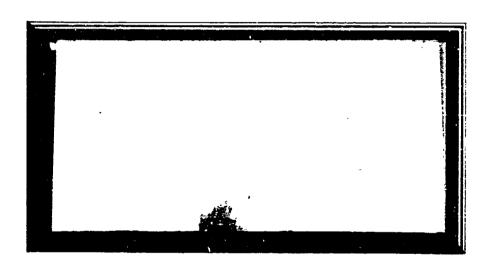
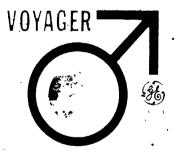
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VOLUME 5 DATA MANAGEMENT STUDY

APPENDIX B
CONTRACTOR DATA PACKAGE
PLANETARY QUARANTINE (PQ)

PREPARED BY

W.E. JOHNSTON F.S. NAYOR

Engineering Management
Voyager Spacecraft System Project

APPROVED BY

A. FRANK, COGNIZANT ENGINEER
DATA MANAGEMENT AND CONTROL TASK
VOYAGER SPACECRAFT SYSTEM PROJECT

PREPARED FOR

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
4800 OAK GROVE DRIVE
PASADENA, CALIFORNIA

UNDER JPL CONTRACT No. 951112



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TABLE OF CONTENTS

Section	n Pag	;e
1	INTRODUCTION	
2	DATA ITEM LIST/USER MATRIX	
3	USER FLOW DIAGRAMS	
4	DATA REQUIREMENT DESCRIPTIONS (DRD'S)	
5	DOCUMENTATION RELATIONSHIP TREES	
6	DATA ITEM PHASING/FREQUENCY 6-1	

INTRODUCTION

This appendix presents the Contractor Data Package (Data Item Matrix, Data Requirement Descriptions, User Flow Diagram, Document Relationship Tree, and Frequency and Phasing Charts) for Planetary Quarantine (PQ).

These data relate to microbiological factors; sterilization, contamination, and decontamination considerations; related assaying, assembly, and testing operations; and all other information of direct relevance to the planning, control, review, and reporting of the Voyager planetary quarantine program.

The complete list of Contractor Data Package appendixes is as follows:

Appendix A - Technical Description and System Engineering (SE)

Appendix B - Planetary Quarantine (PQ)

Appendix C - Manufacturing (MG)

Appendix D - Configuration Management (CM)

Appendix E - Quality Assurance (QA)

Appendix F - Test (TE) and Mission Operations (MP)

Appendix G - Reliability Assurance (RA)

Appendix H - Logistics and Support (LS)

Appendix I - Overall Management (MA); Scheduling (SC); and Manning and Financial (MF)

Appendix J - Procurement and Contracting (PC)

Appendix K - Data Management (DM)

Appendix L* - Facilities (FA)

Appendix M* - Safety (SA)

Appendix N* - Site Activation for Launch (AL)

Appendix O* - Science (SI)

Appendix P* - Related Project Interfaces (RP)

Appendix Q* - Advanced Missions (AM)

^{*}Appendixes L through Q prepared under Contract NAS7-584

DATA ITEM NUMBER	DATA ITEM PLANETARY QUARANTINE	DESCRIPTION
	GUIDELINES	
PQ- 001	Guidelines, System Operational Design for Planetary Quarantine	Establishes constraints on system operations
PQ- 002	Guidelines, Equipment Design for Planetary Quarantine	Provides parameters for acceptable methods hardware design.
	LISTS	
PQ- 003	List, Sterilizable Parts, General Engineering	A list of materials and components which have sterilization.
	PLANS	
PQ- 004	Plan, Planetary Quarantine, Spacecraft	Provides the detailed overall plan for meetin design and operation of the spacecraft.
PQ- 005	Plan, Planetary Quarantine, Planetary Vehicle Test	Provides a plan to maintain decontamination an acceptable value during combined spacecr
	PROCEDURES	
PQ- 006	Procedure, Planetary Quarantine, Operating	Provides operating procedures, constraints, manufacturing, quality assurance and test pequarantine.
PQ- 007	Procedure, Bio-Assay Test	Provides detailed procedures for conducting

^{*} KEY INFORMAL DATA

DATA ITEM LIST/USER MATRIX

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DATA	2 of 2	DESCRIPTION
NUMBER	PLANETARY QUARANTINE	
	REPORTS	
PQ- 008	Report, Bio-Assay Test	Provides the amount and extent of contamination of f spacecraft hardware from bioassay test.
PQ- 009	Report, Planetary Quarantine Analysis	Provides mathematical probability analysis on the polynomial Mars contamination based on the spacecraft design.
PQ- 010	Report, Planetary Quarantine Audit	Provides a current accounting of the contamination l the spacecraft and a log of bioassay test results.
PQ- 011	Report, Planetary Quarantine, Planetary Vehicle (PV) Test	Provides the results of PV testing on the decontamir sterilization integrity of the planetary vehicle.
	SPECIFICATIONS	
PQ- 012	Specification, Bio-Assay Test Requirements	Defines the requirements for biological assays (e.g. or components to assay, confidence levels, number
PQ- 013	Specification, Facilities Requirements, Planetary Quarantine Design	Specifies the clean room, clothing, and handling equivalents during all operations (manufacture, hat testing) where control of contamination is required.
PQ- 014	Specification, General Engineering, Planetary Quarantine Design	Specifies design constraints and requirements impos Planetary Quarantine Plan.

^{*} KEY INFORMAL DATA

DATA ITEM LIST/USER MATRIX

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() - OPTIONAL APPLICATION

NA - NOT APPLICABLE

Planetary Quarantine (PQ) data Items have been included in the Engineering User Flow Diagrams. See Appendix A, Section 3.

Planetary Quarantine Data Requirement Descriptions

DRD Number	<u>Title</u>
PQ-001	Guidelines, System Operational Design For Planetary Quarantine
PQ-002	Guidelines, Equipment Design For Planetary Quarantine
PQ-003	List, Sterilizable Parts, General Engineering
PQ-004	Plan, Planetary Quarantine, Spacecraft
PQ-005	Plan, Planetary Quarantine, Planetary Vehicle Test
PQ-006	Procedure, Planetary Quarantine, Operating
PQ-007	Procedure, Bio-Assay Test
PQ-008	Report, Bio-Assay Test
PQ-009	Report, Planetary Quarantine Analysis
PQ-010	Report, Planetary Quarantine Audit
PQ-011	Report, Planetary Quarantine, Planetary Vehicle (PV) Test
PQ-012	Specification, Bio-Assay Test Requirements
PQ-013	Specification, Facilities Requirements, Planetary Quarantine Design
PQ-914	Specification, General Engineering, Planetary Quarantine Design

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<u>GE EXHIBIT DRD PQ-001</u> DATE DATA DRD APPROVED BY CATEGORY VOYAGER DATA REQUIREMENT DESCRIPTION DRD NO. DRD PREPARED BY CONTRACT ORGANIZATION ORIGINATING CODE OFFICE RESPONSIBLE FOR DRD CODE DATE REQUIREMENT F.S. Navor 7/28/6 PQ-001 PQ TITLE OF DOCUMENT ORGANIZATION RESPONSIBLE TASK OR DRL ITEM FOR DOCUMENT PREPARATION SUBTASK NO System Engineering ORGANIZATION RESPONSIBLE DRL NO LEVEL NO GUIDELINES, SYSTEM OPERATIONAL DESIGN FOR DOCUMENT REPRODUCTION FOR PLANETARY QUARANTINE ORGANIZATION RESPONSIBLE DDL NO FILE NO FOR DOCUMENT DISTRIBUTION TYPE OF DOCUMENT CONTROL DACTION DREFERENCE ☐ INFORMATION USE OF DOCUMENT ORGANIZATION RESPONSIBLE NO C' COPIES FOR DOCUMENT STOWAGE To provide background information and instructions 30 to contractor system designers as to selection of ESTIMATED MANHOURS FOR SINGLE PREPARATION INFORMATION CUTGEF operational modes and parameters that will meet the DATE OR MILESTONE PQ constraints. DATE DATA DUE ESTIMATED COST (\$) INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: FOR SINGLE PREPARATION TO USER PQ-004 Plan, Planetary Quarantine, Spacecraft FREQUENCY OF ISSUE PUBLICATION DATE SE-008 Specification, System Performance/Design ANNUALLY Requirements **SDR** D SEMI-ANNUALLY UPDATE (FREQUENCY C BI-MONTHLY MONTHLY SEMI-MONTHLY As required CLASSIFICATION ☐ GROUP I BI-WEEKLY through HDR □ SECRET ☐ GROUP 2 SPECIAL HANDLING WEEKLY O CONFIDENTIAL ☐ GROUP 3 ☐ NASA DISCREET ☐ JPL DISCREET SECRET RESTRICTED DATA
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VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET DRD NO.: SPECIAL INSTRUCTIONS PQ-001 SPECIAL DISTRIBUTION. (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DOL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

This data item shall establish system operational design constraints such as the following:

- 1. Restrictions on Attitude Control System operational modes.
- 2. Restrictions on biobarrier separation techniques and sequencing.
- 3. Restrictions on mechanical operations inducing vibration.

The contents will consist of:

- 1. Scope
- 2. Planetary quarantine constraints overall
- 3. Planetary quarantine constraints during operational phases
 - a. Prelaunch
 - b. Launch
 - c. Near-Earth corrections
 - d. Interplanetary cruise
 - e. Near-Mars corrections/orbit insertion
 - f. Martian orbit maneuvers
- 4. Recommended modes of operation for maintenance of quarantine.
 - a. Information for each phase

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD PQ-002 DATE DATA DRD APPROVED BY CATEGORY VOYAGER DATA REQUIREMENT DESCRIPTION DRU NO. CONTRACT DRD PREPARED BY CODE: OFFICE RESPONSIBLE FOR DRD CODE DATE ORGANIZATION ORIGINATING NO REQUIREMENT PQ F.S. Nayor 7/28/67 PQ-002 DRL ITEM ORGANIZATION RESPONSIBLE TASK OR TITLE OF DOCUMENT FOR DOCUMENT PREPARATION SUBTASK NO GUIDELINES, EQUIPMENT DESIGN FOR System Engineering ORGANIZATION RESPONSIBLE DRL NO LEVEL NO PLANETARY QUARANTINE FOR DOCUMENT REPRODUCTION ORGANIZATION RESPONSIBLE FILE NO DDL NO FOR DOCUMENT DISTRIBUTION. TYPE OF DOCUMENT: XI CONTROL DACTION DREFERENCE ☐ INFORMATION USE OF DOCUMENT ORGANIZATION RESPONSIBLE NO OF COPIES FOR DOCUMENT STOWAGE To provide background and instructions to contractor 30 design personnel as to methods and approach for INFORMATION CUTOFF ESTIMATED MANHOURS FOR SINGLE PREPARATION designing to meet the planetary quarantine constraints. DATE OR MILESTONE ESTIMATED COST (\$) DATE DATA DUE INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS. FOR SINGLE PREPARATION TO USER PQ-004 Plan, Planetary Quarantine FREQUENCY OF ISSUE PUBLICATION DATE PQ-013 Specification, Facilities Requirements, - ANNUALLY **SDR** SEMI-ANNUALLY Planetary Quarantine Design QUARTERLY UPDATE (FREQUENCY BI-MONTHLY OR MILESTONE) MONTHLY SEMI-MONTHLY As required CLASSIFICATION GROUP I BI-WEEKLY GROUP 2 SPECIAL HANDLING through HDR ☐ SECRET WEEKLY ☐ GROUP 3 ☐ GROUP 4 ☐ NASA DISCREET ☐ JPL DISCREET CONFIDENTIAL ESTIMATED SECRET RESTRICTED DATA EXPIRATION DATE OTHERWISE AS SPECIFIED CONFIDENTIAL RESTRICTED DATA D PROPRIETARY PROJECT DISCREET UNCLASSIF!ED D PUBLIC DOMAIN One time REFERENCE DOCUMENTS KIND OF DATA: FORM OF DATA: ☐ INSTRUCTION 36 PRINTED DOCUMENT C ABSTRACT O LETTER ☐ BROCHURE CHART O LIST D DIAGRAM D BULLETIN C DRAWING ☐ CATALOG □ LOG ☐ FILM (STATIC OR MOTION) ☐ CONTRACT MANUAL ☐ ILLUSTRATION D DIRECTIVE ☐ MEMORANDUM ☐ MINUTES ☐ MODEL ☐ DISCLOSURE APPLICABLE STANDARDS ☐ RECORDING (TAPE OR DISC) D ENGINEERING CHANGE PLAN COMPUTER CARD ORDER ☐ PROCEDURE COMPUTER TAPE REQUEST FOR ENGINEER- D REGULATION ING CHANGE PROPOSAL THE REPORT MICROFILM (W/OR W/O CARD) ☐ ENGINEERING CHANGE ☐ SCHEDULE D OTHER ☐ SPECIFICATION PROPOSAL ☐ STANDARD CI HANDBOOK □ VOUCHER - INDEX REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL) DRAFT DATE PREPUBLICATION PRO DATE SUBMIT FOR REVIEW TO SUBMIT FOR Manager APPROVAL TO: System Engineering

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SPECIAL INSTRUCTIONS	PQ-002
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OUTLINE OF CONTENTS'	
 Scope Planetary quarantine constraints Methods of fulfilling planetary constraints General approvals Mathematical model Audit and analysis Requirements (general) Recommended approaches Design Material selection Bioassay Manufacturing Shipping Field operation Quality assurance Notes 	

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD PQ-003 DATA DRD APPROVED BY CATEGORY VOYAGER DATA REQUIREMENT DESCRIPTION DRD NO CONTRACT DRD PREPARED BY OFFICE RESPONSIBLE FOR DRD CODE DATE ORGANIZATION ORIGINATING CODE REQUIREMENT NO 7/28/67 ²Q-003 PQF.S. Nayor ORGANIZATION RESPONSIBLE TASK OR DRL ITEM TITLE OF DOCUMENT FOR DOCUMENT PREPARATION SUBTASK NO System Engineering LIST, STERILIZABLE PARTS, GENERAL ORGANIZATION RESPONSIBLE DRI NO LEVEL NO **ENGINEER ING** FOR DOCUMENT REPRODUCTION ORGANIZATION RESPONSIBLE FILE NO DDL NO FOR DOCUMENT DISTRIBUTION. TYPE OF DOCUMENT CONTROL DACTION **D**REFERENCE ☐ INFORMATION USE OF DOCUMENT ORGANIZATION RESPONSIBLE NO OF COPIES FOR DOCUMENT STOWAGE Provides a listing of materials, components, and parts 25 which may be subjected to the approved sterilization INFORMATION CUTOFF ESTIMATED MANHOURS FOR SINGLE PREPARATION cycles without degradation. DATE OR MILESTONE DATE DATA DUE ESTIMATED COST (\$) INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS. FOR SINGLE PREPARATION TO USER PQ-002 Guidelines, Equipment Design for Planetary Quarantine FREQUENCY OF ISSUE PUBLICATION DATE SE-008 Specification, System Performance/Design SDR C ANNUALLY D SEMI-ANNUALLY Requirements UPDATE (FREQUENCY BI-MONTHLY OR MILESTONE) SEMI-MONTHLY Maintain CLASSIFICATION D GROUP I BI-WEEKLY ☐ SECRET SPECIAL HANDLING <u>current</u> п WEEKLY CONFIDENTIAL GROUP 3 GROUP 4 □ NASA DISCREET □ JPL DISCREET ESTIMATED SECRET RESTRICTED DATA
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System Engineering

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS

DRD NO.:
PQ-003

Data for this data item may be obtained from government and industrial facilities where extensive sterilization work has been performed. Additional experimentation will be required to provide information on materials not previously subjected to sterilization.

SPECIAL DISTRIBUTION. (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING ADL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

- 1. Scope
- 2. References
 - a. NASA sterilization specifications
 - b. Material compatibility studies
- 3. List of sterilizable parts
 - a. Sterilizable components and parts list (valves, regulators, explosives, seals, etc.)
 - (1) Dry heat compatible
 - (2) Steam compatible
 - (3) Chemical sterilant compatible
 - b. Sterilizable materials list
 - (1) Dry heat compatible
 - (2) Steam compatible
 - (3) Chemical sterilant compatible
- 4. Data sources

DATE DATA DRD APPROVED BY CATEGORY VOYAGER DATA REQUIREMENT DESCRIPTION DRD NO. CONTRACT NO OFFICE RESPONSIBLE FOR DRD CODE DRU PREPARED BY DATE ORGANIZATION ORIGINATING CODE. REQUIR, MENT PQ 7/28/67 PQ-0<u>04</u> F.S. Navor ORGANIZATION RESPONSIBLE TASK OR DRL ITEM TITLE OF DOCUMENT: FOR DOCUMENT PREPARATION SUBTASK PLAN, PLANETARY QUARANTINE, SPACECRAFT System Engineering ORGANIZATION RESPONSIBLE DRL NO LEVEL NO FOR DOCUMENT REPRODUCTION ORGANIZATION RESPONSIBLE DDL NO. FILE NO FOR DOCUMENT DISTRIBUTION TYPE OF DOCUMENT **M** CONTROL DACTION DREFERENCE ☐ INFORMATION USE OF DOCHMENT. ORGANIZATION RESPONSIBLE NO OF COPIES FOR DOCUMENT STOWAGE Discloses the overall plan for meeting the PQ 50 constraints and serves as a basis for contractor ESTIMATED MANHOURS FOR SINGLE PREPARATION INFORMATION CUTOFF detailed design and planning for the spacecraft as DATE OR MILESTONE a separate entity. DATE DATA DUE ESTIMATED COST (\$) INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: FOR SINGLE PREPARATION TO USER PQ-005 Plan, Planetary Quarantine, Planetary FREQUENCY OF ISSUE PUBLICATION DATE Vehicle Test ANNUALLY Specification, System Performance/Design SDR SE-008 SEMI-ANNUALLY C QUARTERLY Requirements UPDATE (FREQUENCY BI-MONTHLY As required MONTHLY SEMI-MONTHLY
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GE EXHIBIT DRD PQ-004

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	Objectives of plan	
	Planetary quarantine constraints - spacecraft.	:
ł .	Planetary quarantine functional organization a. Organizational responsibilities	
	b. Support organizations	
E .	Integrated planetary quarantine plan - spacecraft	
	a. Mathemtaical model/probability analysis	
	(1) Format	
	(2) Computer program b. Material Selection criteria/controls	
	c. Test, Manufacturing and quality control criteris	
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e. Clean room requirements

- f. Bioassay requirements
- g. Maintenance of decontamination integrity
 - (1) Post-decontamination Repair/Replacement
- 6. Planetary quarantine validation
 - a. Documentation
 - (1) Material selection reports
 - (2) Manufacturing operations reports
 - (3) Test operations reports(4) Bioassay reports
 - b. Proof Constraints met/maintained
 - (1) Planetary quarantine audits
 - (2) Planetary quarantine analysis
 - c. Approval cycles
- 7. Planetary quarantine schedule of events
- 8. References

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VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

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OUTLINE OF CONTENTS:

- 1. Scope
- 2. Objectives
 - a. Condition of capsule
 - b. Condition of spacecraft
- 3. Plan
 - a. Receiving inspection (bioassay)
 - b. Transportation and handling
 - c. Assembly precautions
 - d. Instrumentation limitations
 - e. Test restrictions
 - (1) Extent of operation
 - (2) Extent of disassembly
 - f. Aseptic Repair Requirements
- 4. Test flow diagrams detaining points of bioassay, disassembly, and potential quarantine compromise.
- 5. Organizational responsibility

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

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VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS

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PQ-007

Bioassay techniques to be employed shall be in accordance with those techniques set forth in the NASA "Standard Procedures for the Microbiological Examination of Space Hardware," by L.B. Hall and O.E. Reynolds, 1966.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

- 1. Scope
- 2. Reference Documents (Specs, NASA Procedures, etc.)
- 3. Bioassay Procedure
 - a. Facility Monitoring (air flow, filtration system, and clean room surfaces)
 - (1) Preparation for assay
 - (2) Step-by-step assay procedure
 - (3) Data recording forms
 - (4) Approval sheets
 - b. Hardware monitoring
 - Components
 - Subsystems
 - Systems
 - (1) Preparation for assay
 - (2) Step-by-step assay procedure
 - (3) Data recording forms
 - (4) Approval sheets
- 4. Quality assurance provisions
- 5. Appendixes

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A test report is to submitted for each bioassay test. Summary reports are to be submitted at the conclusion of each test phase.
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OUTLINE OF CONTENTS.
 Summary Test performed Results Conclusion Applicable documents
3. Tests performeda. Test descriptionb. Procedures and methods
c. Results 4. Conclusion and recommendation

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 Summary Mathematical techniques employed Status of design Probability analysis a. By subsystem/system contamination sources b. By mission phases c. By major events/catastraophies 					
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	. Anticipated significant events	
	Activities during reporting period	
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OUTLINE OF CONTENTS:	
1. Scope 2. References a. Planetary Quarantine Plan, Planetary Vehicle Test	
 b. Planetary Vehicle Test Report 3. Discussion a. Activities affecting cleanliness integrity b. Precautions taken/adequacy of precautions c. Integrity compromised (1) During preparation/handling (2) During test (3) During post-test repair/replacement 	
d. Effects of compromise e. Recommended corrective action 4. Quality assurance report section	
5. Appendixes	

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(3) Bioassay of tools, clothing, and personnel; methods, procedures

frequency, limits

- c. Hardware monitoring
 - (1) Methods, procedures, frequency, interpretation
 - (2) Subassembly monitoring
 - (3) Assembly monitoring
 - (4) Monitoring during test, transportation, and prelaunch
- 4. Test and verification (quality assurance provisions)
- 5. Preparation for delivery (not applicable)
- 6. Notes
- 7. Appendixes

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- b. Handling packing materials, packing techniques, etc.
 - (1) Components
 - (2) Assemblies
 - (3) System
- 4. Test and verification
- 5. Preparation for delivery (not applicable)
- 6. Notes
- 7. Appendixes

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OUTLINE OF CONTENTS'

- 1. Scope
- 2. Applie ble documents 3. Poquitements

Planetary quarantine constraints

- (1) Probability of contamination
- (2) Allocation of probability of contamination
- Cleanliness
 - (1) Permissible load prior to contamination
 - (2) Permissible load after contamination
- Decontamination flow chart specifying type of decontamination to be employed at each assembly stage
- Test and verification (not applicable)
- Preparation for shipment (not applicable) 5.
- Notes 6.
- Appendixes

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DOCUMENTATION RELATIONSHIP TREES

A documentation relationship tree has been prepared to show the relationship of data items within this functional category as well as their relationships across categories.

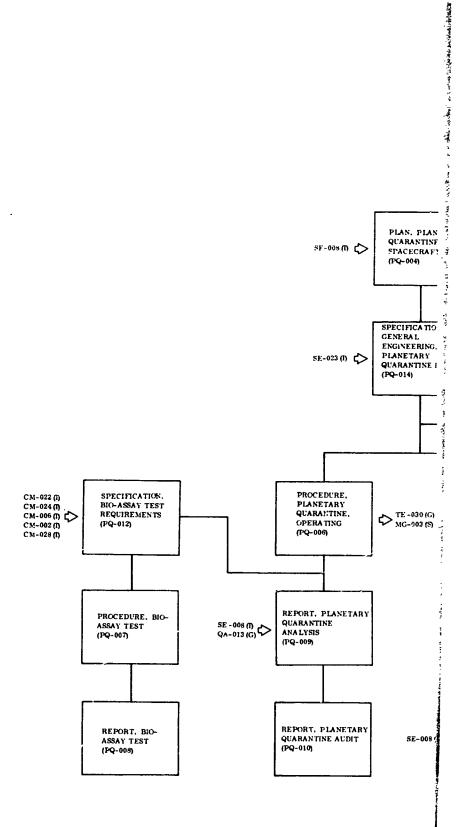
Relationships within each functional category are shown by constructing a tier pattern beginning with the top-level (or governing) data item and relating in descending order all data items within the category to this top-level data item. (The location of a data item at a given level on the diagram does not necessarily indicate the importance of that specific item but identifies and defines its relation to all other data items in that category.)

Relationships between data items in one category and data items in other functional categories are shown by (1) shaded arrows to indicate the direction of the relationship and (2) an alphabetic code to indicate the nature of the interrelationship as follows:

- a. Data items needed for preparation and/or support of the referenced item. (I)
- b. Data items that are supported or needed by this data item. (S)
- c. Data items that relate "to" and provide information of a general nature but are not required in an input or support role. (G)

Each data item appearing on the Data Item List (DIL) was examined and evaluated with respect to its contribution to, or dependence upon, data items appearing in other categories and is included in the diagrams. Additionally, certain data elements indicated in the user flow diagrams (but currently not identified as individual data items) have been shown within a dashed rectangle to clarify relationships.

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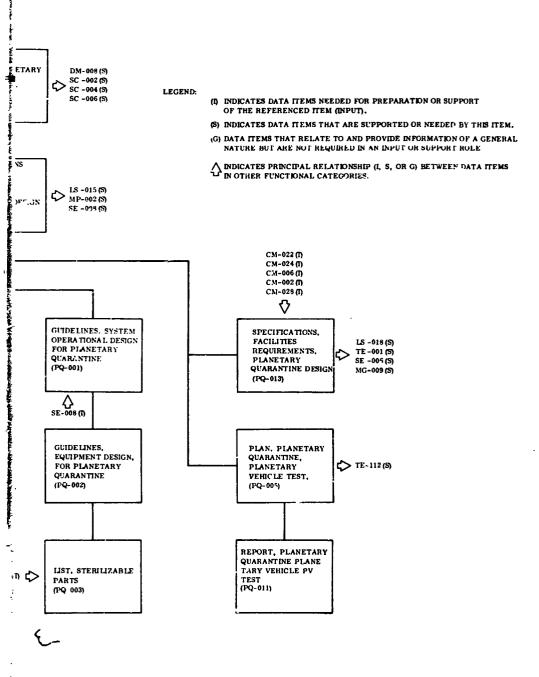


Figure B-1. Planetary Quarantine Documentation Relationship Tree (PQ)

DATA ITEM PHASING/FREQUENCY

Data item frequency and phasing requirements for Planetary Quarantine are as shown in Figure B-2, Planetary Quarantine Data Item Phasing and Frequency Matrix.

Distribution and density of data item preparation requirements are shown in Figure B-3, Planetary Quarantine Data Item Density Profile.

PHASE C - SYSTEM DEFINITION PLANE TARY QUARANTINE (PQ) S/C and OSE DESIGN ENGR HOME, FAB,_ ASSY, TEST - CDR 4 Mo -- PDR 2 No --- HDR 5 Ho --DATA ITEM TITLE QUANTITY FREQUENCY TOTAL QUARTITY PREQUENCY TOTAL Q"ANTITY PREQUENCY TOTAL QUANTITY FREQUENCY TOTAL GUIDELINES PQ-001 Guidelines, System Operational Design for Planetary Quarantine PQ-002 Guidelines, Equip., Besign for Plan. Quar. LISTS PQ-003 List, Sterilizable Parts, Gen. Engrg. U 2/0 PLANS PQ-004 Plan, Planetary Quarantine, Snacecraft U PQ-005 Plan, Planet. Quar., Plan. Vehicle Test 1 ı 1 2/U 3 PROCEDURES PQ-006 Procedure, Planetary Quar. Operating U υ PQ-007 Procedure, Bio-Assy Test 3/U RE PORTS 100 PQ-008 Report, Bio-Assay Test 100 A/R PQ-009 Report, Planetary Quarantine Analysis 3/11 PQ-010 Report, Plan. Quar. Audit PQ-011 Report, Flanetary Quarantire, Flanetary Vehicle (PV) Test SPECIFICATIONS PQ-012 Specification, Bio-Assay Test Requirement 2/U PQ-013 Specification, Pacilities Requirements 1 U Planetary Quarantine Design 1 ı 1 PQ-014 Specification, General Engineering, U Planetary Quarantine, Planetary TOTALS 118

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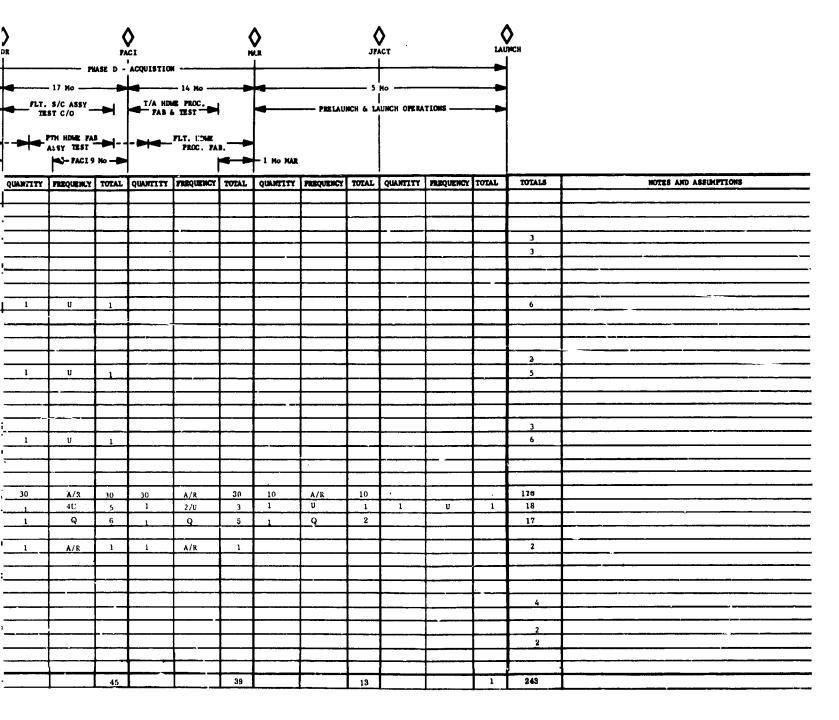
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Figure B-2. Planetary Quarantine Data Item
Phasing and Frequency Matrix

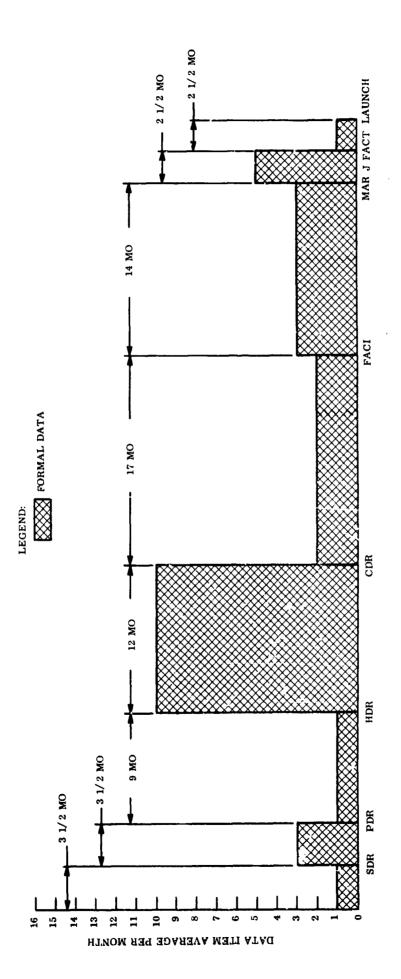


Figure B-3. Planetary Quarantine Data Item Density Profile