the vessels operational pattern might lead to excessive sediment deposits.

RETENTION OF BALLAST ON BOARD

Planned retention of ballast water onboard is a good solution. Discharging water can well be avoided, unless the extra deadweight is needed for fuel, stores or freshwater. Tanks like Heeling tanks that operate in a normally closed loop, is considered as "Ballast water to be retained onboard" if they by any means are connected to the ballast system. Fresh water should be used when long-term retention is planned.

Unplanned retention of Ballast Water onboard may become necessary. This will in particular be an option if a planned exchange had to be cancelled. If discharge in regulated area becomes necessary, port state authorities should then be approached as soon as possible (prior to entering seas under its jurisdiction). If a request to discharge Ballast Water is made, it may be a good idea to point to the recommendations in IMO Resolution A.868(20). Specific reference should be made to item 11.3 of this Resolution. If the request is denied, conflicts with Load Line and Stability requirements will then have to be resolved by rescheduling bunkering of fuel or fresh water.

WATER TREATMENT

Chemical water treatment on the purpose of killing invasive species is an option that should be used only where explicitly required by local law. The procedure may only be carried out after specific approval. A request detailing the planned treatment should be sent to Director, Marine Nautical for approval, who in turn will forward it to SVP Safety & Environment for final approval. No treatment shall commence before this approval is at hand.

USE OF FRESH WATER AS BALLAST

Fresh water may be used as ballast, and filled in ballast tanks if needed. Fresh water is considered clean in relation to these regulations and may be discharged anywhere. Fresh water should be used whenever long term retention is planned. This includes, but is not limited to heeling tanks.

USE OF GREY WATER AS BALLAST

Grey water from the galleys may not be used as ballast

Other grey water may be used as ballast, and filled in ballast tanks if needed. Applicable grey water discharge limitations will of course have to be complied with. An interesting option will be to retain a quantity of grey water for ballasting purposes until the ship is in an area where "clean" seawater can be taken on to substitute the grey water.

Due care should however be taken in order to comply with the environmental policy of not mixing waste streams. Specific ballast tanks should be dedicated as grey water tanks, and used only for this purpose. When a tank that has been used for grey water again is to be used for sea water, flushing have to be carried out a number of times – depending on tank layout – in order to get rid of residual grey water. Flushing of tanks should be carried out in areas permitted under our grey water policy.

DISCHARGE TO SHORESIDE FACILITY

Discharge to shoreside facility should be used when this is the better option, and appropriate reception facilities exist.

DISCHARGE TO BARGE

Discharge to barge should be used when this is the better option, and appropriate reception facilities exist.

DISCHARGE TO BILGE

Discharge to bilge is an option that should not be used, except as a last resort. If this option is used, then subsequent bilge discharge will be restricted in accordance with Ballast restrictions, in addition to Bilge discharge restrictions.

EXCHANGE AT SEA

Sequential Method

Exchange of ballast water using the empty-then-refill procedure is known as the sequential method. The process requires the removal of large weights from the ship in a dynamic situation, and then their replacement. This is a new procedure, and a sense of familiarity with the mechanics of ballasting in port should not be allowed to induce complacency.

Discharge and refill will normally be done simultaneously with two tanks that balance each other out. Whenever possible, the exchange should be carried out by filling some other tanks, followed by discharge of the incompatible water.

The Chief Officer shall in advance simulate the details of the ballast water exchange. Using the NAPA computer, he shall check intermediate steps to make sure that the whole procedure is within approved limitations of trim, stability, bending moments or shear forces. Due care shall be taken to avoid any list. The Staff Captain shall approve the procedure. A watchkeeping officer will normally carry out the pumping procedure under the direct supervision of the Chief Officer.

All involved persons are to acknowledge the planned procedure by signing the Ballast water exchange form.

Actual operations must be monitored continuously so that list does not develop during pumping. If any other factors are considered to develop in an unfavourable direction, halting or suspending the ballast exchange should be considered.

It is as important to avoid under-pressure in a tank due to emptying, as it is to avoid over-pressure when filling. The consequences of bulkhead damage, or even tank collapse, at sea will be even more significant than in port. While filling ballast tanks, use of pumps should be avoided for tanks that are located entirely below the waterline.

Flow-through Method

The flow-through method, whereby tanks are overfilled by pumping in additional water, is not suitable for cruise ships. Ventilation pipes are not designed for this, and any overflow shall be avoided.

Failure to carry out exchange

Failure to carry out ballast water exchange as planned by the Ballast Water Management Officer, shall be logged in the Ballast Water Handling Log - indicating the reason for not carrying out the exchange.

PART B - SHIP AND ITINERARY SPECIFIC PLAN

SUBSECTION 1 – PLAN LIMITATIONS

The basis for the plan is to identify bunkering ports. The main operational limitation is the need for refueling, while a secondary limitation is a decrease in water production capacity followed by a need for filling larger quantities of fresh water. Likely refueling ports are underlined, while **bold ports are likely to be used for fresh water filling**.

The "operational limitations" for ports other than bunkering ports is derived from the fact that ballast water normally will have to be discharged inside the bunkering port.

SUBSECTION 2 – OPERATIONAL LIMITATIONS

SPECIFICATION OF ITINERARIES WITH IDENTIFIED OPERATIONAL LIMITATIONS:

- ITINERARY 1: 4 Days U.S. West Coast

Day 0	<u>San Pedro</u>	D 1800	Discharge 220m3 ballast in port, inside US EEZ
Day 1	<u>San Diego</u>	A 0800 D 1815	No ballasting
Day 2	Catalina Isl.	A 0800 D 1715	No ballasting
Day 3	<u>Ensenada</u>	A 0800 D 1700	No ballasting
Day 4	<u>San Pedro</u>	A 0615	Ballast 220m3 in port, inside US EEZ

- ITINERARY 2: 3 Days U.S. West Coast

Day 0	<u>San Pedro</u>	D 1800	Ballast 220m3 in Port inside US EEZ
Day 1	<u>Ensenada</u>	A 0830 D 1730	No ballasting
Day 2	At Sea		No ballasting
Day 3	<u>San Pedro</u>	A 0615	Discharge 220m3 ballast in port, inside US EEZ

Following tanks are considered to be used as ballast tanks during the itineraries:
SW 4 PORT & STB / SW 7 PORT & STB.

Start all over on cruise again.

SUBSECTION 3 – MANAGEMENT PLAN

- DAY TO DAY MANAGEMENT PLAN WITH INDICATION IN TONS

- DEFINED BUNKERING CYCLE
- DEFINED FRESH WATER CYCLE
- DEFINED BALLASTING CYCLE

- ITINERARY 1: 4 Days U.S. West Coast

DAY	ITIN	PORT	FUEL + FW	BALLAST
Day 0	(1)	San Pedro	On 400t HFO + 1300 FW	Deballast 220t in port
Day 1	(1)	San Diego	On 600t FW	Nil
Day 2	(1)	Catalina Isl.	Nil	Nil
Day 3	(1)	Ensenada	On 250t FW	Nil
Day 4	(1)	San Pedro	On 1300 FW	Ballast 220t in port

- ITINERARY 2: 3 Days U.S. West Coast

Day 0	(1)	San Pedro	On 1300t FW	Ballast 220t in port
Day 1	(1)	Ensenada	On 250t FW	Nil
Day 2	(1)	At Sea	Nil	Nil
Day 3	(1)	San Pedro	On 1300t FW	Deballast 220t in port

Start all over on cruise again.

000539

CALENDAR PAGE

001556

MINUTE PAGE

SECTION 6 - BALLAST WATER SAMPLING POINTS

There is unlikely to be any need for crewmembers to take samples except at the express request, and under the supervision of a Quarantine officer of the port state authority. The diagrams below indicate sampling and access points in pipelines and tanks, for easy reference for the quarantine officers, and the crew members assisting them.

The quarantine officers must be advised of all safety procedures to be observed when entering enclosed spaces.

- **BALLAST PIPING DIAGRAM WITH INDICATED SAMPLING POINTS**

This diagram would be the same as the ballast piping diagram. Water samples can be taken where the pumps are located.

- **DIAGRAM INDICATING LOCATION (AND MARKING) OF MANHOLES. IF ACCESS TO THE MANHOLE IS THROUGH A DRY COMPARTMENT, THEN ALSO DESCRIBE THE ACCESSWAY.**

This drawing can be found in the ships archive in the deck/engine office.
It is not possible to fit it into this manual.

- **DIAGRAM INDICATING LOCATION OF SOUNDING PIPES**

The ships ballast tanks are constructed with an automated sounding system.

It is not possible to do a manual sounding of the ballast tanks. However the automated soundings can be read on the location for each tank.

See next 5 pages.

SECTION 7 - CREW TRAINING AND FAMILIARISATION

The Ballast Water Management Officer is responsible for training officers and crew in the following subjects when they pertain directly to their tasks, and to familiarize them with all other items on this list :

- Ballast pumping arrangements, with positions of associated air and sounding pipes, positions of all compartments and tank suction and pipelines connecting them to ship's ballast pumps.
- The method of ensuring that sounding pipes are clear, and that air pipes and their non-return devices are in good order;
- The different times required to undertake the various ballast water exchange operations;
- The method for ballast water exchange at sea with particular reference to required safety precautions
- The method of on-board ballast water record keeping, reporting and recording of routine soundings.

SECTION 8 - DUTIES OF APPOINTED BALLAST WATER MANAGEMENT OFFICER

Appointed Ballast Water Management Officer: CHIEF OFFICER

The duties of the appointed officer in charge of ballast water management is to

1. Ensure that the ballast water is being managed according to procedures in the ballast water management plan.
2. Plan any exchange at sea in co-operation with the Staff Captain, and follow up on the actual exchange procedure in co-operation with the watchkeeping officer.
3. Prepare the ballast water declaration form prior to arrival in port where this is required.
4. Provide assistance to the port state control or quarantine officers for any document control or sampling that may need to be undertaken.
5. Maintain the Ballast Water Handling Log.

SECTION 9 - BALLAST WATER REPORTING FORM AND HANDLING LOG

BALLAST WATER REPORTING FORM

This form is an example developed in IMO, to serve as a guide for use when reporting to a national authority that requests information in advance. To avoid misunderstandings, some guidance for completing it follows on the page opposite. Care should be taken before using this general form, that the country being approached does not have its own form for use when reporting.

BALLAST WATER HANDLING LOG

- Record of loading and discharging ballast
- Narrative section for recording events

This form has been created as a guide for recording the sort of information often requested by quarantine officers who wish to learn about the source of the ballast water on board.

Even if the ship is not currently trading in an area where ballast water information is required to be reported, it may later prove worthwhile to have a history of what water has been carried.

The form should be kept in an electronic format (spread sheet). A full month's records should be stored in each file. Every new file should start with stating the content of each tank. Heeling tanks that have any kind of connection to the remaining ballast piping shall be included in the record. One pair of heeling tanks should be listed as one tank, so that a record is kept for any water going in or out from the heeling system and not what is only moved from heeling tank to heeling tank.

The files should be named BXXYYMMM where XX is the ship, YY is the year and MMM is the month.

Monarch of the Seas in January –2003 will then be : "BMN03JAN"

RECORDKEEPING

The electronic log should be kept for 3 years, and may be deleted thereafter.

Copies of submitted forms should be kept for 1 year, and may be discarded thereafter. Forms that are being submitted electronically (US), may be kept in the electronic format only, and be deleted after 1 year.

Paper copies of forms for ballast exchange should be kept for 1 year and may be discarded thereafter.

(To be provided to the Port State Authority upon request)

1. SHIP INFORMATION

Ship's Name: Monarch of the Seas	Type: Cruise Ship	IMO Number: 8819500	Specify Units: M³
Owner: Royal Caribbean International	Gross Tonnage: 73937	Call Sign: LAMU4	Total Ballast Water on Board:
Flag: NIS	Arrival Date:	Agent:	
Last Port and Country:	Arrival Port:		Total Ballast Water Capacity: 2991
Next Port and Country:			

2. BALLAST WATER

3. BALLAST WATER TANKS Ballast Water Management Plan on board? **YES** Management Plan Implemented? **YES**
Total number of ballast tanks on board: 18 No. of tanks in ballast: _____ IF NONE IN BALLAST GO TO No. 5.
No. of tanks exchanged: _____ No. of tanks not exchanged: _____

4. **BALLAST WATER HISTORY: RECORD ALL TANKS THAT WILL BE DEBALLASTED IN PORT STATE OF ARRIVAL; IF NONE GO TO No. 5.**

[illegible]

Ballast Water Tank Codes: Forepeak = FP, Aftpeak = AP; Double Bottom = DB; Wing = WT; Topside = TS; Cargo Hold = CH; Other = O

EXCHANGES WERE NOT CONDUCTED, STATE OTHER CONTROL ACTION(S) TAKEN:
IF NONE STATE REASON WHY NOT:

5: IMO BALLAST WATER GUIDELINES ON BOARD (RES. A.868(20))? YES

RESPONSIBLE OFFICER'S NAME AND TITLE (PRINTED) AND SIGNATURE:

Chief Officer

GUIDELINES FOR COMPLETING THE BALLAST WATER REPORTING FORM

SECTION 1: SHIP INFORMATION

Last port and country: Last port and country at which the ship called before arrival in the current port - no abbreviations, please.

Next port and country: Next port and country at which the ship will call, upon departure from the current port - no abbreviations, please.

Arrival Date: Arrival date at current port. Please use the date format (DDMMYYYY - 01JAN2000)

Agent: Agent used for this voyage.

Arrival Port: This is the current port. No abbreviations, please.

SECTION 2: BALLAST WATER

Total ballast water on board: Total ballast water upon arrival at current port - with units.

Total ballast water capacity: Total volume of all ballast tanks - with units (Include Heeling tanks connected to Ballast piping)

SECTION 3: BALLAST WATER TANKS

Total No. of Tanks on board: Total number of all ballast tanks (Include Heeling tanks connected to ballast piping)

No. of Tanks in Ballast: Number of ballast water tanks with ballast at the start of the voyage to the current port. If you have no ballast water on board, go to section 5.

No. of Tanks Exchanged: This refers only to tanks with ballast at the start of the voyage to the current port.

No. of Tanks Not Exchanged: This refers only to tanks with ballast at the start of the voyage to the current port.

SECTION 4: BALLAST WATER HISTORY

BW Source: Please list all tanks that you have discharged or plan to discharge in this port. Carefully write out, or use codes listed below the table. Follow each tank across the page, listing all source(s), exchange events, and/or discharge events separately. If the ballast water history is identical (i.e. the same source, exchange and discharge dates and locations), sets of tanks can be combined (example: tank 3SB with tank 3P, both water from Hawaii, exchanged 2 Oct 97, mid ocean). Additional pages to include the arrival date, ship's name and IMO number at the top.

Date: Date of ballast water uptake. Please use the date format (DDMMYYYY - 01JAN2000)

Port or Latitude/Longitude: Location of ballast water uptake.

Volume: Volume of ballast water uptake, with units.

Temperature: Water temperature at time of ballast water uptake, in degrees centigrade (Celsius).

BW Exchange: Indicate Exchange Method: Circle empty/refill

Date: Date of ballast water exchange. Please use the date format (DDMMYYYY - 01JAN2000)

Endpoint or Latitude/Longitude: Location of ballast water exchange. If it occurred over an extended distance, list the end point latitude and longitude.

Volume: Volume of ballast water exchanged, with units.

Percentage exchanged: Percentage of ballast water exchanged. Divide the number of units of water exchanged by the original volume of ballast water in the tank.

Sea Height (m): Record the sea height in metres at the time of the ballast exchange (Note: this is the combined height of the wind seas and swell, measured from crest to trough. It does not refer to the depth).

BW Discharge:

Date: Date of ballast water discharge. Please use the date format (DDMMYYYY - 01JAN2000)

Port or Latitude/Longitude: Location of ballast water discharge, no abbreviations for ports.

Volume: Volume of ballast water discharged, with units.

Salinity: Record salinity of ballast water at the time of discharge, with units, (i.e. specific gravity (sg)).

If exchanges were not conducted, state other control action(s) taken: If exchanges were not made on all tanks and holds to be discharged, what other actions were taken? E.g. transfer of water to a landbased holding facility, or other approved treatment.

If none, state reasons why not: List specific reasons why ballast exchange was not done. This applies to all tanks and holds being discharged.

SECTION 5:

Responsible Officer's name and title (Printed) and signature: the Chief Officer should print his name and title and sign the form.

BALLAST WATER EXCHANGE FORM

Date :

The following sequence is to be followed for this ballast water exchange

Tank #	Initial content	Fill up to	Empty to	Pump/Gravity	Start when
--------	-----------------	------------	----------	--------------	------------

Special instructions :

Planned by

Approved by

Chief Officer

Staff Captain

Reviewed by

Watchkeeping officer

Watchkeeping officer

Watchkeeping officer

Watchkeeping officer

Watchkeeping officer

Watchkeeping officer

Actual operations must be monitored continuously so that list does not develop during pumping. If any other factors are considered to develop in an unfavourable direction, halting or suspending the ballast exchange should be considered. Contact the Chief Officer if you consider disrupting the planned operations.

000546
CALENDAR PAGE

001563
MINUTE PAGE

SAMPLE BALLAST WATER EXCHANGE FORM – USE THE
SPREADSHEET VERSION

000547
CALENDAR PAGE

001564
MINUTE PAGE

Guidelines for using the spreadsheet forms

Ballast Water Handling Log

Date	Date of activity
Start Time	Time for start of indicated activity
Start Position	Position. Indicate Coordinates, or name of Port/Berth
Stop Time	Time for stop of indicated activity
Stop Position	Position. Indicate Coordinates, or name of Port/Berth
Activity / Comments	Describe the activity. Add any relevant comments.
Volume	Indicate the volume in m ³
Tank	Identify the tank. Be very consistent - otherwise the column filter will not work. Do not add any dots, dashes or spaces. Only use the format: 3,3S,4P,5C and so on.
Pump	Identify the pump or pumps used for this operation. Be very consistent - otherwise the column filter will not work. If no pumps were used, then indicate "Gravity"
Salt	Salinity of sea water, indicated in t/m ³ (Pure seawater is 1.025)
Temp	Temperature of sea water, indicated in °C
m	Significant sea height, indicated in Meters
Title	Name Title and name of person in charge; Or responsible officer attesting to the accuracy of the information provided. (Should be the Chief Officer for all special operations)

Start and Stop Time and Position, Volume and Sea properties need to be filled in for any activity where ballast water actually goes into or out of a tank. Sea properties always refer to the water in the sea, and not the water that already is in the tank. Date, Activity/Comments, Tank and Title/Name should always be filled in for any activity. Always use a separate line for each tank.

Ballast Water Exchange Form

Tank #	Identify the tank
Initial Content	Starting condition
Fill up to	End condition
Empty to	End condition
Pump/Gravity	Method to be used
Start when	Time; or criteria for start of operation

A ballast water exchange form is to be prepared for all exchange operations. The plan shall be approved by the Staff Captain, and signed off by all persons involved in the operation.