

Mars Science Laboratory

Contract Data Requirements List

EXHIBIT I

April 2, 2004

DELIVERABLE DOCUMENTATION

The documentation deliverable under this Contract is summarized in the following Contract Data Requirements List (CDRL), which identifies the items to be delivered, when delivery is required, the quantity and type of each item, and frequency of issue. The Data Requirement Description (DRD) forms referenced in the CDRL describe the specific requirements for the item(s) to be delivered, reference documents, and other instructions as to content, format, and preparation.

Non-Design Document Identification

The Contractor shall display on the cover or title page of all deliverable non-design documentation (all documents except drawings and specifications) the following minimum information:

- (1) Document title
- (2) Contractor's name
- (3) Contract number
- (4) Document number (JPL and/or Contractor assigned)
- (5) Subsystem or support equipment name, if applicable
- (6) Approval signatures: Contractor and JPL; two (2) spaces for JPL signatures, as appropriate
- (7) Project identification: "MSL"
- (8) Documents containing information pertaining to a subsystem or its support equipment shall use the applicable subsystem or support equipment reference designation number
- (9) Date of issue or publication
- (10) Contract paragraph number and DRD numbers
- (11) Revision or change identification

CDRLs are alphanumerically listed by the following disciplines:

| | |
|----|--------------------------|
| CM | Configuration Management |
| MA | Mission Assurance |
| MP | Material and Processes |
| MS | Management System |
| RE | Reviews |
| SA | Safety Assurance |
| SE | System Engineering |

CONTRACT DATA REQUIREMENTS LIST

JPL will review documents submitted by the Contractor for JPL approval and approve or provide comments within twenty (20) working days of receipt at JPL, except as otherwise provided for in this Exhibit and the Statement of Work. In the event JPL does not make a formal disposition of a given document within the required twenty (20) days, the document is approved as submitted.

If the draft is approved by JPL, the Contract Negotiator will transmit a letter stating acceptance to the Contractor. The Contractor shall then prepare and deliver final copies as indicated the CDRL.

If the original or draft submittal requires modification before JPL approval will be granted, the following steps will be taken:

1. The modifications required by JPL will be sent to the Contractor in writing by the JPL Contract Negotiator and discussed between the parties.
2. The Contractor shall submit an updated draft, containing the required modifications within twenty (20) working days (or as otherwise specified) after receiving written notice of the required modifications.
3. If the updated draft is approved by JPL, the Contract Negotiator will transmit a letter stating acceptance to the Contractor. The Contractor shall then prepare and deliver final copies as indicated in the CDRL.

Documents conditionally approved shall be resubmitted as final documents if all conditions of approval can be met exactly. If it is not possible to exactly meet the conditions of approval, the Contractor shall resubmit the document with all possible corrections completed and a letter explaining why the remaining corrections could not be made. Unless otherwise specified, re-submittal of data for approval shall be so identified and delivered ten (10) working days after receipt of JPL's comments.

Revisions or updates to any data requirements set forth herein shall be resubmitted to JPL. Unless otherwise specified in the CDRL or DRD, the requirements, approvals and number of required copies of the data items originally submitted shall also be applicable to the revision submittals.

Data Distribution

The number of copies to be delivered is provided in the CDRL. All data shall be delivered by a cover letter of transmittal to the JPL Contract Negotiator.

Date Due

Unless otherwise specified, all periods identified in the CDRL are in calendar days.

CDRL Definitions

In the CDRL form a "yes" designates 'JPL Approval' and shall be interpreted as meaning that the approval of JPL is required before the indicated activity or task can proceed (see discussion above).

A "no" in the CDRL form indicates that JPL will review the document or item in parallel with the activity. The Contractor does not have to obtain JPL approval to proceed with the activity or task.

JPL intends that the Contractor submit material that is already in electronic form via magnetic media (e.g., word processing documents in Microsoft Word).

Abbreviations (applies to all exhibits and the Statement of Work)

| | |
|-------|---|
| ADC | After Date of Contract |
| AGP | Additional General Provision |
| AIDS | Assembly, Inspection, and Data Sheet |
| ARJC | After Receipt of JPL Comments |
| ATLO | Assembly, Test, and Launch Operations |
| CDR | Critical Design Review |
| CDRL | Contract Data Requirements List |
| C&DH | Command and Data Handling |
| CM | Configuration Management |
| CAS | Cost Accounting Standards |
| CPM | Cost Performance Management |
| D | JPL Document (D-xxxx) |
| DA | Direct Access |
| DS | Design |
| DSN | Deep Space Network |
| DPA | Destructive Physical Analysis |
| DRD | Data Requirement Description |
| ECR | Engineering Change Request |
| EIDP | End Item Data Package |
| EM | Engineering Model |
| EMI | Electromagnetic Interference |
| ESD | Electrostatic Discharge |
| EVRM | Earned Value Resource Management |
| FTE | Full Time Equivalent |
| FMECA | Failure Mode Effects and Criticality Analysis |
| FRD | Functional Requirements Document |
| FTA | Fault Tree Analysis |
| G&A | General and Administrative |
| GFP | Government Furnished Property |
| GIDEP | Government Industry Data Exchange Program |
| HRCR | Hardware Review and Certification Record |
| ICD | Interface Control Document |
| I-CDR | Instrument Critical Design Review |
| IDR | Instrument Delivery Review |
| I-PDR | Instrument Preliminary Design Review |
| MICD | Mechanical Interface Control Drawing |
| MIUL | Material Identification and Usage List |
| MMR | Monthly Management Review |
| M&P | Materials and Processes |
| MOS | Mission Operations System |
| MRB | Material Review Board |
| MUA | Material Usage Agreements |

NCMR Non-Conformance Material Report
NSPAR Non-standard Part Approval Request
PDMS Product Data Management System
PDR Preliminary Design Review
P/FR Problem/Failure Report
P-MAP Preliminary Mission Assurance Plan
PSR Pre-Ship Review
QA Quality Assurance
RDD Release Description Document
SECR Support Equipment Review and Certification Record
SPF Single Point Failure
SRCR Software Review and Certification Record
TBN To Be Negotiated
TBS To Be Supplied
TDM Technical Direction Memorandum
WBS Work Breakdown Structure
WCA Worst Case Analysis

Data Requirement Description (DRD) List

Configuration Management (CM)

| | |
|--------|---|
| CM-001 | Configuration Management Plan* |
| CM-002 | Hardware End Item Data Package |
| CM-003 | Software End Item Data Package |
| CM-004 | Support Equipment End Item Data Package |

Mission Assurance (MA)

| | |
|--------|---------------------------------------|
| MA-001 | Mission Assurance Plan |
| MA-002 | Reliability Assurance Plan* |
| MA-003 | Problem/Failure Reporting Plan* |
| MA-004 | Quality Assurance Plan* |
| MA-005 | Software Quality Assurance Plan* |
| MA-006 | Electronic Parts Control Plan* |
| MA-007 | Contamination Control Plan* |
| MA-008 | Materials and Processes Control Plan* |
| MA-009 | Reliability Data |
| MA-010 | Problem/Failure Reports |
| MA-011 | Electronics Parts Data |
| MA-012 | Materials and Processes Data |
| MA-013 | Environmental Test Data and Reports |
| MA-014 | Contamination Susceptibility Analysis |

Management System (MS)

| | |
|--------|--|
| MS-001 | Experiment Implementation Plan |
| MS-002 | Earned Value/Resource Management Plan |
| MS-003 | Experiment Operations Plan |
| MS-004 | Work Breakdown Structure and Dictionary |
| MS-005 | Baseline Earned Value, Cost, Schedule and Workforce Report |
| MS-006 | Detailed Earned Value, Cost, Schedule and Workforce Status Reports |
| MS-007 | Contract Status Report |
| MS-008 | Subcontracting Reports for Individual Contracts |

Reviews (RE)

| | |
|--------|--|
| RE-001 | Monthly Management Reviews (MMRs) |
| RE-002 | Instrument Preliminary Design Review (I-PDR) |
| RE-003 | Instrument Critical Design Review (I-CDR) |
| RE-005 | Instrument Delivery Review (IDR) |
| RE-006 | Instrument Operations Readiness Review (I-ORR) |

Safety Assurance

| | |
|--------|------------------------|
| SA-001 | Safety Plan |
| SA-002 | Safety and Health Plan |

System Engineering (SE)

| | |
|--------|---|
| SE-001 | Instrument Functional Requirements Document (FRD) |
| SE-002 | Instrument Verification and Test Plan |

- May be included in the Mission Assurance Plan (MA-001)

Exhibit I
Contract Data Requirements List

RFP No. _____
MSL PI Instruments

04/02/2004

Page 7 of 12

| DRD NO. | ITEM NO. | TITLE OR DESCRIPTION OF DATA | APPR CODE | FREQUENCY OF ISSUE | DATE DUE TO JPL | QTY. | REMARKS |
|------------------------------------|----------|---|-----------|--------------------|-----------------|-------|--|
| CM Configuration Management | | | | | | | |
| CM-001 | | Configuration Management Plan | | | | | |
| | | Draft | X | Once | 30 DB I-PDR | Elec. | |
| | | Final | A | Once | 30 DB I-CDR | Elec. | |
| CM-002 | | Hardware End Item Data Package | A | Once | 10 DB IDR | Elec. | |
| CM-003 | | Software End Item Data Package | A | Once | 10 DB IDR | Elec. | |
| CM-004 | | Support Equipment End Item Data Package | A | Once | 10 DB IDR | Elec. | |
| MA Mission Assurance | | | | | | | |
| MA-001 | | Mission Assurance Plan | | | | | |
| | | Draft | X | Once | 30 DB I-PDR | Elec. | |
| | | Final | A | Once | 30 DB I-CDR | Elec. | |
| MA-002 | | Reliability Assurance Plan | | | | | |
| | | Draft | X | Once | 30 DB I-PDR | Elec. | |
| | | Final | A | Once | 30 DB I-CDR | Elec. | This can be a stand alone plan or incorporated into the Mission Assurance Plan |
| MA-003 | | Problem/Failure Reporting Plan | | | | | |
| | | Draft | X | Once | 30 DB I-PDR | Elec. | |
| | | Final | A | Once | 30 DB I-CDR | Elec. | This can be a stand alone plan or incorporated into the Mission Assurance Plan |
| MA-004 | | Quality Assurance Plan | | | | | |
| | | Draft | X | Once | 30 DB I-PDR | Elec. | |
| | | Final | A | Once | 30 DB I-CDR | Elec. | This can be a stand alone plan or incorporated into the Mission Assurance Plan |

ADOC = After Date Of Contract
A = JPL Approval Required

ARJC = After Receipt JPL Comments
X = JPL Approval Not Required

DB = Working Days Before

DA = Working Days After

SR = See Remarks

NOTE: Updates of all documents shall be provided as generated.

Exhibit I
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RFP No. _____
 MSL PI Instruments

04/02/2004

Page 8 of 12

| | | | | | | | |
|--------|---------------------------------------|---|------|-------------|-------|--|--|
| MA-005 | Software Quality Assurance (SQA) Plan | | | | | | |
| | Draft | X | Once | 30 DB I-PDR | Elec. | | |
| | Final | A | Once | 30 DB I-CDR | Elec. | | This can be a stand alone plan or incorporated into the Mission Assurance Plan |
| MA-006 | Electronic Parts Control Plan | | | | | | |
| | Draft | X | Once | 30 DB I-PDR | Elec. | | |
| | Final | A | Once | 30 DB I-CDR | Elec. | | This can be a stand alone plan or incorporated into the Mission Assurance Plan |
| MA-007 | Contamination Control Plan | | | | | | |
| | Draft | X | Once | 30 DB I-PDR | Elec. | | |
| | Final | A | Once | 30 DB I-CDR | Elec. | | This can be a stand alone plan or incorporated into the Mission Assurance Plan |
| MA-008 | Materials and Processes Control Plan | | | | | | |
| | Draft | X | Once | 30 DB I-PDR | Elec. | | |
| | Final | A | Once | 30 DB I-CDR | Elec. | | This can be a stand alone plan or incorporated into the Mission Assurance Plan |
| MA-009 | Reliability Data | | | | | | |
| | Draft | X | Once | 30 DB I-PDR | Elec. | | |
| | Final | A | Once | 30 DB I-CDR | Elec. | | This can be a stand alone plan or incorporated into the Mission Assurance Plan |

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| | | | | | | | |
|--------|--|---------------------------------|---|-----------------------------|------------------------|-------|--|
| MA-010 | | Problem/Failure Reports (P/FRs) | A | As Required | 1 DA Anomaly | Elec. | |
| MA-011 | | Electronic Parts Data | A | AS Required | As Generated | Elec. | NSPARs, Waivers, Failure analysis reports and Contractor parts specifications to be submitted as generated to support parts lists approval requirements. |
| | | Preliminary Parts List | X | Initial + quarterly updates | 30 days prior to I-PDR | | |
| | | As-Designed Parts List | A | Initial + quarterly updates | 30 days prior to I-CDR | | |
| | | As-Built Parts List | A | Once | 30 days prior to IDR | | |
| MA-012 | | Materials and Processes Data | A | As Required | As Generated | Elec. | |
| | | Preliminary MIULs | X | Initial + quarterly updates | 30 days prior to I-PDR | | |
| | | As-Designed MIULs | A | Initial + quarterly updates | 30 days prior to I-CDR | | |
| | | As-Built MIULs | A | Once | 30 days prior to IDR | | |
| | | Preliminary MUAs | X | Initial + quarterly updates | 30 days prior to I-PDR | | |
| | | As-Designed MUAs | A | Initial + quarterly updates | 30 days prior to I-CDR | | |
| | | As-Built Parts MUAs | A | Once | 30 days prior to IDR | | |

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| | | | | | | | |
|-----------------------------|---|---|--------------|------------------------------|-------|--|---------------------------|
| MA-013 | Environmental Test Data and Reports | | | | | | |
| | ETAS Part 1 | A | As Generated | 5 DB to test | Elec. | | |
| | ETAS Part 2 | A | As Generated | 5 DA test | Elec. | | |
| | EACS | A | As Generated | 10 DB I-CDR | Elec. | | |
| | RACS | A | | 10 DA completion of analysis | Elec. | | |
| MA-014 | Contamination Susceptibility Analysis | | | | | | |
| | Initial | A | Once | IAR | Elec. | | |
| | Updates | A | | I-PDR and I-CDR | Elec. | | |
| MS Management System | | | | | | | |
| MS-001 | Experiment Implementation Plan | A | Once | Selection + 3 months | Elec. | | |
| MS-002 | Earned Value/Resource Management Plan | A | Once | Selection + 3 months | Elec. | | |
| MS-003 | Experiment Operations Plan | | | | | | |
| | Draft | | | | | | |
| | Final | A | Once | 30 DB I-CDR | Elec. | | |
| MS-004 | Work Breakdown Structure and Dictionary | | | | | | |
| | Draft | X | Once | Selection + 3 months | | | |
| | Final | A | Once | 30 DB I-PDR | | | |
| MS-005 | Baseline Earned Value, Cost, Schedule and Workforce Report | | | | | | |
| | Phase A/B (if contract value > \$25M) | A | Once | Selection + 3 months | | | |
| | Phase C/D (if contract value > \$25M) | A | Once | 30 DB I-PDR | | | |
| MS-006 | Detailed Earned Value, Cost, Schedule, and Workforce Status Reports | X | Monthly | 20th day of each month | Elec. | | To be included in MMR pkg |
| MS-007 | Contract Status Report (533M and 533Q) | | | | | | Electronic submission |
| | 533 M Reports | X | Monthly | 15th day of each month | Elec. | | acceptable if signature |
| | 533 Q Reports | X | Quarterly | 15th day of month/qtrly | Elec. | | incorporated |

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Page 11 of 12

| | | | | | | | |
|---|--|---|---|---------------|----------------------|-------|--|
| MS-008 | | Subcontracting Reports for Individual Contracts (SF294 and SF295) | | | | | Electronic submission |
| | | SF 294 | X | Semi-annually | 6 mos. ADOC | | acceptable if signature |
| | | SF 295 | X | Annually | 12 mos ADOC | | incorporated |
| <u>RE</u> <u>Reviews</u> | | | | | | | |
| RE-001 | | Monthly Management Reviews (MMRs) | X | Monthly | | | |
| RE-002 | | Instrument Preliminary Design Review (I-PDR) | | Once | October 2005 | | |
| RE-003 | | Instrument Critical Design Review (I-CDR) | | Once | October 2006 | | |
| RE-005 | | Instrument Delivery Review (IDR) | | Once | April/May 2008 | | |
| RE-006 | | Instrument Operations Readiness Review (I-ORR) | | Once | May 2009 | | |
| <u>SA</u> <u>Safety</u> | | | | | | | |
| SA-001 | | Safety Plan | | | | | |
| | | Draft | X | Once | 30 DB I-PDR | Elec. | |
| | | Final | A | Once | 30 DB I-CDR | Elec. | This can be a stand alone plan or incorporated into the Experiment Implementation Plan |
| SA-002 | | Safety and Health Plan | | | | | |
| | | Final | A | Once | Selection + 3 months | Elec. | |
| <u>SE</u> <u>System Engineering</u> | | | | | | | |
| SE-001 | | Instrument Functional Requirements Document (FRD) | | | | | |
| | | Draft | X | Once | Selection + 3 months | Elec. | |
| | | Final | A | Once | 30 DB I-PDR | Elec. | |
| SE-002 | | Instrument Verification and Test Plan | A | Once | 30 DB I-CDR | | |

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