

DOE FILE COPY

DOE/SF/10539-23
(STMPO-573)

COLLECTOR SUBSYSTEM
INTEGRATED ACCEPTANCE TEST PLAN
DOCUMENT NUMBER MCR-81-1715


UNITED STATES DEPARTMENT OF ENERGY/
SOUTHERN CALIFORNIA EDISON COMPANY
10 MWe SOLAR PILOT PLANT
DAGGETT, CALIFORNIA

MARTIN MARIETTA AEROSPACE
DENVER, COLORADO

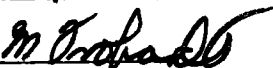
Author


G.R. Rose

Reviewed by



Approved by



FOREWARD

This document is submitted in response to the requirements of DOE Contract number, DE-AC03-80SF-10539, dated December 3, 1979, Phase II Collector Subsystem Statement of Work, TASK E3.

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Procedures:

40 0 500 29 0	Master Control Procedure, Heliostat Installation and Checkout
40 0 500 21 0	Manual Control Box and HAC/Heliostat Checkout Tests
40 0 500 30 0	Heliostat Checkout with Stimulator
40 0 500 22 0	Canting Verification
40 0 500 26 0	Encoder Bias Measurement
40 0 500 28 0	Encoder Bias Measurement System Verification
111	Functional Test Procedure
101	Heliostat Readiness Procedure
106	Dual HAC Test Procedure
116	Heliostat Targeting Verification Test Procedure

3.0 PREOPERATIONAL TESTING

3.1 Test Prerequisites

Various heliostat checkout and test activities will be performed after completion of heliostat installation. These activities will be prerequisite to the preoperational testing and are briefly described in the following paragraphs.

- a. Manual Control Box and HAC/Heliostat Checkout Tests, Procedure Number 40 0 500 21 0. These tests verify the Manual Control Box to heliostat and the HAC to heliostat interfaces. Using the HAC, position commands will verify all heliostat movements and speeds. In addition, the limit switches will be verified.
- b. Heliostat Checkout with Stimulator, Procedure Number 40 0 500 30 0. This is a backup type of test which will only be performed in the event the HAC is temporarily unavailable. The testing will consist of individual heliostat position commands issued from the stimulator. Limit switches will be verified. If this stimulator test is performed, the HAC to heliostat interfaces will later be verified.
- c. Canting Verification, Procedure Number 40 0 500 22 0. This activity will demonstrate that the canting performed in the Assembly Building, is satisfactory. Verification will be performed visually using the ground level target of the En-

coder Bias Measurement System (EBMS). Canting verification will be performed on the first twenty heliostats installed and then on a sampling basis thereafter.

- d. Encoder Bias Measurement, Procedure Number 40 0 500 28 0. This activity will determine the encoder bias values for each heliostat. Testing will be performed at night using the EBMS.
- e. Encoder Bias Measurement System Verification, Procedure Number 40 0 500 28 0. This activity will verify that the individual heliostat bias measurements, obtained in Paragraph 3.d above, are satisfactory. This procedure will be performed on the first 20 heliostats and then on a sampling basis thereafter.

3.2 Preoperational Testing (Collector Subsystem Stand Alone)

3.2.1 General Description:

The following preoperational testing will be performed with the Collector Subsystem as a stand alone system. The preoperational tests shall verify console/display requirements, graphics display requirements, controls/status display requirements, collector subsystem heliostat readiness, collector subsystem functional control requirements, HAC redundancy and heliostat targeting verification. The preoperational tests which will be performed to procedures prepared by Martin Marietta are as follows:

- a. Heliostat Readiness (101) - The objective of the Heliostat Readiness Test is to verify the heliostat field is cleared of all obstacles which could impede or damage heliostats in motion, to identify any heliostats which are not in service and verify collector field system power has been applied.
- b. Collector Subsystem Functional Test (111) - The objective of the Collector Subsystem Functional Test is to demonstrate the capability of the HAC to control the heliostat field as follows:

Heliostat - The capability to command individual heliostats.

Segment - The capability to command a group of heliostats in an arc segment around the tower.

Ring - The capability to command a complete set of segments which form an arc approximately on the same circular rows from the tower.

Wedge - The capability to command a complete set of segments which form a pie shaped wedge centered on the tower.

Full Field - The capability to command the full field of heliostats.

- c. Dual HAC Test (106) - The objective of the Dual HAC Test is to demonstrate the redundancy of the Heliostat Array Controller (HAC) and Console/Display requirements.
- d. Heliostat Targeting Verification (116) - The objective of the Heliostat Targeting Verification Test is to demonstrate that the correct heliostat targeting data for the receiver has been incorporated into the Heliostat Array Controllers (HAC) software by visually observing heliostat beams on the receiver. During system initialization, targeting data for the first of 20 sets of aimpoint tracking arrays shall be used and these values shall be verified one at a time for 20 heliostats beams on the receiver.

Demonstrate that the HAC Graphics CRT displays the correct aimpoint array and corresponding x, y and z target values selected.

Demonstrate the HAC capability to select, control and display up to 20 sets of aimpoint tracking arrays.

3.2.2 Test Sequence:

The above preoperational tests will be used to verify collector system operation objectives of subsequent preoperational and startup acceptance tests and the testing sequence desired is as follows:

- a. Heliostat Readiness (101)
- b. Collector Subsystem Functional Test (111)
- c. Heliostat Targeting Verification (116)
- d. Dual HAC Test (106)

Special track, CLLP, CULP coordinates shall be defined and verified for test performance during daytime operations. Simulated time of day, to provide proper gimball angles, shall be used for

testing conducted during nighttime hours.

3.3 Preoperational and Integrated Acceptance Testing (Collector Subsystem Integrated with Plant Subsystems)

3.3.1 Test Procedures for the preoperational and integrated acceptance tests will be prepared by the SFDI with Martin Marietta providing inputs to support the test procedure preparation.

3.3.2 Martin Marietta will supply technical inputs, personnel, software corrections and hardware replacement parts as necessary to participate in verifying interfaces and operations of preoperational and integrated acceptance tests with the collector subsystem integrated with other plant systems.

3.3.3 HAC Interface Test

The HAC A and B interfaces to the OCS, DAS, Receiver System and Collector field power supply shall be verified with legal and illegal command matrices, RS trip signal and responses, HAC fail over effect and collector field power loss effects and responses.

3.3.4 BCS

HAC to OCS message traffic interfaces, BCS operations and responses, will be verified.

3.4 Inter-Systems Preoperational and Automatic Control Acceptance Tests

3.4.1 Verify collector/receiver optical interactions, collector subsystem operations, control and responses.

4.0 REPORTING

4.1 Pilot Plant Startup and Acceptance Test Report:

The report shall be prepared by the SFDI with inputs and final review by members of the Test Analysis Group. The report will be prepared on an incremental basis upon completion of each major preoperational inter-system test and acceptance test. Final document integration and submittal will take place after the completion of the acceptance automatic control tests.

MARTIN MARIETTA AEROSPACE

DENVER DIVISION
POST OFFICE BOX 179
DENVER, COLORADO 80201
TELEPHONE (303) 977-3000

10 November 1982

Ms. Mary Jane Holliday
Contract Examiner
Department of Energy
California Patent Group
San Francisco Operations Office
Oakland, California 94612

Re: Final Patent Certification for DOE
Contract DE-ACO3-80SF10539

Dear Ms. Holliday:

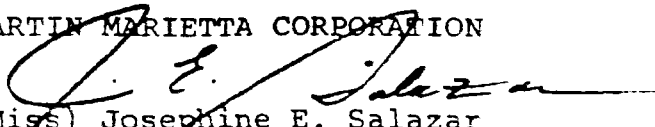
Pursuant to your letter of September 7, 1982, addressed to Mr. Cecil W. Duclon, I have made the corrections you requested thereon.

With respect to Invention Disclosures 81YD16, 81YD24 and 81YD25, please see our attached letters dated March 11, 1982 wherein you were notified that these inventions are not reportable. I am also attaching Mr. Carnahan's letter dated March 22, 1982.

If we can be of further assistance, please contact our office. Mr. DeArment may be reached at (303) 977-6109 and I may be reached at (303) 977-6501/6110.

Very truly yours,

MARTIN MARIETTA CORPORATION


(Miss) Josephine E. Salazar
Assistant to Phillip L. DeArment
Assistant Patent Counsel

cc: C. W. Duclon
W. A. Brever
J. T. Weber

February 22, 1982
Attachment II
Patent Certification
DOE Contract No. DE-AC03-80SF10539

2. Technical data of this contract other than reports (i.e., notebooks, drawings, etc.) are completely listed, as follows:

All correspondence, reports, etc., mailed to Huntington Beach office.

Monthly submittals, Issue 1 through 25 as follows:

- a. Milestone Schedule and Status Report
- b. Cost Management Report
- c. Project Status Report
- d. Documentation Tab Run
- e. List of active changes/modifications
- f. List of drawing revisions/levels
- g. Indentured Parts List

Minority Business Reports

Updated OPDD Documentation

Controls Hardware Drawings

Software Design Specification

Safety Plan

Hazard Analysis

Preliminary Design Review Package

Preliminary Design Review Package Final

Manufacturing Plan

Quality Assurance Plan

✓ Functional Test Plan

Functional Test Report

STMPD-573 C/S Integrated Acceptance Test Plan MCR-81-1715

DOE FILE COPY

MARTIN MARIETTA AEROSPACE

DENVER DIVISION
POST OFFICE BOX 179
DENVER, COLORADO 80201
TELEPHONE (303) 977-3000

April 3, 1981

Refer to: SOL-81-309

To: U. S. Department of Energy
San Francisco Operations Office
Solar Ten Megawatt Project Office
5301 Bolsa Avenue, MS14-1
Huntington Beach, CA 92647

Attn: Mr. Richard N. Schweinberg

Subj: Contract DE-AC03-80SF10539, Transmittal of Documentation,
CS/Integrated Acceptance Test Plan

Ref: (a) Task E.3 of Exhibit I SOW of Contract DE-AC03-80SF10539

Encl: (1) MCR-81-1715 CS/Integrated Acceptance Test Plan

1. The Enclosure (1) documentation is transmitted in accordance with the Reference (a) requirement.
2. Questions concerning this documentation may be addressed to Mr. Mel Frohardt at (303) 977-0527, the above address, Mail Stop C4000.

Very truly yours,

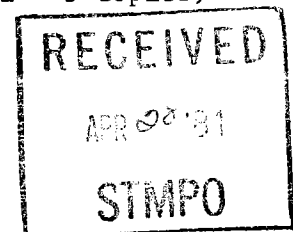
MARTIN MARIETTA CORPORATION



James L. Meeks
Chief, Contract Requirements and
Documentation
Solar Energy Systems
Martin Marietta Aerospace
Denver Division

Distribution:

STMPO, Mr. M. Slaminski (W/Encl.)
STMPO, Mr. D. Christian (W/Encl.)
SNLL, Mr. W. Morehouse (W/Encl. 2 copies)
Southern California Edison, Mr. L. Chillcott (W/Encl. 2 copies)
McDonnell Douglas Aircraft Corporation, Mr. R. Hallet (W/Encl - 5 copies)





Department of Energy
San Francisco Operations Office
1333 Broadway
Oakland, California 94612

Reply to:

DOE Site Office
Post Office Box 366
Daggett, CA 92327

Mr. Melvin T. Frohardt
Martin Marietta Aerospace
Post Office Box 179
Denver, CO 80201

DEC 06 1983

Subj.: Closeout Actions on Martin Marietta Contracts with DOE San Francisco
Operations Office

Dear Mel:

Nearly six months ago, I requested your assistance in finalizing patent clearance on a number of the documents from the Collector Phase I and Phase II contracts which we wish to enter into the DOE Technical Information Center system. Thus far, I have not had any response to this request. We are about to issue the bibliography developed by Burns & McDonnell under the EPRI-funded "Lessons Learned and Project Documentation" study (I assume you have received a copy of Vol. 1, "Lessons Learned" - if not, let me know and I will send you one), and we and TIC anticipate a substantial number of requests for key documents, including yours.

In addition, SAN Contracts Closeout (Sonia Jackson) advises me that several of the final documents needed to complete closeout (and release final payment of withheld funds), ~~is~~ as yet lacking, not only on the above two contracts, but also on the old Preliminary Design contract. I would greatly appreciate your assistance (or your guidance as to who can assist us) in getting this wrapped up and off both of our desks. To recapitulate (adding the items needed by SAN) for the three contracts:

DE-AC03-76ET20422 (Old Contract -1110), Central Receiver System Prel. Design:

- o A "Final Invoice", to be submitted to Sonia Jackson, with copy to me;
- o "Contractors Assignment of Refunds and Rebates", to Sonia;
- o "Contractors Release", to Sonia;
- o "Contractor Request for Patent Clearance" (send to me, only), for:
 - MCR-77-161, "System Safety Design Criteria for Central Receiver...System",
 - MCR-77-162, "System Safety Program Requirements for Solar Thermal Systems".(These were done under an extension to the Preliminary Design contract, and are valuable background documents.)

DE-AC03-78ET21007 Collector System, Phase I:

- o "Final Invoice", to Sonia, copy to me;
- o "Assignment of Funds and Rebates", to Sonia;

- o "Contractors Release", to Sonia;
- o "Contractor Request for Patent Clearance", to me, for:
 - MCR-78-1323, "10-MWe Solar Thermal Pilot Plant Conceptual Design Review";
 - MTR-78-1330, "10-MWe Solar Thermal Pilot Plant Preliminary Design Review";
 - MCR-79-1302, "10-MWe Solar Thermal Pilot Plant Final Design Review (2 Vols.)";
 - 40-0-500-4P, "10-MWe Solar Thermal Pilot Plant Phase II O&M Equipment";
 - 40-0-500-6P, "10-MWe Solar Thermal Pilot Plant Phase II Planning."

DE-AC03-80SF10539, Collector System Phase II

- o "Final Invoice", to Sonia, copy to me;
- o "Assignment of Funds and Rebates", to Sonia;
- o "Contractors Release", to Sonia;
- o "Contractor Request for Patent Clearance", to me, for:
 - MCR-79-1352B*, "Quality Assurance Plan for 10-MWe Phase II Collector..";
 - MCR-80-1304, "10-MWe Solar Pilot Plant Collector Subsystem Safety Plan";
 - MCR-81-1331B, "Hazard Analysis for 10-MWe ...Pilot Plant";
 - 40-0-500-2P, "10-MWe ...Pilot Plant Phase II Mfg. Plan, Rev. 2";
 - MCR-80-1341A, "10-MWe Collector Sybsystem Software/Firmware Functional Req'ts.";
 - MCR-80-1362, "System Description Document, Collector Subsystem...";
 - MCR-80-1376*, "Heliostat Stimulator Operators' Manual";
 - MCR-81-1708, "Operation Instructions, Heliostat Field Subsystem...";
 - MCR-81-1709A, "Maintenance Instructions, Heliostat Field Subsystem...";
 - MTR-81-1769, "...Collector Subsystem Functional Test Report";
 - MCR-81-1770, "Supplemental Spares Plan, Heliostat Field...";
 - MCR-80-1377A, "Software/Firmware Design Specifications...";
 - MCR-82-1701, "Control System Theory of Operation";
 - Drawing Set, as Identified in "Drawing Tree 400500 5132701";
 - Source Listing of Code for Heliostat Controller ROM or EPROM*
 - Source Listing of Code for Heliostat Field Controller ROM/EPROM*

Our files do not have current copies of the following other items identified in the Drawing Tree (400500 5132701):

Documents: 40M500-2S, "Foundation Req'ts.", 40M500-1T, "Installation Instructions", 40M500-2M, "Canting Procedures", 40M500-5P, "Acceptance Plan", MCR-80-1361, "Collector System Functional Test Plan", and MCR-81-1715, "Collector System Integrated Acceptance Test Plan."

* Current copies of these four items are lacking from the Project files; your assistance in obtaining at least one copy of each will be most appreciated.

Drawings: 40M500 5132788, "Adapter Plate/Control Arm Heat Tool", 40M500 5132771, "Field Cantino Tool", and 40E500 5132776, "Drive Unit Checkout Console".

While these items are not carried in the current version of the Bibliography (none of the Plant as-built drawings have been entered as yet), many, if not all, of them may be expected to be of interest to the solar community. I would appreciate at least one copy of each, again with your release. To save you considerable effort in preparing the Patent Clearance Request forms (I am enclosing several copies of the form), you may combine many of the above by simply clearing the "Drawing Tree", with its contents.

If you need the other closeout forms cited above (your Contract Administration staff should have them in stock), please call Sonia Jackson at FTS 536-4179, or write her at:

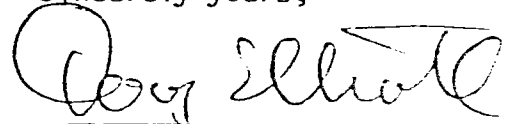
Ms. Sonia Jackson (CM)
Department of Energy
1333 Broadway
Oakland, CA 94612

Finally, since we are required to forward two clean, reproducible copies of each document to DOE/TIC, as well as needing one clean copy for our on-site archives, any "extras" you can turn up around your offices would be greatly appreciated; certainly, rather than throw anything of possible interest out, send it to me.

Mel, I know (believe me!) that this is all a significant amount of work, and I wish I didn't have to ask you (or your staff) to go through it, but it will be to our mutual benefit in the end to get these three contracts all cleaned up, and a comprehensive package of Project documentation (currently, over 550 documents, plus drawings) into the archives. If there is anything further I can do to assist you in this effort, please call on me.

Enc.: DOE Proj. Ofc. ltr. 6/25/83
Patent Clearance Req. Forms

Sincerely yours,



S. D. Elliott, Jr., Director,
DOE Project Office, Barstow

cc: H. C. Wroton, MMC
Sonia Jackson, DOE/SAN (CM)

PS: I keep running across references to a document I can't identify: MCR-78-1325; what was it?

January 30, 1984

Mr. Doug Elliott
DOE Site Office
Post Office Box 366
Daggett, CA 92327

Subject: Closeout Actions on Martin Marietta Contracts with DOE San Francisco Operations Office

Reference: Letter of December 06, 1983, S.D. Elliott, Jr. to M. Frohardt, Closeout of Contracts

In regard to the referenced letter, following is the status and actions in process to close out these items:

1. Contract Closeout Status

In regard to the closeout of cost type contracts DE-AC03-76ET20422, Central Receiver Test Facility, and DE-AC03-78ET21007, Collector System Phase I, we include the "Contractors Assignment of Refunds and Rebates" and "Contractors Release" with our final invoice package. The final invoices for these two contracts will be submitted upon completion of final settlement negotiations for our 1979 overhead and G&A rates which is currently in progress. In reference to the closeout of contract DE-AC03-80SF10539, Collector System Phase II, please see Attachment 1, the letter to Ms. Joann Littlehales dated January 23, 1984, for the current status.

2. Patent Clearance

The following documents are in the process of being cleared by our Patent office. When this transmittal is available, I will send a copy to you.

- MCR-78-1323, "10-MWe Solar Thermal Pilot Plant Conceptual Design Review"
- MCR-78-1330, "10-MWe Solar Thermal Pilot Plant Preliminary Design Review"
- MCR-79-1302, "10-MWe Solar Thermal Pilot Plant Final Design Review (2 Vols)"
- 40-0-500-4P, "10-MWe Solar Thermal Pilot Plant Phase II O&M Equipment"
- 40-0-500-6P, "10-MWe Solar Thermal Pilot Plant Phase II Planning"

Mr. Doug. Elliott
January 27, 1984
Page 2

The remainder of the documents have been previously cleared by the following letters, copies of which are included in Attachment 2.

Letters from Phillip DeArment to Roger Gaither:

DAC-83-417, dated May 24, 1983
80-Y-15555, dated July 28, 1980
DAC-82-389, dated May 3, 1982
Letter dated March 11, 1982
Letter dated November 10, 1982

3. Documents

You requested copies of some documents and drawings in the referenced letter. Copies of the following drawings and documents are being submitted under Attachment 3.

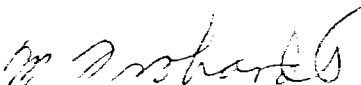
MCR-78-1330, "Preliminary Design Review Package"
MCR-79-1352B, "Quality Assurance Plan for 10-MWe Phase II
Collector"
MCR-80-1376, "Heliostat Stimulator Operators' Manual"
40M500-2S, "Foundation Requirements"
40M500-2M, "Canting Procedures"
40M500-1T, "Installation Instructions"
40M500-5P, "Acceptance Plan"
MCR-81-1715, "Collector System Integrated Acceptance Test Plan"
MCR-80-1361, "Collector System Functional Test Plan"
40M500 5132788, "Adapter Plate/Control Arm Heat Tool"
40M500 5132771, "Field Canting Tool"
Source Listing of Code for Heliostat Controller ROM or EPROM*
Source Listing of Code for Heliostat Field Controller ROM/EPROM

No drawing exists for 40E500 5132776, "Drive Unit Checkout Console" as this checkout console consisted of a stimulator to operate a production Drive Mechanism Assembly. Also MCR-78-1330 is the correct document number for the Preliminary Design Review Package rather than MCR-78-1325. MCR-78-1325 is the document number assigned to all the Monthly Progress Reports written during the Phase I contract.

Doug, I hope this will help in getting the documentation finalized. I will follow-up with the additional information identified. If you have any questions please call on me.

Sincerely yours,

MARTIN MARIETTA CORPORATION


Melvin W. Frohardt
Solar Programs

Enclosures

cc: H. Wroton
Sonia Jackson

U.S. DEPARTMENT OF ENERGY

memorandum

DATE **AUG 06 1984**

RE TO
AT OF Doug Elliott, Director, DOE Solar One Project Office

SUBJECT Submission of Six Reports by Martin Marietta Corporation under Contracts DE-AC03-79ET21007 (Phase I) and DE-AC03-80SF10539 (Phase II) for Solar One Collector System

TO Roger S. Gaither, DOE/SAN (OPC)
William D. Matheny, OSTI/Document Control

Enclosed are copies of six reports prepared by Martin Marietta Corporation (Denver Aerospace Division) under the Phase I and Phase II contracts for the Collector (Heliostat) System for the 10-MWe Solar One Pilot Plant:

<u>Primary No.</u>	<u>Secondary No.</u>	<u>Short Title</u>
DOE/SF/10539-21	STMPO-571	Phase II Acceptance Plan (Revised)
DOE/SF/10539-22	STMPO-572	Collector System Functional Test Plan (Revised)
DOE/SF/10539-23	STMPO-573	Collector System Integrated Acceptance Test Plan
DOE/SF/10539-24	STMPO-574	Assembly Canting Fixture Operations, Phase II (Revision 2)
DOE/ET/21007-6	STMPO-575	Collector System Foundation Requirements (Revision A)
DOE/ET/21007-7	STMPO-576	Heliostat Installation Instructions

One copy of each document, accompanied by a completed SAN Form 70, is provided to DOE/SAN Office of Patent Counsel for patent review and clearance. Project Office release is based upon correspondence requesting (Attch. 1) and forwarding (Attch. 2) the respective documents; in addition, documents STMPO-572 and -573 are cited by MMC in their November, 1982 letter of Patent Certification (extract, Attch. 3). SAN-OPC's copies may be destroyed on completion of the clearance process.

Two copies of each report, accompanied by a completed DOE Form RA-426, is provided to the DOE Office of Scientific and Technical Information, Document Control and Evaluation Division, for abstracting, microfiching, archiving, announcement and forwarding to the National Technical Information Service.

Please call upon me at (619) 254-2672 if any further information is required.

Attchs.: 3, as stated

Encls.: 6 documents, w/forms

cc: M. Lopez, DOE/SAN (FGS)
D. Holz, DOE/SAN (ISEA)
M. Soderstrum, B&McD

S. D. Elliott, Jr., Director,
DOE Solar One Project Office



Department of Energy
 San Francisco Operations Office
 1333 Broadway
 Oakland, California 94612

Reply to:
 DOE Site Office
 Post Office Box 366
 Daggett, CA 92327

Mr. Melvin T. Frohardt
 Martin Marietta Aerospace
 Post Office Box 179
 Denver, CO 80201

DEC 06 1983

Subj.: Closeout Actions on Martin Marietta Contracts with DOE San Francisco Operations Office

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- o "Contractors Release", to Sonia;
- o "Contractor Request for Patent Clearance" (send to me, only), for:
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 - MCR-77-162, "System Safety Program Requirements for Solar Thermal Systems".

(These were done under an extension to the Preliminary Design contract, and are valuable background documents.)

DE-AC03-78ET21007 Collector System, Phase I:

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 - MTR-78-1330, "10-MWe Solar Thermal Pilot Plant Preliminary Design Review";
 - MCR-79-1302, "10-MWe Solar Thermal Pilot Plant Final Design Review (2 Vols.)";
 - 40-0-500-4P, "10-MWe Solar Thermal Pilot Plant Phase II O&M Equipment";
 - 40-0-500-6P, "10-MWe Solar Thermal Pilot Plant Phase II Planning."

DE-AC03-80SF10539, Collector System Phase II

- o "Final Invoice", to Sonia, copy to me;
- o "Assignment of Funds and Rebates", to Sonia;
- o "Contractors Release", to Sonia;
- o "Contractor Request for Patent Clearance", to me, for:
 - MCR-79-1352B*, "Quality Assurance Plan for 10-MWe Phase II Collector..";
 - MCR-80-1304, "10-MWe Solar Pilot Plant Collector Subsystem Safety Plan";
 - MCR-81-1331B, "Hazard Analysis for 10-MWe ...Pilot Plant";
 - 40-0-500-2P, "10-MWe ...Pilot Plant Phase II Mfg. Plan, Rev. 2";
 - MCR-80-1341A, "10-MWe Collector Sybssystem Software/Firmware Functional Req'ts.";
 - MCR-80-1362, "System Description Document, Collector Subsystem...";
 - MCR-80-1376* "Heliostat Stimulator Operators' Manual";
 - MCR-81-1708, "Operation Instructions, Heliostat Field Subsystem...";
 - MCR-81-1709A, "Maintenance Instructions, Heliostat Field Subsystem...";
 - MTR-81-1769, "...Collector Subsystem Functional Test Report";
 - MCR-81-1770, "Supplemental Spares Plan, Heliostat Field...";
 - MCR-80-1377A, "Software/Firmware Design Specifications...";
 - MCR-82-1701, "Control System Theory of Operation";
 - Drawing Set, as Identified in "Drawing Tree 400500 5132701";
 - Source Listing of Code for Heliostat Controller ROM or EPROM*
 - Source Listing of Code for Heliostat Field Controller ROM/EPROM*

Our files do not have current copies of the following other items identified in the Drawing Tree (400500 5132701):

Documents: 40M500-2S, "Foundation Req'ts.", 40M500-1I, "Installation Instructions", 40M500-2M, "Canting Procedures", 40M500-5P, "Acceptance Plan", MCR-80-1361, "Collector System Functional Test Plan", and MCR-81-1715, "Collector System Integrated Acceptance Test Plan."

 * Current copies of these four items are lacking from the Project files; your assistance in obtaining at least one copy of each will be most appreciated.

Drawings: 40M500 5132785. "Adapter Plate/Control Arm Heat Tool", 40M500 5132771, "Field Cantina Tool", and 40E500 5132776. "Drive Unit Checkout Console".

While these items are not carried in the current version of the Bibliography (none of the Plant as-built drawings have been entered as yet), many, if not all, of them may be expected to be of interest to the solar community. I would appreciate at least one copy of each, again with your release. To save you considerable effort in preparing the Patent Clearance Request forms (I am enclosing several copies of the form), you may combine many of the above by simply clearing the "Drawing Tree", with its contents.

If you need the other closeout forms cited above (your Contract Administration staff should have them in stock), please call Sonia Jackson at FTS 536-4179, or write her at:

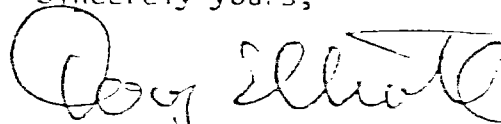
Ms. Sonia Jackson (CM)
Department of Energy
1333 Broadway
Oakland, CA 94612

Finally, since we are required to forward two clean, reproducible copies of each document to DOE/TIC, as well as needing one clean copy for our on-site archives, any "extras" you can turn up around your offices would be greatly appreciated; certainly, rather than throw anything of possible interest out, send it to me.

Well, I know (believe me!) that this is all a significant amount of work, and I wish I didn't have to ask you (or your staff) to go through it, but it will be to our mutual benefit in the end to get these three contracts all cleaned up, and a comprehensive package of Project documentation (currently, over 550 documents, plus drawings) into the archives. If there is anything further I can do to assist you in this effort, please call on me.

Encl.: DOE Proj. Ofc. ltr. 6/25/83
Patent Clearance Req. Forms

Sincerely yours,



S. D. Elliott, Jr., Director,
DOE Project Office, Barstow

cc: H. C. Wroton, MMC
Sonia Jackson, DOE/SAN (CM)

PS: I keep running across references to a document I can't identify: MCR-78-1325; what was it?

TIN MARIETTA AEROSPACE

DENVER DIVISION
POST OFFICE BOX 179
DENVER, COLORADO 80201
TELEPHONE (303) 977-3000

January 30, 1984

Mr. Doug Elliott
DOE Site Office
Post Office Box 366
Daggett, CA 92327Subject: Closeout Actions on Martin Marietta Contracts with DOE San
Francisco Operations OfficeReference: Letter of December 06, 1983, S.D. Elliott, Jr. to M. Frohardt,
Closeout of ContractsIn regard to the referenced letter, following is the status and actions in
process to close out these items:

1. Contract Closeout Status

In regard to the closeout of cost type contracts DE-AC03-76ET20422, Central Receiver Test Facility, and DE-AC03-78ET21007, Collector System Phase I, we include the "Contractors Assignment of Refunds and Rebates" and "Contractors Release" with our final invoice package. The final invoices for these two contracts will be submitted upon completion of final settlement negotiations for our 1979 overhead and G&A rates which is currently in progress. In reference to the closeout of contract DE-AC03-80SF10539, Collector System Phase II, please see Attachment 1, the letter to Ms. Joann Littlehales dated January 23, 1984, for the current status.

2. Patent Clearance

The following documents are in the process of being cleared by our Patent office. When this transmittal is available, I will send a copy to you.

- MCR-78-1323, "10-MWe Solar Thermal Pilot Plant Conceptual Design Review"
- MCR-78-1330, "10-MWe Solar Thermal Pilot Plant Preliminary Design Review"
- MCR-79-1302, "10-MWe Solar Thermal Pilot Plant Final Design Review (2 Vols)"
- 40-0-500-4P, "10-MWe Solar Thermal Pilot Plant Phase II O&M Equipment"
- 40-0-500-6P, "10-MWe Solar Thermal Pilot Plant Phase II Planning"

Mr. Doug. Elliott
January 27, 1984
Page 2

The remainder of the documents have been previously cleared by the following letters, copies of which are included in Attachment 2.

Letters from Phillip DeArment to Roger Gaither:

DAC-83-417, dated May 24, 1983
80-Y-15555, dated July 28, 1980
DAC-82-389, dated May 3, 1982
Letter dated March 11, 1982
Letter dated November 10, 1982

3. Documents

You requested copies of some documents and drawings in the referenced letter. Copies of the following drawings and documents are being submitted under Attachment 3.


MCR-78-1330, "Preliminary Design Review Package"
MCR-79-1352B, "Quality Assurance Plan for 10-MWe Phase II
Collector"
MCR-80-1376, "Heliostat Stimulator Operators' Manual"
40M500-2S, "Foundation Requirements"
40M500-2M, "Canting Procedures"
40M500-1T, "Installation Instructions"
40M500-5P, "Acceptance Plan"
MCR-81-1715, "Collector System Integrated Acceptance Test Plan"
MCR-80-1361, "Collector System Functional Test Plan"
40M500 5132788, "Adapter Plate/Control Arm Heat Tool"
40M500 5132771, "Field Canting Tool"
Source Listing of Code for Heliostat Controller ROM or EPROM*
Source Listing of Code for Heliostat Field Controller ROM/EPROM

No drawing exists for 40E500 5132776, "Drive Unit Checkout Console" as this checkout console consisted of a stimulator to operate a production Drive Mechanism Assembly. Also MCR-78-1330 is the correct document number for the Preliminary Design Review Package rather than MCR-78-1325. MCR-78-1325 is the document number assigned to all the Monthly Progress Reports written during the Phase I contract.

Doug, I hope this will help in getting the documentation finalized. I will follow-up with the additional information identified. If you have any questions please call on me.

Sincerely yours,

MARTIN MARIETTA CORPORATION


Melvin W. Frohardt
Solar Programs

Enclosures

cc: H. Wroton
Sonia Jackson

MARTIN MARIETTA AEROSPACE

DENVER DIVISION
POST OFFICE BOX 179
DENVER, COLORADO 80201
TELEPHONE (303) 977-3000

10 November 1982

Ms. Mary Jane Holliday
Contract Examiner
Department of Energy
California Patent Group
San Francisco Operations Office
Oakland, California 94612

Re: Final Patent Certification for DOE
Contract DE-ACO3-80SF10539

Dear Ms. Holliday:


Pursuant to your letter of September 7, 1982, addressed to Mr. Cecil W. Duclon, I have made the corrections you requested thereon.

With respect to Invention Disclosures 81YD16, 81YD24 and 81YD25, please see our attached letters dated March 11, 1982 wherein you were notified that these inventions are not reportable. I am also attaching Mr. Carnahan's letter dated March 22, 1982.

If we can be of further assistance, please contact our office. Mr. DeArment may be reached at (303) 977-6109 and I may be reached at (303) 977-6501/6110.

Very truly yours,

MARTIN MARIETTA CORPORATION


(Miss) Josephine E. Salazar
Assistant to Phillip L. DeArment
Assistant Patent Counsel

cc: C. W. Duclon
W. A. Brever
J. T. Weber

2. Technical data of this contract other than reports (i.e., notebooks, drawings, etc.) are completely listed, as follows:

All correspondence, reports, etc., mailed to Huntington Beach office.

Monthly submittals, Issue 1 through 25 as follows:

- a. Milestone Schedule and Status Report
- b. Cost Management Report
- c. Project Status Report
- d. Documentation Tab Run
- e. List of active changes/modifications
- f. List of drawing revisions/levels
- g. Indentured Parts List

Minority Business Reports

Updated OPDD Documentation

Controls Hardware Drawings

Software Design Specification

Safety Plan

Hazard Analysis

Preliminary Design Review Package

Preliminary Design Review Package Final

Manufacturing Plan

Quality Assurance Plan

~~STMW-572~~ Functional Test Plan

MCR-80-1361

Functional Test Report

~~STMW-573~~ C/S Integrated Acceptance Test Plan

MCR-81-1715



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

Prime Contract No. DE-AC03-80SF10539
Subcontract No. (N/A)
Report No. DOE/SF/10539-23 (STMP0-573)
Date of Report April, 1981
Name & Phone No. of DOE Technical Representative S. D. Elliott, Jr. (619) 254-2672

TO: Roger S. Gaither, Asst. Chief for Prosecution
Office of Patent Counsel/Livermore Office
P.O. Box 808, L-376
Livermore, California 94550

FROM: DOE Solar One Project Office
Post Office Box 366
Daggett, CA 92327
ATTN: S. D. Elliott, Jr.

- Document Title: Collector System Integrated ^{Acceptance} Test Plan
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary, Copy of Oral Presentation, Other (please specify): _____
- In order to meet a publication schedule or submission deadline, patent clearance by _____ (Routine) would be desired.

SENDER IS TO CHECK BOX #4 OR #5 BELOW.

4. I have reviewed (or have had reviewed by technically knowledgeable personnel) this document for possible inventive subject matter (Subject Inventions) and that no inventions or discoveries (Subject Inventions) are deemed to be disclosed in this document except as stated below:
- Attention should be directed to pages _____ of this document.
 - This document describes matter relating to an invention:
 - Contractor Invention Docket No. _____
 - A disclosure of the invention was submitted to DOE on _____ (date)
 - A disclosure of the invention will be submitted shortly _____ (approximate date)
 - A waiver of DOE's patent rights to the contractor:

has been granted, has been applied for, or will be applied for _____ (date)

5. This document is being submitted, but no review has been made ^{by me} of this document for possible inventive subject matter.

6. Remarks: Return copy of clearance to Project Office; document may be destroyed

Reviewing/Submitting Official: Name (Print/Type) S. D. Elliott, Jr., Director,
 Title DOE Solar One Project Office
 Signature *S. D. Elliott* Date 6 August, 1984

TO: INITIATOR OF REQUEST
FROM: ASSISTANT CHIEF FOR PROSECUTION
Office of Patent Counsel/Livermore Office

- No patent objection to above-identified release.
 Please defer release until advised by this office.

Signed _____ Date Mailed _____

DOE AND MAJOR CONTRACTOR RECOMMENDATIONS FOR
ANNOUNCEMENT AND DISTRIBUTION OF DOCUMENTS

See Instructions on Reverse Side

1. DOE Report No. DOE/SF/10539-23 (STMP0-573)	2. Contract No. DE-AC03-80SF10539	3. Subject Category No. UC-62, -62c, -62d
--	--------------------------------------	--

4. Title
Collector System Integrated Acceptance Test Plan

5. Type of Document ("x" one)
 a. Scientific and technical report
 b. Conference paper: Title of conference _____
_____ Date of conference _____

Exact location of conference _____ Sponsoring organization _____
 c. Other (specify planning, educational, impact, market, social, economic, thesis, translations, journal article manuscript, etc.)

6. Copies Transmitted ("x" one or more)
 a. Copies being transmitted for standard distribution by DOE-TIC.
 b. Copies being transmitted for special distribution per attached complete address list.
 c. Two completely legible, reproducible copies being transmitted to DOE-TIC. (Classified documents, see instructions)
 d. Twenty-seven copies being transmitted to DOE-TIC for TIC processing and NTIS sales.

7. Recommended Distribution ("x" one)
 a. Normal handling (after patent clearance): no restraints on distribution except as may be required by the security classification. Make available only
 b. To U.S. Government agencies and their contractors. c. within DOE and to DOE contractors.
 d. within DOE. e. to those listed in item 13 below.
 f. Other (Specify) Archive/issue on request

8. Recommended Announcement ("x" one)
 a. Normal procedure may be followed. b. Recommend the following announcement limitations:

9. Reason for Restrictions Recommended in 7 or 8 above.
 a. Preliminary information. b. Prepared primarily for internal use. c. Other (Explain)

10. Patent, Copyright and Proprietary Information
Does this information product disclose any new equipment, process or material? No Yes If so, identify page nos. _____
Has an invention disclosure been submitted to DOE covering any aspect of this information product? No Yes
If so, identify the DOE (or other) disclosure number and to whom the disclosure was submitted.
Are there any patent-related objections to the release of this information product? No Yes If so, state these objections.
Does this information product contain copyrighted material? No Yes
If so, identify the page number _____ and attach the license or other authority for the government to reproduce.
Does this information product contain proprietary information? No Yes If so, identify the page numbers _____
("x" one a. DOE patent clearance has been granted by responsible DOE patent group.
 b. Document has been sent to responsible DOE patent group for clearance.

11. National Security Information (For classified document only; "x" one)
Document a. does b. does not contain national security information

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13. Additional Information or Remarks (Continue on separate sheet, if necessary)

14. Submitted by (Name and Position) (Please print or type)
S. D. Elliott, Jr., Director, DOE Solar One Project Office

Organization
Post Office Box 366, Daggett, CA 92327 (619) 254-2672

Signature S. D. Elliott, Jr. Date AUG 06 1984



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

Prime Contract No. DE-AC03-80SF10539
Subcontract No. (N/A)
Report No. DOE/SF/10539-23 (STMP0-573)
Date of Report April, 1981
Name & Phone No. of DOE Technical Representative S. D. Elliott, Jr. (619) 254-2672

TO: Roger S. Gaither, Asst. Chief for Prosecution
Office of Patent Counsel/Livermore Office
P.O. Box 808, L-376
Livermore, California 94550

FROM: DOE Solar One Project Office
Post Office Box 366
Daggett, CA 92327
ATTN: S. D. Elliott, Jr.

- Document Title: Acceptance
Collector System Integrated Test Plan
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary,
 Copy of Oral Presentation, Other (please specify): _____
- In order to meet a publication schedule or submission deadline, patent clearance by _____ (Routine) would be desired.

SENDER IS TO CHECK BOX #4 OR #5 BELOW.

4. I have reviewed (or have had reviewed by technically knowledgeable personnel) this document for possible inventive subject matter (Subject Inventions) and that no inventions or discoveries (Subject Inventions) are deemed to be disclosed in this document except as stated below:
- Attention should be directed to pages _____ of this document.
 - This document describes matter relating to an invention:
 - Contractor Invention Docket No. _____
 - A disclosure of the invention was submitted to DOE on _____ (date)
 - A disclosure of the invention will be submitted shortly _____ (approximate date)
 - A waiver of DOE's patent rights to the contractor:
 has been granted, has been applied for; or will be applied for _____ (date)
5. This document is being submitted, but no review has been made of this document for possible inventive subject matter.

6. Remarks: Return copy of clearance to Project Office; document may be destroyed

Reviewing/Submitting Official: Name (Print/Type) S. D. Elliott, Jr., Director,
 Title DOE Solar One Project Office
 Signature [Signature] Date 6 August, 1984

TO: INITIATOR OF REQUEST
FROM: ASSISTANT CHIEF FOR PROSECUTION
Office of Patent Counsel/Livermore Office

- No patent objection to above-identified release.
 Please defer release until advised by this office.

Signed [Signature] Date Mailed 8/10/84