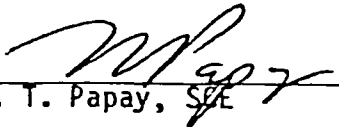


10 MWe SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT
OPERATIONAL TEST MANAGEMENT PLAN
(UPDATE, APRIL 1984)

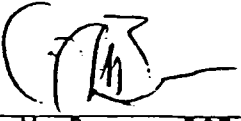
APPROVED:



L. T. Papay, S&E

February 10, 1982

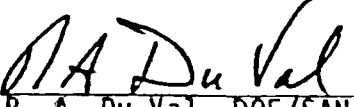
Date



G. W. Braun, DOE/HQ

3/25/82

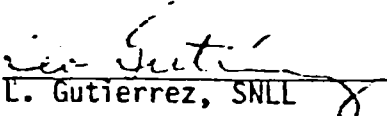
Date



R. A. Du Val, DOE/SAN

2/16/82

Date




L. Gutierrez, SNLL

2/1/82

Date

As specified on page 2 of this Plan, a review was conducted midway in the two-year Experimental Testing and Evaluation phase. This review led to minor changes in the Plan to reflect (a) replacement of the previous Data Dissemination Plan by the Data Evaluation Plan prepared by Sandia, and (b) addition of Reporting Requirements for the Cooperative Agreement, in accordance with current DOE policy. The participating organizations have reviewed, and concur in, these changes.



K. T. Cherian, DOE/HQ
Program Manager

4/2/84

Date

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1.0 Introduction

The Department of Energy (DOE) and the Associates (composed of Southern California Edison Company which acts as principal, the Los Angeles Department of Water and Power, and the California Energy Commission) have entered into a Cooperative Agreement to design, construct, and operate a central receiver power plant as a viable source of energy.

The Pilot Plant consists of a field of 1818 computer-controlled mirrors (heliostats) that reflect the sun's energy to a tower-mounted receiver. At the receiver, water is converted into superheated steam. The plant is designed to generate 10 MWe net for delivery to the Southern California Edison (SCE) electric power grid with steam directly from the receiver (1465 psia and 950°F). When delivered through a thermal storage system, the steam is capable of driving the turbine-generator to produce 7 MWe net for a period of at least four hours.

The Cooperative Agreement between DOE and the Associates calls for a five-year operational test period scheduled to begin in mid-1982. It is generally agreed by the parties that this test period will consist of an approximately 2-year experimental test and evaluation phase followed by a three-year power production phase. The experimental test phase will provide operational experience in all the operational modes, measure plant performance, and establish stable controlled operation of the Pilot Plant. This phase will be governed primarily by the needs of technology development rather than by a desire to optimize the plant solely for total power production. The subsequent power production phase will primarily demonstrate the operational capability of the Pilot Plant to supply electrical power.

The legal terms and conditions defining the obligations and general responsibilities of the Associates and DOE are contained in the Cooperative Agreement. Omissions of duties and responsibilities in this Operational Test Management Plan do not relieve the parties from fulfilling their respective obligations as specified in Cooperative Agreement

DE-FC03-77SF10501.

The Operational Test Management Plan describes the procedures and responsibilities for managing the plant's operation during the five-year testing period. The Plan defines the management structure and specifies the responsibilities for developing test procedures, safety procedures, and plant performance evaluation. Budgeting responsibilities and data generation and distribution procedures are also described. This Plan will be reviewed and updated periodically. A specific review will be made near the end of the two-year experimental test phase to determine what changes, if any, are needed in the management structure prior to the power production phase.

2.0 Objectives

The primary objectives of the project are to:

1. Establish the technical feasibility of a solar thermal power plant of the central receiver type and to identify areas where research and development may lead to significant performance improvements and increased capabilities.
2. Obtain development, production, operating, and maintenance cost data to (a) support private sector decisions to invest in solar central receiver energy systems, and (b) to identify areas where research and development may most effectively be applied to reduce costs and extend areas of application of such systems.

3. Determine the environmental impacts of the construction, operation, and maintenance of solar thermal central receiver plants.

These objectives will be met through the extensive collection and evaluation of technical and cost data (including data on production, operation, maintenance, environmental, and life-cycle costs). The data will be made available for use by electric utilities, industrial firms, and private sector groups. DOE's Solar Thermal Technology Program as well as other federal, state, and local entities will also have access to the information for defining long-term, high-risk, high-payoff research that should appropriately be supported by public funds. (A separate Data Evaluation Plan will be prepared to describe this process.)

3.0 Management Structure

The management structure is defined so that the operational phase for the 10 MWe Pilot Plant near Barstow, California, can be implemented in accordance with the general requirements specified in Cooperative Agreement DE-FC03-77SF10501 between DOE and the Associates. General management relationships are shown in Figure 1.

3.1 DOE Division of Solar Thermal Technology

As the sponsor for the Central Receiver Development Program, the Division of Solar Thermal Technology (STT), DOE Headquarters (DOE/HQ), sets overall DOE policies with respect to funding and operation of the Pilot Plant project.

STT performs the following functions:

1. Acts as the prime interface for DOE/HQ-level communications and activities, and arranges allocations of funds and other resources for successful attainment of operational test objectives.
2. Approves DOE Annual Operating Plans for the Pilot Plant.
3. Integrates and guides the products of other solar thermal research and development work with Pilot Plant activities in order to benefit the overall DOE Solar Thermal Program.

3.2 DOE San Francisco Operations Office

The San Francisco Operations Office (SAN), on behalf of DOE/HQ, has overall project control consistent with the Cooperative Agreement between DOE and the Associates. SAN coordinates with DOE/HQ through STT to carry out DOE Solar Thermal Program directions. SAN is the DOE contracting organization for the Cooperative Agreement and is the prime interface with Southern California Edison, which acts for the Associates. Overall plans and funding requirements for all Pilot Plant activities are contained in an Annual Operating Plan prepared in coordination with Sandia National Laboratories Livermore (SNLL).

SAN responsibilities are to:

1. Prepare the Project Plan.
2. Prepare and approve the Operational Test Management Plan.
3. Prepare a consolidated DOE Annual Operating Plan with SNLL.

4. Approve for DOE necessary changes to the Pilot Plant by mutual agreement with SCE and in accordance with the Cooperative Agreement.
5. Provide DOE operational direction to SCE consistent with the Cooperative Agreement.
6. Prepare and approve the Quality Assurance Plan.
7. Prepare and approve the Operational Environmental Plan.
8. Prepare and submit monthly highlight status reports to STT.
9. Coordinate with SCE and SNLL the planning and implementation of the test program.
10. Host congressional, federal agency, DOE, and senior public and private sector visitors as appropriate.
11. Monitor the costs and schedule of the test program and initiate corrective actions necessary to maintain the planned schedule and budget.
12. Exercise "stop test" authority when necessary to protect the interests of the Government.

3.3 Southern California Edison Company

SCE, acting as principal on its own behalf and as agent for the Associates,* is responsible for the safe operation and maintenance of the Pilot Plant during the operational test period. SCE will:

1. Operate the Pilot Plant in accordance with the Test Operations Plan.

*Hereafter in this document, "SCE" will represent this arrangement.

2. Maintain formal interface with SAN in implementing the Cooperative Agreement.
3. Provide staffing and prepare a specific budget for the operation and maintenance of the Pilot Plant and the Visitor's Center, in accordance with the terms of the Cooperative Agreement and as a participant in the test program. (Fig. 4, Items A.3, A.4)
4. Coordinate closely with SAN and SNLL on the planning and management of the test program.
5. Manage the SCE portion of the test program.
6. Prepare and implement the Safety Plan.
7. Approve on behalf of the Associates necessary changes to the Pilot Plant by mutual agreement with SAN and in accordance with the Cooperative Agreement.
8. Collect, monitor, and analyze data on the Pilot Plant and assist DOE and SNLL on the evaluation of plant data.
9. Develop and implement an Industrial Technology Transfer Program and assist DOE and the Technical Manager (SNLL) in implementation of the Data Evaluation Plan, prepared by the latter.
10. Manage the physical facilities at the Pilot Plant site in accordance with SCE operation and maintenance policies and responsibilities.
11. Maintain as-built drawings including field changes.
12. Prepare monthly operation and maintenance status reports. (Fig. 4, Items A.6, A.7).
13. Prepare annual Notice of Energy RD&D Project (Fig. 4, Item B.1)

3.4 Steering Committee

The Steering Committee consists of representatives from DOE/HQ, SAN, SCE, and the Los Angeles Department of Water and Power (LADWP), in accordance with the Cooperative Agreement. SNLL will participate in

the Steering Committee meetings as a non member. The Steering Committee assists in defining the technical objectives, funding levels, and schedule milestones of the project and periodically reviews the project's status. Working under the terms of the Cooperative Agreement, the Steering Committee acts as an appeals board when a major policy or project decision warrants additional consideration.

3.5 Sandia National Laboratories Livermore

SNLL, on behalf of SAN, is responsible for the technical management of the experimental test program. Consistent with the administrative policies established by DOE, SNLL will provide the technical resources necessary for completing the originally planned capabilities of the solar portion of the plant and the technical guidance for operating and maintaining the solar portion. SNLL will evaluate and interpret data from the plant and prepare reports disseminating the results. Overall plans and funding requirements for all Pilot Plant activities are contained in an Annual Operating Plan prepared jointly with SAN. Included in SNLL's responsibilities are those to:

1. Ensure, on behalf of SAN, the accomplishment of the Test Operations Plan.
2. Evaluate and assess the technical performance of the plant and develop plans for and provide technical support.
3. Prepare the Technical Management Plan.
4. Hold all contracts for technical support.
5. Keep DOE/HQ (STT), SAN and SCE fully informed of technical activities and of potential technical problem areas.

6. Prepare a consolidated DOE Annual Operating Plan with SAN.
7. Provide field engineering support for all test operations.
8. Prepare the Operational Test Requirements Document.
9. Prepare the Test Operations Plan.
10. Prepare Test Procedures.
11. Provide technical assistance to SCE as appropriate.
12. Document test results on a test-by-test basis, including an evaluation of test results compared with test objectives.
13. Analyze, interpret, and report test data in terms of overall Central Receiver Program needs and objectives.
14. Prepare a Data Evaluation Plan in coordination with SAN and SCE.
15. Recommend to SAN when a "stop test" is necessary for such reasons as preventing damage to equipment, finding that test objectives are not being met, etc.
16. Prepare a monthly report on technical management activities including cost and schedule status.

4.0 Budgeting

Coordinated Annual Operating Plans will be prepared by SAN and SNLL. SCE will provide SAN with estimates of the operational and maintenance resources that are required.

5.0 Documentation

The documents specified below are required. Figure 2 presents the document flow chart; Figure 3 indicates responsibilities for documentation preparation, review, and approval.

5.1 Project Plan

The Project Plan defines and describes the mission need and objectives, technical plan, technical risk assessment, management approach, acquisition strategy, project schedule, and resource plan. It is prepared by SAN, endorsed by DOE/HQ (STT), and approved by the Assistant Secretary (Conservation and Renewable Energy) and the Under Secretary.

5.2 Operational Test Management Plan (this document)

The Operational Test Management Plan prepared by SAN delineates the interrelationships among those organizations and individuals that are needed to execute operational testing of the Pilot Plant. As the basis for management of the Pilot Plant over the five-year operational test program, the Plan will be reviewed for updating at least once a year. This Plan is approved by DOE/HQ (STT), SCE, SAN, and SNLL.

5.3 Annual Operating Plans

The Annual Operating Plans describe overall plans and funding requirements for all Pilot Plant activities.

5.4 Technical Management Plan

This Plan is prepared by SNLL and approved by SAN, and describes the role and responsibilities of the Technical Manager.

5.5 Operational Test Requirements Document

The Operational Test Requirements Document defines the program requirements and objectives for all tests to be performed. This

Document ensures that the two-year testing period includes those tests necessary to accomplish programmatic objectives. The Document, prepared by SNLL for SAN approval, serves as the basis for the Test Operations Plan.

5.6 Test Operations Plan

The Test Operations Plan provides detailed descriptions and objectives of the tests to be performed. The Plan contains a test index, test objectives, and test specifications. Prepared by SNLL for SAN and SCE concurrence, this Plan serves as the basis for conducting, scheduling, and sequencing of testing during the two-year testing period.

5.7 Test Procedures

A separate Test Procedure will be prepared for each test in the Test Operations Plan. Each procedure consists of detailed test specifications; appropriate operating instructions and supplemental test information are also supplied. If normal operating ranges are to be exceeded, special safety procedures will be included. Test Procedures are prepared by SNLL for approval by SCE.

5.8 Data Evaluation Plan

This Plan, prepared by the Project Technical Manager (SNLL) and approved by DOE/HQ, describes the approach to evaluation of the overall plant and its systems in terms of performance, costs, maintenance, safety and interaction with the environment, during the Experimental Testing and Evaluation Phase of Test Operations.

For each special evaluation test called for under this plan, the objective, test and data needs, approach, applicability, expected output and planned data dissemination are presented.

5.9 Safety Plan

The Safety Plan, prepared by SCE and approved by SAN, ensures that all activities are conducted safely and in accordance with State of California/Cal OSHA regulations. The Safety Plan identifies safety requirements, assigns safety responsibilities, and provides for an assessment of the adequacy of safety implementation. This Plan describes the scope and depth of the operational safety program in sufficient detail to ensure the safe conduct of day-to-day operations at the facility. When test activities exceed those covered by the Plan, additional detailed procedures will be prepared and approved prior to implementation.

5.10 Quality Assurance Plan

The Quality Assurance Plan is prepared and approved by SAN. It outlines, to the degree necessary, the procedures that ensure (1) that the Pilot Plant is operated as planned so that the objectives of the testing program are successfully attained, and (2) that the data generated are valid and reproducible. The Plan includes:

1. A review of the program requirements.
2. The maintenance and reproducibility requirements of records or data essential to the effective operation of the quality assurance function.
3. Procedures to detect and correct nonconformance.
4. Periodic review procedures to verify compliance with cited documents.

5.11 Operational Environmental Plan

The Operational Environmental Plan, prepared and approved by SAN, ensures that all environmental monitoring commitments as outlined in the Environmental Assessment/Environmental Impact Report are met. This Plan also includes the environmental monitoring that is performed against the baseline environmental data points.

DIRECTOR,
DIV. OF SOLAR
THERMAL
TECHNOLOGY

SAN FRANCISCO
OPERATIONS
OFFICE

STEERING
COMMITTEE
DOE-HQ
DOE-SAN
SCE
LADWP
NON VOTING - SNLL

THE ASSOCIATES

TECHNICAL
MANAGEMENT
SNLL

PROJECT
DIRECTOR,
SOLAR ENERGY
DIVISION, SAN

SITE
MANAGER
SCE

PROJECT OFFICE

BARSTOW PILOT PLANT MANAGEMENT STRUCTURE

————— Accountability
..... Communication

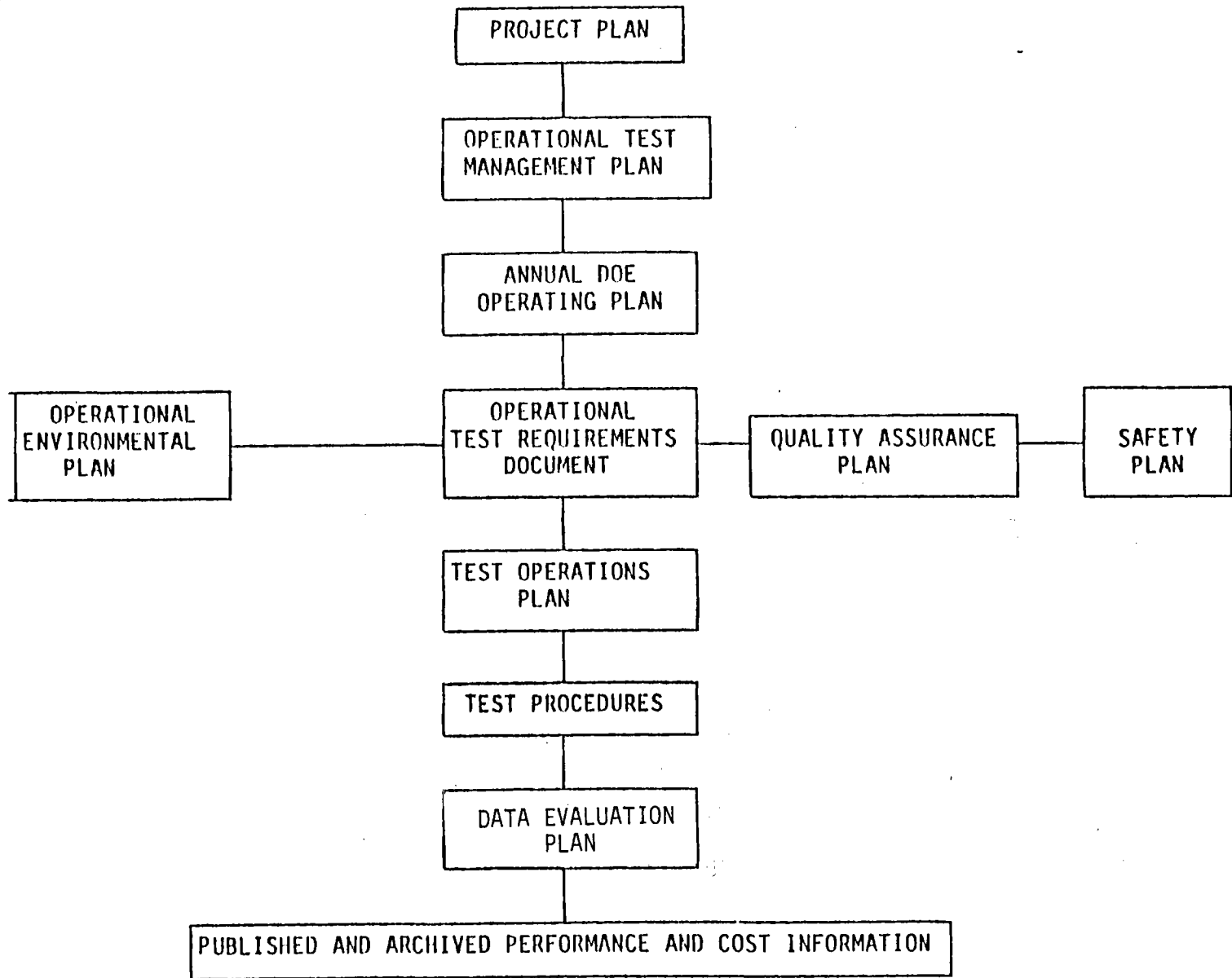


Figure 2. Pilot Plant Operational Control Documents

	DOE/ HQ	DOE/ SAN	SCE	SNLL
PROJECT PLAN	A	P	R	R
OPERATIONAL TEST MANAGEMENT PLAN	A	P/A	A	A
ANNUAL OPERATING PLAN	A	P		P
TECHNICAL MANAGEMENT PLAN		A	R	P
OPERATIONAL TEST REQUIREMENTS DOCUMENT	R	A	R	P
TEST OPERATIONS PLAN		R/A	R/A	P
TEST PROCEDURES		R	A	P
DATA EVALUATION PLAN	R/A	R	R	P
SAFETY PLAN	R	A	P	R
QUALITY ASSURANCE PLAN		P/A	R	R
OPERATIONAL ENVIRONMENTAL PLAN		P/A	R	R

P - PREPARATION

R - REVIEW/CONCURRENCE

A - APPROVAL

Figure 3. Document Preparation, Review, and Approval Responsibilities

REPORTING REQUIREMENTS CHECKLIST

DOE Form CR-537
(1-78)

(See Instructions on Reverse)

FORM APPROVED
OMB NO. 38R-0190

1. IDENTIFICATION 10-MWe SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT	2. OBLIGATION INSTRUMENT: COOPERATIVE AGREEMENT DE-FC03-77SF10501
---	---

3. REPORTING REQUIREMENTS

A. PROJECT MANAGEMENT	Frequency	B. TECHNICAL INFORMATION REPORTING	Frequency
1. <input type="checkbox"/> Management Plan		1. <input checked="" type="checkbox"/> Notice of Energy RD&D Project (SSIE)	Y
2. <input type="checkbox"/> Milestone Schedule & Status Report		2. <input type="checkbox"/> Technical Progress Report	
3. <input checked="" type="checkbox"/> Cost Plan	O, Y, C	3. <input checked="" type="checkbox"/> Topical Report	A
4. <input checked="" type="checkbox"/> Manpower Plan	O, Y, C	4. <input checked="" type="checkbox"/> Final Technical Report	F
5. <input type="checkbox"/> Contract Management Summary Report		C. PMS/MINI-PMS	
6. <input checked="" type="checkbox"/> Project Status Report (2) (See 4B)	M	1. Cost Performance Report	
7. <input checked="" type="checkbox"/> Cost Management Report (See 4B)	M	<input type="checkbox"/> Format 1 WBS	
8. <input type="checkbox"/> Manpower Management Report		<input type="checkbox"/> Format 2 Functional	
9. <input type="checkbox"/> Conference Record		<input type="checkbox"/> Format 3 Baseline	
10. <input type="checkbox"/> Hot Line Report		<input type="checkbox"/> Format 5 Problem Analysis	
		2. <input type="checkbox"/> Cost/Schedule Status Report	
		3. <input type="checkbox"/> Management Control System Description	
		4. <input type="checkbox"/> Summary System Description	
		5. <input type="checkbox"/> WBS Dictionary	

FREQUENCY CODES:

A - As Required	Q - Quarterly
C - Contract Change	S - Semi-Annually
F - Final (End of Contract)	X - Mandatory for Delivery with Proposals/Bid
M - Monthly	Y - Yearly or Upon Contract Renewal
O - One Time (Soon After Contract Award)	

4. SPECIAL INSTRUCTIONS

A. Reports A.3 and A.4 shall be submitted annually, with funding proposal for succeeding fiscal year, and shall be updated as required following definitization of each annual funding modification. Report A.7 shall be based upon current Report A.3.

B. Reports A.6 and A.7 shall be delivered by the 20th calendar day of the month following the reporting month. Report(s) A.6 shall address both Visitors' Center Operation and Plant operation and maintenance. Report A.7 shall be keyed to the current Report A.3, and may be combined with or appended to Report(s) A.6. SCE's format for these reports is acceptable.

C. Report B.1 shall be submitted within 30 days of the start of each fiscal year.

D. Report(s) B.3 shall be prepared and submitted on an as-required basis, by mutual agreement of the parties to the Cooperative Agreement, in accordance with Item 1.A.6 a - d, Appendix A, thereof.

E. Report B.4 shall be submitted within 90 days following completion of the Test Operations period, and shall be prepared in accordance with Item 1.B.1.f, Appendix A, to the Cooperative Agreement.

5. ATTACHED HERewith:

Report Distribution List Three (3) copies of Reports A.3 and A.4, and ten (10) copies of other reports, shall be provided to DOE for further distribution.

WBS/Reporting Category

6. PREPARED BY (Signature and date): <i>A. E. Kelly</i> November 28, 1983	7. APPROVED (initial/date):
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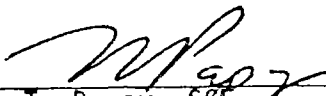


DOE FILE COPY

61

10 MWe SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT OPERATIONAL TEST MANAGEMENT PLAN


APPROVED:



L. T. Papay, SPT

February 10, 1982


Date



G. W. Braun, DOE/HQ

3/25/82

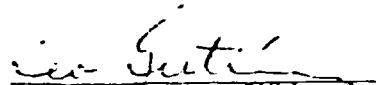
Date



R. A. Du Val, DOE/SAN

2/16/82

Date



L. Gutierrez, SNLL

2/1/82

Date

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1.0 Introduction

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the Steering Committee meetings as a non member. The Steering Committee assists in defining the technical objectives, funding levels, and schedule milestones of the project and periodically reviews the project's status. Working under the terms of the Cooperative Agreement, the Steering Committee acts as an appeals board when a major policy or project decision warrants additional consideration.

3.5 Sandia National Laboratories Livermore

SNLL, on behalf of SAN, is responsible for the technical management of the experimental test program. Consistent with the administrative policies established by DOE, SNLL will provide the technical resources necessary for completing the originally planned capabilities of the solar portion of the plant and the technical guidance for operating and maintaining the solar portion. SNLL will evaluate and interpret data from the plant and prepare reports disseminating the results. Overall plans and funding requirements for all Pilot Plant activities are contained in an Annual Operating Plan prepared jointly with SAN. Included in SNLL's responsibilities are those to:

1. Ensure, on behalf of SAN, the accomplishment of the Test Operations Plan.
2. Evaluate and assess the technical performance of the plant and develop plans for and provide technical support.
3. Prepare the Technical Management Plan.
4. Hold all contracts for technical support.
5. Keep DOE/HQ (STT), SAN and SCE fully informed of technical activities and of potential technical problem areas.

6. Prepare a consolidated DOE Annual Operating Plan with SAN.
7. Provide field engineering support for all test operations.
8. Prepare the Operational Test Requirements Document.
9. Prepare the Test Operations Plan.
10. Prepare Test Procedures.
11. Provide technical assistance to SCE as appropriate.
12. Document test results on a test-by-test basis, including an evaluation of test results compared with test objectives.
13. Analyze, interpret, and report test data in terms of overall Central Receiver Program needs and objectives.
14. Prepare a Data Dissemination Plan in coordination with SCE.
15. Recommend to SAN when a "stop test" is necessary for such reasons as preventing damage to equipment, finding that test objectives are not being met, etc.
16. Prepare a monthly report on technical management activities including cost and schedule status.

4.0 Budgeting

Coordinated Annual Operating Plans will be prepared by SAN and SNLL. SCE will provide SAN with estimates of the operational and maintenance resources that are required.

5.0 Documentation

The documents specified below are required. Figure 2 presents the document flow chart; Figure 3 indicates responsibilities for documentation preparation, review, and approval.

5.1 Project Plan

The Project Plan defines and describes the mission need and objectives, technical plan, technical risk assessment, management approach, acquisition strategy, project schedule, and resource plan. It is prepared by SAN, endorsed by DOE/HQ (STT), and approved by the Assistant Secretary (Conservation and Renewable Energy) and the Under Secretary.

5.2 Operational Test Management Plan (this document)

The Operational Test Management Plan prepared by SAN delineates the interrelationships among those organizations and individuals that are needed to execute operational testing of the Pilot Plant. As the basis for management of the Pilot Plant over the five-year operational test program, the Plan will be reviewed for updating at least once a year. This Plan is approved by DOE/HQ (STT), SCE, SAN, and SNLL.

5.3 Annual Operating Plans

The Annual Operating Plans describe overall plans and funding requirements for all Pilot Plant activities.

5.4 Technical Management Plan

This Plan is prepared by SNLL and approved by SAN, and describes the role and responsibilities of the Technical Manager.

5.5 Operational Test Requirements Document

The Operational Test Requirements Document defines the program requirements and objectives for all tests to be performed. This

Document ensures that the two-year testing period includes those tests necessary to accomplish programmatic objectives. The Document, prepared by SNLL for SAN approval, serves as the basis for the Test Operations Plan.

5.6 Test Operations Plan

The Test Operations Plan provides detailed descriptions and objectives of the tests to be performed. The Plan contains a test index, test objectives, and test specifications. Prepared by SNLL for SAN and SCE concurrence, this Plan serves as the basis for conducting, scheduling, and sequencing of testing during the two-year testing period.

5.7 Test Procedures

A separate Test Procedure will be prepared for each test in the Test Operations Plan. Each procedure consists of detailed test specifications; appropriate operating instructions and supplemental test information are also supplied. If normal operating ranges are to be exceeded, special safety procedures will be included. Test Procedures are prepared by SNLL for approval by SCE.

5.8 Data Dissemination Plan

This Plan, jointly prepared by SNLL and SCE for SAN approval, describes the preparation and distribution of test information including:

1. Data Reports published by SNLL and SCE that contain selected raw or reduced engineering data, or both, on Pilot Plant operation for immediate use by industry. The test reports include test

summaries, operating and maintenance costs, and performance and reliability data.

2. Evaluation Reports prepared periodically by SNLL and SCE as follows:

- a. SNLL-developed reports compare the measured plant performance with predicted performance and extrapolate the results to other systems in the Central Receiver Program.
- b. SCE-developed reports concentrate on evaluating plant performance (i.e., power production, operation and maintenance costs, reliability of components, plant reliability, and plant operation and maintenance experience) from the utility operator's point of view.

5.9 Safety Plan

The Safety Plan, prepared by SCE and approved by SAN, ensures that all activities are conducted safely and in accordance with State of California/Cal OSHA regulations. The Safety Plan identifies safety requirements, assigns safety responsibilities, and provides for an assessment of the adequacy of safety implementation. This Plan describes the scope and depth of the operational safety program in sufficient detail to ensure the safe conduct of day-to-day operations at the facility. When test activities exceed those covered by the Plan, additional detailed procedures will be prepared and approved prior to implementation.

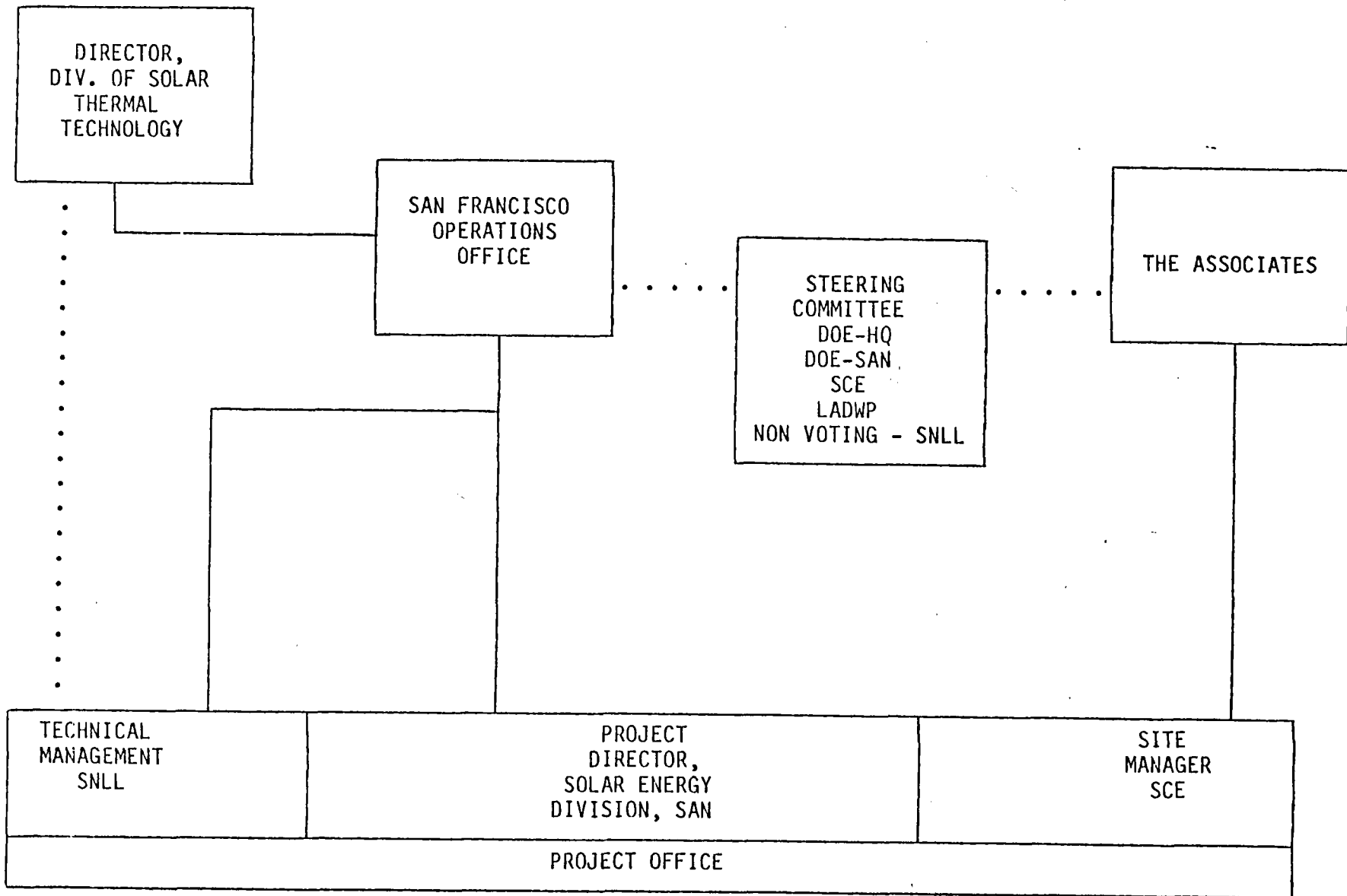
5.10 Quality Assurance Plan

The Quality Assurance Plan is prepared and approved by SAN. It outlines, to the degree necessary, the procedures that ensure (1) that the Pilot Plant is operated as planned so that the objectives of the testing program are successfully attained, and (2) that the data generated are valid and reproducible. The Plan includes:

1. A review of the program requirements.
2. The maintenance and reproducibility requirements of records or data essential to the effective operation of the quality assurance function.
3. Procedures to detect and correct nonconformance.
4. Periodic review procedures to verify compliance with cited documents.

5.11 Operational Environmental Plan

The Operational Environmental Plan, prepared and approved by SAN, ensures that all environmental monitoring commitments as outlined in the Environmental Assessment/Environmental Impact Report are met. This Plan also includes the environmental monitoring that is performed against the baseline environmental data points.



-15-

BARSTOW PILOT PLANT MANAGEMENT STRUCTURE

————— Accountability
 Communication

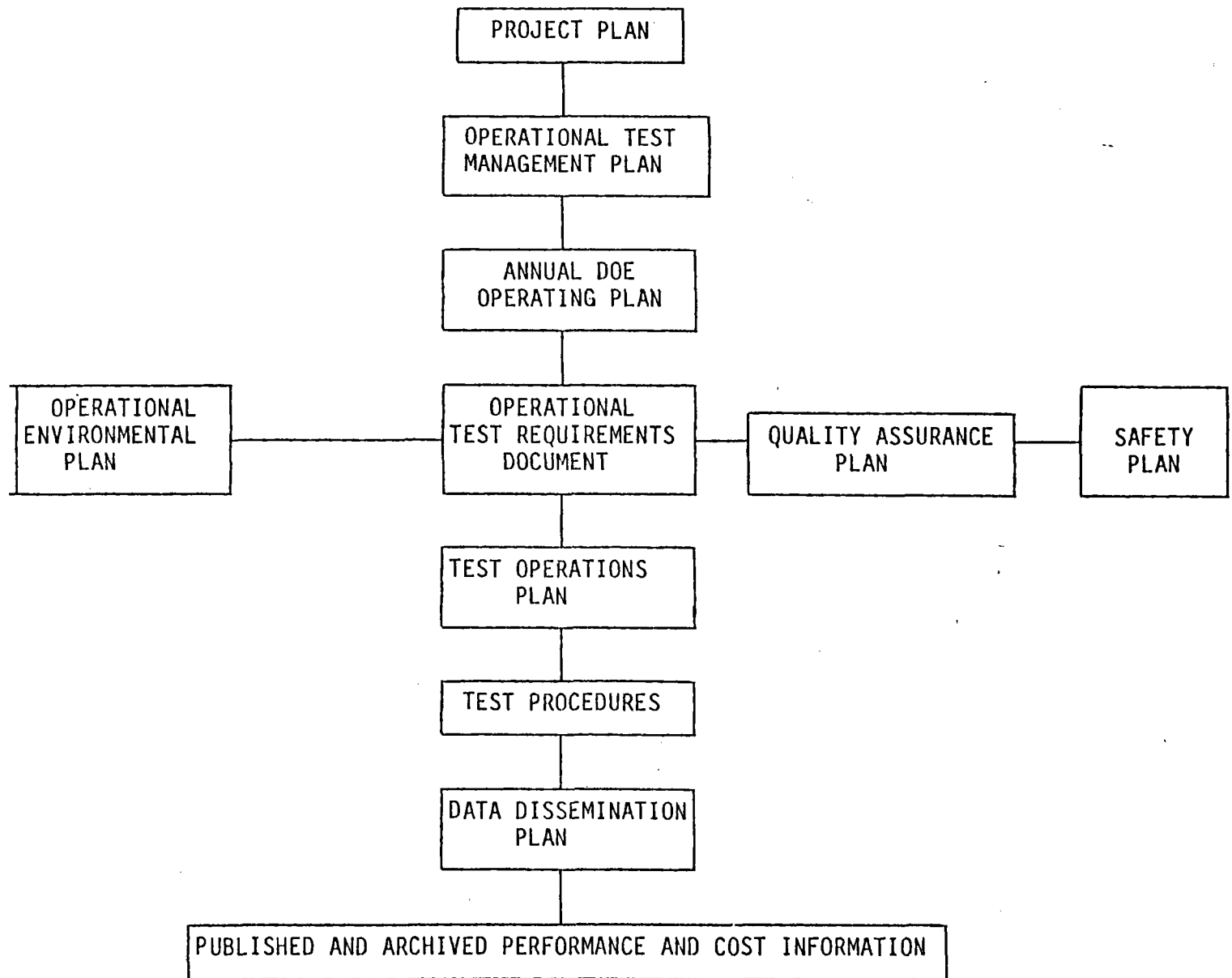


Figure 2. Pilot Plant Operational Control Documents

	DOE/ HQ	DOE/ SAN	SCE	SNLL
PROJECT PLAN	A	P	R	R
OPERATIONAL TEST MANAGEMENT PLAN	A	P/A	A	A
ANNUAL OPERATING PLAN	A	P		P
TECHNICAL MANAGEMENT PLAN		A	R	P
OPERATIONAL TEST REQUIREMENTS DOCUMENT	R	A	R	P
TEST OPERATIONS PLAN		R/A	R/A	P
TEST PROCEDURES		R	A	P
DATA DISSEMINATION PLAN	R	A	P	P
SAFETY PLAN	R	A	P	R
QUALITY ASSURANCE PLAN		P/A	R	R
OPERATIONAL ENVIRONMENTAL PLAN		P/A	R	R

P - PREPARATION

R - REVIEW/CONCURRENCE

A - APPROVAL

Figure 3. Document Preparation, Review, and Approval Responsibilities

U.S. DEPARTMENT OF ENERGY

memorandum

DATE **APR 18 1984**

REL TO
ATTN OF S. D. Elliott, Jr., Director, DOE Solar One Project Office

SUBJECT Submission of Four Planning/Project Definition Documents from the Solar Ten Megawatt Project Office for OPC Patent Review and TIC/NTIS Archiving/Announcement

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

Enclosed are four planning and Project design definition documents prepared by the DOE/SCE Solar Ten-Megawatt Project Office, under Cooperative Agreement DE-FC03-77SF10501:


<u>Primary Document No.</u>	<u>Secondary No.</u>	<u>Brief Title</u>
DOE/SF/10501-009	(STMPO-053)	"..Overall Plant Design Definition.."
DOE/SF/10501-010	(STMPO-055)	"Project Charter..."
DOE/SF/10501-012	(STMPO-059)	"..Project Management Plan"
DOE/SF/10501-013	(STMPO-061)	"..Operational Test Management Plan"

Each of these documents represents the final or latest revision of the subject document, under its respective title. The Overall Plant Design Description was subsequently replaced by the "Station Manual (3 Vols.)" catalogued under Contract DE-AC03-79SF10499 as MDC-G-8544, following selection of McDonnell Douglas as Solar Facilities Design Integrator for the Project; the copy provided here is for historical description of the Plant design basis only. The Project Management Plan was the management document for the Project design and construction phases; it was replaced by the Operational Test Management Plan for the startup and Test Operations phases of the Project.

One copy of each document, accompanied by a completed SAN Form 70, is provided for SAN/OPC patent review and clearance. Please return the feedback copy of the Form 70's to the Project Office; the documents themselves may be delivered to Mr. Mike Lopez at SAN/FGS.

Two copies of each document, accompanied by a completed DOE Form RA-426, are provided for processing, archiving and announcement by the DOE Technical Information Center, and for forwarding to the National Technical Information Service.

Encls.: 4 Documents, w/Transmittal Forms


S. D. Elliott, Jr.

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



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

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

Prime Contract No. DE-FC03-77SF10501
Subcontract No. (N/A)
Report No. DOE/SF/10501-013 (STMP0-061)
Date of Report March, 1982 (Rev. April 1984)
Name & Phone No. of DOE Technical Representative S. D. Elliott, Jr. (619) 254-2672

- Document Title: "10-MWe SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT: OPERATIONAL TEST MANAGEMENT PLAN (UPDATE, APRIL 1984)"
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary, Copy of Oral Presentation, Other (please specify): Project Management Plan
- 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.

- 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)
- This document is being submitted, but no review has been made of this document for possible inventive subject matter.

6. Remarks: Return feedback of Form 70 to address above; document to M. Lopez, SAN/FGS.

Reviewing/Submitting Official: Name (Print/Type) S. D. Elliott, Jr., Director
 Title DOE Solar One Project Office
 Signature [Signature] Date 18 April, 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 _____

U.S. DEPARTMENT OF ENERGY

DOE AND MAJOR CONTRACTOR RECOMMENDATIONS FOR
ANNOUNCEMENT AND DISTRIBUTION OF DOCUMENTS

See Instructions on Reverse Side

1. DOE Report No. DOE/SF/10501-013 (STMP0-061)	2. Contract No. DE-FC03-77SF10501	3. Subject Category No. UC-62
---	--------------------------------------	----------------------------------

4. Title
"10-MWe SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT: OPERATIONAL TEST MANAGEMENT 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.) **Planning**

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; Initial distribution made by Project Office**

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

12. Copy Reproduction and Distribution
Total number of copies reproduced 25 Number of copies distributed outside originating organization 15

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* Date APR 18 1984



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

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
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- Document Title: **"10-MWe SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT: OPERATIONAL TEST MANAGEMENT PLAN (UPDATE, APRIL 1984)"**
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary, Copy of Oral Presentation, Other (please specify): **Project Management Plan**
- 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.

- 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)
- This document is being submitted, but no review has been made of this document for possible inventive subject matter.
- Remarks: **Return feedback of Form 70 to address above; document to M. Lopez, SAN/FGS.**

Reviewing/Submitting Official: Name (Print/Type) **S. D. Elliott, Jr., Director**
 Title **DOE Solar One Project Office**
 Signature *S. D. Elliott, Jr.* Date **18 April, 1984**

TO: INITIATOR OF REQUEST

FROM: ASSISTANT CHIEF FOR PROSECUTION
Office of Patent Counsel/Livermore Office

M. Lopez SAN/FGS
[Signature]

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

Signed *Harold M. Wilson* Date Mailed **4/25/84**