Attach Cruise Line Address Label

U.S. ENVIRONMENTAL PROTECTION AGENCY

SURVEY QUESTIONNAIRE TO DETERMINE THE EFFECTIVENESS, COSTS, AND IMPACTS OF SEWAGE AND GRAYWATER TREATMENT DEVICES FOR LARGE CRUISE SHIPS OPERATING IN ALASKA

Form Approved
OMB Control No. 2040-0260
Approval Expires 6/30/08

The public reporting and recordkeeping burden for this collection of information is estimated to average 46 hours per response across all vessels. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions, develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID No. OW-2003-0081, which is available for public viewing at the Water Docket in the EPA Docket Center (EPA/DC), EPA West, Room B102, 1301 Constitution Ave., NW, Washington, DC 20004. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426. An electronic version of the public docket is available through EPA Dockets (EDOCKET) at http://www.epa.gov/edocket. Use EDOCKET to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. Once in the system, select "search", then key in the docket ID number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Office for EPA. Please include the EPA Docket ID No. (OW-2003-0081) and OMB control number (2040-0260) in any correspondence.

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) is conducting a survey of cruise vessels as part of its effort to develop sewage and graywater discharge standards for large cruise ships that operate in Alaskan waters. This survey requests information on cruise vessels authorized to carry 500 or more passengers for hire and operating in the waters of the Alexander Archipelago, the navigable waters of the United States within the State of Alaska, or within the Kachemak Bay National Estuarine Research Reserve.

This survey is conducted under the authority of Section 308 of the Clean Water Act (Federal Water Pollution Control Act, 33 U.S.C. Section 1318). **All cruise lines that receive this survey must respond to it within 60 days** of receiving it. Failure to respond, late filing, or failure to comply with the instructions may result in criminal fines, civil penalties, and other sanctions, as provided by law.

OVERVIEW OF THE SURVEY

The survey is divided into the following parts and sections:

PART A: GENERAL CRUISE LINE INFORMATION

PART B: CRUISE VESSEL TECHNICAL INFORMATION

SECTION 1: General Cruise Vessel Information
SECTION 2: Wastewater Sources
SECTION 3: Wastewater Treatment System Design and Operating Parameters
SECTION 4: Wastewater Generation, Collection, and Treatment Costs
SECTION 5: Sampling Data
SECTION 6: Pollution Prevention Practices

PART C: FINANCIAL AND ECONOMIC INFORMATION

SECTION 1: Cruise Vessel Financial Information
SECTION 2: Cruise Line Financial Information
SECTION 3: Corporate Parent Financial Information

Parts A and B request technical information for calendar year 2004. Part C, Sections 1 and 2, request financial and economic information for fiscal years 2002 through 2004. Part C, Section 3, requests financial and economic information for fiscal year 2004.

EPA will use the technical data collected in Parts A and B of this survey to determine rates of wastewater generation, and wastewater management, treatment, and shore-side transfer practices. EPA will also use these technical data together with the financial data collected in Part C of this survey to estimate the costs and benefits associated with any new discharge standards considered by EPA. Finally, EPA will characterize the economic status of the industry and estimate the possible economic impacts of discharge standards using the financial and economic data collected in Part C of this survey.

CERTIFICATION OF THE SURVEY

Each section should be completed by the person(s) most knowledgeable about the information requested. All cruise lines must have the corporate official or designee responsible for directing or supervising the response to the survey sign one of the Certification Statements on page vii or viii to either (1) verify and validate the information provided, or (2) certify that this cruise line did not operate a cruise vessel in the waters of the Alexander Archipelago, the navigable waters of the United States within the State of Alaska, or within the Kachemak Bay National Estuarine Research Reserve during calendar year 2004. While EPA does not intend to send this survey to any company that did not operate a cruise ship in Alaska in 2004, we have included the second certification statement in the event that a survey is sent erroneously to such a company.

COMPLETION OF THE SURVEY

Cruise Vessel vs. Cruise Line

Some parts of this survey ask for technical and financial information specific to an individual cruise vessel (specifically Part B and Part C, Section 1). These parts of the survey should be completed for **each** cruise vessel in your line that (1) is authorized to carry 500 or more passengers for hire and (2) operated within the waters of the Alexander Archipelago, the navigable waters of the United States in the State of Alaska, or within the Kachemak Bay National Estuarine Research Reserve in 2004.

Other parts of this survey ask for technical and financial information for a cruise line or parent company (specifically Part A and Part C, Sections 2 and 3). These parts of the survey should be completed only once for each cruise line.

Not All Questions Will Be Applicable to Every Vessel

EPA prepared this survey to be applicable to a variety of vessels and treatment systems; therefore, not all of the questions will apply to every vessel. Complete each applicable item in the survey. If a question is not applicable to your company or vessel, write "NA."

Note that one question in Part B of this survey (Question 66, pages 3-15 to 3-111) takes up half of the pages of the entire survey. This question asks for information on wastewater treatment operations, and includes five to seven pages of detailed questions for each of 16 different types of treatment unit. Only one or a few of those treatment units will be present on any single vessel. Therefore, most of this section will not have to be completed for any single vessel.

Survey Does Not Require Performance of New or Non-Routine Tests or Measurements

You are not required to perform new or nonroutine tests or measurements solely for the purpose of responding to this survey. EPA intends that responses to all questions be based upon available data and information. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of the section.

Verify and Update "Draft" Responses Provided by EPA

EPA has pre-populated survey responses, to the extent possible, with calendar year 2004 information from existing sources (e.g., cruiseline website, ship registries, vessel-specific sampling plans), please verify these responses and update or revise as appropriate.

Review the Completion Checklist Before Returning the Survey

Before returning the survey, review the Completion Checklist on the following page to ensure your survey is complete.

Keep a Copy of the Completed Survey

Please keep a copy of the completed survey, including attachments. EPA will review the information submitted and may request your cooperation in answering follow-up questions, if necessary, to complete analyses.

COMPLETION CHECKLIST

Please check the list below to ensure that your questionnaire is complete. Did you...

Technical Section (Parts A and B)

- ✓ Sign the appropriate Certification Statement on page vii or viii? . . . . . ☐
- ✓ Provide the flow diagram(s) of sources and routing of untreated graywater and sewage in response to Q.27 using the provided checklist? . . . . . ☐
- ✓ Complete a table for each untreated graywater and/or sewage CHT tank in response to Q.42? . . . . . ☐
- ✓ Provide the diagram(s) for each vessel's wastewater treatment system used to treat graywater and/or sewage in response to Q.49 using the provided checklist? . . . . . ☐
- ✓ Complete the appropriate tables in Q.66 for the number and type of wastewater treatment units indicated in response to Q.48? . . . . . ☐
- ✓ Provide a copy of the vessel's wastewater treatment system operating and maintenance log for 2004 in response to Q.65? . . . . . ☐
- ✓ Provide the applicable Information Codes (on pp. 3-4 to 3-6) for wastewater treatment units and wastewater sources and destinations in response to Q.49, 66, and 67? . . . . . ☐
- ✓ Provide a copy of the vessel's Sewage Discharge Record Book for 2004 and 2000 (if applicable) in response to Q.76? . . . . . ☐
- ✓ Submit graywater and sewage stream characterization and/or treatability data, including analytical methods and QA/QC procedures, in response to Q.96? . . . . . ☐
- ✓ Submit a copy of your environmental policy statement related to graywater and sewage discharge in response to Q.99? . . . . . ☐
- ✓ Check the CBI box next to a question number if the response contains confidential business information? . . . . . ☐

Financial Section (Part C)

- ✓ Check the CBI box next to a question number if the response contains confidential business information. Alternatively, check the global CBI check box on page C-1 if you want to claim all information in Part C as confidential business information? . . . . . ☐
- ✓ Submit a copy of company's end-of-year financial statements for 2004 in response to Q.25? . . . . . ☐
- ✓ Submit a copy of corporate parent's end-of-year financial statements for 2004 in response to Q.30? . . . . . ☐

All Sections

- ✓ Number all pages that include "Copy __ of __" in the top right corner according to the directions? . . . . . ☐
- ✓ Write "NA" or "Unknown" for any question or table entry for which information was not applicable or unknown? (Unless there is a skipping pattern, no question should be left blank.) . . . . . ☐
- ✓ State all estimation methods, explanations, and comments on the appropriate Comment Pages (pp. A-5, 1-5, 2-17, 3-116, 4-8, 5-3, 6-5, C-19)? . . . . . ☐
- ✓ **Retain a copy of the completed survey, including attachments, to respond to follow-up questions if necessary and for your records?** . . . . . ☐

SURVEY ASSISTANCE

EPA CRUISE VESSEL SURVEY E-MAIL ADDRESSES, WEBSITE, AND PHONE

E-Mail Address . . . . . akship_help@erg.com
Website http://www2.ergweb.com/akshipsurvey
Phone: If you want assistance by phone, send an E-mail to the above address with "Please call me" as the subject. Include your phone number, a day and time (Eastern time) that you can be reached and an indication of whether your questions are technical and/or financial.

WHEN TO RETURN THE SURVEY

The response to this survey is due 60 days after receiving it.

If you wish to request an extension or discuss a delivery schedule for a company with multiple vessels, you must do so **in writing** within 30 days of receipt of this survey. Written requests may be e-mailed to Dr. Elizabeth Kim at kim.elizabeth@epa.gov or may be mailed to:

Dr. Elizabeth Kim
U.S. Environmental Protection Agency
Oceans and Coastal Protection Division, OWOW (4504T)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Extension requests will be evaluated on a case-by-case basis. Submittal of an extension request to EPA does **not** alter the due date of your survey unless and until EPA agrees to the extension and establishes a new date.

WHERE TO RETURN THE SURVEY

After completing the survey and certifying the information that it contains, use the enclosed mailing label to mail the completed survey to:

U.S. Environmental Protection Agency
Alaska Cruise Vessel Survey
c/o Eastern Research Group, Inc.
14555 Avion Parkway, Suite 200
Chantilly, VA 20151

EPA has provided an electronic version of your cruise line survey on a CD in your survey package. If you require an additional copy, you must do so **in writing** within 30 days of receipt of this survey. Please include your 5-digit cruise line ID in your request. Written requests may be e-mailed to akship_help@erg.com or may be mailed to the address above.

If you complete the survey electronically, you must print the survey response, sign the Certification Statement #1 on page vii, and submit it as a hard copy.

CONFIDENTIAL BUSINESS INFORMATION

Regulations governing the confidentiality of business information are contained in the Code of Federal Regulations (CFR) at Title 40 Part 2, Subpart B. You may assert a business confidentiality claim covering part or all of the information you submit, other than effluent data and information or data that is otherwise publicly available, as described in 40 CFR 2.203(b):

> "(b) *Method and time of asserting business confidentiality claim.* A business which is submitting information to EPA may assert a business confidentiality claim covering the information by placing on (or attaching to) the information, at the time it is submitted to EPA, a cover sheet, stamped or typed legend, or other suitable form of notice complying language such as 'trade secret,' 'proprietary,' or 'company confidential.' Allegedly confidential portions of otherwise nonconfidential documents should be clearly identified by the business, and may be submitted separately to facilitate identification and handling by EPA. If the business desires confidential treatment only until a certain date or until the occurrence of a certain event, the notice should so state."

If no business confidentiality claim accompanies the information when it is received by EPA, EPA may make the information available to the public without further notice.

You may claim as confidential all information included in the response to a question by checking the Confidential Business Information (CBI) box next to the question number. As an alternative for Part C only, you may claim all eligible financial and economic information as confidential by checking the global CBI check box provided on page C-1; in this case you do not need to check the CBI boxes next to the individual questions in Part C. Note that you may be asked to justify any claim of confidentiality at a later time, for example, if someone requests access to your data. Note also that vessel effluent data are not eligible for confidential treatment, pursuant to Section 308(b) of the Clean Water Act. In addition, information that is publicly-available should not be claimed confidential. Note also that information claimed confidential cannot be accessed or used by the industry to evaluate data and analyses supporting the discharge standards.

Information covered by a claim of confidentiality will be disclosed by EPA only to the extent of, and by means of, the procedures set forth in 40 CFR Part 2, Subpart B. In general, submitted information protected by a business confidentiality claim may be disclosed to other employees, officers, or authorized representatives of the United States concerned with implementing the Clean Water Act.

Information covered by a claim of confidentiality will be made available to EPA contractors to enable the contractors to perform the work required by their contracts with EPA. All EPA contracts provide that contractor employees use the information only for the purpose of performing the work required by their contracts and will not disclose any CBI to anyone other than EPA without prior written approval from each affected business or from EPA's legal office.

GENERAL INSTRUCTIONS FOR SURVEY

Read all question-specific instructions and definitions of key terms. Carefully read the definitions of key terms (found on the following pages) and any instructions for specific questions.

Mark responses for each question. Fill in the appropriate response(s) to each question. Please use **black ink** or **type** in the spaces provided. Answer the questions in sequence unless you are directed to SKIP. Do not leave an entry blank if the answer is zero. If a question is not applicable to your company or vessel, write "NA."

Include any clarifying attachments. If additional attachments are required to clarify a response, please place the associated question number and your company and/or vessel name in the top right corner of each page of the attachments. The following list contains examples of items which may be included as attachments to this survey:

– Cruise line brochure, pamphlet, general description;
– Sailing route map;
– Piping and sewage and graywater treatment flow diagrams;
– Hard copy summaries of analytical data collected from monitoring locations;
– Discharge logs;
– Wastewater treatment operation and maintenance logs;
– Electronic analytical data collected from monitoring locations; and
– Pollution prevention or management practices.

Provide best estimates when data are not available. EPA intends that responses to all questions be based upon **available** data and information. Please provide best estimates when exact data are not available. If you provide an estimate, note the methods that were used to make the estimate on the Comments page at the end of the section, along with the question number to which the estimate refers. You are not required to perform new or non-routine tests or measurements solely for the purpose of responding to this survey.

You may need to make copies of some pages before responding. Some pages in the survey will need to be photocopied before you respond. Indicate how many copies of the page you are submitting by completing the entry "Copy ___ of ___" in the top right corner.

Pay close attention to the measurement units requested (e.g., cubic meters, kilograms). Report answers in the units that are specified, unless the question requires you to specify the units. Alternatively, if your records are kept in different units (e.g., gallons instead of cubic meters), you may report in those units. In this case, BE SURE TO INDICATE WHAT UNITS YOU ARE USING.

Indicate information that should be treated as confidential. You may claim as confidential all information included in the response to a question by checking the Confidential Business Information (CBI) box next to the question number. As an alternative for Part C only, you may claim all eligible financial and economic information as confidential by checking the global CBI box provided on page C-1. Note that you may be asked to justify any claim of confidentiality at a later time, for example if someone requests access to your data. See CONFIDENTIAL BUSINESS INFORMATION on page v.

For general instructions on completing the survey electronically, refer to the "Read Me" file on the CD included in your survey package.

Questions? If you have any questions regarding the completion of this survey, see the Survey Assistance section on page iv for assistance by e-mail, website, or phone.

BE SURE TO RETAIN A COPY OF THE COMPLETED SURVEY FOR YOUR RECORDS.

CERTIFICATION STATEMENT

The individual responsible for directing or supervising the preparation of the survey must read and sign the Certification Statement listed below. The certifying official must be a responsible corporate official or his/her authorized representative.

Certification Statement #1 should be completed and signed if this cruise line operated any cruise vessels authorized to carry 500 or more passengers for hire that operated in the waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research during calendar year 2004. In this case, you must complete Parts A-C of the survey.

Certification Statement #2 should be completed and signed if this cruise line did not operate any cruise vessels authorized to carry 500 or more passengers for hire in the waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research Reserve during calendar year 2004. In this case, you need only complete Part A of the survey.

Certification Statement #1

I certify under penalty of law that the attached survey(s) completed for all applicable vessels was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, accurate and complete. In those cases where the requested information was not available, the information provided is based on best engineering estimates. For the information claimed as company confidential business information pursuant to 40 CFR Part 2, Subpart B, I understand that the company may be asked to justify such claims at a later time, for example, if someone requests access to these data. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment as explained in Section 308 of the Clean Water Act.

Signature of Certifying Official

Date

Printed Name of Certifying Official

( ) Telephone Number

Title of Certifying Official

Cruise Line Name

Certification Statement #2

I certify under penalty of law that this cruise line did not operate any cruise vessel(s) authorized to carry 500 or more passengers for hire in the waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research Reserve during calendar year 2004. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment as explained in Section 308 of the Clean Water Act.

Signature of Certifying Official

Date

Printed Name of Certifying Official

( ) Telephone Number

Title of Certifying Official

Cruise Line Name

DEFINITIONS OF KEY TERMS

Alaskan Waters - See **Waters In and Near Alaska**.

Batch Treatment - A discreet volume of wastewater is collected, treated, and discharged.

Blackwater - See **Sewage**.

C Corporation - A business which is a completely separate entity from its owners, unlike a partnership (www.investorwords.com).

Capital Replacement Costs - Expenses incurred beyond annual operating and maintenance costs that do not increase the value of the vessel or make it more efficient to operate, but instead *maintain* the originally intended capacity/purpose of the asset. These costs are distinct from capital improvement costs that represent an upgrade to the replaced asset or materially *increase* the capacity/purpose of the asset.

Clean Water Act (CWA) - Federal legislation enacted by Congress to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (Federal Water Pollution Control Act of 1972, as amended, 33 U.S.C. 1251 et seq.).

Combined Treatment Works (CTW) - Any land-based privately owned device or system that treats waste from more than one vessel or facility and that is used to recycle, reclaim, store, or treat liquid sewage or liquid industrial wastes.

Cost of Services - On an income statement, the cost of inputs used to deliver services.

Cruise Vessel - A passenger vessel as defined in section 2101(22) of title 46, United States Code. This does not include a vessel of the United States operated by the Federal Government or a vessel owned and operated by the Federal Government or a vessel owned and operated by the government of a State.

Cumulative Depreciation - The total charges against the fixed assets of a company for wear and tear, obsolescence, or the depletion of a natural resource -- oil in the ground, for instance -- as it is used up. (MSN MONEY) http://moneycentral.msn.com/investor/glossary/glossary.asp?TermID=18.

Current Assets - Any asset that can reasonably be expected to be used up or converted to cash or sold within a year or less, e.g., cash, accounts receivable, prepaid expenses.

Current Liabilities - Debts that are payable within 1 year, including accounts payable, notes payable within one year, accrued expenses and taxes, and the portion of long-term debt that you pay this year.

Depreciation and Amortization - The allocation of the cost of an asset over a period of time for accounting and tax purposes (Investorwords.com).

Discharge - Any release however caused from a cruise vessel, including any escape, shore-side transfer, spilling, leaking, pumping, emitting, or emptying.

Earnings Before Interest and Taxes (EBIT) - A measure of a company's earning capability from ongoing operations, equal to earnings before deduction of interest payments and income taxes, also called operating profit or operating income (Investorwords.com) .

Environmental Compliance Records - Includes the Sewage and Graywater Discharge Record Book, all discharge reports, all discharge sampling test results, and any other records that must be kept under 33 CFR 159 Subpart E.

Fjord - A long, narrow, often deep inlet from the sea between deep cliffs and slopes.

Footprint - Measurement of the surface area on the deck of the space occupied by an operation unit (m^2).

General Partnership - A business partnership featuring two or more partners in which each partner is liable for any debts taken on by the business. Because the partners do not enjoy limited liability, all the partners' assets can be involved in an insolvency case against the company (www.investorwords.com).

Generally Accepted Accounting Principles (GAAP) - A widely accepted set of rules, conventions, standards, and procedures for reporting financial information, as established by the Financial Accounting Standards Board (www.investorwords.com).

Graywater - Galley, dishwasher, bath, and laundry wastewater. The term does not include other wastes or waste streams.

Incineration - A controlled combustion process most commonly used for destruction of solid, liquid, or gaseous wastes.

Interest Expense - An expense for interest on a loan (Investorwords.com).

Inventories - A company's merchandise, raw materials, and finished and unfinished products which have not yet been sold. These are considered liquid assets, since they can be converted into cash quite easily. There are various means of valuing these assets, but to be conservative the lowest value is usually used in financial statements (www.investorwords.com).

Landfill - A natural or man-made formation in the earth into which solid waste, sludges, or other process residuals are placed for permanent disposal.

Limited Partnership - A business organization with one or more general partners, who manage the business and assume legal debts and obligations, and one or more limited partners, who are liable only to the extent of their investments. Limited partners also enjoy rights to the partnership's cash flow, but are not liable for company obligations (www.investorwords.com).

Long-Term Debt - Liabilities that are paid off over periods greater than 1 year, including mortgages, notes, bonds, debentures, long-term leases, bank debt, and deferred income taxes.

NAICS Code - NAICS is an economic classification system. Economic units that use like processes to produce goods or services are grouped together. These units are assigned a code for identification purposes. US Census Bureau (http://www.census.gov/epcd/www/naics.html).

Net Income - Gross sales minus taxes, interest, depreciation, and other expenses. (www.investorwords.com)

Net Sales - Gross sales minus returns, discounts, and allowances (Investorwords.com).

Noncurrent Assets - Any assets with a life longer than 1 year, e.g., real estate, buildings and improvements, machinery and equipment.

Other Owner Equity - The portion of a company's assets that the shareholders own, as opposed to what they've borrowed: equal to total assets minus liabilities (http://www.moneychimp.com/glossary/equity.htm).

Pollution Prevention - The use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes. It includes practices that reduce the use of hazardous and nonhazardous materials, energy, water, or other resources, as well as those practices that protect natural resources through conservation or more efficient use. Pollution prevention consists of source reduction, in process recycle and reuse, and water conservation practices.

Privately Held - A company whose shares are not traded on the open market. (www.investorwords.com)

Publicly Held - A company which has issued securities through an offering, and which are now traded on the open market. (www.investorwords.com)

Publicly Owned Treatment Works (POTW) - Any device or system owned by a state or municipality that is used to recycle, reclaim, or treat liquid municipal sewage or liquid industrial wastes.

Recycle/Recovery - The process of recovering usable constituent fractions within a waste material or removal of contaminants from a waste material to allow it to be reused.

Retained Earnings - Earnings not paid out as dividends but instead reinvested in the business or used to pay off debt. Also called earned surplus or accumulated earnings or unappropriated profit. (www.investorwords.com)

S Corporation - A form of corporation, allowed by the IRS for most companies with 75 or fewer shareholders, which enables the company to enjoy the benefits of incorporation but be taxed as if it were a partnership. Also called Subchapter S Corporation (www.investorwords.com).

Selling, General, and Administrative Expenses - Income statement item which combines salaries, commissions, and travel expenses for executives and salespeople, advertising costs, and payroll expenses. (Investorwords.com)

Sewage - Human body wastes and the wastes from toilets and other receptacles intended to receive or retain body waste.

Sludge - The accumulated solids separated from liquids during processing.

Sole Proprietorship - A business structure in which an individual and his/her company are considered a single entity for tax and liability purposes. A sole proprietorship is a company which is not registered with the state as a limited liability company or corporation. The owner does not pay income tax separately for the company, but he/she reports business income or losses on his/her individual income tax return. The owner is inseparable from the sole proprietorship, so he/she is liable for any business debts. Also called proprietorship (www.investorwords.com).

Source Reduction - Any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment prior to recycling, treatment, or disposal. Source reduction can include equipment or technology modifications, process or procedure modifications, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

Title XIV - Certain Alaskan Cruise Ship Operations (33 U.S.C. 1901 Note). Title XIV sets discharge standards for sewage and graywater from certain cruise ships (those authorized to carry 500 or more passengers for hire) while operating in the Alexander Archipelago and the navigable waters of the United States in the State of Alaska and within the Kachemak Bay National Estuarine Research Reserve. Title XIV also provides EPA with authority to revise and to develop additional standards for sewage and graywater discharges from these cruise ships.

Total Assets - Total Current Assets + Total Noncurrent Assets.

Total Liabilities and Equity - The sum of current liabilities, long term debt, and equity.

Treatment - Any activity designed to change the character or composition of any waste so as to prepare it for transportation, storage, or disposal; render it amenable for recycling or recovery; or reduce it in volume.

Treatment Residual - Any wastes generated by the wastewater treatment system. Examples include sludge, membrane filtration concentrate, oil, backwash, incinerator ash, and screenings.

Voyage - Vessel transport of passengers from the point of primary embarkation to the point of final debarkation.

Wastewater - For the purpose of this survey, any sewage and/or graywater.

Wastewater Treatment - The processing of wastewater by physical, chemical, biological, or other means to remove specific pollutants from the wastewater stream or to alter the physical or chemical state of specific pollutants in the wastewater stream. Treatment is performed for discharge of treated wastewater, recycle of treated wastewater to the same process which generated the wastewater, or for reuse of the treated wastewater in another process.

Waters In and Near Alaska - Waters of the Alexander Archipelago and the navigable waters of the United States within the State of Alaska and within the Kachemak Bay National Estuarine Research Reserve.

ABBREVIATIONS/SYMBOLS

BOD_5	Biochemical oxygen demand (five-day)
C	Celsius
CAS	Chemical Abstract Service [Registry Number]
CFR	Code of Federal Regulations
CHT	Collection, holding, and transfer
cm	Centimeter
COD	Chemical oxygen demand
ft	Foot
ft^2	Square foot
ft^3	Cubic foot
ft/sec	Feet per second
g	Gram
gal	Gallon
GC/MS	Gas chromatography/mass spectrometry
gpd	Gallons per day
gpm	Gallons per minute
Hg	Mercury
hp	Horsepower
HPLC	High Performance Liquid Chromatography
in	Inch
kg	Kilogram
kPa	Kilopascal
kW	Kilowatt
L	Liter
lb	Pound
m	Meter
m^2	Square meter
m^3	Cubic meter
µg	Micrograms
µg/L	Micrograms per liter
mg	Milligrams
MGD	Million gallons per day
mg/L	Milligrams per liter
min	Minute
MLSS	Mixed liquor suspended solids
MLVSS	Mixed liquor volatile suspended solids
mm	Millimeter
MSDS	Material Safety Data Sheet
NA	Not applicable
nm	Nautical miles
ppm	Parts per million
psi	Pounds per square inch
psig	Pounds per square inch gauge
s	Second
SCFM	Standard cubic feet per minute
ton	Short ton (2000 pounds)
TPH	Total petroleum hydrocarbons
TSS	Total suspended solids
TTO	Total toxic organics
W	Watt
yr	Year
%	Percent

PART A: CRUISE LINE INFORMATION

Attach Cruise Line Address Label Here

1. Is the address on the mailing label the cruise line's street address (physical location)?

- ☐ Yes (*Skip to Question 3*)
- ☐ No

2. Please print the correct street address (physical location).

_____
Cruise Line Name

_____
Street Address

_____ _____ _____-_____
City State Zip Code

3. Is the cruise line's mailing address different from the street address (physical location)?

- ☐ Yes
- ☐ No (*Skip to Question 5*)

4. Provide the mailing address if different from the street address (physical location).

_____
Mailing Address or Post Office Box

_____ _____ _____-_____
City State Zip Code

5. Provide the following information for the primary contact for the technical information supplied in Parts A and B of this questionnaire:

_____ (_____)_____
Primary Contact Name Telephone Number

_____ (_____)_____
Title Fax Number

_____
E-Mail Address

_____ Convenient time to call:
Street Address or Post Office Box between ___ am/pm and ___ am/pm
(Eastern Time)

_____ _____ _____-_____
City State Zip Code

6. Provide the following information for the secondary contact for the technical information supplied in this questionnaire:

_____ (_____)_____
Secondary Contact Name Telephone Number

_____ (_____)_____
Title Fax Number

_____
E-Mail Address

_____ Convenient time to call:
Street Address or Post Office Box between ___ am/pm and ___ am/pm
(Eastern Time)

_____ _____ _____-_____
City State Zip Code

7. Is this cruise line owned by a parent company?

☐ Yes
☐ No (*Skip to Question 9*)

8. Please provide the name and mailing address of the parent company that owns the cruise line.

_____
Parent Company Name

_____
Street Address or Post Office Box

_____ _____ _____-_____
City State Zip Code

9. In what year did cruise line operations first begin in the waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research Reserve (hereafter referred to as **waters in and near Alaska**)?

_____

10. Did any cruise vessels in your fleet operate in the waters in and near Alaska in calendar year 2004?

☐ Yes
☐ No (*Skip to Question 13*)

11. During what months did your cruise vessel(s) operate in the waters in and near Alaska in calendar year 2004? Check all months that apply.

_____ January
_____ February
_____ March
_____ April
_____ May
_____ June
_____ July
_____ August
_____ September
_____ October
_____ November
_____ December

12. For each cruise vessel authorized to carry 500 or more passengers for hire operating in waters in and near Alaska during calendar year 2004, provide the name, maximum passenger and crew capacity as listed on each vessel's Passenger Ship Safety Certificate (PSSC), and the country of registry in the table below.

Name of Cruise Vessel	Maximum Passenger Capacity	Maximum Crew Capacity	Country of Registry

FOR EACH CRUISE VESSEL LISTED IN QUESTION 12, COMPLETE PART B: CRUISE VESSEL TECHNICAL INFORMATION. EPA HAS PROVIDED YOU WITH THE NUMBER OF COPIES FOR EACH VESSEL KNOWN TO EPA, AS WELL AS AN EXTRA COPY OF PART B FOR YOUR USE.

13. Do you plan to operate additional cruise vessel(s) authorized to carry 500 or more passengers for hire in waters in and near Alaska in calendar year 2005, 2006, or 2007?

☐ Yes
☐ No

If yes, complete the table below.

Year	Name of Cruise Vessel	Maximum Passenger Capacity	Maximum Crew Capacity	Country of Registry
☐ 2005 ☐ 2006 ☐ 2007				
☐ 2005 ☐ 2006 ☐ 2007				
☐ 2005 ☐ 2006 ☐ 2007				

Copy ___ of ___

14. Comments for Cruise Line Information Part A

Please cross-reference your comments by question number. **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided.**

Question Number	Comment

IF YOU ANSWERED "NO" TO QUESTION 10, COMPLETE AND SIGN CERTIFICATION #2 ON PAGE vii AND RETURN THE SURVEY AND SIGNED CERTIFICATION #2 TO THE ADDRESS ON PAGE iv. IF YOU ANSWERED "YES" TO QUESTION 10, CONTINUE TO PART B OF THE SURVEY.

PART B: CRUISE VESSEL TECHNICAL INFORMATION

Part B of the questionnaire collects information for <u>each</u> cruise vessel authorized to carry 500 passengers or more for hire operating in the waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research Reserve during calender year 2004. Please complete Sections 1 - 6 for each applicable cruise vessel meeting these criteria. EPA has provided you with the number of copies for each vessel known to EPA, as well as an extra blank copy of Part B for your use. Please make additional copies before completing the form if needed.

Cruise Vessel Name: _____
Vessel ID: _____

SECTION 1: GENERAL CRUISE VESSEL INFORMATION

Section 1 requests the Alaskan ports of call, number of days in the waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research Reserve (hereafter referred to as **waters in and near Alaska**), the average number of passengers, and vessel description. Information in this section provides the age and other factors specific to each cruise vessel which could be used as a basis for considering whether to develop differing discharge standards. Information regarding graywater and sewage holding capacity will characterize current vessel capabilities. The operating days and ports of call will characterize the operating status of the cruise vessel. EPA will use this information to develop an industry profile.

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this survey. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of this section.

CBI? ☐ Yes

15. During calendar year 2004, how many days did this vessel cruise in waters in and near Alaska? _____ days

CBI? ☐ Yes

16. At which Alaskan ports did this vessel call in 2004? Check all that apply.

_____ None	_____ Sitka
_____ Dutch Harbor	_____ Skagway
_____ Haines	_____ Whittier
_____ Hoonah/Pt. Sophia	_____ Valdez
_____ Juneau	_____ Wrangell
_____ Ketchikan	_____ Other: _____
_____ Seward	_____ Other: _____

CBI? ☐ Yes

17. Beginning with the number 1, indicate the <u>typical</u> Alaskan itinerary for this vessel by numbering the applicable ports of call below in sequential order beginning with the first Alaskan port call and ending with the last Alaskan port on the itinerary. Provide the departure port below.

Departure port *(please specify)*: _____ (City) _____ (State/Province)

_____ None	_____ Sitka
_____ Dutch Harbor	_____ Skagway
_____ Haines	_____ Whittier
_____ Hoonah/Pt.Sophia	_____ Valdez
_____ Juneau	_____ Wrangell
_____ Ketchikan	_____ Other: _____
_____ Seward	_____ Other: _____

CBI? ☐ Yes

18. Did this vessel have destinations in national or state parks, or non-designated sensitive areas such as scenic fjords?

☐ Yes

☐ No (*Skip to Question 20*)

CBI? ☐ Yes

19. Indicate the Alaskan national and/or state park(s) or scenic fjords this vessel visited in calendar year 2004 and provide the typical length of the stay and the number of times visited.

Destination Name	Duration of Typical Visit	Number of Times Visited in 2004
Aniakchak National Monument and Preserve	_____ ☐ hours _____ ☐ days	
Bering Land Bridge National Preserve	_____ ☐ hours _____ ☐ days	
College Fjord (Chugach National Forest)	_____ ☐ hours _____ ☐ days	
Glacier Bay National Park and Preserve	_____ ☐ hours _____ ☐ days	
Hubbard Glacier	_____ ☐ hours _____ ☐ days	
Katmai National Park and Preserve	_____ ☐ hours _____ ☐ days	
Kenai Fjords National Park	_____ ☐ hours _____ ☐ days	
Sitka National Historical Park	_____ ☐ hours _____ ☐ days	
Tracy Arm Fjord	_____ ☐ hours _____ ☐ days	
Wrangell - St. Elias National Park and Preserve	_____ ☐ hours _____ ☐ days	
Other *(please specify)*:	_____ ☐ hours _____ ☐ days	
Other *(please specify)*:	_____ ☐ hours _____ ☐ days	

CBI? ☐ Yes **20.** What date was construction completed for this vessel? ____/____/____ (mm/dd/yy)

CBI? ☐ Yes **21.** What date did this vessel enter service? ____/____/____ (mm/dd/yy)

CBI? ☐ Yes **22.** What date did this vessel begin its first voyage ever in waters in and near Alaska?

____/____/____ (mm/dd/yy)

CBI? ☐ Yes **23.** Please fill in the descriptions for this cruise vessel in the table below.

Vessel Description	Quantity/Unit
Length	☐ ft ☐ m
Beam	☐ ft ☐ m
Draft	☐ ft ☐ m
Maximum Speed	knots
Weight (Tonnage)	☐ gross tons ☐ metric tons
Fresh Water Holding Capacity	☐ gal ☐ m^3
Sewage Holding Capacity	☐ gal ☐ m^3
Graywater Holding Capacity	☐ gal ☐ m^3
Ballast Tank(s) Capacity	☐ gal ☐ m^3
Diameter of Propellers	☐ ft ☐ m
Depth at Bottom of Propellers	☐ ft ☐ m
Number of Azipods	
Number of Propellers on Each Azipod	

Graywater and Sewage Discharge Port Information		
Port Designation	**Depth**	**Location**
Example WTC 11 STBD	____ ☐ ft AND 4.5 ☒ m ☐ Above water line ☒ Below water line	☐ forward ☒ midship ☐ aft AND ☐ port ☒ starboard
	____ ☐ ft AND ____ ☐ m ☐ Above water line ☐ Below water line	☐ forward ☐ midship ☐ aft AND ☐ port ☐ starboard
	____ ☐ ft AND ____ ☐ m ☐ Above water line ☐ Below water line	☐ forward ☐ midship ☐ aft AND ☐ port ☐ starboard
	____ ☐ ft AND ____ ☐ m ☐ Above water line ☐ Below water line	☐ forward ☐ midship ☐ aft AND ☐ port ☐ starboard
	____ ☐ ft AND ____ ☐ m ☐ Above water line ☐ Below water line	☐ forward ☐ midship ☐ aft AND ☐ port ☐ starboard

Copy ____ of _____

CBI? ☐ Yes

24. Please provide the number of passengers and crew actually on board, if available, for each voyage and the number of days of the voyage spent in waters in and near Alaska during calendar year 2004. Be sure to provide the number of passengers, not the vessel capacity. ***Please make a copy of this page before completing the table if you need more space and number each copy in the space provided at the top of this page.***

Departure		Number of Passengers	Number of Crew Members
Date of Voyage Departure (mm/dd/yy)	Number of Days in Alaskan Waters (described above)		
____/____/____			
____/____/____			
____/____/____			
____/____/____			
____/____/____			
____/____/____			
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____/____/____			
____/____/____			
____/____/____			
____/____/____			

CBI? ☐ Yes

25. Was this number of voyages in Alaskan waters and/or passengers in 2004: (specify)

- ☐ typical of previous years
- ☐ higher than previous years
- ☐ lower than previous years
- ☐ 2004 was first year of operation in Alaskan waters

Copy _____ of _____

CBI? ☐ Yes **26.** Comments for General Cruise Vessel Information

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided in the top right corner.**

Question Number	CBI?	Comment
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	

SECTION 2: WASTEWATER SOURCES

Section 2 requests information on graywater and sewage sources, flows, and destinations. It also requests information to further characterize wastewater generation for each cruise vessel, including information on the types and volumes of graywater sources, and chemical addition for cleaning, maintenance, or odor control. Finally, this section requests graywater and sewage schematic flow diagrams and design and operating information for untreated wastewater collection, holding, and transfer (CHT) tanks. This information will be used to develop an industry profile of wastewater generation and collection and to develop and evaluate possible regulatory technology options and compliance cost estimates.

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this survey. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of this section.

CBI? ☐ Yes

27. Attach Schematic Flow Diagram

Attach simplified schematic flow diagrams (see examples below on pages 2-3 and 2-4) illustrating the sources and routing of untreated wastewater in the vessel. (Information regarding graywater and sewage treatment systems will be collected in the following section.) Include your vessel name on all diagrams, and number each diagram if you have multiple diagrams. Specific instructions and an example diagram are provided below. Review and check the following list to ensure that your schematic flow diagram is complete.

Untreated Sewage and Graywater Schematic Flow Diagram Checklist

Be sure to...	✓
Identify and label all graywater and sewage sources. (One box in the diagram may represent multiple, similar sources. See the example diagrams on pages 2-3 and 2-4 for the suggested level of detail.)	☐
Identify and label the source of any other waste streams that are mixed with sewage and/or graywater. Wastewater sources that are not mixed with sewage and/or graywater should not be included.	☐
Identify the ***destination*** of all graywater and sewage sources (e.g., untreated graywater/sewage CHT tanks, discharged directly overboard without treatment, discharged to other wastewater systems).	☐
For each CHT tank, provide the existing tank number using the CHT tank naming scheme for this vessel.	☐
Identify and number the destination of the outflow from all untreated sewage and graywater CHT tanks (e.g., other systems, discharge to treatment system, discharge directly overboard, hauled for off-site transfer), including those used only in emergency.	☐
Show any diverter interconnection valves used to shift sewage and graywater between storage tanks or from overboard discharge to onboard storage. Identify all potential overboard discharge points, both routine and non-routine.	☐

Provide <u>average flow rates</u> for streams, as well as an indication of whether the flow route is metered or an estimate. Provide the method of estimation (e.g., pipe size, pump curve, best judgment) in the comments for this section (Question 47 on page 2-17). If flow is intermittent, provide amount and frequency; for example "100 m^3/day", "50 m^3, twice/day," or "100 m^3, once/month." ☐

Include and label any in-system wastewater treatment or reuse technologies and chemical addition, such as filters, screens, grease traps, calcification prevention tablets in urinals, odor control chemicals, biocides, defoamers, graywater/sewage system cleaning solutions, and chlorination tablets in CHT tanks. ☐

Provide as many diagrams as necessary to convey the requested information. Number each schematic flow diagram at the top of the diagram (e.g., Schematic Flow Diagram #1). ☐

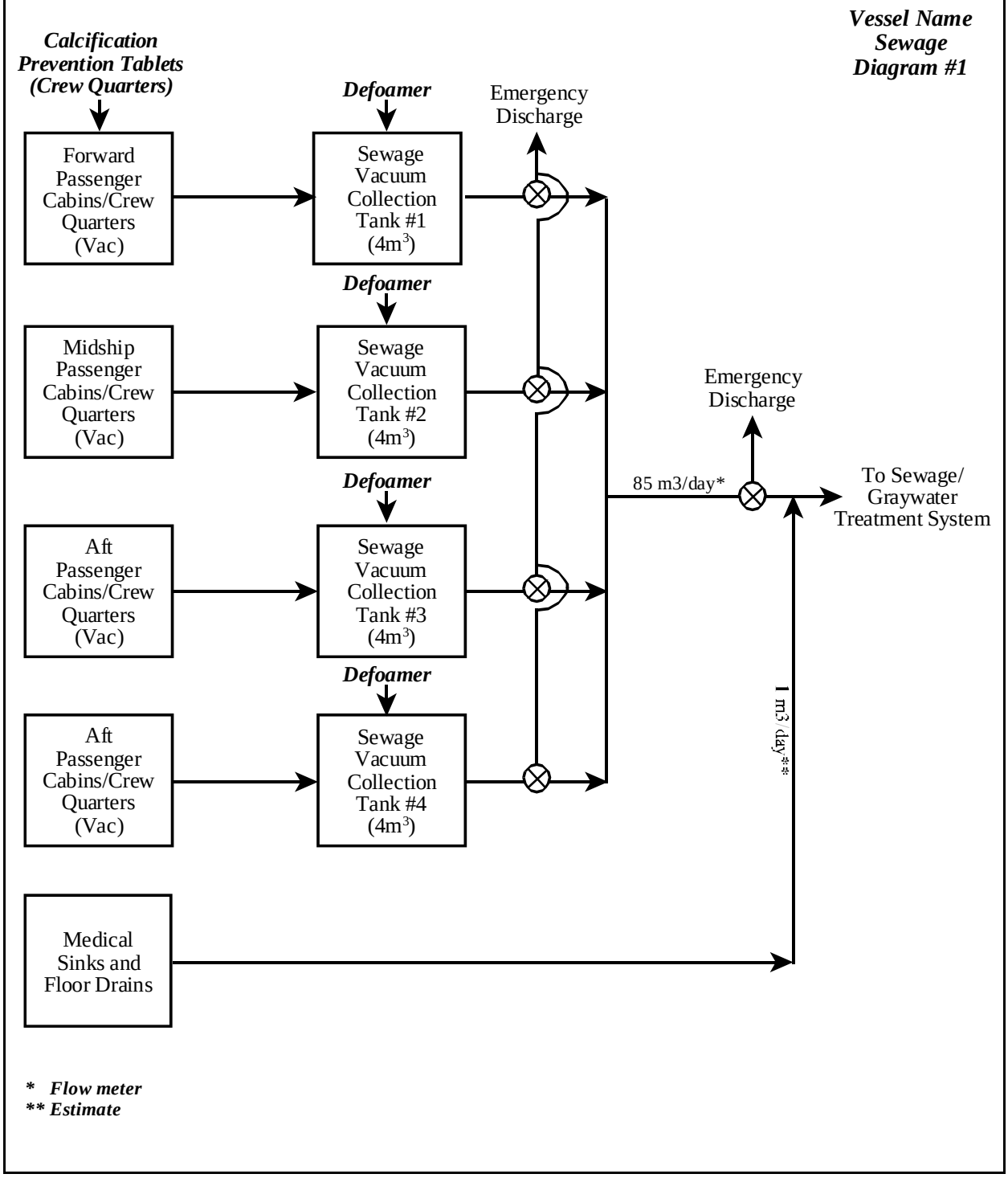
Write your cruise vessel name in the upper right corner of each diagram. ☐

If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential," it will be considered nonconfidential under 40 CFR Part 2, Subpart B.

Review:
If any of the statements above were not checked off, please revise the Schematic Flow Diagram(s).

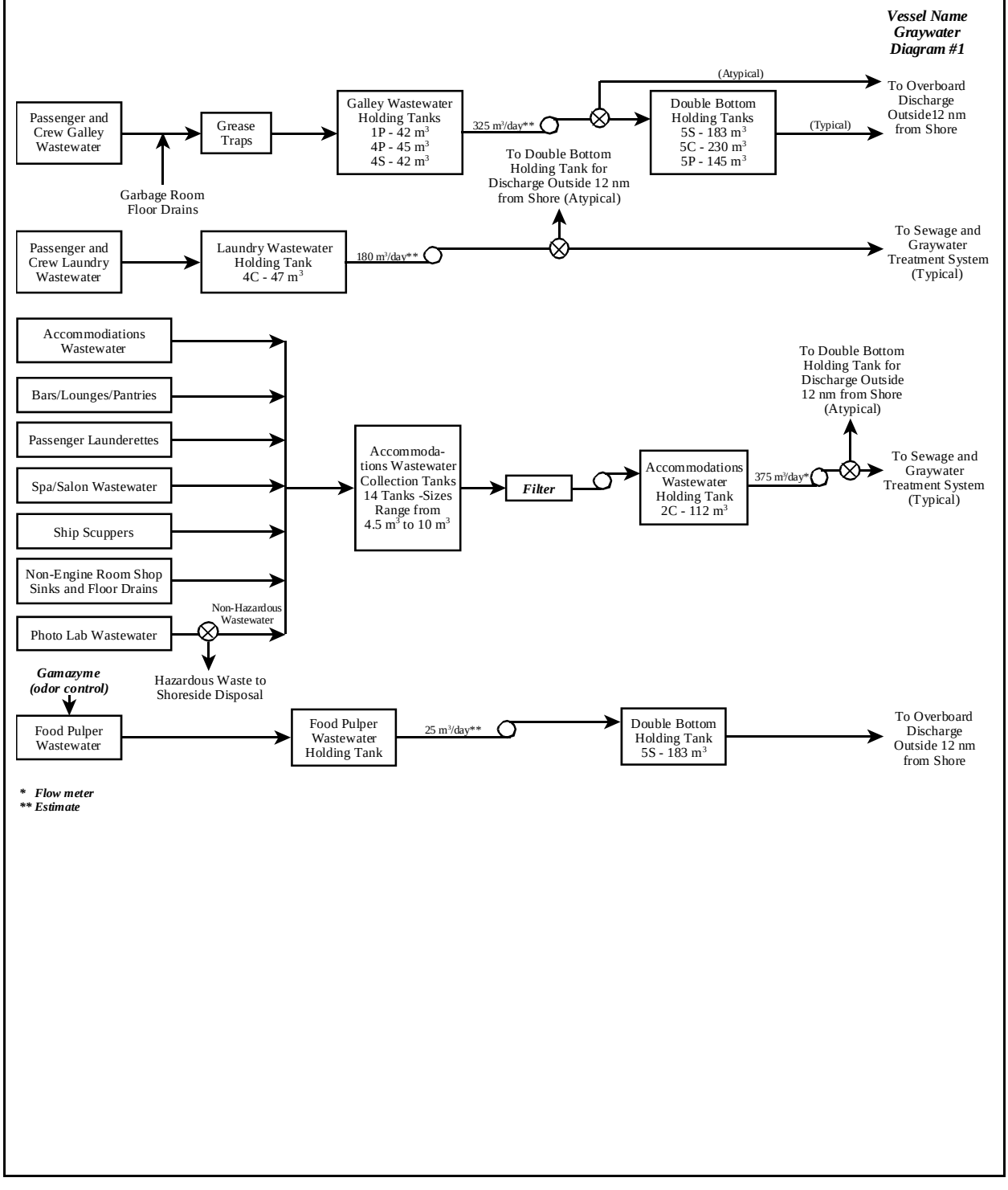
27. (Continued)

EXAMPLE SEWAGE SCHEMATIC FLOW DIAGRAM



27. (Continued)

EXAMPLE GRAYWATER SCHEMATIC FLOW DIAGRAM



27. (Continued)

SCHEMATIC FLOW DIAGRAM

 # ____ of ____ **VESSEL NAME** _____

(To be completed for each sewage and graywater drain system)

CBI?
☐ Yes

28. Indicate the destination for each wastewater source.

Wastewater Source Description	To Graywater CHT System?	To Sewage CHT System?	To Other? (Specify)
Example: Photo lab sinks	**☐Yes ☒No**	**☐Yes ☒No**	**Drains to waste container for transfer onshore as hazardous waste**
Galley (e.g., food preparation, food pulper, restaurants, and bars)	☐Yes ☐No	☐Yes ☐No	
Dishwasher	☐Yes ☐No	☐Yes ☐No	
Bath (e.g., tub, shower, and sinks)	☐Yes ☐No	☐Yes ☐No	
Laundry	☐Yes ☐No	☐Yes ☐No	
Launderette	☐Yes ☐No	☐Yes ☐No	
Dry cleaning floor drains	☐Yes ☐No	☐Yes ☐No	
Dry cleaning spent solvent	☐Yes ☐No	☐Yes ☐No	
Dry cleaning wastewater (condensate separator water)	☐Yes ☐No	☐Yes ☐No	
Sewage from toilets, urinals, and other human waste receptacles	☐Yes ☐No	☐Yes ☐No	
Bilge water	☐Yes ☐No	☐Yes ☐No	
Ballast water	☐Yes ☐No	☐Yes ☐No	
Desalination brine	☐Yes ☐No	☐Yes ☐No	
Pool and whirlpool water	☐Yes ☐No	☐Yes ☐No	
Refrigeration and air conditioner condensate	☐Yes ☐No	☐Yes ☐No	
Salon and day spa water	☐Yes ☐No	☐Yes ☐No	
Photo lab sinks	☐Yes ☐No	☐Yes ☐No	
Photo lab floor drains	☐Yes ☐No	☐Yes ☐No	
Engine room shop sinks	☐Yes ☐No	☐Yes ☐No	
Engine room shop floor drains	☐Yes ☐No	☐Yes ☐No	
Non-engine room shop sinks (e.g,. upholstery, wood working, carpentry)	☐Yes ☐No	☐Yes ☐No	
Non-engine room shop floor drains (e.g,. upholstery, wood working, carpentry)	☐Yes ☐No	☐Yes ☐No	
Medical facility sinks	☐Yes ☐No	☐Yes ☐No	
Medical facility floor drains	☐Yes ☐No	☐Yes ☐No	
Chemical storage area sinks	☐Yes ☐No	☐Yes ☐No	
Chemical storage area floor drains	☐Yes ☐No	☐Yes ☐No	
Other wastewater (specify source): _____	☐Yes ☐No	☐Yes ☐No	

CBI? ☐ Yes

29. Sewage and Graywater Sources and Flow Rates

Responses to this question will assist EPA to determine overall graywater and sewage generation rates for each vessel, and to identify trends among ships based on operations and/or per passenger generation rates. Please provide the following information for each graywater and sewage source. (Note: If you report flow rates in other than m^3/day, be sure to cross out and indicate the units used.)

Sewage and Graywater Source	Typical Total Flow Rate
Galley (e.g., food preparation, food pulper, restaurants, and bars)	m^3/day
Dishwasher	m^3/day
Bath (e.g., tub, shower, and sinks)	m^3/day
Laundry	m^3/day
Sewage from toilets, urinals, and other human waste receptacles	m^3/day
Other - please describe: _____	m^3/day
Other - please describe: _____	m^3/day

CBI? ☐ Yes

30. List any sewage or graywater sources that are routed to destinations other than graywater/sewage CHT tanks (e.g., discharged directly overboard without treatment, routed directly to wastewater treatment, or routed to other wastewater systems). (Note: If you report flow rates in other than m^3/day, be sure to cross out and indicate the units used.) Sewage is human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes. For the purpose of this survey, graywater includes galley, dishwasher, bath, and laundry wastewater and does not include other wastes or wastestreams. What ship alterations may be required to reroute these sewage and graywater sources to a graywater or sewage collection or holding tank (e.g., length of additional piping, list of spaces affected by ship alteration; general description only, not precise detail)? Based on information from ship visits and sampling, EPA anticipates that few, if any, vessels will respond to this question.

Waste Source Description	Required Ship Alteration to Reroute Waste Stream	Typical Total Flow Rate
Galley (e.g., food preparation, food pulper, restaurants, and bars)		m^3/day
Dishwasher		m^3/day
Bath (e.g., tub, shower, and sinks)		m^3/day
Laundry		m^3/day
Sewage from toilets, urinals, and other human waste receptacles		m^3/day
Other - please describe: _____		m^3/day
Other - please describe: _____		m^3/day

CBI? ☐ Yes

31. Indicate whether each of the following sewage and graywater sources uses vacuum (as opposed to gravity) or sea water (as opposed to fresh water).

Sewage and Graywater Source	Vacuum Used in System?	Sea Water Used in System?
Galley (e.g., food preparation, food pulper, restaurants, and bars)	☐Yes ☐No	☐Yes ☐No
Dishwasher	☐Yes ☐No	☐Yes ☐No
Bath (e.g., tub, shower, and sinks)	☐Yes ☐No	☐Yes ☐No
Laundry	☐Yes ☐No	☐Yes ☐No
Sewage from toilets, urinals, and other human waste receptacles	☐Yes ☐No	☐Yes ☐No
Other - please describe: _____	☐Yes ☐No	☐Yes ☐No
Other - please describe: _____	☐Yes ☐No	☐Yes ☐No

CBI? ☐ Yes

32. Provide the approximate number of meals served per day (include passengers and crew).

Number of meals served per day:
_____ breakfast
_____ lunch
_____ dinner
_____ other

Total: _____ meals/day

CBI? ☐ Yes

33. a. Describe the vessel's food waste handling system: _____

b. How much food pulper wastewater is generated per day (not the amount of food pulper water that is recirculated, but the daily amount that is generated as waste)? _____ m^3/day

c. How is food pulper wastewater disposed (e.g., routed to graywater CHT system)? _____

CBI? ☐ Yes

34. Provide the approximate amount of laundry washed. _____ kg/day
OR
_____ pieces/day

CBI?
☐ Yes

35. How much water is needed per toilet usage (e.g., flush)?

____________________ liters
OR
____________________ gallons

CBI?
☐ Yes

36. If known, provide the typical <u>untreated</u> sewage concentration prior to mixing with graywater?

_____________ mg/liter BOD5
AND
_____________ mg/liter COD

CBI?
☐ Yes

37. If known, provide the typical <u>untreated</u> graywater concentration prior to mixing with sewage?

_____________ mg/liter BOD5
AND
_____________ mg/liter COD

CBI?
☐ Yes

38. Provide the following information on the 10 chemicals most commonly used (by volume) in operation or maintenance of <u>untreated</u> sewage and/or graywater systems for any reason, including cleaning, odor control, calcification prevention, biocides, and chlorination.

Product Name	Manufacturer	Point(s) of Addition	Amount
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year
			________ ☐ liters/year ________ ☐ kg/year

CBI? ☐ Yes

39. Provide the following information on the five pesticides most commonly used (by volume) or contained in bait boxes, traps, etc. anywhere on the vessel, including any pesticides applied by contractors:

Product Name/ Manufacturer	Active Ingredients and Amount	Purpose and Location	Describe How Pesticides May Enter Graywater/Sewage System

CBI? ☐ Yes

40. List the five disinfectants most commonly used (by volume) anywhere on the vessel:

Product Name	Manufacturer	Purpose and Location	Describe How Disinfectants May Enter Graywater/Sewage System

CBI? ☐ Yes

41. Provide the vessel's total average untreated sewage and graywater CHT holding capacities in hours.

Sewage: _____ hr

Graywater: _____ hr

CBI? ☐ Yes

42. Untreated Graywater and/or Sewage CHT Tanks

Provide the requested information in the following table for each untreated sewage and graywater CHT tank reported in the schematic flow diagram(s) provided in response to Question 27. Instructions for completing this table are provided below.

- Complete the appropriate questions for each CHT tank. **Photocopy Question 42 for each tank before writing on it, and number each copy in the space provided in the top right corner.**
- Write the tank number (from the schematic flow diagram) and the schematic flow diagram number on each page in the boxes provided at the top of the table.
- Check your schematic flow diagrams to ensure that tables have been completed for each CHT tank indicated on the diagrams.
- If exact data are not available, please provide estimates.

Copy ___ of ___

42. Untreated Graywater and/or Sewage CHT Tanks (Continued)

SCHEMATIC FLOW DIAGRAM NUMBER: [ ] *(from Question 27)*

TANK NUMBER: [ ] *(from schematic flow diagram)*

a. Tank name or description _____

b. Provide graywater, sewage, and other sources and flow rates to tank. (Note: If you report flow rates in other than m^3/day, be sure to cross out and indicate the units used.) Also include information for any other wastewater sources that are mixed with graywater and/or sewage.

Influent Streams to Tank	**Flow Rate**
Galley (e.g., food preparation, food pulper, restaurants, and bars)	m^3/day
Dishwasher (scullery)	m^3/day
Bath (e.g., tub, shower, and sink)	m^3/day
Laundry/launderette	m^3/day
Sewage from toilets, urinals, and other human waste receptacles	m^3/day
Bilge water	m^3/day
Ballast water	m^3/day
Desalination brine	m^3/day
Pool and whirlpool water	m^3/day
Refrigeration and air conditioner condensate	m^3/day
Salon and day spa water	m^3/day
Photo lab sinks and floor drains	m^3/day
Engine room shop sinks and floor drains	m^3/day
Non-engine room shop sinks and floor drains	m^3/day
Medical facility sinks and floor drains	m^3/day
Chemical storage area sinks and floor drains	m^3/day
Dry cleaning floor drains	m^3/day
Dry cleaning spent solvent	m^3/day
Dry cleaning wastewater (condensate separator water)	m^3/day
Other wastewater (specify source):	m^3/day
Total	**m^3/day**

Copy ___ of ___

42. Untreated Graywater and/or Sewage CHT Tanks (Continued)

SCHEMATIC FLOW DIAGRAM NUMBER: [ ] *(from Question 27)*

TANK NUMBER: [ ] *(from schematic flow diagram)*

c. Design capacity influent flow rate	_____	m^3/day
		OR
	_____	L/min
d. Tank capacity	_____	m^3
e. Typical influent flow rate	_____	m^3/day
		OR
	_____	L/min
f. 2004 tank usage time *(complete both blanks)*	_____	hr/day
		AND
	_____	days/year

g. Is sludge collected from this unit? ☐ Yes ☐ No *(Skip to Question 43)*

If yes:

h. How often was sludge removed from this tank in 2004?	_____	times/yr
i. How much sludge was collected in 2004?	_____	kg/yr
		OR
	_____	m^3/yr
j. What is the percent solids of the sludge?	_____	% solids, by weight

Copy ___ of ___

42. Untreated Graywater and/or Sewage CHT Tanks (Continued)

SCHEMATIC FLOW DIAGRAM NUMBER: [ ] *(from Question 27)*

TANK NUMBER: [ ] *(from schematic flow diagram)*

k. How was collected sludge from this tank discharged or disposed in 2004? For each destination, report the percent of sludge discharged or disposed from this tank. Percentages should total 100. . . . . .

_____	% transferred shoreside
_____	% discharged in port
_____	% discharged overboard within 1nm
_____	% discharged overboard between 1nm and 3nm
_____	% discharged overboard between 3nm and 12nm
_____	% discharged overboard outside 12nm
_____	% incinerated
_____	% to sludge holding tank (also complete Table H in Part B, Section 3 on page 3-63 for Holding Tank)
_____	% to sludge dewatering (also complete Table N in Part B, Section 3 on page 3-96 for Sludge Dewatering)
_____	% other (specify):_____
100%	

CBI? ☐ Yes

43. Did you transfer untreated graywater or sewage to shore side facilities in Alaska in 2004?

☐ Yes
☐ No (*Skip to Question 45*)

CBI? ☐ Yes

44. Provide the volume of untreated graywater or sewage transferred to shore side facilities in Alaska in 2004. (Note: If you report volume in other than m^3, be sure to cross out and indicate units used.)

Wastewater Description	Volume Transferred in 2004 (m^3)
Galley (e.g., food preparation, food pulper, restaurants, and bars)	
Dishwasher	
Bath (e.g., tub, shower, and sinks)	
Laundry	
Sewage from toilets, urinals, and other human waste receptacles	
Other - please describe: _____	
Other - please describe: _____	

CBI? ☐ Yes

45. Did you discharge untreated graywater or sewage at sea in waters of the Alexander Archipelago and/or the navigable waters of the United States within the State of Alaska and/or within the Kachemak Bay National Estuarine Research Reserve (hereafter referred to as **waters in and near Alaska**) in 2004?

☐ Yes
☐ No (*Skip to Question 47*)

CBI?
☐ Yes

46. Provide the destination of <u>untreated</u> graywater or sewage discharged at sea in waters in and near Alaska in 2004.

Wastewater Description	Discharged at Sea in 2004	Under What Condition Is this Wastewater Discharged?
Galley (e.g., food preparation, food pulper, restaurants, and bars)	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Typical discharge practice ☐ Emergency ☐ Upset ☐ Maintenance
Dishwasher	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Typical discharge practice ☐ Emergency ☐ Upset ☐ Maintenance
Bath (e.g., tub, shower, and sinks)	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Typical discharge practice ☐ Emergency ☐ Upset ☐ Maintenance
Laundry	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Typical discharge practice ☐ Emergency ☐ Upset ☐ Maintenance
Sewage from toilets, urinals, and other human waste receptacles	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Emergency ☐ Other: _____
Other - please describe: _____	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Typical discharge practice ☐ Emergency ☐ Upset ☐ Maintenance
Other - please describe: _____	☐ discharged overboard in port ☐ discharged overboard within 1nm ☐ discharged overboard between 1nm and 3nm ☐ discharged overboard between 3nm and 12nm ☐ discharged overboard outside 12nm ☐ other (specify): _____	☐ Typical discharge practice ☐ Emergency ☐ Upset ☐ Maintenance

Copy ___ of ___

CBI? ☐ Yes **47.** Comments for Wastewater Sources Information

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided in the top right corner.**

Question No.	Diagram No.	CBI?	Comment
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	

SECTION 3: WASTEWATER TREATMENT SYSTEM DESIGN AND OPERATING PARAMETERS

Section 3 requests information on graywater and sewage treatment technologies used by each cruise vessel. **This section is only for wastewater treatment systems that treat graywater and/or sewage. Do not include information on systems designed specifically for bilge water treatment.** Specifically, the information requested in this section includes wastewater treatment diagrams; design and operating specifications; sources of influent; chemical additions; operating and maintenance procedures; and discharge practices. EPA will use this information to develop technology options and regulatory compliance cost estimates. See the example diagram on page 3-7.

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this survey. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of this section.

CBI?
☐ Yes

48. In the table below, please check the wastewater treatment unit operations that treat graywater and/or sewage on this cruise vessel and provide the number of unit operations. Please check all that apply.

Wastewater Treatment Operations That Treat Graywater and/or Sewage	WWT Unit Code	Number of Unit Operations	If this Wastewater Treatment Operation Is Performed, Complete the Following Question 66 Table
☐ Biological Treatment	BL		66A
☐ Chemical Disinfection	CD		66B
☐ Chemical Oxidation	CO		66C
☐ Clarification/Sedimentation	CL		66D
☐ Dechlorination	DC		66E
☐ Filtration - Membrane	FB		66F
☐ Filtration - Other	FO		66F
☐ Flotation	FL		66G
☐ Holding Tank (including ballast tanks if used for graywater and sewage holding)	HT		66H
☐ Incineration	IN		66I
☐ Maceration	MC		66J
☐ Neutralization or pH Adjustment Unit	NE		66K
☐ Ozonation	OZ		66L
☐ Screens	SCR		66M
☐ Sludge Dewatering	SD		66N
☐ Ultraviolet Disinfection	UV		66O
☐ Other (specify)	OT1		66P
☐ Other (specify)	OT2		66P
☐ Other (specify)	OT3		66P

CBI? ☐ Yes

49. Provide a schematic/diagram for each wastewater treatment system used to treat graywater and/or sewage. See example diagram on p. 3-7. Check the list below to ensure that each wastewater treatment system schematic/diagram is complete.

IF YOU HAVE MORE THAN ONE TREATMENT SYSTEM, PROVIDE A DIAGRAM FOR EACH TREATMENT SYSTEM. NUMBER EACH TREATMENT SYSTEM AT THE TOP OF THE DIAGRAM (E.G., WASTEWATER TREATMENT SYSTEM #1).

Wastewater Treatment System Diagram Checklist

Be sure to	✓
Include and label all wastewater treatment units and holding tanks within the wastewater treatment system (e.g., for treated wastewater, sludge, etc.) using the wastewater treatment unit codes on page 3-4. Holding tanks may include ballast and any other tanks used to hold graywater or sewage or treatment residuals (e.g., sludge, membrane filtration concentrate). Do not include collection tanks or holding tanks prior to the wastewater treatment system. These holding tanks should be captured in Section 2. If you have more than one of a certain type of unit, assign each unit a unique number on the diagram. For example, if you have two biological treatment units, label the units as BL-1 and BL-2 on the diagram. These unit labels will be used to complete Question 66, Wastewater Treatment Unit.	☐
For holding tanks (including ballast tanks used for graywater and sewage holding) provide the existing tank number using the existing tank naming scheme for this vessel.	☐
Identify and label all <u>sources entering the wastewater treatment system</u> using source codes provided on page 3-5. Sources include graywater (specify source) and sewage (specify source), and any other wastes that are combined with graywater and sewage (e.g., desalination brine, swimming pool water, refrigeration and air conditioner condensate, salon water).	☐
Identify and label all <u>wastewater destinations</u> using destination codes provided on page 3-5.	☐
Include all chemical additions to wastewater treatment units.	☐
Provide <u>average flow rates</u> for streams, as well as an indication of whether the flow rate is metered or an estimate. Provide the method of estimation (e.g., tank size, pump curve, best judgment) in the comments for this section (Question 77 on page 3-116). If flow is intermittent, provide amount and frequency; for example “1,000 kg/day,” “50 m^3, twice/day,” and “100 m^3, once/month.”	☐
Include all wastewater recirculation and recycle/reuse streams.	☐
Identify and label sludges, oils, and wastes leaving the wastewater treatment system and their destinations.	☐
Indicate all locations at which wastewater samples are routinely collected for analysis with the letters “SP” and a unique sample point number (i.e., SP1, SP2).	☐
Write your cruise vessel name in the upper right corner of each diagram.	☐

If you believe that the diagram should be treated as confidential business information, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential," it will be considered nonconfidential under 40 CFR Part 2, Subpart B. In general, EPA does not believe that

wastewater treatment diagrams support claims of confidentiality because such diagrams are available in compliance documents (e.g., VSSPs) and the open literature and do not divulge trade secrets.

Review:

If any of the statements above were not checked off, please review the Wastewater Treatment Diagram(s).

49. Wastewater Treatment System Diagram (Continued)

WASTEWATER TREATMENT UNIT CODES	
Code	**Treatment Unit**
BL	Biological Treatment
CD	Chemical Disinfection
CO	Chemical Oxidation
CL	Clarification/Sedimentation
DC	Dechlorination
FB	Filtration - Membrane
FO	Filtration - Other
FL	Flotation
HT	Holding Tank (including ballast tanks if used for graywater and sewage holding)
IN	Incineration
MC	Maceration
NE	Neutralization or pH Adjustment Unit
OZ	Ozonation
SCR	Screens
SD	Sludge Dewatering
UV	Ultraviolet Disinfection
OT1	Other (specify)
OT2	Other (specify)
OT3	Other (specify)

49. Wastewater Treatment System Diagram (Continued)

WASTEWATER SOURCE CODES	
Code	**Wastewater Source**
GL	Graywater from laundry
GD	Graywater from dishwashers
GB	Graywater from baths (e.g., tubs, showers, and sinks)
GG	Graywater from galley (e.g., food preparation, food grinder, restaurant, bars)
BW	Sewage from toilets, urinals, and other human waste receptacles
OBL	Bilge water
OBA	Ballast water
ODB	Desalination brine
OPW	Pool water
OCO	Refrigeration and air conditioner condensate
OSW	Salon water
OPL	Photo labs
OSS	Shop sinks
OWW1	Other wastewater (specify source)
OWW2	Other wastewater (specify source)
OWW3	Other wastewater (specify source)
OWW4	Other wastewater (specify source)

WASTEWATER DESTINATION CODES	
Code	**Destination**
OC	Overboard discharge continuously
OP	Overboard discharge in port
O1	Overboard discharge less than 1 nautical mile from nearest shore
O3	Overboard discharge between 1 and 3 nautical miles from nearest shore
O12	Overboard discharge between 3 and 12 nautical miles from nearest shore
OG	Overboard discharge greater than 12 nautical miles from nearest shore
SF	Shore side facility
RE	Recycled/reused
WWT	Returned to wastewater treatment system
OO	Other destination (specify)

49. Wastewater Treatment System Diagram (Continued)

SLUDGE AND OTHER RESIDUALS DESTINATION CODES	
Code	**Sludge Destination**
XSIN	Incineration
XSR	Recycled
XSP	Overboard discharge in port
XS1	Overboard discharge less than 1 nautical mile from nearest shore
XS3	Overboard discharge between 1 and 3 nautical miles from nearest shore
XS12	Overboard discharge between 3 and 12 nautical miles from nearest shore
XSG	Overboard discharge greater than 12 nautical miles from nearest shore
XSH	Holding tank
XSD	Sludge dewatering
XSA	Combined with incinerator ash
XSS	Shore side facility
XSO	Other Destination (specify)

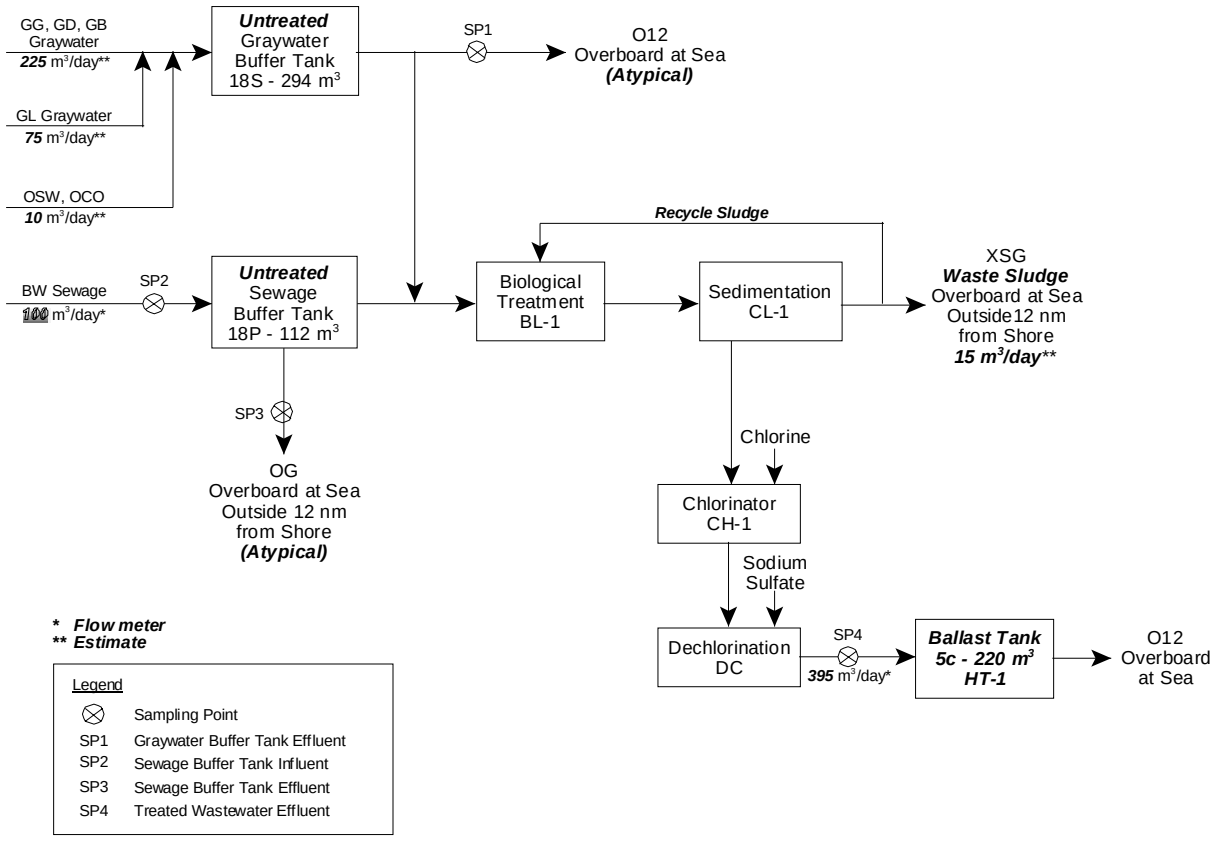
49. Wastewater Treatment System Diagram (Continued)

EXAMPLE CRUISE VESSEL WASTEWATER TREATMENT DIAGRAM

VESSEL NAME _____

WASTEWATER TREATMENT SYSTEM # 1

 # 1 of 1



49. Wastewater Treatment System Diagram (Continued)

WASTEWATER TREATMENT DIAGRAM

VESSEL NAME _____

WASTEWATER TREATMENT SYSTEM # _____

 # _____ of _____

(To be completed for each treatment system)

NOTE: If you have more than one wastewater treatment system, photocopy Questions 50 through 65 (pages 3-9 through 3-14) before writing on them, and indicate the Wastewater Treatment System # from the Cruise Vessel Wastewater Treatment Diagram submitted in response to Question 49 of Section 3 on the center/top of each page in the space provided.

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes **50.** Provide the wastewater treatment system name below.

_____

CBI? ☐ Yes **51.** Is this wastewater treatment system batch or continuous?

☐ Batch
☐ Continuous *(Skip to Question 54)*

CBI? ☐ Yes **52.** On average how many batches per day did this wastewater treatment system treat in 2004?

_____ average batches per day

CBI? ☐ Yes **53.** What was the typical batch volume treated by this wastewater treatment system in 2004?

_____ m^3/batch

CBI? ☐ Yes **54.** What is the wastewater treatment system design capacity?

_____ m^3/day design OR _____ m^3/batch
_____ batches/day

CBI? ☐ Yes **55.** What was the average volume treated per operating day by this wastewater treatment system in 2004?

_____ m^3/day

CBI? ☐ Yes **56.** How many hours per operating day was this wastewater treatment system operated in 2004?

_____ hours per day

CBI? ☐ Yes **57.** a. How many days per year was this wastewater treatment system operated in 2004?

_____ days in 2004

AND

b. How many days was this wastewater treatment system operated in waters in and near Alaska in 2004?

_____ days in waters in and near Alaska in 2004

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes **58.** a. Do you ever stop operating this wastewater treatment system, other than for routine maintenance and repair? Note: this question asks about operation of the entire wastewater treatment system; Question 59 asks about operation of only some of the treatment units of the treatment system.

☐ Yes
☐ No *(Skip to Question 59)*

b. Indicate in the following table where your vessel operated this wastewater treatment system in 2004. **Please be sure you have one response per cell in this table.**

Vessel Location	Do you operate this wastewater treatment system at all times in the following locations?		
Within 1 nm from shore in Alaska waters	☐ Yes	☐ No	☐ Other
Outside 1 nm from shore In Alaska waters	☐ Yes	☐ No	☐ Other
Outside Alaska waters, but within 12 nm of Alaska shore	☐ Yes	☐ No	☐ Other
During Alaska cruises, but outside 12 nm of Alaska shore	☐ Yes	☐ No	☐ Other
Within 3 nm of shore of U.S. States other than Alaska	☐ Yes	☐ No	☐ Other
Outside 3 nm of shore of U.S. States other than Alaska	☐ Yes	☐ No	☐ Other

c. Explain any responses of "other" in the table above.

_____

_____

_____

CBI? ☐ Yes **59.** a. Do you ever treat wastewater using only some of the treatment units of this wastewater treatment system (i.e., partial treatment)?

☐ Yes
☐ No *(Skip to Question 60)*

b. If yes, specify which wastewater treatment units were and were not operated and why:

_____

_____

WASTEWATER TREATMENT SYSTEM # _____

c. Indicate in the following table where your vessel operated this partial wastewater treatment system in 2004. **Please be sure you have one response per cell in this table.**

Vessel Location	Do you operate this partial wastewater treatment system at all times in the following locations?		
Within 1 nm from shore in Alaska waters	☐ Yes	☐ No	☐ Other
Outside 1 nm from shore In Alaska waters	☐ Yes	☐ No	☐ Other
Outside Alaska waters, but within 12 nm of Alaska shore	☐ Yes	☐ No	☐ Other
During Alaska cruises, but outside 12 nm of Alaska shore	☐ Yes	☐ No	☐ Other
Within 3 nm of shore of U.S. States other than Alaska	☐ Yes	☐ No	☐ Other
Outside 3 nm of shore of U.S. States other than Alaska	☐ Yes	☐ No	☐ Other

d. Explain any responses of "other" in the table above.

_____

_____

_____

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes

60. a. What preventative maintenance activities were performed in 2004 and how frequently (e.g., 2 times per day). Preventative maintenance activities are for the entire treatment system.

Preventative Maintenance Activity	Was This Preventative Maintenance Activity Performed in 2004 (Y/N)?	Frequency
Check for corrosion or fouling of pipes, tanks, valves	☐ Yes ☐ No	_____ times per _____
Check for leaks and spills	☐ Yes ☐ No	_____ times per _____
Lubricate equipment	☐ Yes ☐ No	_____ times per _____
Clean equipment	☐ Yes ☐ No	_____ times per _____
Replace worn parts	☐ Yes ☐ No	_____ times per _____
Service pumps (bearings, seals)	☐ Yes ☐ No	_____ times per _____
Calibrate monitoring equipment	☐ Yes ☐ No	_____ times per _____
Preventative maintenance according to the manufacturer's requirements	☐ Yes ☐ No	_____ times per _____
Other _____	☐ Yes ☐ No	_____ times per _____
Other _____	☐ Yes ☐ No	_____ times per _____
Other _____	☐ Yes ☐ No	_____ times per _____
Other _____	☐ Yes ☐ No	_____ times per _____

b. Is any maintenance scheduled and completed according to programmed system (e.g., AMOS)?

☐ Yes
☐ No *(Go to Question 61)*

c. Is maintenance via programmed system completed for only some wastewater treatment system components or for the entire wastewater treatment system?

☐ Only some wastewater treatment system components
☐ Entire wastewater treatment system

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes

61. Please indicate the destination(s) of the wastewater during maintenance of the wastewater treatment system. Use the wastewater destination codes on page 3-5 or the wastewater treatment unit codes on page 3-4. If there are multiple destinations, please specify under what conditions each destination is used in the space provided.

Destination 1 _____

Destination 2 _____

Destination 3 _____

Destination 4 _____

Destination 5 _____

Description of conditions for multiple destinations: _____

CBI? ☐ Yes

62. What failures and/or performance issues in the treatment system have occurred? Specify what these failures and/or performance issues were and the causes.

What have you changed to prevent reoccurrence of the failure and/or performance issue?

CBI? ☐ Yes

63. Is there one or multiple person(s) designated to operate the wastewater treatment system?

☐ Yes
☐ No *(Skip to Question 65)*

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes **64.** Is this person(s) trained to operate the treatment system?

☐ Yes
☐ No

If yes, describe the training provided to this person(s) including type, length, and frequency.

_____

_____

CBI? ☐ Yes **65.** Provide a copy of the wastewater treatment system operating and maintenance log for 2004.

CBI?
☐ Yes

66. Question 66 requests information on wastewater treatment unit operations used to treat sewage and/or graywater on your cruise vessel in calendar year 2004. Question 66 is divided into the sixteen tables listed below:

A. Biological Treatment
B. Chemical Disinfection
C. Chemical Oxidation
D. Clarification/Sedimentation
E. Dechlorination
F. Filtration - Membrane and Other (e.g., microfiltration, ultrafiltration, nanofiltration, reverse osmosis, sand, multi-media, activated carbon, etc.)
G. Flotation
H. Holding Tank (i.e., this does not include collection/holding tanks prior to the wastewater treatment system)
I. Incineration
J. Maceration
K. Neutralization or pH Adjustment Unit
L. Ozonation
M. Screens
N. Sludge Dewatering
O. Ultraviolet Disinfection
P. Other Unit

For each treatment unit checked in Question 48, please complete the table of Question 66 that best describes the treatment unit. Complete Table P (OTHER UNIT) to describe any treatment unit indicated on the Cruise Vessel Wastewater Treatment Diagram that does not fit into Tables A through O. **Only complete the tables that are applicable to the treatment unit(s) on your vessel.**

Instructions for completing these tables are provided below.

- Complete the appropriate tables for each wastewater treatment system on your cruise vessel. **If you have more than one wastewater treatment system, photocopy the appropriate sections of Question 66 before writing on it, and indicate the Wastewater Treatment System # (from the Cruise Vessel Wastewater Treatment Diagram submitted in response to Question 49) on the center/top of each page in the space provided.** Then, complete the appropriate sections of Question 66 for each wastewater treatment system.
- Complete the appropriate table for each wastewater treatment unit on your cruise vessel. There is a table of Question 66 for each type of treatment unit. **If you have more than one treatment unit of the same type in a wastewater treatment system, photocopy the appropriate section of Question 66 before writing on it, and number each copy in the space provided in the top right corner.**
- Write the treatment unit code (from the Wastewater Treatment Diagram) and the Wastewater Treatment Diagram Number in the boxes provided at the top of the table on each page.
- Be sure to provide the type of unit, if applicable, and provide values for all parameters that apply. (Note: If you report a parameter in different units, be sure to cross out and indicate the units used.)
- Check your Wastewater Treatment Diagram to ensure that questions have been completed for each wastewater treatment unit indicated on the diagram.
- If exact data are not available, please provide estimates, and indicate the basis for the estimate(s).

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT

a. Cruise vessel terminology for this unit . . . . . _____

_____

b. Manufacturer and model name of this unit . . . . . Manufacturer: _____
Model Name/Number: _____

c. Type of unit . . . . . ☐ Activated Sludge
☐ Aerobic Digestion
☐ Enhanced Aerobic Digestion
☐ Membrane Bioreactor (MBR)
☐ Fixed Film
☐ Other: _____

d. Year unit installed . . . . . _____

e. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)

_____ Height (m)

f. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

g. 2004 operating time . . . . . _____ hr/day

_____ days/yr

h. Design capacity flow . . . . . _____ m^3/day
OR
_____ m^3/min

i. Tank capacity . . . . . _____ m^3

j. Liquid depth . . . . . _____ m

k. Volume of aeration zone . . . . . _____ m^3

l. Detention time in the aeration tanks . . . . . _____ hr

m. Sludge retention time (SRT) . . . . . _____ days

n. Type of aeration . . . . . ☐ Surface
☐ Submerged
☐ Other: _____

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT (Continued)

o. Connected power for aeration . . . . . _____ kilowatts

p. Submerged air flow . . . . . _____ m^3/min

q. Mixed liquor suspended solids (MLSS) . . . . . _____ mg/L

r. Analytical method used to determine MLSS . . . . _____

s. Mixed liquor volatile suspended solids (MLVSS) _____ mg/L

t. Analytical method used to determine MLVSS . . . _____

u. Feed to microorganism (F/M) ratio . . . . . _____ $\frac{\text{mg/L BOD}_5\text{, applied}}{\text{mg/L MLVSS} \bullet \text{d}}$

v. Return solids concentration . . . . . _____ mg/L

w. Analytical method used to determine return solids concentration . . . . . _____

x.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT (Continued)

y.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

z. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

aa. Is sludge collected directly from this unit? . . . . . ☐ Yes ☐ No *(Skip to Question kk)*

If yes:

bb. Does this unit have continuous sludge removal? . ☐ Yes ☐ No

cc. How often is sludge removed from this unit? . . . . _____ times/yr

dd. How much sludge was collected daily in 2004? . . _____ kg/day **OR** _____ m^3/day

ee. What is the percent solids of the sludge? . . . . . _____ % solids

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT (Continued)

ff. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100. . . . . .

_____	% XSS
_____	% XSP
_____	% XS1
_____	% XS3
_____	% XS12
_____	% XSG
_____	% XSIN
_____	% XSR
_____	% XSA
_____	% XSH (also complete Table H for Holding Tank on page 3-63)
_____	% XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____	% other (specify) _____
100%	

gg. Is the sludge from this unit hazardous under RCRA?

☐ Yes
☐ No

hh. Does the wastewater from this unit enter a clarification/sedimentation unit for solids separation? . . . . . **If yes, be sure to complete Table D for Clarification/Sedimentation on page 3-37**

☐ Yes *(Skip to jj)*
☐ No

ii. If no, how do you separate and/or recycle solids from biological treatment? Please also complete the appropriate table for this operation (e.g., Table F on page 3-49 for Filtration OR Table G for Flotation on page 3-57) . . . . . _____

jj. Sludge recycle flow for this unit . . . . . _____ kg/day **AND** _____ % solids

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT (Continued)

kk. Please complete this table for each chemical added to this wastewater treatment unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE ammonium sulfate BASF	nutrient addition	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT (Continued)

ll. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rates	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure MLVSS concentration	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure MLVSS concentration in return sludge	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure influent nutrient levels	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure dissolved oxygen concentrations	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Adjust sludge wastage and return rates to maintain a target F/M ratio	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure MLSS concentration	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure return solids concentration	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure COD	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Adjust aeration rates to maintain a minimum dissolved oxygen concentration in the aeration tank	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure pH	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure temperature	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Other: _____	☐ _____ times per _____	**OR**
	☐ Continuously	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

A. BIOLOGICAL TREATMENT (Continued)

mm. Are there any real-time alarms for this unit? ☐ Yes ☐ No

nn. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to pp)*

oo. If yes, what do they record? _____

pp. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to rr)* ☐ No

qq. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

rr. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION

a. Cruise vessel terminology for this unit . . . . . _____

b. Manufacturer and model name of this unit . . . . Manufacturer: _____
Model Name/Number: _____

c. Year unit installed . . . . . _____

d. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)
_____ Height (m)

e. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

f. 2004 operating time . . . . . _____ hr/day
_____ days/yr

g. Design capacity flow . . . . . _____ m^3/day
OR
_____ m^3/min

h. Capacity of contact tank . . . . . _____ m^3

i. Contact time in tank . . . . . _____ min

j. Chemical compound used . . . . . ☐ Calcium hypochlorite
☐ Sodium hypochlorite
☐ Chlorine gas
☐ Chlorine dioxide
☐ Bromine

k. Do you generate chlorine using seawater and an electrolytic chlorine generator? . . . . . ☐ Yes
☐ No

l. Type of chemical mixing . . . . . ☐ Venturi tube
☐ Pipelines
☐ Pumps
☐ Static mixers
☐ Mechanical mixers
☐ Hydraulic jumps in open channels
☐ Chambers with mechanical mixers
☐ Other _____

m. Chemical dosage and consumption . . . . . a. _____ mg/L

b. _____ m^3/day
OR
_____ kg/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION (Continued)

n. Chemical residual . . . . . _____ mg/L

o. Is the disinfection system operated at all times throughout a typical cruise? . . . . . ☐ Yes *(Skip to q)* ☐ No

p. If no, when is the disinfection system operated? . . . . . _____

q.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION (Continued)

r.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

s. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

t. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to z)*

If yes:

u. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

v. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

w. What is the percent solids of the sludge? . . . . . _____ % solids

x. Is the sludge from this unit hazardous under RCRA? ☐ Yes ☐ No

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION (Continued)

y. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . .

_____	% XSS
_____	% XSP
_____	% XS1
_____	% XS3
_____	% XS12
_____	% XSG
_____	% XSIN
_____	% XSR
_____	% XSA
_____	% XSH (also complete Table H for Holding Tank on page 3-63)
_____	% XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____	% other (specify) _____
100%	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION (Continued)

z. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE sodium hypochlorite BASF	disinfection	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION (Continued)

aa. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure effluent flow rates	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Measure chemical residual in the effluent	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure pH	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure temperature	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

bb. Is oxidation-reduction potential (ORP) used to control chemical addition to the disinfection system? . . . . . ☐ Yes ☐ No *(Skip to dd)*

cc. If yes, how often is the ORP probe and meter cleaned and calibrated? . . . . . cleaned _____ times/yr calibrated _____ times/yr

dd. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

ee. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to gg)*

ff. If yes, what do they record? _____

gg. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to ii)* ☐ No

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

B. CHEMICAL DISINFECTION (Continued)

hh. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

ii. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit . . .	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Design capacity flow	_____	m^3/day
		OR	
		_____	m^3/min
h.	Tank capacity	_____	m^3
i.	Detention time	_____	min
j.	Mixing time	_____	min
k.	Type of chemical feed system	☐ Dry ☐ Liquid	

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION (Continued)

l. Indicate the equipment used in your dry or liquid chemical feed system . . . . . .

Dry
- ☐ Storage hopper
- ☐ Dry chemical feeder
- ☐ Dissolving tank
- ☐ Mechanical mixer
- ☐ Chemical holding tank
- ☐ Distribution system
- ☐ Other _____

Liquid
- ☐ Solution storage tank
- ☐ Transfer pump
- ☐ Dilution tank
- ☐ Mechanical mixer
- ☐ Wet chemical feeder
- ☐ Other _____

m.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION (Continued)

n.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

o. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

p. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to v)*

If yes:

q. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

r. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

s. What is the percent solids of the sludge? . . . . _____ % solids

t. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION (Continued)

u. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . .

_____	% XSS
_____	% XSP
_____	% XS1
_____	% XS3
_____	% XS12
_____	% XSG
_____	% XSIN
_____	% XSR
_____	% XSA
_____	% XSH (also complete Table H for Holding Tank on page 3-63)
_____	% XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____	% other (specify) _____
100%	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION (Continued)

v. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE sulfuric acid BASF	pH adjustment	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION (Continued)

w. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure influent organic strength (e.g., BOD, COD)	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Adjust dosage based on changes in organic strength of the influent	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure pH	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Adjust pH by the addition of neutralization chemicals	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure temperature	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Other: _____	☐ _____ times per _____	**OR**
	☐ Continuously	

x. Are there any real-time alarms for this unit? . ☐ Yes ☐ No

y. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to aa)*

z. If yes, what did they record? _____

aa. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to cc)* ☐ No

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

C. CHEMICAL OXIDATION (Continued)

bb. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

cc. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

D. CLARIFICATION/SEDIMENTATION

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Is this unit used for clarification of biological treatment effluent?	☐ Yes ☐ No	
h.	Design capacity flow	_____	m^3/day **OR**
		_____	m^3/min
i.	Tank capacity	_____	m^3
j.	Residence time	_____	hr
k.	Surface area of unit	_____	m^2
l.	Overflow rate (surface loading rate)	_____	L/m^2/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

D. CLARIFICATION/SEDIMENTATION (Continued)

m.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

n.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

D. CLARIFICATION/SEDIMENTATION (Continued)

o. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

p. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to w)*

If yes:

q. Does this unit have continuous sludge removal? ☐ Yes ☐ No

r. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

s. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

t. What is the percent solids of the sludge? . . . . . _____ % solids

u. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

v. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . _____ % XSS
_____ % XSP
_____ % XS1
_____ % XS3
_____ % XS12
_____ % XSG
_____ % XSIN
_____ % XSR
_____ % XSA
_____ % XSH (also complete Table H for Holding Tank on page 3-63)
_____ % XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____ % other (specify) _____

100%

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

D. CLARIFICATION/SEDIMENTATION (Continued)

w. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE polymer BASF	improve settling	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

x. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate ☐ _____ times per _____ **OR** ☐ Continuously

☐ Check/measure effluent flow rates ☐ _____ times per _____ **OR** ☐ Continuously

☐ Check/measure overflow rate ☐ _____ times per _____ **OR** ☐ Continuously

☐ Other: _____ ☐ _____ times per _____ **OR** ☐ Continuously

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

D. CLARIFICATION/SEDIMENTATION (Continued)

y. Is this unit cleaned?
- ☐ Yes
- ☐ No *(Skip to aa)*

z. If yes, how long does the cleaning process require? . . . . . _____ man-hours

aa. Are there any real-time alarms for this unit? . .
- ☐ Yes
- ☐ No

bb. Are there any system operating parameter recorders? . . . . . .
- ☐ Yes
- ☐ No *(Skip to dd)*

cc. If yes, what do they record? _____

dd. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . .
- ☐ Yes *(Skip to ff)*
- ☐ No

ee. If no, is there a "stand-alone" control system for this unit? . . . . . .
- ☐ Yes
- ☐ No

ff. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

E. DECHLORINATION

a. Cruise vessel terminology for this unit . . . . . _____

_____

b. Manufacturer and model name of this unit . . . . Manufacturer: _____
Model Name/Number: _____

c. Year unit installed . . . . . _____

d. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)

_____ Height (m)

e. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

f. 2004 operating time . . . . . _____ hr/day

_____ days/yr

g. Design capacity flow . . . . . _____ m^3/day
OR
_____ m^3/min

h. Tank capacity . . . . . _____ m^3

i. Reducing agent . . . . . ☐ Sulfur dioxide ☐ Activated carbon
☐ Sodium metabisulfite
☐ Other _____

j. Contact time in tank . . . . . _____ min

For sulfur dioxide or sodium metabisulfite or other chemical addition:

k. Dosage and consumption . . . . . a. _____ mg/L per mg/L of chlorine residual

b. _____ m^3/day
OR
_____ kg/day

l. Type of mixing . . . . . ☐ Venturi tube ☐ Hydraulic jumps in open channels
☐ Pipelines ☐ Chambers with mechanical mixers
☐ Pumps ☐ Other _____
☐ Static mixers _____
☐ Mechanical mixers

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

E. DECHLORINATION (Continued)

For activated carbon:

m. Hydraulic loading rate . . . . . _____ $L/m^2/day$

n. Amount of activated carbon used in 2004 . . . . _____ m^3

OR

_____ kg

o. What method was used to determine when the activated carbon is exhausted? . . . . . ☐ ORP meter
☐ On-board analysis
☐ Other (specify): _____

p. How is the exhausted activated carbon disposed? . . . . . ☐ Recycled to vendor
☐ Landfilled
☐ Other (specify): _____

q.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

E. DECHLORINATION (Continued)

r.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

s. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

t. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to z)*

If yes:

u. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

v. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

w. What is the percent solids of the sludge? . . . . . _____ % solids

x. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

E. DECHLORINATION (Continued)

y. How is collected sludge discharged or disposed (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . .

_____	% XSS
_____	% XSP
_____	% XS1
_____	% XS3
_____	% XS12
_____	% XSG
_____	% XSIN
_____	% XSR
_____	% XSA
_____	% XSH (also complete Table H for Holding Tank on page 3-63)
_____	% XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____	% other (specify) _____
100%	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

E. DECHLORINATION (Continued)

z. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE sodium metabisulfate BASF	reduce chlorine	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

E. DECHLORINATION (Continued)

aa. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure effluent flow rates	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Measure total chlorine in the influent	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Measure the total chlorine in the effluent	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure pH	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure temperature	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

bb. Is oxidation-reduction potential (ORP) used to control chemical addition to the dechlorination system? . . . . . ☐ Yes ☐ No *(Skip to dd)*

cc. If yes, how often is the ORP probe and meter calibrated? . . . . . _____ times/yr

dd. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

ee. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to gg)*

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

E. DECHLORINATION (Continued)

ff. If yes, what do they record? _____

gg. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to ii)* ☐ No

hh. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

ii. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER

a. Cruise vessel terminology for this unit . . . . . _____

_____

b. Manufacturer and model name of this unit . . . . Manufacturer: _____
Model Name/Number: _____

c. Year unit installed . . . . . _____

d. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)

_____ Height (m)

e. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

f. 2004 operating time . . . . . _____ hr/day

_____ days/yr

g. Design capacity flow . . . . . _____ m^3/day
OR
_____ m^3/min

h. Tank capacity . . . . . _____ m^3

i. Indicate type of filtration . . . . . ☐ Microfiltration (0.1 - 1.0 µm)
☐ Ultrafiltration (5,000 - 200,000 g/mol)
☐ Nanofiltration (200 g/mol)
☐ Reverse osmosis (100 g/mol)
☐ Low pressure reverse osmosis
☐ Multi-media
☐ Sand
☐ Activated Carbon
☐ Other _____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

j. Direction of wastewater flow (check one): . . . . ☐ Upflow ☐ Downflow

k. At what pressure does the filtration unit operate? . . . . . _____ kPa

l. Filtration rate . . . . . _____ $L/m^2/min$

m.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

n.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

o. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

p. Is sludge collected directly from this unit? . . . . . ☐ Yes ☐ No *(Skip w)*

If yes:

q. Does the unit have continuous sludge removal? ☐ Yes ☐ No

r. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

s. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

t. What is the percent solids of the sludge? _____ % solids

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

u. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

v. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residual Destination Codes on page 3-5)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . _____ % XSS
_____ % XSP
_____ % XS1
_____ % XS3
_____ % XS12
_____ % XSG
_____ % XSIN
_____ % XSR
_____ % XSA
_____ % XSH (also complete Table H for Holding Tank on page 3-63)
_____ % XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____ % other (specify) _____

100%

w. Backwash time . . . . . _____ minutes per backwash cycle

_____ backwash cycles per day

x. Backwash filtration rate . . . . . _____ $L/m^2/min$

y. How do you handle backwash (check all that apply)? . . . . . ☐ Discharged overboard. Indicate where it is discharged, using the Sludge and Other Residuals Destination Codes on page 3-5. _____

☐ Treated in treatment system # _____

☐ Recycled (indicate where, using treatment unit codes on page 3-4) _____

z. What is the backwash percent solids? . . . . . _____ % solids

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

aa. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE detergent/soap BASF	clean membranes	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

bb. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure effluent flow rates	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Measure pressure differential	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Replace filter	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure for fouling	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Measure flux rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Measure turbidity of effluent	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure pH	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure temperature	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Chemical cleaning of membranes	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

cc. Indicate the operating parameters that initiate membrane cleaning and/or backwash. Check all that apply.

- ☐ Operating time
- ☐ Pressure differential
- ☐ Flux rate
- ☐ Effluent turbidity
- ☐ Other (specify): _____

dd. What is the duration of the cleaning cycle? . . . _____ min

ee. If you have membrane filtration, describe the membrane cleaning procedure.

_____

_____

ff. Are there any real-time alarms for this unit? . .
- ☐ Yes
- ☐ No

gg. Are there any system operating parameter recorders? . . . . . .
- ☐ Yes
- ☐ No *(Skip to ii)*

hh. If yes, what do they record? _____

ii. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . .
- ☐ Yes *(Skip to kk)*
- ☐ No

jj. If no, is there a "stand-alone" control system for this unit? . . . . . .
- ☐ Yes
- ☐ No

kk. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

ll. Is this filtration system comprised of multiple units?
- ☐ Yes
- ☐ No

mm. How many times/yr are unit(s) typically removed from service for maintenance?

_____ times/yr

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

F. FILTRATION - MEMBRANE AND OTHER (Continued)

nn. How long are unit(s) typically removed from service for maintenance?

_____ hours
OR
_____ days

oo. How many units typically remain in service when a unit(s) is removed for service or maintenance?

_____ units

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

G. FLOTATION

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Type of unit	☐ Dissolved-air flotation ☐ Air flotation ☐ Other _____	
e.	Dimensions of this unit	_____ _____	Footprint on deck (m^2) Height (m)
f.	Batch or continuous?	☐ Batch ☐ Continuous	
g.	2004 operating time	_____ _____	hr/day days/yr
h.	Residence time	_____	hr
i.	Design capacity flow	_____ **OR** _____	m^3/day m^3/min
j.	Tank capacity	_____	m^3
k.	Operating pressure	_____	kPa
l.	Pressurized recycle flow	_____	m^3/day
m.	Air to solids ratio	_____	mL/mg
n.	Solids loading rate	_____	kg/m^2/min
o.	Float solids concentration	_____	mg/L
p.	Sludge volume index (SVI)	_____	

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

G. FLOTATION (Continued)

q. Does this unit have a bottom collection mechanism for collecting bottom (settled) sludge? . . . . . ☐ Yes ☐ No

r. Volume of float sludge generated . . . . . _____ m^3/day _____ % moisture _____ % solids

s. Volume of bottom sludge generated . . . . . _____ m^3/day _____ % moisture _____ % solids

t.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

G. FLOTATION (Continued)

u.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

v. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

w. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to cc)*

If yes:

x. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr _____ continuous discharge

y. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

z. What is the percent solids of the sludge? . . . . . _____ % solids

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

G. FLOTATION (Continued)

aa. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

bb. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . .

_____	% XSS
_____	% XSP
_____	% XS1
_____	% XS3
_____	% XS12
_____	% XSG
_____	% XSIN
_____	% XSR
_____	% XSA
_____	% XSH (also complete Table H for Holding Tank on page 3-63)
_____	% XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____	% other (specify) _____
100%	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

G. FLOTATION (Continued)

cc. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE polymer BASF	enhance flotation	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

G. FLOTATION (Continued)

dd. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure effluent flow rates	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure air-to-solids ratio	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure float solids concentrations	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check sludge volume index	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check solids-loading rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

ee. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

ff. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to hh)*

gg. If yes, what do they record? _____

hh. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to jj)* ☐ No

ii. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

jj. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

H. HOLDING TANK

Holding tanks are any tanks including ballast tanks used to hold treated graywater or sewage, partially treated graywater or sewage, or treatment residuals (e.g., sludge, membrane filtration concentrate). Include any intermediate treatment holding tanks. Do not include collection tanks or holding tanks prior to the wastewater treatment system; these holding tanks should be captured in Section 2.

a. Cruise vessel terminology for this unit . . . . . _____

b. Manufacturer and model name of this unit . . . . Manufacturer: _____
Model Name/Number: _____

c. Year unit installed . . . . . _____

d. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)
_____ Height (m)

e. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

f. 2004 operating time . . . . . _____ hr/day
_____ days/yr

g. Design capacity flow . . . . . _____ m^3/day
OR
_____ m^3/min

h. Tank capacity . . . . . _____ m^3

i. Are diffusers used in this tank? . . . . . ☐ Yes
☐ No

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

H. HOLDING TANK (Continued)

j.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day

k.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	Batch
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day
	☐ m^3/min **OR** ☐ m^3/day	☐ m^3/batch **AND** ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

H. HOLDING TANK (Continued)

l. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

m. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to s)*

If yes:

n. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

o. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

p. What is the percent solids of the sludge? . . . . . _____ % solids

q. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

r. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . .

_____ % XSS
_____ % XSP
_____ % XS1
_____ % XS3
_____ % XS12
_____ % XSG
_____ % XSI
_____ % XSR
_____ % XSA
_____ % XSH
_____ % XSD (also complete Table N for Sludge Dewatering on page 3-95)
_____ % other (specify) _____

100%

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

H. HOLDING TANK (Continued)

s. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE polymer BASF	improve settling	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

t. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate — ☐ _____ times per _____ **OR** ☐ Continuously

☐ Check/measure effluent flow rates — ☐ _____ times per _____ **OR** ☐ Continuously

☐ Clean tank — ☐ _____ times per _____ **OR** ☐ Continuously

☐ Other: _____ — ☐ _____ times per _____ **OR** ☐ Continuously

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

H. HOLDING TANK (Continued)

u. If this unit is cleaned, how long does the cleaning process require? . . . . . _____ man-hours

v. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

w. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to y)*

x. If yes, what do they record? _____

y. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to aa)* ☐ No

z. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

aa. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

I. INCINERATION

Please complete this table for incinerators that combust wastewater treatment system sludge and residuals, including those incinerators that combust wastewater treatment system sludge and residuals along with other trash and debris. Do not complete this table for incinerators that treat only trash, cardboard, food waste, etc. and do not treat wastewater treatment system sludge and residuals.

a.	Cruise vessel terminology for this unit	_____
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____
c.	Type of incinerator	_____
d.	Year unit installed	_____
e.	Dimensions of this unit	_____ Length (m) _____ Width (m) _____ Height (m)
f.	Batch or continuous?	☐ Batch ☐ Continuous
g.	2004 operating time	_____ hr/day _____ days/yr
h.	Average quantity of solid waste processed . . .	_____ ☐ metric tons/day _____ ☐ metric tons/batch
i.	Incinerator capacity	_____ ☐ metric tons/day _____ ☐ metric tons/batch
j.	Number of chambers	_____
k.	Operating temperature for each chamber in degrees Celsius	1st Chamber: _____ °C 2nd Chamber: _____ °C 3rd Chamber: _____ °C

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

I. INCINERATION (Continued)

l.	Preheat time	_____	hr
m.	Charging time	_____	hr
n.	Residence time	_____	min
o.	Heat release	_____	BTU/hr
p.	How many after-burners?	_____	after-burners
q.	Time for cool-down	_____	hr
r.	Is ash removed manually or automatically? . . .	☐ Manual ☐ Automated	
s.	What types of air scrubbers are used as air pollution control devices for the incinerator? . .	☐ Dry ☐ Semi-wet ☐ Wet ☐ None	
t.	If semi-wet or wet scrubbers are used, is the wastewater and/or slurry generated from the scrubbers discharged to the wastewater treatment system?	☐ Yes *(Skip to v)* ☐ No	
u.	If no, indicate the destination of the wastewater and/or slurry (use the wastewater destination codes on page 3-5).	_____	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

I. INCINERATION (Continued)

v.

Influent Wastewater Treatment Residuals and Wastes to this Unit (for Sludge and Treatment Residuals, Provide Treatment Unit Code on page 3-4)*	Quantity of Influent Waste	
	Continuous	**Batch**
	_______ ☐ kg/day **OR** _______ ☐ m^3/day	_______ ☐ kg/batch **OR** _______ ☐ m^3/batch **AND** _______ ☐ batches/day
	_______ ☐ kg/day **OR** _______ ☐ m^3/day	_______ ☐ kg/batch **OR** _______ ☐ m^3/batch **AND** _______ ☐ batches/day
	_______ ☐ kg/day **OR** _______ ☐ m^3/day	_______ ☐ kg/batch **OR** _______ ☐ m^3/batch **AND** _______ ☐ batches/day
	_______ ☐ kg/day **OR** _______ ☐ m^3/day	_______ ☐ kg/batch **OR** _______ ☐ m^3/batch **AND** _______ ☐ batches/day

*Provide description of all wastes that are incinerated, including sludge, other treatment residuals, cardboard, food waste, trash, and wood.

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

I. INCINERATION (Continued)

w.

Destination of Incinerator Ash from this Unit (Use Sludge and Other Residuals Destination Codes on page 3-5 or Provide Detailed Explanation)	Quantity of Incinerator Ash Generated	
	Continuous	**Batch**
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ kg/batch **OR** _____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ kg/batch **OR** _____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ kg/batch **OR** _____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

I. INCINERATION (Continued)

x. Please complete this table for each supplement added to this unit. Provide the supplement name (including vendor name, if applicable), the purpose of the supplement, and the consumption rate of the undiluted supplement.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE supplemental fuel BASF	combustion	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

y. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure for cracks, corrosion, damage	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure for leaks	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure temperature	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

I. INCINERATION (Continued)

z. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

aa. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to cc)*

bb. If yes, what do they record? _____

cc. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to ee)* ☐ No

dd. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

ee. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

J. MACERATION

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Design capacity flow	_____	m^3/day
		OR	
		_____	m^3/min
h.	Tank capacity	_____	m^3
i.	Maximum particle size	_____	mm

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

J. MACERATION (Continued)

j.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

k.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

J. MACERATION (Continued)

l. Is screenings/inorganic material collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to r)*

If yes:

m. How often was screenings/inorganic material removed from this unit in 2004? . . . . . _____ times/yr

n. How much screenings/inorganic material was collected daily in 2004 . . . . . _____ kg/yr **OR** _____ m^3/day

o. What is the percent solids of the screenings/inorganic material? . . . . . _____ % solids

p. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

q. How was the screenings/inorganic material collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . _____ % XSS
_____ % XSP
_____ % XS1
_____ % XS3
_____ % XS12
_____ % XSG
_____ % XSIN
_____ % XSR
_____ % XSA
_____ % XSH (also complete Table H for Holding Tank on page 3-63)
_____ % XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____ % other (specify) _____

100%

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

J. MACERATION (Continued)

r. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Clean macerator	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Replace cutter heads	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Replace sheer plates	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Replace blades	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Replace screens	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Other: _____	☐ _____ times per _____ **OR** ☐ Continuously	

s. Of the replaced parts indicated above, specify the hours of operation before replacement.

Cutter heads	_____	hours of operation
Sheer plates	_____	hours of operation
Blades	_____	hours of operation
Screens	_____	hours of operation

t. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

u. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to w)*

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

J. MACERATION (Continued)

v. If yes, what do they record? _____

w. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to y)* ☐ No

x. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

y. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

K. NEUTRALIZATION OR PH ADJUSTMENT UNIT

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Design capacity flow	_____	m^3/day **OR**
		_____	m^3/min
h.	Tank capacity	_____	m^3
i.	Residence time	_____	hr
Mixing:			
j.	Number of mixers	_____	mixers
k.	Total power	_____	kW
l.	Construction of unit	☐ Steel ☐ Other: _____	

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

K. NEUTRALIZATION OR PH ADJUSTMENT UNIT (Continued)

m.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

n.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

K. NEUTRALIZATION OR PH ADJUSTMENT UNIT (Continued)

o. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

p. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to v)*

If yes:

q. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

r. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

s. What is the percent solids of the sludge? . . . . . _____ % solids

t. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

u. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . _____ % XSS
_____ % XSP
_____ % XS1
_____ % XS3
_____ % XS12
_____ % XSG
_____ % XSIN
_____ % XSR
_____ % XSA
_____ % XSH (also complete Table H for Holding Tank on page 3-63)
_____ % XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____ % other (specify) _____

100%

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

K. NEUTRALIZATION OR PH ADJUSTMENT UNIT (Continued)

v. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE sulfuric acid BASF	pH adjustment	_____ m^3/day **OR** _____ kg/day
sodium hydroxide	pH adjustment	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

K. NEUTRALIZATION OR PH ADJUSTMENT UNIT (Continued)

w. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure temperature	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure pH	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Other: _____	☐ _____ times per _____ **OR** ☐ Continuously	

x. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

y. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to aa)*

z. If yes, what do they record? _____

aa. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to cc)* ☐ No

bb. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

cc. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

L. OZONATION

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Design capacity flow	_____	m^3/day **OR**
		_____	m^3/min
h.	Tank capacity	_____	m^3
i.	Capacity of the ozone generator	_____	kg/day of ozone
j.	Flow rate of cooling water used for generator . .	_____	L/min
k.	Is the cooling water recycled or one-pass?	☐ Recycled	☐ One-pass
l.	What is the cooling water source?	☐ Seawater	☐ Freshwater
m.	At what pressure is ozone injected?	_____	kPa
n.	Is ozone injected in-line or in a reaction tank? . .	☐ In-line	☐ Reaction tank
o.	What is the hydraulic retention time of the reaction tank?	_____	min
p.	Where is the off-gas from this unit vented?	☐ Atmosphere	☐ Other (specify): _____
q.	What is the average concentration of ozone in the off-gas?	_____	mg/L

L. OZONATION (Continued)

r.	Do you have an ozone destructor to treat the off-gas from this unit?	☐ Yes ☐ No *(Skip to t)*

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

L. OZONATION (Continued)

s. If yes, specify the type of ozone destructor used. _____

t. What is the gas source for the ozone generator? ☐ Compressed air ☐ Oxygen

u.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

L. OZONATION (Continued)

v.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

w. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

L. OZONATION (Continued)

x. Please complete this table for each chemical added to this unit, including ozone. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE ozone BASF	disinfection	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

L. OZONATION (Continued)

y. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Measure influent organic strength (e.g., BOD, COD)	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Measure the ozone concentration in the incoming gas stream	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Measure gas flow rate from the ozone generator to the treatment reactor	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Measure ozone concentration in the off-gas from the treatment reactor	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Measure dissolved ozone residual in the treatment reactor	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Adjust ozone dosage based on changes in organic strength of the influent wastewater	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Measure pH in the treatment reactor	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Adjust pH by the addition of neutralization chemicals	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure temperature	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Other: _____	☐ _____ times per _____ **OR** ☐ Continuously	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

L. OZONATION (Continued)

z. Are there any real-time alarms for this unit? . . . ☐ Yes ☐ No

aa. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to cc)*

bb. If yes, what do they record? _____

cc. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to ee)* ☐ No

dd. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

ee. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

M. SCREENS

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Design capacity flow	_____	m^3/day
		OR	
		_____	m^3/min
h.	Screen mesh size	_____	mm
i.	What is the typical head loss through the screens?	_____	m

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

M. SCREENS (Continued)

j.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

k.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

M. SCREENS (Continued)

l. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

m. Is sludge collected directly from this unit? . . . . . ☐ Yes ☐ No *(Skip to t)*

If yes:

n. Does the unit have continuous sludge removal? ☐ Yes ☐ No

o. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

p. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

q. What is the percent solids of the sludge? _____ % solids

r. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

s. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residual Destination Codes on page 3-5)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . _____ % XSS
_____ % XSP
_____ % XS1
_____ % XS3
_____ % XS12
_____ % XSG
_____ % XSIN
_____ % XSR
_____ % XSA
_____ % XSH (also complete Table H for Holding Tank on page 3-63)
_____ % XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____ % other (specify) _____

100%

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

M. SCREENS (Continued)

t. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE detergent/soap BASF	clean screens	_____ m^3/day _____ kg/day
		_____ m^3/day _____ kg/day
		_____ m^3/day _____ kg/day
		_____ m^3/day _____ kg/day
		_____ m^3/day _____ kg/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

M. SCREENS (Continued)

u. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year.

☐ Check/measure influent flow rate	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Replace screens	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure for fouling	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Measure turbidity of effluent	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Check/measure pH	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Chemical cleaning of screens	☐ _____ times per _____	**OR**
	☐ Continuously	
☐ Other: _____	☐ _____ times per _____	**OR**
	☐ Continuously	

v. Indicate the operating parameters that initiate screen cleaning and/or flush. Check all that apply.

- ☐ Operating time
- ☐ Effluent turbidity
- ☐ Other (specify): _____
- ☐ Not applicable

w. Are the screens flushed? . . . . . ☐ Yes
☐ No *(Skip to aa)*

If yes:

x. Flush time . . . . . _____ minutes per flush cycle

_____ flush cycles per day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

M. SCREENS (Continued)

y. How do you handle flush water (check all that apply)? . . . . . .
- ☐ Discharged overboard. Indicate where it is discharged, using the Sludge and Other Residuals Destination Codes on page 3-5. _____
- ☐ Treated in treatment system # _____
- ☐ Recycled (indicate where, using treatment unit codes on page 3-4) _____

z. What is the flush water percent solids? . . . . . _____ % solids

aa. Are screens cleaned? . . . . . .
- ☐ Yes
- ☐ No *(Skip to ee)*

If yes:

bb. Are screens hand-cleaned or mechanically cleaned? . . . . . .
- ☐ Hand-cleaned
- ☐ Mechanically cleaned

cc. What is the duration of the cleaning cycle? . . . . _____ min

dd. Describe the screen cleaning procedure.

_____

_____

ee. Are there any real-time alarms for this unit? . .
- ☐ Yes
- ☐ No

ff. Are there any system operating parameter recorders? . . . . . .
- ☐ Yes
- ☐ No *(Skip to hh)*

gg. If yes, what do they record? _____

hh. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . .
- ☐ Yes *(Skip to jj)*
- ☐ No

ii. If no, is there a "stand-alone" control system for this unit? . . . . . .
- ☐ Yes
- ☐ No

jj. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

N. SLUDGE DEWATERING

a. Cruise vessel terminology for this unit . . . . . _____

b. Manufacturer and model name of this unit . . . . Manufacturer: _____
Model Name/Number: _____

c. Year unit installed . . . . . _____

d. Type of unit . . . . . ☐ Belt Filter
☐ V Press
☐ Plate-and-Frame Filter
☐ Screw Press
☐ Centrifuge
☐ Rotary Vacuum Filter
☐ Other (specify): _____

e. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)
_____ Height (m)

f. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

g. 2004 operating time . . . . . _____ hr/day
_____ days/yr

h. Design capacity influent flow . . . . . _____ m^3/day
OR
_____ m^3/min

i. Unit capacity . . . . . _____ m^3

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

N. SLUDGE DEWATERING (Continued)

j.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

N. SLUDGE DEWATERING (Continued)

k.

Destination of Dewatered Sludge and Filtrate Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
Dewatered Sludge		
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
Filtrate		
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ kg/day **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

l. How often was dewatered sludge removed from this unit in 2004? . . . . . _____ times/day

m. What is the average yield of solids on a dry weight basis? . . . . . _____ $kg/m^2/hr$

o. What is the percent solids of the dewatered sludge? . . . . . _____ % solids

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

N. SLUDGE DEWATERING (Continued)

p. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE polymer BASF	improve dewatering/increase percent solids	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

N. SLUDGE DEWATERING (Continued)

q. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure effluent flow rates	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure solids content of influent sludge	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure solids content of effluent sludge	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure yield of solids on dry weight basis	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure solids content of filter cake	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

r. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

s. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to u)*

t. If yes, what do they record? _____

u. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to w)* ☐ No

v. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

w. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

O. ULTRAVIOLET DISINFECTION

a.	Cruise vessel terminology for this unit	_____	
b.	Manufacturer and model name of this unit	Manufacturer: _____ Model Name/Number: _____	
c.	Year unit installed	_____	
d.	Dimensions of this unit	_____	Footprint on deck (m^2)
		_____	Height (m)
e.	Batch or continuous?	☐ Batch ☐ Continuous	
f.	2004 operating time	_____	hr/day
		_____	days/yr
g.	Design capacity flow	_____	m^3/day **OR**
		_____	m^3/min
h.	Tank capacity	_____	m^3
i.	Is wastewater disinfected in-line or in a tank?	☐ In-line	☐ Tank
j.	Contact time	_____	min
k.	Number of contact chambers	_____	contact chambers
l.	Position of lamps	☐ Suspended ☐ Submerged	
m.	Wavelength of lamps	_____	nm
n.	Number of lamps	_____	lamps
o.	Length of lamps	_____	m
p.	Diameter of lamps	_____	mm
q.	Depth of wastewater while treated by lamps	_____	cm
r.	UV dose	_____	W•s/cm^2
s.	Average intensity of lamps	_____	W/cm^2
t.	How many hours are the lamps used before they are replaced?	_____	hr

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

O. ULTRAVIOLET DISINFECTION (Continued)

u. How often are the lamps/tubes cleaned? _____ times per _____

v. How are they cleaned? _____

_____

w. What cleaning chemical(s) is used? _____

_____

x.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

O. ULTRAVIOLET DISINFECTION (Continued)

y.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	Batch
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

z. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

O. ULTRAVIOLET DISINFECTION (Continued)

aa. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE peroxide BASF	enhance disinfection	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

O. ULTRAVIOLET DISINFECTION (Continued)

bb. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check all that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure effluent flow rates	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Remove scale from quartz tubes	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Check/measure temperature	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Clean surface of lamps	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Replace lamps	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Calibrate intensity meter	☐ _____ times per _____ ☐ Continuously	**OR**
☐ Other: _____	☐ _____ times per _____ ☐ Continuously	**OR**

cc. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

dd. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to ff)*

ee. If yes, what do they record? _____

ff. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to hh)* ☐ No

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

O. ULTRAVIOLET DISINFECTION (Continued)

gg. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

hh. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

P. OTHER UNIT (Specify) _____

a. Cruise vessel terminology for this unit . . . . . _____

b. Manufacturer and model name of this unit . . . . Manufacturer: _____
Model Name/Number: _____

c. Year unit installed . . . . . _____

d. Dimensions of this unit . . . . . _____ Footprint on deck (m^2)
_____ Height (m)

e. Batch or continuous? . . . . . ☐ Batch
☐ Continuous

f. 2004 operating time . . . . . _____ hr/day
AND
_____ days/yr

g. Design capacity flow . . . . . _____ m^3/day
OR
_____ m^3/min

h. Tank capacity . . . . . _____ m^3

i.

Influent Streams to this Unit (Use Wastewater Source or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Flow Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

P. OTHER UNIT (Specify) _____

j.

Destination of Wastewater Flow from this Unit (Use Wastewater Destination Codes or Wastewater Treatment Unit Codes on pages 3-4, 3-5)	Typical Operating Discharge Rate in 2004	
	Continuous	**Batch**
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day
	_____ ☐ m^3/min **OR** _____ ☐ m^3/day	_____ ☐ m^3/batch **AND** _____ ☐ batches/day

k. Which parameters and/or pollutants are affected or removed in this unit?

_____

_____

l. Is sludge collected from this unit? . . . . . ☐ Yes ☐ No *(Skip to r)*

If yes:

m. How often was sludge removed from this unit in 2004? . . . . . _____ times/yr

n. How much sludge was collected daily in 2004? _____ kg/day **OR** _____ m^3/day

o. What is the percent solids of the sludge? . . . . . _____ % solids

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

P. OTHER UNIT (Specify) _____

p. Is the sludge from this unit hazardous under RCRA? . . . . . ☐ Yes ☐ No

q. How was the sludge collected from this unit discharged or disposed in 2004 (see Sludge and Other Residuals Destination Codes on page 3-6)? For each destination, report the percent of sludge discharged or disposed from this unit. Percentages should total 100 . . . . . .

_____	% XSS
_____	% XSP
_____	% XS1
_____	% XS3
_____	% XS12
_____	% XSG
_____	% XSIN
_____	% XSR
_____	% XSA
_____	% XSH (also complete Table H for Holding Tank on page 3-63)
_____	% XSD (also complete Table N for Sludge Dewatering on page 3-96)
_____	% other (specify) _____
100%	

Copy ___ of ___

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: [ ] *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: [ ] *(from Wastewater Treatment Diagram)*

P. OTHER UNIT (Specify) _____

r. Please complete this table for each chemical added to this unit. Provide the chemical name (including vendor name and product code, if applicable), the purpose of the chemical, and the consumption rate of the undiluted chemical.

☐ No chemicals added to this unit.

Chemical	Purpose	Consumption Rate
EXAMPLE polymer BASF	improve settling	_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day
		_____ m^3/day **OR** _____ kg/day

66. Wastewater Treatment Unit Operations (Continued)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram)*

WASTEWATER TREATMENT UNIT CODE: ☐ *(from Wastewater Treatment Diagram)*

P. OTHER UNIT (Specify) _____

s. What operating performance monitoring was performed in 2004 for this unit and how frequently were these procedures performed? Specify the number of times performed per day, week, month, or year. Please check that apply.

☐ Check/measure influent flow rate	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure effluent flow rates	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure pH	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Check/measure temperature	☐ _____ times per _____ **OR** ☐ Continuously	
☐ Other: _____	☐ _____ times per _____ **OR** ☐ Continuously	

t. Are there any real-time alarms for this unit? . . ☐ Yes ☐ No

u. Are there any system operating parameter recorders? . . . . . ☐ Yes ☐ No *(Skip to w)*

v. If yes, what do they record? _____

w. Is this unit operation part of a distributed computer control system (i.e., is control and data acquisition provided through the vessel's central computer control system)? . . . . . ☐ Yes *(Skip to y)* ☐ No

x. If no, is there a "stand-alone" control system for this unit? . . . . . ☐ Yes ☐ No

y. What are the operating procedures if this unit breaks down or is not operating at design efficiencies? _____

_____

Copy ___ of ___

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes

67. Identify ALL discharges from this treatment system, including treated wastewater, sludge (after dewatering, if applicable), and other residuals (e.g., reverse osmosis concentrate) and provide the treatment unit code (from Cruise Vessel Wastewater Treatment Diagram) for the unit which releases the discharge. Also report incinerator ash if this vessel incinerates wastewater treatment sludge and residuals. Provide actual or estimated flow or discharge rates for each discharge in the requested units (see examples). (Note: If you report flow or discharge rates in other than the requested units, be sure to cross out and indicate the units used.) Provide the destination of each discharge using the discharge destination codes provided in Question 49. **If you have more than one wastewater treatment system, photocopy this page before writing on it, and indicate the Wastewater Treatment System # (from the Cruise Vessel Wastewater Treatment Diagram submitted in response to Question 49) on the center/top of each page in the space provided.**

Treatment Unit Code on page 3-4	Flow or Discharge Rate			Destination Code on page 3-5
Wastewater				
Example UV-1	[_____ m^3/min OR:	_____ hpd [300 m^3/d	_____ dpy] 250 dpy]	OC
HT-3	[_____ m^3/min OR:	_____ hpd [300 m^3/d	_____ dpy] 20 dpy]	OG
	[_____ m^3/min OR:	_____ hpd [_____ m^3/d	_____ dpy] _____ dpy]	
	[_____ m^3/min OR:	_____ hpd [_____ m^3/d	_____ dpy] _____ dpy]	
	[_____ m^3/min OR:	_____ hpd [_____ m^3/d	_____ dpy] _____ dpy]	
Sludge				
Example HT-1	[200 kg/day 250 dpy	OR	_____ m^3/day] 40 % solids	IN
	[_____ kg/day _____ dpy	OR	_____ m^3/day] _____ % solids	
	[_____ kg/day _____ dpy	OR	_____ m^3/day] _____ % solids	
Other Residuals				
	[_____ kg/day _____ dpy	OR	_____ m^3/day] _____ % solids	
	[_____ kg/day _____ dpy	OR	_____ m^3/day] _____ % solids	

Copy ___ of ___

NOTE: If you have more than one wastewater treatment system, photocopy Questions 68 through 73 (pages 3-113 through 3-114) before writing on them, and indicate the Wastewater Treatment System # from the Cruise Vessel Wastewater Treatment Diagram submitted in response to Question 49 of Section 3 on the center/top of each page in the space provided.

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes

68. Indicate typical cruise vessel speed when you discharge overboard.

- ☐ Less than 6 knots
- ☐ Greater than 6 knots
- ☐ Discharge regardless of vessel speed
- ☐ Other: _____

CBI? ☐ Yes

69. Is this wastewater treatment system(s) certified by the U.S. Coast Guard for continuous discharge in 2004?

- ☐ Yes
- ☐ No

CBI? ☐ Yes

70. Describe your <u>treated</u> wastewater discharge practices for this wastewater treatment system while operating in waters in and near Alaska. Please check all that apply and indicate the reasons and circumstances your cruise vessel uses this method. Note: Untreated waste water discharge practices are addressed in Section 2, Questions 42-46.

- ☐ Discharge wastewater in waters in and near Alaska only when more than 1 nautical mile from shore while traveling at more than 6 knots _____
- ☐ Continuous discharge of wastewater in waters in and near Alaska _____
- ☐ Hold wastewater for discharge outside waters in and near Alaska _____
- ☐ Other _____

Copy ___ of ___

WASTEWATER TREATMENT SYSTEM # _____

CBI? ☐ Yes **71.** What conditions would cause your cruise vessel to change wastewater discharge practices described in response to Question 70?

_____

_____

_____

_____

_____

CBI? ☐ Yes **72.** Is the <u>treated</u> wastewater reused?

☐ Yes
☐ No

If yes, for what? _____

_____

If no, state the reason(s) the wastewater is not reused. _____

_____

CBI? ☐ Yes **73.** If shore-side treatment facilities were available, would you use them instead of using this wastewater treatment system?

☐ Yes
☐ No

Explain why or why not. _____

_____

_____

CBI? ☐ Yes **74.** At what cost would use of shore-side facilities be prohibitive?

$ _____ $ per m^3

CBI? ☐ Yes **75.** Is your cruise vessel meeting the requirements of MARPOL Annex IV?

☐ Yes
☐ No

CBI? ☐ Yes **76.** Please provide a copy of your Sewage and Graywater Discharge Record Book for 2004, including discharges of sewage and graywater treatment system sludges. In addition, if this vessel operated in waters in and near Alaska in 2000, please provide sewage and graywater discharge logs, if available, for 2000.

Copy ___ of ___

CBI? ☐ Yes **77.** Comments for Wastewater Treatment System Design and Operating Parameters Section

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided in the top right corner.**

Question No.	Wastewater Treatment System No.	CBI?	Comment
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	

SECTION 4: WASTEWATER GENERATION, COLLECTION, AND TREATMENT COSTS

Section 4 requests information on the costs for each graywater and/or sewage treatment system (including holding tanks) on each cruise vessel. Specifically, the information requested in this section includes capital costs and operating costs for the wastewater treatment system; space availability on the cruise vessel; and power generation. This information will be used to develop compliance cost estimates. (Note: If you report a currency other than U.S. dollars, be sure to indicate the currency used.)

For projects that have not yet been completed (i.e., projects planned for the future or projects that are underway), and therefore, for which actual installation costs are not yet available, please provide detailed engineering cost estimates of total project costs and estimates of installed costs for major equipment items prepared for construction in place of actual installed. These costs will provide EPA with the best available information on actual wastewater treatment system costs.

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this survey. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of this section.

NOTE: If you have more than one wastewater treatment system, photocopy Questions 78 through 87 (pages 4-1 through 4-6) before writing on it, and indicate the Wastewater Treatment System # from the Cruise Vessel Wastewater Treatment Diagram submitted in response to Question 49 of Section 3 on the center/top of each page in the space provided.

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram Question 49)*

CBI?
☐ Yes

78. Complete the table below for the costs associated with each graywater and/or sewage treatment system, including the collection and holding tanks (include the year each cost was incurred). Only include costs for wastewater treatment systems that treat graywater and sewage (i.e., wastewater treatment systems discussed in Section 3). Provide best engineering estimates when data are not readily available. If you have data for costs itemized differently, complete the table below using best engineering estimates and provide the additional data as an attachment.

Type of Cost	Project	Cost	Year Cost Incurred
Direct	***Purchased equipment*** (includes all equipment for the installation or upgrade: mechanical equipment; electrical equipment; spare parts and noninstalled equipment spares; freight charges; taxes, insurance, and duties)	$	
	Purchased equipment installation (includes installation of all equipment: electrical equipment, mechanical equipment, structural supports, insulation, and paint)	$	
	Instrumentation and control (includes purchase, installation, and calibration)	$	
	Piping (includes cost of pipe, pipe hangars, fittings, valves, insulation, and installation)	$	
Indirect	***Engineering costs*** (includes process design and general engineering, drafting, cost engineering, consulting fees, supervision, inspection)	$	
	Construction expenses (includes construction tools and equipment; permits, taxes, insurance)	$	
	Contractor's fees (includes contractor costs for procurement, handling, and oversight)	$	
	Contingency actually expended (to compensate for unpredictable events such as storms, floods, strikes, price changes, errors in estimates, design changes (unexpected retrofit costs), etc.)	$	
	Total capital cost for project	$	

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram Question 49)*

CBI? ☐ Yes

79. In the table below, apportion the "purchased equipment" and "purchased equipment installation" costs provided in Question 78 among the wastewater treatment units (e.g., biological treatment, membrane filtration, ultraviolet disinfection). If data are not readily available in this format, use best engineering estimates.

Major Piece of Equipment (from Wastewater Treatment Diagram in Section 3)	Purchased Equipment Cost	Installation Cost	Year Cost Incurred
	$	$	
	$	$	
	$	$	
	$	$	
	$	$	
	$	$	
	$	$	
	$	$	
TOTAL:	$	$	

CBI? ☐ Yes

80. What date was the wastewater treatment system installed? ____/____ (mm/yy)

What date did the wastewater treatment system begin operations? ____/____ (mm/yy)

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram Question 49)*

CBI? ☐ Yes

81. Provide actual operating and maintenance (O&M) costs paid and rates for this wastewater treatment system during calendar year 2004. If actual costs and rates are not available, provide best estimates. Include operating labor, maintenance labor, maintenance equipment and contracted services, sampling/monitoring costs, chemical costs, and sludge, oil, or other residual transfer fees.

O&M Category	2004 Cost	Rate
Ship's labor (operating and maintenance)	$	$_____ per/hr (average rate of labor)
Contractor labor (operating and maintenance)	$	$_____ per/hr (average rate of labor)
Maintenance: equipment and materials (e.g., spare parts, replacement equipment)	$	
Maintenance: contracted services (e.g., contractors, vendors)	$	
Costs for laboratory analysis	$	
Chemical costs	$	
Wastewater transfer (i.e., at shore-side facility)	$	$_____ per m^3
Sludge transfer	$	$_____ per m^3
Other sludge transfer, if other classifications apply to your area *(specify type)*:	$	$_____ per m^3
Oil transfer (specify source):	$	$_____ per m^3
Other treatment residual *(specify)*:	$	$_____ per m^3
Energy Costs	$	$_____ per _____ mW $_____ per _____ kW
Other *(specify)*:	$	$_____ per m^3 (if applicable)
Other *(specify)*:	$	$_____ per m^3 (if applicable)
Total	**$**	

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram Question 49)*

CBI? ☐ Yes

82. Provide information on any recent modifications and/or shut downs (i.e., since 2000) which have occurred to this wastewater treatment system. Recent modifications may include the replacement, upgrade, or addition of one or more wastewater treatment units. Explain why treatment units have been replaced, upgraded, or added (e.g., compliance with water quality limits). Also, if the treatment unit was shut down, explain why (i.e., explain why the unit is no longer in use). Include the treatment unit code from Section 3 for unit(s) that were shut down/ modified.

Shut Down or Modification?	Date Range (mm/dd/yy - mm/dd/yy)	Treatment Code on p. 3-4 for Unit Shut Down/ Modified	Reason for Shut Down/Modification	Cost of Shut Down/ Modification
☐ Shut Down ☐ Modification				$
☐ Shut Down ☐ Modification				$
☐ Shut Down ☐ Modification				$
☐ Shut Down ☐ Modification				$

CBI? ☐ Yes

83. Provide information on any modifications and/or shut downs planned to occur during the next five years (2004 to 2009) for this wastewater treatment system. Explain why treatment units will be replaced, upgraded, or added.

Shut Down or Modification?	Year Planned (2004-2009)	Treatment Code on p. 3-4 for Unit Shut Down/ Modified	Reason for Planned Shut Down/Modification	Cost of Planned Shut Down/ Modification
☐ Shut Down ☐ Modification				$
☐ Shut Down ☐ Modification				$
☐ Shut Down ☐ Modification				$
☐ Shut Down ☐ Modification				$

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram Question 49)*

CBI? ☐ Yes

84. Provide information on any recent modifications (i.e., since 2000) to the sewage or graywater generation, piping, or collection/holding systems (other than treatment). Recent modifications may include the replacement, upgrade, rerouting, or addition of systems. Explain why the systems have been replaced, upgraded, rerouted, or added (e.g., reroute graywater sources from overboard discharge to graywater collection and holding tanks). Include the costs for these modifications.

Modification	Date	Reason for Modification	Cost of Modification
			$
			$
			$
			$

CBI? ☐ Yes

85. Provide information on any modifications planned to occur during the next five years (2004 to 2009) for the sewage or graywater generation, piping, or collection/holding systems (other than treatment). Explain why the systems will be replaced, upgraded, rerouted, or added (e.g., convert food grinder to vacuum system to reduce wastewater generation). Include the estimated costs for these modifications.

Planned Modification	Year Planned (2004-2009)	Reason for Planned Modification	Cost of Planned Modification
			$
			$
			$
			$

WASTEWATER TREATMENT SYSTEM #: ☐ *(from Wastewater Treatment Diagram Question 49)*

CBI? ☐ Yes

86. In the table below, provide the location and dimensions of the spaces housing the wastewater treatment system(s) (excluding all holding tanks). Include space needed to support the wastewater treatment system, such as on-board laboratory space and/or chemical/equipment storage space. In addition, provide the wastewater treatment units housed in each space. All wastewater treatment units indicated in Question 66 of Section 3 and/or ancillary equipment should be included in this table. Assign each space a name (e.g., Space #1).

Space Name	Location on Cruise Vessel	Dimensions of Space	Treatment Units Housed in Space (Use Wastewater Treatment Unit Codes on p. 3-4)
		_____ Length (m) _____ Width (m) _____ Height (m)	
		_____ Length (m) _____ Width (m) _____ Height (m)	
		_____ Length (m) _____ Width (m) _____ Height (m)	
		_____ Length (m) _____ Width (m) _____ Height (m)	

CBI? ☐ Yes

87. Is space available to install additional wastewater treatment units in the space housing the wastewater treatment system?

☐ Yes

☐ No *(Go to Question 88)*

In the table below, provide the dimensions of the portion of the spaces housing the wastewater treatment system(s) available to install additional wastewater treatment units, if required. Include the space name with available space from Question 86.

Space Name	Dimensions of Portion Available to Install Additional Wastewater Treatment Units
	_____ Length (m) _____ Width (m) _____ Height (m)
	_____ Length (m) _____ Width (m) _____ Height (m)
	_____ Length (m) _____ Width (m) _____ Height (m)
	_____ Length (m) _____ Width (m) _____ Height (m)

CBI? ☐ Yes

88. If you had to install additional wastewater treatment units, indicate below the location and dimensions of spaces, including spaces elsewhere on the cruise vessel where wastewater treatment units might be installed. This space could include space currently occupied by obsolete equipment. In addition, provide whether the space has access to utilities and the distance of the space from the current wastewater treatment system.

Location on Cruise Vessel	Dimensions of Space	Access to Utilities?	Distance from Current Wastewater Treatment System	Wastewater Treatment System No.
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	
	________ Length (m) ________ Width (m) ________ Height (m)	☐ Yes ☐ No	________ m	

CBI? ☐ Yes

89. Have you obtained cost estimates for this ship to install advanced wastewater treatment (if not already installed)?

☐ Yes
☐ No

CBI? ☐ Yes

90. Would additional power generator capacity be required to operate additional wastewater treatment units, if required?

☐ Yes
☐ No

Copy ___ of ___

CBI? ☐ Yes **91.** Comments for Wastewater Generation, Collection, and Treatment Costs Section

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided in the top right corner.**

Question No.	Wastewater Treatment System No.	CBI?	Comment
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	

SECTION 5: SAMPLING DATA

Analytical Data

Section 5 requests information concerning the availability of sewage and graywater stream characterization data and/or treatability data. This information will be used to determine current wastewater discharge characteristics for each cruise vessel, evaluate wastewater treatment performance, and estimate pollutant discharge loadings.

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this survey. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of this section.

92. Were samples collected and analyzed to characterize any untreated sewage or graywater generated by your vessel?

- ☐ Yes
- ☐ No

93. Were samples collected and analyzed to characterize any treated or partially treated sewage or graywater generated by your vessel by the currently installed and operated sewage and/or graywater treatment system? (If you do not operate a wastewater treatment system, check "NA." If you have changed wastewater treatment operations, please respond for the current treatment system(s).)

- ☐ Yes
- ☐ No
- ☐ NA

94. Were samples collected and analyzed to characterize any wastewater treatment residuals, such as sludge, generated by your vessel by the currently installed and operated sewage and/or graywater treatment system? (If you do not operate a wastewater treatment system, check "NA." If you have changed wastewater treatment operations, please respond for the current treatment system(s).)

- ☐ Yes
- ☐ No
- ☐ NA

95. Were any paired influent and effluent samples collected to characterize the effectiveness of your currently installed and operated sewage and/or graywater treatment system? (If you do not operate a wastewater treatment system, check "NA." If you have changed wastewater treatment operations, please respond for the current treatment system(s).)

- ☐ Yes
- ☐ No
- ☐ NA

CBI?
☐ Yes

96. If you responded "Yes" to any of Questions 92 through 95 above, please attach or enclose all corresponding testing data in either hard copy or electronic format. Data would include all available sewage and graywater sampling data, collected for any purpose, including data for all sampling points and all analytes. For example, sampling purposes include compliance testing, monitoring for other than compliance (e.g., system performance), initial performance demonstration/certification, wastewater treatability/performance testing, and concept studies. Analytes include both those required for compliance monitoring, as well as those included in monitoring for other than compliance. Potential sampling points include raw wastewater (e.g., laundry wastewater), untreated wastewater, influent to wastewater treatment, effluent from treatment, final wastewater discharge, intermediate wastewater treatment, and wastewater treatment residuals (e.g., sludge). At a minimum, all the sampling points reported in response to Section 3, Question 49 (Wastewater Treatment Diagram) should be included.

If the data should be treated as confidential business information (CBI), stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any data are not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B. Note that effluent data cannot be covered by a claim of confidentiality.

Note that you do not need to submit the following sewage and graywater sampling data that EPA has previously obtained from other sources, such as the U.S. Coast Guard and the Alaska Department of Environmental Conservation. The following table summarizes data for your cruise vessel that EPA has previously obtained.

Data Source	Sewage or Graywater Collection and/or Treatment System	Sampling Point and Description	Dates	Analytes	Number of Data Points
	See Attached Table				

Provide the following information for **each** attached data set: ✓

- Provide a description of the waste stream and its corresponding flow rate. If flow rates are estimated, please provide the basis for the estimates. Include units for flow rate (e.g., m^3/day). ☐
- Indicate the percentage of wastewater that is sewage and/or graywater, as well as any other wastewater sources. ☐
- Indicate which analytes were monitored. ☐
- Indicate purpose of testing. ☐
- List the analytical method(s) and attach documentation of QA/QC procedures (e.g., sample preservation, method blanks, matrix spike/matrix spike duplicates, laboratory duplicates, field duplicates, calibration blanks, and detection limits for non-detected analytes). Include the explanation of any flags. ☐
- Consider all testing data, including data for initial performance demonstration/ certification, compliance testing, and other treatability/performance testing. ☐
- Indicate any assertion of a business confidentiality claim for the data. Note that effluent data cannot be covered by a claim of confidentiality. ☐

Copy ___ of ___

97. Comments for Sampling Data Section

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided in the top right corner.** Note that effluent data cannot be covered by a claim of confidentiality.

Question Number	CBI?	Comment
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	

SECTION 6: POLLUTION PREVENTION PRACTICES

Section 6 requests information to evaluate the status of pollution prevention practices for each cruise vessel, identify pollution prevention technologies, and quantify the performance of the practices. The information will identify specific practices that may become part of the regulatory technology options.

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this survey. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of this section.

CBI? ☐ Yes

98. Pollution Prevention Practices

Below is a list of environmental management, pollution prevention, or waste reduction practices. Please place a check next to all practices implemented. **For each practice that you check, photocopy pages 6-2 and 6-3 and provide the information requested for that particular practice in the questions below. Number each copy in the space provided in the upper right corner.**

- ☐ Use of reduced flow showerheads
- ☐ Use of vacuum systems for toilets
- ☐ Use of graywater for toilet water
- ☐ Reuse technical water (e.g., air conditioning condensate) in other ship operations
- ☐ Reclamation of treated and filtered wastewater for reuse (e.g., use for flushing toilets, laundry, deck washing)
- ☐ Prompt attention to faulty equipment, leaks, and other problems
- ☐ Use of vacuum food waste transportation
- ☐ Use of laundry or dishwasher equipment that uses less water
- ☐ Use of earth friendly dry cleaning products (e.g., carbon dioxide or "wet" processes) or not offering dry cleaning
- ☐ Transfer blackwater or graywater to shore facility
- ☐ Use of non-toxic based printing ink, non-chlorinated solvents, and other non-hazardous products in printing processes
- ☐ Preventive maintenance and equipment monitoring program to check for leaks and spills
- ☐ Policies and operational procedures instituted to prevent leaks and/or equipment failures that may release wastes
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

FOR EACH PRACTICE CHECKED, COMPLETE QUESTION 98 ON THE FOLLOWING PAGES.

Copy ___ of ___

Complete a copy of Question 98 for each pollution prevention practice.

98. (Continued)

(a) Describe practice: _____

_____

_____

(b) List affected cruise vessel process(es) and wastewater streams: _____

_____

_____

(c) List targeted pollutants: _____

_____

_____

(d) Cost and/or savings of implementing practice:

Cost of installation/implementation $_____
Net change in operating costs as a result of the practice: $_____

(e) What was the reduction in the quantity of wastewater generated as a result of this activity?

_____ m^3/day

(f) What was the reduction in the quantity of fresh (potable) water requirements as a result of this activity?

_____ m^3/day

Copy ___ of ___

Complete a copy of Question 98 for each pollution prevention practice.

98. (Continued)

(g) Did the practice result in a change in chemicals/pollutants discharged in wastewater?

☐ Yes
☐ No *(Go to Question 99)*

What was the change in chemicals/pollutants discharged in wastewater?

Chemical/Pollutant	Total *Decrease* in Annual Quantity Discharged	Total *Increase* in Annual Quantity Discharged
	☐ kg/yr ☐ liters/yr	☐ kg/yr ☐ liters/yr
	☐ kg/yr ☐ liters/yr	☐ kg/yr ☐ liters/yr
	☐ kg/yr ☐ liters/yr	☐ kg/yr ☐ liters/yr

(h) What was the change in the quantity of solids generated ?

Solid	Total *Decrease* in Annual Quantity Discharged (kg/yr)	Total *Increase* in Annual Quantity Discharged (kg/yr)

CBI? ☐ Yes

99. Additional Pollution Prevention Practices

Please place a check next to any of the practices implemented that are listed below.

☐ Education of passengers to implement pollution practices

☐ Training or incentives for employees to implement pollution prevention practices

☐ Implemented an Environmental Management System (EMS). *Please attach copies of your environmental policy statement and any stated targets related to blackwater and graywater discharges.*

CBI? ☐ Yes

100. Implementation of Future Pollution Prevention Practices

Do you plan on implementing any pollution prevention, pollution management, or waste reduction practices in the future? If so, please list below.

Practice	Scheduled Implementation (date)

Copy ___ of ___

CBI?
☐ Yes

101. Comments for Pollution Prevention Practices

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided in the top right corner.**

Question No.	Copy No.	CBI?	Comment
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	
		☐ Yes	

PART C: FINANCIAL AND ECONOMIC INFORMATION

One level of EPA's economic analysis will be a determination of the proposed standards' impacts on individual vessels. Using actual vessel-specific financial information is the most accurate way to estimate these impacts. With this information, EPA's analysis can compare vessel-specific costs of compliance with vessel-specific financial data. For each proposed regulatory option under consideration, EPA can estimate the likelihood of any vessel becoming unprofitable as a result of the rule and calculate the associated losses in services, revenue, and employment.

A second level in EPA's economic analysis is the evaluation of the impacts on the company from the costs associated with upgrading water pollution control for one or more vessels. For the company-level analysis, EPA generally uses standard financial analysis methods, such as discounted cash flow and weighted averages of financial ratios.

Finally, EPA must address the requirements in the Regulatory Flexibility Act (RFA) as amended by the Small Business Enforcement Flexibility Act (SBREFA). The Small Business Administration sets size standards on the basis of revenues or employment measured at the highest level of corporate ownership. Hence, if a corporate parent owns the company that owns cruise ship(s) covered by Title XIV, EPA requests information at the corporate parent level.

You may claim as confidential all the information included in the response to a question by checking the Confidential Business Information (CBI) box next to the question. Alternatively, you may claim all eligible financial and economic information in Part C of this survey as confidential by checking the box below; in this case you do not need to check the CBI boxes next to individual questions.

All Eligible Data in Part C are CBI ☐

Part C: Section 1 collects vessel-specific information. EPA has provided you with the number of copies of Section 1 needed for each of your vessels known to have visited Alaska in 2004.

Part C: Section 2 collects company information, while Part C: Section 3 collects information about the corporate parent (if one exists).

SECTION 1: CRUISE VESSEL FINANCIAL INFORMATION

Part C: Section 1 requests annual data for all voyages by the vessel and for Alaskan voyages only. EPA does not intend for respondents to hire professional help to break out costs and revenues for Alaskan voyages if financial data are not kept on that basis. However, EPA believes it can perform a better economic analysis with best financial estimates rather than no information. Just check the boxes to identify where you had to make estimates.

Cruise Vessel Name: _____

Vessel ID: _____

CBI? ☐ Yes **1.** For Fiscal Year 2004, list the average number of employees on this vessel when it is in operation for voyages to Alaska and other regions. If there is no difference in staffing levels depending on the voyage venue, the numbers should be the same.

a. Average number of employees on this vessel for Alaska voyages . . . . ___, ___ ___ ___

b. Average number of employees on this vessel for voyages to other regions . . . . . ___, ___ ___ ___

CBI? ☐ Yes **2.** Of the employees listed in Questions 1a and 1b, how many are based in Alaska?

a. Number of employees listed in Question 1a that currently report an Alaskan address on W-2 forms or other legal documentation . . . . . ___ ___ ___

b. Number of employees listed in Question 1b that currently report an Alaskan address on W-2 forms or other legal documentation . . . . . ___ ___ ___

CBI? ☐ Yes **3.** For Fiscal Year 2004, list the total number of hours worked by all staff on this vessel and the number of hours worked by all staff during Alaskan voyages only.
If the vessel does only Alaskan voyages, the numbers should be the same.

a. Total number hours . . . . . ___ ___ ___, ___ ___ ___

b. Of the hours listed above, how many are associated with Alaskan voyages? . . . . . ___ ___ ___, ___ ___ ___

CBI? ☐ Yes **4.** The rest of the questions in Section 1 request financial data. Please indicate the currency you are using here to report your financial information. Generally, the financial information reported here should be in the same currency in which you keep financial records. If you routinely keep records in U.S. dollars as well as another currency, please use U.S. dollars.

Currency used . . . . . _____

Cruise Vessel Name: _____

CBI?
☐ Yes

5. **2004 Income statement information**. For fiscal year 2004, complete the following income statement information **for the Alaskan voyages and for all voyages by the vessel**. If certain items are not recorded on the vessel's books, enter zero for the item. For all items recorded on the vessel's books, provide or estimate the amount associated with Alaskan voyages. For example, if interest payments (item i) are recorded for the vessel, estimate the amount attributed to Alaskan voyages. If interest payments are not recorded for the vessel, enter 0 for both columns for item i. **Except for Yen, report amounts rounded to the nearest thousand** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	Alaskan Voyages Check box if data are best estimates . . . . . ☐	**All Voyages/Operations**
Revenues		
a. Net Sales	__ __ __, __ __ __,000	__ __ __, __ __ __,000
b. Other income (such as interest and equity earnings)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
c. Total Revenue (sum of a and b)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
Costs and Expenses		
d. Cost of services (purchases and operating expenses; do not include depreciation and amortization)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
e. Depreciation and amortization	__ __ __, __ __ __,000	__ __ __, __ __ __,000
f. Selling, general, and administrative expenses	__ __ __, __ __ __,000	__ __ __, __ __ __,000
g. Total costs and expenses (sum of d through f)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
h. EARNINGS BEFORE INTEREST AND TAXES (EBIT) (subtract g from c)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
i. Interest Expense	__ __ __, __ __ __,000	__ __ __, __ __ __,000
j. Taxes	__ __ __, __ __ __,000	__ __ __, __ __ __,000
k. Net Income (subtract i and j from h)	__ __ __, __ __ __,000	__ __ __, __ __ __,000

Cruise Vessel Name: _____

CBI?
☐ Yes

6. **2003 Income statement information**. For fiscal year 2003, complete the following income statement information **for the Alaskan voyages and for all voyages by the vessel**. If certain items are not recorded on the vessel's books, enter zero for the item. For all items recorded on the vessel's books, provide or estimate the amount associated with Alaskan voyages. For example, if interest payments (item i) are recorded for the vessel, estimate the amount attributed to Alaskan voyages. If interest payments are not recorded for the vessel, enter 0 for both columns for item i. **Except for Yen, report amounts rounded to the nearest thousand** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	Alaskan Voyages Check box if data are best estimates . . . . . ☐	**All Voyages/Operations**
Revenues		
a. Net Sales	__ __ __, __ __ __,000	__ __ __, __ __ __,000
b. Other income (such as interest and equity earnings)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
c. Total Revenue (sum of a and b)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
Costs and Expenses		
d. Cost of services (purchases and operating expenses; do not include depreciation and amortization)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
e. Depreciation and amortization	__ __ __, __ __ __,000	__ __ __, __ __ __,000
f. Selling, general, and administrative expenses	__ __ __, __ __ __,000	__ __ __, __ __ __,000
g. Total costs and expenses (sum of d through f)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
h. EARNINGS BEFORE INTEREST AND TAXES (EBIT) (subtract g from c)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
i. Interest Expense	__ __ __, __ __ __,000	__ __ __, __ __ __,000
j. Taxes	__ __ __, __ __ __,000	__ __ __, __ __ __,000
k. Net Income (subtract i and j from h)	__ __ __, __ __ __,000	__ __ __, __ __ __,000

Cruise Vessel Name: _____

CBI?
☐ Yes

7. **2002 Income statement information**. For fiscal year 2002, complete the following income statement information **for the Alaskan voyages and for all voyages by the vessel**. If certain items are not recorded on the vessel's books, enter zero for the item. For all items recorded on the vessel's books, provide or estimate the amount associated with Alaskan voyages. For example, if interest payments (item i) are recorded for the vessel, estimate the amount attributed to Alaskan voyages. If interest payments are not recorded for the vessel, enter 0 for both columns for item i. **Except for Yen, report amounts rounded to the nearest thousand** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	Alaskan Voyages Check box if data are best estimates . . . . . ☐	**All Voyages/Operations**
Revenues		
a. Net Sales	__ __ __, __ __ __,000	__ __ __, __ __ __,000
b. Other income (such as interest and equity earnings)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
c. Total Revenue (sum of a and b)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
Costs and Expenses		
d. Cost of services (purchases and operating expenses; do not include depreciation and amortization)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
e. Depreciation and amortization	__ __ __, __ __ __,000	__ __ __, __ __ __,000
f. Selling, general, and administrative expenses	__ __ __, __ __ __,000	__ __ __, __ __ __,000
g. Total costs and expenses (sum of d through f)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
h. EARNINGS BEFORE INTEREST AND TAXES (EBIT) (subtract g from c)	__ __ __, __ __ __,000	__ __ __, __ __ __,000
i. Interest Expense	__ __ __, __ __ __,000	__ __ __, __ __ __,000
j. Taxes	__ __ __, __ __ __,000	__ __ __, __ __ __,000
k. Net Income (subtract i and j from h)	__ __ __, __ __ __,000	__ __ __, __ __ __,000

EPA intends to examine impacts on the local communities potentially affected by changes in cruise ship operations. In order to do this, the Agency must be able to estimate the amount of money flowing from the cruise ships and their passengers into the local communities.

For the cruise portion of a travel package, we are requesting information on two types of expenditures at a port of call. First, a vessel might take on supplies at a port of call. Second, the cruise line might arrange for optional off-boat excursions, such as dog sled rides and glacier hikes, or other activities for the passengers, including pre- and post-cruise activities. **For those services provided by operations not owned by or affiliated with the cruise line, report what the cruise line paid the local services, not what the passengers paid the cruise line.** This information is listed in rows a through m of Question 8 (which spans this page and the next).

Many travel packages, however, involve land travel in Alaska either before or after the cruise portion. For example, a tour might begin in Seward with a train ride to Denali, continuing to Deadhorse, and returning to Seward. The tourists then transfer to the cruise vessel for a the start of a cruise that travels through Alaskan waters, stopping at various ports, and then on to Seattle. These pre/post cruise expenditures in Alaska should be listed in row n of Question 8, not the row naming the beginning or end point of the land portion of the tour.

If the information in Question 8 is provided on an annual basis, write “All” for the line requesting voyage dates. **If the information in Question 8 is provided for each voyage separately, make as many copies of Question 8 as the number of voyages listed in Part B, Section 1, Question 24.** Complete a Question 8 for each voyage. The ports of call reported in Question 8 should correspond to those reported in Part B, Section 1, Question 16.

Copy ___ of ___

Cruise Vessel Name: _____

Voyage Dates: _____

CBI?
☐ Yes

8. **Report amounts rounded to the nearest thousand *except for Yen*** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

Port of Call	From Local Onshore Operations *NOT* Owned by or Affiliated with Cruise Line		From Local Onshore Operations Owned by or Affiliated with Cruise Line	
	Supplies Purchased Directly by the Vessel at this Port of Call	**Recreational or Other Services at this Port of Call** (Report what the cruise line paid the local services, net of fees paid by vendors; not what the passengers paid the cruise line.)	**Value of Supplies Transferred to the Vessel at this Port of Call**	**Additional Fees Paid by Passengers for Recreational or Other Activities at this Port of Call**
a. Dutch Harbor	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
b. Hoonah/Pt. Sophia	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
c. Juneau	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
d. Ketchikan	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
e. Seward	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
f. Sitka	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
g. Skagway	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
h. Valdez	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
i. Whittier	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
j. Wrangell	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
k. Other (specify): _____	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
l. Other (specify): _____	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000	__ __, __ __ __,000
m. Land Portion of Tour, Pre or Post-Cruise Travel	Not applicable	__ __, __ __ __,000	Not applicable	__ __, __ __ __,000

Cruise Vessel Name: _____

EPA considers the vessel as represented in this survey—in terms of capacity, quality, purpose, and asset basis—to be the baseline condition against which to estimate the potential impacts of a proposed rule. EPA considers purchases of Property, Plant, and Equipment ("capital purchases") that are needed to **sustain** the vessel in this condition and level of service as "capital replacements." EPA considers capital purchases that are expected to achieve a positive change from the baseline condition – that is, an increase in revenue or reduction in operating expenses – as a "capital expansion" or "capital improvement." .

EPA understands that this distinction may not always be obvious, depending on the character of the capital purchase, and has developed a series of examples to guide your response.

- An engine fails. Replacing the engine (i.e., same power output) is a capital replacement even if the new motor has improved features.
- You decide to replace a working air conditioning system with a newer system. The new system has the same output but is much less expensive to run. If the original system still had 25 percent of its useful life remaining, the cost of the new system should be prorated as 75 percent capital replacement and 25 percent capital improvement.
- You need to redo a dining area and the reconfiguration results in a 50 percent increase in seating capacity. One-third of the cost is a capital expansion based on the 50 percent capacity increase.
- You decide to replace a working heating system with a newer system with twice the output. In this case, you need to adjust for both increased output and the lifetime remaining in the original system. Fifty percent of the cost is for improvement based on the doubling of output. If the original system still had 25 percent of its useful life remaining, the other 50 percent of the cost of the new system should be prorated as 25 percent expansion (i.e., 12.5 percent). In this case, 37.5 percent of the cost of the new system is for capital replacement and the remaining 62.5 percent is for capital expansion and improvement.
- You decide to install an additional swimming pool to the vessel. The entire cost is a capital expansion.

Report amounts rounded to the nearest thousand *except for Yen* (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e,g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

CBI?
☐ Yes

9. Report the actual capital replacement costs and the total investment costs (for both replacement and expansion/improvement) for this vessel for 2002, 2003, and 2004.

Year	Capital Replacement Cost	Total Capital Investment	Brief Description of Capital Replacement Cost
2002	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2003	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2004	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	

CBI?
☐ Yes

10. Report estimated future capital replacement costs (as defined above) and total capital investment for this vessel for 2005 through 2014. EPA expects these estimates to be available in the company's long-term financial plan. If the company's financial plan covers fewer than ten years, enter "beyond planning horizon" in the description for the first year beyond the planning horizon.

Year	Capital Replacement Cost	Total Capital Investment	Brief Description of Capital Replacement Cost
2005	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2006	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2007	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2008	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2009	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2010	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2011	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2012	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2013	__, __ __ __,__ __ __000	__, __ __ __,__ __ __000	
2014	___,__ __ __,__ __ __000	__, __ __ __,__ __ __000	

SECTION 2: CRUISE LINE FINANCIAL INFORMATION

Section 2 collects financial information for the company that owns the vessel(s) reported in Part A Question 12 (i.e., the company to which the questionnaire was mailed).

CBI? ☐ Yes **11.** Is this company domestic or foreign?

a. Domestic . . . . . ☐
b. Foreign . . . . . ☐

CBI? ☐ Yes **12.** Which of the following financial structures best describes this company?

a. C Corporation . . . . . ☐
b. S Corporation/Limited Liability Corporation . . . . . ☐
c. Limited Partnership . . . . . ☐
d. General partnership . . . . . ☐
e. Sole Proprietorship . . . . . ☐
f. Other: please describe _____ . . . . . ☐

CBI? ☐ Yes **13.** Is this company publicly or privately held?

a. Publicly held . . . . . ☐
b. Privately held . . . . . ☐

CBI? ☐ Yes **14.** List the North American Industrial Classification System (NAICS) code assigned to this company. If cruise line is a foreign entity (i.e., Question 11b is checked), enter "NA." . . . . . ___ ___ ___ ___ ___ ___

CBI? ☐ Yes **15.** For Fiscal Year 2004, list the average number of employees:

a. for the entire company . . . . . ___, ___ ___ ___
b. for all Alaskan operations (vessel and land-based) . . . . . ___, ___ ___ ___
c. for Alaskan voyages (vessel-based) . . . . . ___, ___ ___ ___

CBI? ☐ Yes **16.** If the company borrows money to finance capital improvements, such as wastewater treatment equipment, what interest rate would it pay on such loans? (Enter "NA" if money is not borrowed.)

Interest Rate . . . . . ___ ___. ___%

CBI? ☐ Yes **17.** If the company finances capital improvements through equity, what rate would it use? The equity rate is the minimum return on capital required to compensate debt holders (bonds) and equity owners for bearing risk. (Enter "NA" if neither bonds nor stock are used to raise capital.)

Equity Rate . . . . . ___ ___. ___%

☐ **CBI?** Yes

18. When you finance capital improvements, what is the approximate mix of interest and equity?

Interest (Question 16) . . . . . ___ ___%

Equity (Question 17) . . . . . ___ ___%

☐ **CBI?** Yes

19. In what month does the fiscal year for your company **start**?

☐ January	☐ April	☐ July	☐ October
☐ February	☐ May	☐ August	☐ November
☐ March	☐ June	☐ September	☐ December

☐ **CBI?** Yes

20. The rest of the questions in Section 2 request financial data. Please indicate the currency you are using here to report your financial information. Generally, the financial information reported here should be in the same currency in which you keep financial records. If you routinely keep records in U.S. dollars as well as another currency, please use U.S. dollars.

Currency used . . . . . _____

CBI?
☐ Yes

21. **2004 Income statement information**. For fiscal year 2004, complete the following income statement information **for Alaskan operations (vessel- and land-based) and for the entire company**. **Except for Yen, report amounts rounded to the nearest thousand** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	Alaskan Operations Check box if data are best estimates . . . . . ☐		
	Vessel-Based	**Land-Based**	**Company**
Revenues			
a. Net Sales	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
b. Other income (such as interest and equity earnings)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
c. Total Revenue (sum of a and b)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
Costs and Expenses			
d. Cost of services (purchases and operating expenses; do not include depreciation and amortization)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
e. Depreciation and amortization	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
f. Selling, general, and administrative expenses	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
g. Total costs and expenses (sum of d through f)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
h. EARNINGS BEFORE INTEREST AND TAXES (EBIT) (subtract g from c)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
i. Interest Expense	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
j. Taxes	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
k. Net Income (subtract i and j from h)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000

CBI?
☐ Yes

22. 2003 Income statement information. For fiscal year 2003, complete the following income statement information **for Alaskan operations (vessel- and land-based) and for the entire company**. **Except for Yen, report amounts rounded to the nearest thousand** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	Alaskan Operations **Check box if data are best estimates . . . . . ☐**		
	Vessel-Based	**Land-Based**	**Company**
Revenues			
a. Net Sales	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
b. Other income (such as interest and equity earnings)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
c. Total Revenue (sum of a and b)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
Costs and Expenses			
d. Cost of services (purchases and operating expenses; do not include depreciation and amortization)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
e. Depreciation and amortization	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
f. Selling, general, and administrative expenses	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
g. Total costs and expenses (sum of d through f)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
h. EARNINGS BEFORE INTEREST AND TAXES (EBIT) (subtract g from c)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
i. Interest Expense	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
j. Taxes	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000

CBI?
☐ Yes

23. 2002 Income statement information. For fiscal year 2002, complete the following income statement information **for Alaskan operations (vessel- and land-based) and for the entire company**. **Except for Yen, report amounts rounded to the nearest thousand** (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	Alaskan Operations Check box if data are best estimates . . . . . ☐		
	Vessel-Based	**Land-Based**	**Company**
Revenues			
a. Net Sales	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
b. Other income (such as interest and equity earnings)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
c. Total Revenue (sum of a and b)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
Costs and Expenses			
d. Cost of services (purchases and operating expenses; do not include depreciation and amortization)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
e. Depreciation and amortization	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
f. Selling, general, and administrative expenses	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
g. Total costs and expenses (sum of d through f)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
h. EARNINGS BEFORE INTEREST AND TAXES (EBIT) (subtract g from c)	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
i. Interest Expense	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000
j. Taxes	__ __ __, __ __ __,000	__ __ __, __ __ __,000	__, __ __ __, __ __ __,000

CBI?
☐ Yes

24. Balance Sheet information (2002, 2003, and 2004). For fiscal years 2004, 2003, and 2002, complete the following information for assets and liabilities **for the company**. Except for Yen, report amounts rounded to the nearest thousand (e.g., $9,999 is reported as $10 because the three zeros are already entered). **For Yen, please report amounts in the nearest ¥1,000,000** (e.g., ¥99,999,999 would be reported as ¥100, since three zeroes are already entered and EPA will add the additional three zeros during data entry).

	2002	2003	2004
Assets			
a. Current Assets, excluding inventories	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
b. Inventories	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
c. Land (original cost)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
d. Buildings (original cost)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
e. Vessels and equipment (original cost)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
f. Other noncurrent assets (original cost)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
g. Cumulative depreciation	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
h. Total assets (sum of a through f minus g)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
Liabilities and Equity			
i. Current liabilities (including accounts payable, accrued expenses and taxes, and the current portion of long-term debt)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
j. Long-term debt (including bonds, debentures, long-term leases, bank debt, and all other noncurrent liabilities such as deferred income taxes)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
k. Retained earnings	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
l. Other owner equity (not including retained earnings)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000
m. Total liabilities and equity (Sum of i through l)	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000	__ __, __ __ __, __ __ __,000

25. Include a copy of the company's end-of-year financial statements for 2004 with the completed questionnaire. These may be accountant reports, annual reports, and/or 10-K forms, and **MUST** include notes to the financial statements, income statement, and balance sheet. These statements need not be audited but should conform to generally accepted accounting principles (GAAP). You may claim the information as confidential by marking the document(s) with the word "Confidential."

SECTION 3: CORPORATE PARENT FINANCIAL INFORMATION

26. Is this cruise line owned by another company?

☐ Yes
☐ No (*Skip to Question 31*)

27. Please provide the name and mailing address of the parent company that owns the cruise line.

_____
Parent Company Name

_____
Street Address or Post Office Box

_____ _____ _____-_____
City State Zip Code

_____
Country

☐ **CBI?** Yes **28.** List the North American Industrial Classification System (NAICS) code assigned to the corporate parent. If the corporate parent is a foreign entity, enter "NA." . . . . . ___ ___ ___ ___ ___ ___

☐ **CBI?** Yes **29.** For Fiscal Year 2004, list the average number employees at the corporate parent (including all subsidiaries and divisions).

Number of employees at the corporate parent . . . . . ___ ___, ___ ___ ___

30. Include a copy of the corporate parent's end-of-year financial statements for 2004 with the completed questionnaire. These may be accountant reports, annual reports, and/or 10-K forms, and **MUST** include notes to the financial statements, income statement, and balance sheet. These statements need not be audited but should conform to generally accepted accounting principles (GAAP). You may claim the information as confidential by marking the document(s) with the word "Confidential."

31. Provide the following information for the primary contact for the financial and economic information supplied in Part C of this questionnaire:

_____ (_____)_____
Contact Name Telephone Number

_____ (_____)_____
Title Fax Number

_____
E-Mail Address

_____ Convenient time to call:
Street Address or Post Office Box between ___ am/pm and ___ am/pm (Eastern Time)

_____ _____ _____ - _____
City State Zip Code

CBI?
☐ Yes

32. Comments for Part C **Copy ___ of ___**

Please cross-reference your comments by question number and indicate if your comment is confidential by checking "yes" in the column titled "CBI" (Confidential Business Information). **If you need additional space, please photocopy this page before writing on it, and number each copy in the space provided.**

Question Number	CBI	Comment
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	
	☐ Yes	