Jon Zeisloft - UURI

U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

COOPERATIVE AGREEMENT

ID FORM-182
(Rev. 05-80)
Ref: CMD

PURSUANT TO AUTHORITY OF PL 93-410, PL 93-438, PL 93-473, PL 93-577, and PL 95-91

1.a. Agreement No.: DE-AC07-81ID12257

1.b. Modification No.:

2. Agreement Period
From: To:

3. Participant Name and Address
Magic Resource Investors
P. O. Box 1328
Sun Valley, ID 83353

4. Participant Type
☐ Educational ☐ Nonprofit
☐ State or Local Government ☒ Profit

5. Project Title
User-Coupled Confirmation Drilling Program

6. Project Will be Conducted per
See Article II, Project Management Plan

7. Technical Reports Are Required
See Article II, Project Management Plan

8. Principal Investigator(s) or Program Director(s) Name and Address
Director, Contracts Management Division
U.S.D.O.E., Idaho Operations Office
550 Second St., Idaho Falls, ID 83401

9. DOE Program Officer (Name and Address)
Susan M. Prestwich, Energy & Technology Division
U.S.D.O.E., Idaho Operations Office
550 Second St., Idaho Falls, ID 83401
Telephone No. 208-526-1147

10. Accounting and Appropriation Data

11. Method of Payment
☐ % At Award, % When Requested, 5% Upon
☐ Letter of Credit Receipt of Final Report
☐ Reimbursement
☒ Other (specify) See Article IV, Payment

12. Submit Vouchers to
Director, Contracts Management Division
U.S.D.O.E., Idaho Operations Office
550 Second St., Idaho Falls, ID 83401

13. Funding Sources

Source	Amount
DOE:	$ 928,443
Participant:	$ 825,283
Total Funding:	$ 1,031,604

14. Remarks:
The EG&G Technical Contact is:

Max R. Dolenc
Geothermal Program Office
Reservoir Confirmation Section
EG&G Idaho, Inc.
P. O. Box 1625 - WCB-E-3
Idaho Falls, ID 83415

Telephone No.: 208-526-0003

15. Amount Obligated By This Action: $ 928,443

16. DOE Issuing Office (Name and Address)
Idaho Operations Office
550 Second Street
Idaho Falls, ID 83401

17. DOE Contracting Officer

Signature of Contracting Officer (Date)

Name (typed)

Telephone No.

18. Participant Acceptance

By
Signature of Authorized Official (Date)

Name (typed)

Title

(Replaces ID F-182 (11-79))

SCHEDULE

ARTICLE I - STATEMENT OF JOINT OBJECTIVE

The purpose of this Cooperative Agreement between the United States Department of Energy (DOE or Government) and MAGIC RESOURCE INVESTORS (Participant) is to drill, complete and test a geothermal production well to supply the energy requirements for a 2 million gallon a year ethanol plant. This action is authorized by Federal law and is in furtherance of the U.S. Government's objective to confirm low to moderate temperature hydrothermal resources. The Participant will receive the benefit of DOE's technical and financial support as further defined in this Schedule, and DOE will obtain data pertaining to the development and utilization of such resources.

ARTICLE II - THE PROJECT MANAGEMENT PLAN

A. The Participant has represented to DOE it has the rights to site access and use of the water/geothermal/mineral resource and all necessary permits for the project. DOE shall not be liable for any costs incurred under this agreement until Participant provides to DOE documentation of the foregoing and DOE finds, at its sole discretion, that the Participant does have the required rights and permits.

B. Participant's Responsibilities. The Participant shall furnish the materials, facilities, equipment, personnel, services, and all other necessary and related items to drill three temperature gradient holes and to drill, complete and test a 3000-foot geothermal production well. Requirements of the project are further set forth in Appendix B to this Agreement which is titled "PROJECT TASKS AND SCHEDULE BACKGROUND," and in Appendix C which is titled "REPORTING REQUIREMENTS CHECKLIST," which are made a part hereof by this reference. The Participant shall provide the funding and reports as specifically provided for elsewhere in this Agreemeent, and obtain all necessary licenses and permits.

C. DOE's Responsibilities. DOE will provide a specified amount of financial assistance, and will monitor the project to observe the progress. In addition, DOE will act upon the Participant's requests for approval in those instances in which DOE's approval is required.

ARTICLE III - FINANCIAL SUPPORT

A. Estimated Cost. The total estimated cost of the work under this Agreement is One Million Thirty-One Thousand Six Hundred Four Dollars ($1,031,604). If at any time the Participant has reason to believe that this or any revised estimate is in error by more than ten percent (10%), the Participant shall so notify DOE in writing and provide DOE with a new estimate.

B. DOE's Financial Support. The total maximum cost to DOE for all the work under this project is Nine Hundred Twenty-Eight Thousand Four Hundred Forty-Three Dollars ($928,443), and under no circumstances will DOE's support exceed this amount. This limitation includes termination costs, if any.

ARTICLE III - FINANCIAL SUPPORT (Cont'd)

C. Participant's Financial Support. All costs in excess of the maximum of DOE share of Nine Hundred Twenty-Eight Thousand Four Hundred Forty-Three Dollars ($928,443) or the minimum DOE share of Two Hundred Six Thousand Three Hundred Twenty-One Dollars ($206,321) as determined by the application of the Cost Share Plan in Appendix D attached hereto, will be borne by the Participant. The estimated maximum cost to the Participant is Eight Hundred Twenty-Five Thousand Two Hundred Eight-Three Dollars ($825,283).

D. Obligated Funds. The amount of funds presently obligated to this Agreement by DOE is Nine Hundred Twenty-Eight Thousand Four Hundred Forty-Three Dollars ($928,443).

ARTICLE IV - METHOD OF PAYMENT

A. DOE will make incremental payments by Treasury check to the Participant in the amounts set forth below at such times as Milestones No. 1, 3, 4, and 6 are achieved and upon receipt of invoices or vouchers and a cost statement from the Participant. Such invoices or vouchers must be supported by a statement that the costs are allowable as defined in ARTICLE VIII of this Agreement.

B. At any time or times prior to final payment under this Agreement, the Contracting Officer may have the costs incurred under this Agreement audited. The total of DOE incremental payments cannot exceed 20% of the total, actual, allowable costs incurred. Invoices for payment may be made upon completion of Milestones No. 1, 3, 4 and 6 with final payment to be paid at the satisfactory completion and deliveries required through Milestone No. 11. When the final milestone is achieved, DOE and the Participant will determine the final payment, if any, by using Appendix D, Cost Share Plan. If the Contracting Officer finds, on the basis of audit or otherwise, that allowable costs as defined in ARTICLE VIII do not equal or exceed the amount of funds DOE has agreed to provide, total payments shall be reduced accordingly.

C. As more definitive project cost and schedule data become available, the parties may review the milestone and payment schedule and, by written agreement, make adjustments. Under no circumstances, however, will DOE's costs exceed the amounts provided for in ARTICLE III.

ARTICLE V - TERM OF THE AGREEMENT

The work under this Agreement shall be completed by January 1, 1982, or within any extension of time as may be mutually agreed to in writing by the parties.

ARTICLE VI - PROJECT INFORMATION SYSTEM

Reporting Requirements. The Participant shall furnish to DOE the reports and information identified in Appendix C.

ARTICLE VII - RESPONSIBLE PERSONS AND PERSONNEL

A. The Participant agrees to permit any specified DOE personnel to have necessary access to the Participant's and/or major subcontractors' facilities, personnel, and records pertaining to the project. Such DOE personnel may be used to assist the Program Officer in carrying out his responsibilities.

B. (1) The Program Officer for DOE under this Agreement, and the person who shall be the Participant's contact for all technical matters pertaining to this Agreement shall be the person named below or such other person as may be designated in writing by the Contracting Officer:

Susan M. Prestwich
Energy and Technology Division
Idaho Operations Office
550 Second Street
Idaho Falls, Idaho 83401
Telephone: 208-526-1147

(2) The representative for the Participant for the purposes of this Agreement shall be the person named below or such other person as may be designated in writing by the Participant:

Jerold Kirkman, Manager
Magic Resource Investors
P.O. Box 1328
Sun Valley, Idaho 83353
Telephone: 208-726-8241

ARTICLE VIII - ALLOWABLE COST

Costs shall constitute allowable costs as specified in Subpart 1-15.2 of the Federal Procurement Regulations (41 CFR 1-15) as may be modified by Subpart 9-15.2 of the DOE Procurement Regulations in effect on the date of this Agreement.

ARTICLE IX - ACQUISITION OF GOODS AND SERVICES

A. In furtherance of the work under this Agreement, each subcontract or purchase order for goods or services which, separately, exceeds $25,000, shall require the written approval of the Contracting Officer. The Participant may request such approval by submitting to the Contracting Officer a copy of the proposed subcontract document along with justification for the selection of the proposed subcontractor. If the Contracting Officer fails to respond to the request for approval within ten (10) days after receiving such request, the Participant may award the subcontract or purchase order.

B. The subcontractors for the goods and services referred to in paragraph A. above, shall be selected competitively except those subcontractors who were specifically identified in the Participant's proposal.

ARTICLE X - TERMINATION

A. It is the express intent of DOE and the Participant to fund their respective cost participation for the project, as such cost participation is set forth under Article III of this Agreement, so as to provide continuity and completion of the project. If, notwithstanding this original intent, it becomes apparent to either party that incremental funding for its cost participation will not be available as needed, either in whole or in part, in order to provide continuity for the completion of work under this Agreement, each party agrees to promptly advise the other of such funding problem, and if practicable and consistent with their mutual interest at the time, the parties may attempt to cooperatively adjust the schedule and/or the content of the work towards best serving the objectives of this Agreement within the available committed and planned funding of each party.

B. Notwithstanding the foregoing, it is understood that DOE may at any time upon giving written notice to the Participant by the Contracting Officer terminate this Agreement for its convenience for any reason.

C. Also, notwithstanding the foregoing, it is understood that the Participant may at any time upon giving written notice to DOE terminate this Agreement for its convenience for reasonable cause. The Participant may not terminate for convenience after seventy-five percent (75%) of DOE's contribution to the project has been committed, and should such termination occur, it will constitute a breach of contract.

D. In the event of termination for convenience by either party, the parties will cooperate to reasonably phase-out the Participant's costs and cost commitments incurred prior to the termination. If the termination is for the convenience of the Government, the termination cost claim may include those costs provided for in paragraph G. of this Article X. If the termination is for the convenience of the Participant, the cost claim may include only those costs incurred prior to termination. In either case, the approved costs will be shared in accordance with the following: prior to dilling and testing, should both parties agree not to proceed, then DOE will pay ninety percent (90%) of the allowable costs incurred. Should the Participant elect to terminate during drilling or testing of the well, then the percentage DOE shall pay will be negotiated. This percentage shall not be greater than ninety percent (90%) nor less than twenty percent (20%) of the allowable costs incurred at the time of termination; provided; however, that the total amount obligated by the Government under this Agreement shall not be exceeded.

E. In the event of termination for convenience by either party, the Participant shall:

(1) Place no further orders or subcontracts for materials, services, or facilities intended to be invoiced to the Government for its contribution.

(2) Terminate all orders and subcontracts to the extent that they relate to the performance of work.

ARTICLE X - TERMINATION (Cont'd)

(3) Notwithstanding subparagraphs E.(1) and (2) above, the Participant has the right to proceed with such orders and subcontracts should it decide to continue performance of the work at its expense only.

F. After a termination for convenience by the Government, the Participant shall submit to the Contracting Officer its termination claim. Such claim shall be submitted promptly but in no event later than one (1) year from the effective date of termination unless one or more extensions in writing are granted by the Contracting Officer.

G. Termination claims:

(1) There shall be included therein the Government's share, as set forth in paragraph D., of the cost of settling and paying claims arising out of the termination of work under subcontracts or orders which are properly chargeable to this Agreement as determined by the Contracting Officer.

(2) There shall be included therein the reasonable costs of settlement, including accounting, legal, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of termination inventory.

H. Costs claimed, agreed to, or determined pursuant to this article must constitute allowable costs as defined in Article VIII, "Allowable Cost."

I. If in the opinion of DOE, the Participant fails to substantially perform under this Agreement and does not cure such failure within a reasonable time after written notice of such failure by the Contracting Officer, DOE may by written notice to the Participant terminate this Agreement. Such termination notice, signed by the Contracting Officer, shall be effective upon receipt by the Participant. The Government shall not be liable for the incurrence of any obligations under this Agreement from the date of the receipt of such termination notice. Upon any such termination, the Participant agrees to promptly, upon DOE's request, transfer to DOE all information resulting from the work performed to the date of the termination notice.

J. Except with respect to defaults of subcontractors, the Participant shall not be in default by reason of failure to substantially perform under this Agreement if such failure arises out of causes beyond the control and without the fault or negligence of the Participant. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually

ARTICLE X - TERMINATION (Cont'd)

severe weather, but in every case the failure to perform must be beyond the control and without the fault or negligence of the Participant. If the failure to substantially perform is caused by the failure of a subcontractor to perform or make progress, and if such failure arises out of causes beyond the control of both the Participant and a subcontractor, and without the fault or negligence of either of them, the Participant shall not be deemed to be in default unless the supplies or services to be furnished by the subcontractor were reasonably obtainable from other sources. Upon request of the Participant, if the Contracting Officer shall determine that failure to perform was occasioned by any one or more of the aforementioned causes, this Agreement shall be revised accordingly. This provision does not preclude DOE from exercising its right to terminate for convenience.

K. As used in this article, the term "subcontractor" means subcontractor at any tier.

ARTICLE XI - TITLE TO PROPERTY AND SITE RESTORATION

A. The Government will own and maintain title of all items of materials, supplies, and all tangible property purchased with Government funds provided under this Agreement until such time as it is installed and becomes a part of the facility. The Government will determine disposition of such property at completion of the work under this Agreement or upon termination by either party and agrees that those costs incurred by the Participant in final disposition will be allowable costs.

B. The Participant agrees that the Government shall not be subject to any obligation to restore or rehabilitate any of the premises, facilities or equipment owned and/or leased by the Participant which are altered, improved or otherwise affected by this Agreement.

ARTICLE XII - INDEMNIFICATION

It is recognized that the Participant as ultimate titleholder of the facilities to be constructed under this Agreement is responsible for the design, installation, operation, repair and maintenance of such facilities. The Government therefore will not be liable for payment of damages for injuries to any person, or loss of life or personal property, or loss suffered or sustained and arising from use or operation of the facilities which are a subject of this Agreement. The Participant agrees to indemnify and save the Government harmless from any and all claims, demands, damages, actions, costs, or charges against the Government arising as the result of the above-mentioned injuries, damages, or loss, except for any such damages or claims arising out of the negligent act of the Government, its employees or representatives in the course of their official duties.

ARTICLE XIII - PUBLIC INFORMATION RELEASES

The parties agree that public disclosure or dissemination of new data or information arising out of the design, construction or operation of the project will be coordinated by the parties, it being understood that the intent of both the Participant and DOE is to release all data and information to the greatest practicable extent in order to achieve the objective of obtaining maximum public value from the results of this project. It is understood that the foregoing is not intended to afford either party the right to prevent a public release by the other; however, nothing in this article shall impair the rights of the parties set forth elsewhere in this Agreement, including but not necessarily limited to General Provision 18. entitled "Patent Rights."

ARTICLE XIV - ADDITIONAL AGREEMENT PROVISIONS

The below listed Appendices, attached hereto, are made a part hereof and set forth additional provisions of this Agreement:

Appendix A: General Provisions
Appendix B: Project Tasks and Schedule Background
Appendix C: Reporting Requirements
Appendix D: Cost Share Plan

APPENDIX A - GENERAL PROVISIONS

COOPERATIVE AGREEMENTS

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APPENDIX A

GENERAL PROVISIONS

COOPERATIVE AGREEMENT

1. ORDER OF PRECEDENCE

In the event of an inconsistency between the provisions of this Agreement, the inconsistency shall be resolved by giving precedence as follows: (a) schedule; (b) statement of work; (c) the general provisions; (d) other provisions of the Agreement, whether incorporated by reference or otherwise; and (e) Participant's technical proposal, if incorporated in the Agreement by reference or otherwise.

2. DEFINITIONS

As used throughout this Agreement, the following terms shall have the meanings set forth below:

A. The term "head of the agency" or "Secretary" as used herein means the Secretary, the Under Secretary, any Assistant Secretary, or any other head or assistant head of the executive or military department or other Federal agency; and the term "his duly authorized representative" means any person or persons or board (other than the Contracting Officer) authorized to act for the head of the agency or the Secretary.

B. The term "Contracting Officer" means the person executing this Agreement on behalf of the Government, and any other officer or civilian employee who is a properly designated Contracting Officer; and the term includes, except as otherwise provided in this Agreement, the authorized representative of a Contracting Officer acting within the limits of his authority.

C. Except as otherwise provided in this Agreement, the term "subcontract" includes purchase orders under this Agreement.

D. The term "DOE" means the U.S. Department of Energy.

3. INSPECTION

The Government, through any authorized representatives, has the right at all reasonable times, to inspect, or otherwise evaluate the work performed or being performed hereunder and the premises in which it is being performed. If any inspection, or evaluation is made by the Government on the premises of the Participant or a subcontractor, the Participant shall provide and shall require its subcontractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representatives in the performance of their duties. All inspections and evaluations shall be performed in such a manner as will not unduly delay the work.

4. EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

A. This clause is applicable if the amount of this Agreement exceeds $10,000 and was entered into by means of negotiation, including small business restricted advertising, but is not applicable if this Agreement was entered into by means of formal advertising.

B. The Participant agrees that the Comptroller General of the United States or any of his duly authorized Government employees shall, until the expiration of three (3) years after final payment under this Agreement, unless DOE authorizes their prior disposition, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Participant involving transactions related to this Agreement.

C. The Participant further agrees to include in all its subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized Government employees shall, until the expiration of three (3) years after final payment under the subcontract, unless the DOE authorizes their prior disposition, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this clause excludes (1) purchase orders not exceeding $10,000 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

D. The periods of access and examination described in paragraphs A. and B., above, for records which relate to (1) appeals under the "Disputes" clause of this Agreement, (2) litigation or the settlement of claims arising out of the performance of this Agreement, or (3) costs and expenses of this Agreement as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall continue until such appeals, litigation, claims or exceptions have been disposed of.

E. Nothing in this Agreement shall be deemed to preclude an audit by the General Accounting Office of any transaction under this Agreement.

5. CONVICT LABOR

In connection with the performance of work under this Agreement, the Participant agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89-176, September 10, 1965 [18 U.S.C. 4082(c)(2)] and Executive Order 11755, December 29, 1973.

6. OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

7. COVENANT AGAINST CONTINGENT FEES

The Participant warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Participant for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this Agreement without liability or in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

8. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHTS INFRINGEMENT

(The provisions of this clause shall be applicable only if the amount of this Agreement exceeds $10,000.)

A. The Participant shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Agreement of which the Participant has knowledge.

B. In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this Agreement or out of the use of any supplies furnished or work or services performed hereunder, the Participant shall furnish to the Government when requested by the Contracting Officer, all evidence and information in possession of the Participant pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Participant has agreed to indemnify the Government.

C. This clause shall be included in all Subcontracts.

9. COMPETITION IN SUBCONTRACTING

The Participant shall select subcontractors (including suppliers) on a competitive basis to the maximum practicable extent consistent with the objectives and requirements of the Agreement.

10. AUDIT AND RECORDS

A. The Participant shall maintain, and the Contracting Officer or his representative shall have the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this Agreement. Such right of examination shall include inspection at all reasonable times of the Participant's plants, or such parts thereof, as may be engaged in the performance of this Agreement.

10. AUDIT AND RECORDS (Cont'd)

B. The materials described above, shall be made available at the office of the Participant, at all reasonable times, for inspection, audit or reproduction, until the expiration of three (3) years from the date of final payment under this Agreement or such lesser time specified in Title 41, Code of Federal Regulations Part 1-20 and for such lesser period, if any, as is required by applicable statute, or by other clauses of this Agreement, or by subparagraphs B.(1) and (2) below:

(1) If this Agreement is completely or partially terminated, the records relating to the work terminated shall be made available for a period of three (3) years from the date of any resulting final settlement.

(2) Records which relate to appeals under the "Disputes" clause of this Agreement, or litigation or the settlement of claims arising out of the performance of this Agreement, shall be made available until such appeals, litigation, or claims have been disposed of.

11. CLEAN AIR AND WATER

[Applicable only if the Agreement exceeds $10,000 or the Contracting Officer has determined that orders under an indefinite quantity Agreement in any one year will exceed $100,000 or a facility to be used has been the subject of a conviction under the Clean Air Act [42 U.S.C. 1857c-8(c)(1)] or the Federal Water Pollution Control Act [33 U.S.C. 1319(c)] and is listed by EPA, or the Agreement is not otherwise exempt.]

A. The Participant agrees as follows:

(1) To comply with all the requirements of Section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 91-604) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), respectively, relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in Section 114 and Section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this Agreement.

(2) That no portion of the work required by this Agreement will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this Agreement was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use its best efforts to comply with clean air standards and clean water standards at the facility in which the Agreement is being performed.

(4) To insert the substance of the provisions of this clause into any nonexempt subcontract, including this subparagraph A.(4).

11. CLEAN AIR AND WATER (Cont'd)

B. The terms used in this clause have the following meanings:

(1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by P. L. 91-604).

(2) The term "Water Act" means Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by P. L. 92-500).

(3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110(d) of the Clean Air Act [42 U.S.C. 1857c-5(d)], an approved implementation procedure or plan under section 111(c) or section 111(d), respectively, of the Air Act [42 U.S.C. 1857(c)-6(c) or (d)], or an approved implementation procedure under section 112(d) of the Air Act [42 U.S.C. 1857c-7(d)].

(4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

(5) The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirements of the Air Act or Water Act and regulations issued pursuant thereto.

(6) The term "facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be utilized in the performance of an agreement or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

12. PREFERENCE FOR U. S. FLAG AIR CARRIERS

A. Pub. L. 93-623 requires that all Federal agencies and Government contractors and subcontractors will use U.S. flag air carriers for international air transportation of personnel (and their personal effects) or property to the extent service by such carriers is available. It further provides that the Comptroller General of the United States shall disallow any expenditure from appropriated funds for international air transportation on other than a U.S. flag air carrier in the absence of satisfactory proof of the necessity therefor.

12. PREFERENCE FOR U. S. FLAG AIR CARRIERS (Cont'd)

B. The Participant agrees to utilize U.S. flag air carriers for international air transportation of personnel (and their personal effects) or property to the extent service by such carriers is available.

C. In the event that the Participant selects a carrier other than a U.S. flag air carrier for international air transportation, he will include a certification on vouchers involving such transportation which is essentially as follows:

CERTIFICATION OF UNAVAILABILITY OF U.S. FLAG AIR CARRIERS

I hereby certify that transportation service for personnel (and their personal effects) or property by certificated air carrier was unavailable for the following reasons: (state reasons).

D. The terms used in this clause have the following meanings:

(1) "International air transportation" means transportation of persons (and their personal effects) or property by air between a place in the United States and a place outside thereof or between two places both of which are outside the United States.

(2) "U.S. flag air carrier" means one of a class of air carriers holding a certificate of public convenience and necessity issued by the Civil Aeronautics Board, approved by the President, authorizing operations between the United States and/or its territories and one or more foreign countries.

(3) The term "United States" includes the fifty states, Commonweath of Puerto Rico, possessions of the United States, and the District of Columbia.

E. The Participant shall include the substance of this clause, including this paragraph E., in each subcontract or purchase hereunder which may involve international air transportation.

13. USE OF U.S. FLAG COMMERCIAL VESSELS

A. The Cargo Preference Act of 1954 [Pub. L. 664, August 26, 1954, 68 Stat. 832, 46 U.S.C. 1241(b)], requires that Federal departments or agencies shall transport at least 50 percent of the gross tonnage (computed separately for day bulk carriers, dry cargo liners, and tankers) of equipment, materials, or commodities which may be transported on ocean vessels on privately owned United States flag commercial vessels. Such transportation shall be accomplished whenever:

(1) Any equipment, materials, or commodities, within or outside the United States, which may be transported by ocean vessel, are:

(i) procured, contracted for, or otherwise obtained for the agency's account; or

13. USE OF U.S. FLAG COMMERCIAL VESSELS (Cont'd)

(ii) furnished to or for the account of any foreign nation without provision for reimbursement.

(2) Funds or credits are advanced or the convertibility of foreign currencies is guaranteed in connection with furnishing such equipment, materials, or commodities which may be transported by ocean vessel.

Note: This requirement does not apply to small purchases as defined in 41 CFR 1-3.6 or to cargoes carried in the vessels of the Panama Canal Company.

B. The Participant agrees as follows:

(1) To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved whenever shipping any equipment, material, or commodities under the conditions set forth in A. above pursuant to this Agreement to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

Note: Guidance regarding fair and reasonable rates for United States flag vessels may be obtained from the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, D.C. 20230, Area Code 202, phone 377-3449.

(2) To furnish, within 15 working days following the date of loading for shipments originating within the United States or within 25 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill of lading in English for each shipment of cargo covered by the provisions in A. above to both the Contracting Officer (through the prime Participant in the case of subcontractor bills of lading) and to the Division of National Cargo, Officer of Market Development, Maritime Administration, Washington, D.C. 20230.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Agreement except for small purchases as defined in 41 CFR 1-3.6.

14. PERMITS AND LICENSES

Except as otherwise directed by the Contracting Officer, the Participant shall procure all necessary permits or licenses and abide by all applicable laws, regulations, and ordinances of the United States and of the State, territory, and political subdivision in which the work under this Agreement is performed.

15. REPORTING OF ROYALTIES

If this Agreement is in an amount which exceeds $10,000 and if any royalty payments are directly involved in the Agreement or are reflected in the Agreement price to the Government, the Participant agrees to report in writing to the Contracting Officer or Patent Counsel during the performance of this Agreement and prior to its completion or final settlement the amount of any royalties or other payments paid or to be paid by it directly to others in connection with the performance of this Agreement together with the names and addresses of licensors to whom such payments are made and either the patent numbers involved or such other information as will permit the identification of the patents or other basis on which the royalties are to be paid. The approval of DOE of any individual payments or royalties shall not stop the Government at any time from contesting the enforceability, validity or scope of, or title to, any patent under which a royalty or payments are made.

16. AUTHORIZATION AND CONSENT

The Government hereby gives its authorization and consent for all use and manufacture of any invention described in and covered by a patent of the United States in the performance of this Agreement or any part hereof or any amendment hereto or any contract hereunder (including any lower-tier subcontract).

17. NONDISCRIMINATION IN FEDERALLY ASSISTED DOE PROGRAMS - CIVIL RIGHTS

Recipients of DOE financial assistance awards which are provided under DOE Federal Assistance programs shall comply with Part 1040, Chapter X, Title 10 of the Code of Federal Regulations "Nondiscrimination in Federally Assisted Programs" (10 CFR Part 1040) as published in the FR Vol. 45, No. 116, Friday, June 13, 1980 (pages 40514 through 40535). 10 CFR Part 1040 provided that no person shall on the ground of race, color, national origin, sex, handicap, or age be excluded from participation in, be denied the benefits of, be subjected to discrimination under, or be denied employment, where the main purpose of the program or activity is to provide employment or when the delivery of program services is affected by the recipient's employment practices, in connection with any program or activity receiving Federal assistance from the DOE.

18. PATENT RIGHTS - LONG FORM

A. Definitions.

(1) "Subject Invention" means any invention or discovery of the Participant conceived or first actually reduced to practice in the course of or under this Agreement, and includes any art, method, process, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plants, whether patented or unpatented under the Patent Laws of the United States of America or any foreign country.

18. PATENT RIGHTS - LONG FORM (Cont'd)

(2) "Contract" means any contract, grant, agreement, understanding or other arrangement, which includes research, development, or demonstration work, and includes any assignment or substitution of parties.

(3) "States and domestic municipal governments" means the States of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, the Trust Territory of the Pacific Islands, and any political subdivision and agencies thereof.

(4) "Government agency" includes an executive department, independent commission, board, office, agency, administration, authority, Government corporation, or other Government establishment of the Executive Branch of the Government of the United States of America.

(5) "To the point of practical application" means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine and under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

(6) "Patent Counsel" means the DOE Patent Counsel assisting the procuring activity.

B. Allocation of Principal Rights.

(1) Assignment to the Government. The Participant agrees to assign to the Government the entire right, title, and interest throughout the world in and to each Subject Invention except to the extent that rights are retained by the Participant under subparagraph B.(2) and paragraph C. of this clause.

(2) Greater Rights Determinations. The Participant or the employee-inventor with authorization of the Participant may request greater rights than the nonexclusive license and the foreign patent rights provided in paragraph C. of this clause on identified inventions, in accordance with 41 CFR 9-9.109-6. Such requests must be submitted to Patent Counsel (with notification by Patent Counsel to the Contracting Officer) at the time of the first disclosure pursuant to subparagraph E.(2) of this clause, or not later than nine (9) months after conception or first actual reduction to practice, whichever occurs first, or such longer period as may be authorized by Patent Counsel (with notification by Patent Counsel to the Contracting Officer) for good cause shown in writing by the Participant.

18. PATENT RIGHTS - LONG FORM (Cont'd)

C. Minimum Rights to the Participant.

(1) Participant License. The Participant reserves a revocable, nonexclusive, paid-up license in each patent application filed in any country on a Subject Invention and any resulting patent in which the Government acquires title. The license shall extend to the Participant's domestic subsidiaries and affiliates, if any, within the corporate structure of which the Participant is a part and shall include the right to grant sublicenses of the same scope to the extent the Participant was legally obligated to do so at the time the Agreement was awarded. The license shall be transferable only with approval of DOE except when transferred to the successor of that part of the Participant's business to which the invention pertains.

(2) Revocation Limitations. The Participant's nonexclusive license retained pursuant to subparagraph C.(1) of this clause and sublicenses granted thereunder may be revoked or modified by DOE, either in whole or in part, only to the extent necessary to achieve expeditious practical application of the Subject Invention under DOE's published licensing regulations (10 CFR 781), and only to the extent an exclusive license is actually granted. This license shall not be revoked in that field of use and/or the geographical areas in which the Participant, or its sublicensee, has brought the invention to the point of practical application and continues to make the benefits of the invention reasonably accessible to the public, or is expected to do so within a reasonable time.

(3) Revocation Procedures. Before modification or revocation of the license or sublicense, pursuant to subparagraph C.(2) of this clause, DOE shall furnish the Participant a written notice of its intention to modify or revoke the license and any sublicense thereunder, and the Participant shall be allowed thirty (30) days, or such longer period as may be authorized by the Patent Counsel (with notification by Patent Counsel to the Contracting Officer) for good cause shown in writing by the Participant, after such notice to show cause why the license or any sublicense should not be modified or revoked. The Participant shall have the right to appeal, in accordance with 10 CFR 781, any decision concerning the modification or revocation of its license or any sublicense.

(4) Foreign Patent Rights. Upon written request to Patent Counsel (with notification by Patent Counsel to the Contracting Officer), in accordance with subparagraph E.(2)(i) of this clause, and subject to DOE security regulations and requirements, there shall be reserved to the Participant, or the employee-inventor with authorization of the Participant, the patent rights to a Subject

18. PATENT RIGHTS - LONG FORM (Cont'd)

Invention in any foreign country where the Government has elected not to secure such rights provided:

(i) The recipient of such rights, when specifically requested by DOE and three (3) years after issuance of a foreign patent disclosing said Subject Invention, shall furnish DOE a report setting forth:

(A) The commercial use that is being made, or is intended to be made, of said invention, and

(B) The steps taken to bring the invention to the point of practical application or to make the invention available for licensing.

(ii) The Government shall retain at least an irrevocable, nonexclusive, paid-up license to make, use, and sell the invention throughout the world by or on behalf of the Government (including any Government agency) and States and domestic municipal governments, unless the Secretary or his designee determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments.

(iii) Subject to the rights granted in subparagraphs C.(1), (2), and (3) of this clause, the Secretary or his designee shall have the right to terminate the foreign patent rights granted in this subparagraph C.(4) in whole or in part unless the recipient of such rights demonstrates to the satisfaction of the Secretary or his designee that effective steps necessary to accomplish substantial utilization of the invention have been taken or within a reasonable time will be taken.

(iv) Subject to the rights granted in subparagraphs C.(1), (2), and (3) of this clause, the Secretary or his designee shall have the right, commencing four (4) years after foreign patent rights are accorded under this subparagraph C.(4), to require the granting of a nonexclusive or partially exclusive license to a responsible applicant or applicants, upon terms reasonable under the circumstances and in appropriate circumstances to terminate said foreign patent rights in whole or in part, following a hearing upon notice thereof to the public, upon a petition by an interested person justifying such hearing:

(A) If the Secretary or his designee determines, upon review of such material as he deems relevant, and

18. PATENT RIGHTS - LONG FORM (Cont'd)

after the recipient of such rights, or other interested person, has had the opportunity to provide such relevant and material information as the Secretary or his designee may require, that such foreign patent rights have tended substantially to lessen competition or to result in undue market concentration in any section of the United States in any line of commerce to which the technology relates; or

(B) Unless the recipient of such rights demonstrates to the satisfaction of the Secretary or his designee at such hearing that the recipient has taken effective steps, or within a reasonable time thereafter is expected to take such steps, necessary to accomplish substantial utilization of the invention.

D. Filing of Patent Applications.

(1) With respect to each Subject Invention in which the Participant or the inventor requests foreign patent rights in accordance with subparagraph C.(4) of this clause, a request may also be made for the right to file and prosecute the U.S. application on behalf of the U.S. Government. If such request is granted, the Participant or inventor shall file a domestic patent application on the invention within six (6) months after the request for foreign patent rights is granted, or such longer period of time as may be approved by the Patent Counsel for good cause shown in writing by the requester. With respect to the invention, the requester shall promptly notify the Patent Counsel (with notification by Patent Counsel to the Contracting Officer) of any decision not to file an application.

(2) For each Subject Invention on which a domestic patent application is filed by the Participant or inventor, the Participant or inventor shall:

(i) Within two (2) months after the filing or within two (2) months after submission of the invention disclosure if the patent application previously has been filed, deliver to the Patent Counsel a copy of the application as filed including the filing date and serial number;

(ii) Within six (6) months after filing the application or within six (6) months after submitting the invention disclosure if the application has been filed previously, deliver to the Patent Counsel a duly executed and approved assignment to the Government, on a form specified by the Government;

18. PATENT RIGHTS - LONG FORM (Cont'd)

(iii) Provide the Patent Counsel with the original patent grant promptly after a patent is issued on the application; and

(iv) Not less than thirty (30) days before the expiration of the response period for any action required by the Patent and Trademark Office, notify the Patent Counsel of any decision not to continue prosecution of the application.

(3) With respect to each Subject Invention in which the Participant or inventor has requested foreign patent rights, the Participant or inventor shall file a patent application on the invention in each foreign country in which such request is granted in accordance with applicable statutes and regulations and within one of the following periods:

(i) Eight (8) months from the date of filing a corresponding United States application, or if such an application is not filed, six (6) months from the date the request was granted;

(ii) Six (6) months from the date a license is granted by the Commissioner of Patents and Trademarks to file the foreign patent application where such filing has been prohibited by security reasons; or

(iii) Such longer periods as may be approved by the Patent Counsel for good cause shown in writing by the Participant or inventor.

(4) Subject to the license specified in subparagraphs C.(1), (2) and (3) of this clause, the Participant or inventor agrees to convey to the Government, upon request, the entire right, title, and interest in any foreign country in which the Participant or inventor fails to have a patent application filed in accordance with subparagraph D.(3) of this clause, or decides not to continue prosecution or to pay any maintenance fees covering the invention. To avoid forfeiture of the patent application or patent the Participant or inventor shall, not less than sixty (60) days before the expiration period for any action required by any Patent Office, notify the Patent Counsel of such failure or decision, and deliver to the Patent Counsel the executed instruments necessary for the conveyance specified in this paragraph.

E. Invention Identification, Disclosures, and Reports.

(1) The Participant shall establish and maintain active and effective procedures to ensure that Subject Inventions are promptly

18. PATENT RIGHTS - LONG FORM (Cont'd)

identified and timely disclosed. These procedures shall include the maintenance of laboratory notebooks or equivalent records and any other records that are reasonably necessary to document the conception and/or the first actual reduction to practice of Subject Inventions, and records which show that the procedures for identifying and disclosing the inventions are followed. Upon request, the Participant shall furnish the Contracting Officer a description of these procedures so that he may evaluate and determine their effectiveness.

(2) The Participant shall furnish the Patent Counsel (with notification by Patent Counsel to the Contracting Officer) on a DOE-approved form:

(i) A written report containing full and complete technical information concerning each Subject Invention within six (6) months after conception or first actual reduction to practice whichever occurs first in the course of or under this Agreement, but in any event prior to any on sale, public use or public disclosure of such invention known to the Participant. The report shall identify the Agreement and inventor and shall be sufficiently complete in technical detail and appropriately illustrated by sketch or diagram to convey to one skilled in the art to which the invention pertains a clear understanding of the nature, purpose, operation, and to the extent known, the physical, chemical, biological, or electrical characteristics of the invention. The report should also include any request for foreign patent rights under subparagraph C.(4) of this clause and any request to file a domestic patent application under subparagraph D.(1) of this clause. However, such requests shall be made within the period set forth in subparagraph B.(2) of this clause. When an invention is reported under this subparagraph E.(2)(i), it shall be presumed to have been made in the manner specified in Section 9(a)(1) and (2) of 42 U.S.C. 5908 unless the Participant contends it was not so made in accordance with subparagraph G.(2)(ii) of this clause.

(ii) Upon request, but not more than annually, interim reports on a DOE-approved form listing Subject Inventions and subcontracts awarded containing a Patent Rights article for that period and certifying that:

(A) The Participant's procedures for identifying and disclosing Subject Inventions as required by this paragraph E. have been followed throughout the reporting period;

18. PATENT RIGHTS - LONG FORM (Cont'd)

(B) All Subject Inventions have been disclosed or that there are no such inventions; and

(C) All subcontracts containing a Patent Rights clause have been reported or that no such subcontracts have been awarded.

(iii) A final report on a DOE-approved form within three (3) months after completion of the Agreement work listing all Subject Inventions and all subcontracts awarded containing a Patent Rights clause and certifying that:

(A) All Subject Inventions have been disclosed or that there were no such inventions; and

(B) All subcontracts containing a Patent Rights article have been reported or that no such subcontracts have been awarded.

(3) The Participant shall obtain patent agreements to effectuate the provisions of this clause from all persons in its employ who perform any part of the work under this Agreement except nontechnical personnel, such as clerical employees and manual laborers.

(4) The Participant agrees that the Government may duplicate and disclose Subject Invention disclosures and all other reports and papers furnished or required to be furnished pursuant to this clause. If the Participant is to file a foreign patent application on a Subject Invention, the Government agrees, upon written request, to use its best efforts to withhold publication of such invention disclosures until the expiration of the time period specified in subparagraph D.(1) of this clause, but in no event shall the Government or its employees be liable for any publication thereof.

F. Publication. It is recognized that during the course of the work under this Agreement, the Participant or its employees may from time to time desire to release or publish information regarding scientific or technical developments conceived or first actually reduced to practice in the course of or under this Agreement. In order that public disclosure of such information will not adversely affect the patent interests of DOE or the Participant, patent approval for release or publication shall be secured from Patent Counsel prior to any such release or publication.

G. Forfeiture of Rights in Unreported Subject Inventions.

(1) The Participant shall forfeit to the Government, at the request of the Secretary or his designee, all rights in any

18. PATENT RIGHTS - LONG FORM (Cont'd)

Subject Invention which the Participant fails to report to Patent Counsel (with notification by Patent Counsel to the Contracting Officer) within six (6) months after the time the Participant:

(i) Files or causes to be filed a United States or foreign patent application thereon; or

(ii) Submits the final report required by subparagraph E.(2)(iii) of this clause, whichever is later.

(2) However, the Participant shall not forfeit rights in a Subject Invention if, within the time specified in (1)(i) or (1)(ii) of this paragraph G., the Participant:

(i) Prepares a written decision based upon a review of the record that the invention was neither conceived nor first actually reduced to practice in the course of or under the Agreement and delivers the same to Patent Counsel (with notification by Patent Counsel to the Contracting Officer); or

(ii) Contending that the invention is not a Subject Invention the Participant nevertheless discloses the invention and all facts pertinent to this contention to the Patent Counsel (with notification by Patent Counsel to the Contracting Officer); or

(iii) Establishes that the failure to disclose did not result from the Participant's fault or negligence.

(3) Pending written assignment of the patent applications and patents on a Subject Invention determined by the Secretary or his designee to be forfeited (such determination to be a final decision under the "Disputes" clause of this Agreement), the Participant shall be deemed to hold the invention and the patent applications and patents pertaining thereto in trust for the Government. The forfeiture provision of this paragraph G. shall be in addition to and shall not supersede other rights and remedies which the Government may have with respect to Subject Inventions.

H. Examination of Records Relating to Inventions.

(1) The Contracting Officer or his authorized representative, until the expiration of three (3) years after final payment under this Agreement, shall have the right to examine any books (including laboratory notebooks), records, documents, and other supporting data

18. PATENT RIGHTS - LONG FORM (Cont'd)

of the Participant which the Contracting Officer or his authorized representative reasonably deems pertinent to the discovery or identification of Subject Inventions or to determine compliance with the requirements of this clause.

(2) The Contracting Officer or his authorized representative shall have the right to examine all books (including laboratory notebooks), records and documents of the Participant relating to the conception of first actual reduction to practice of inventions in the same field of technology as the work under this Agreement to determine whether any such inventions are Subject Inventions, if the Participant refuses or fails to:

(i) Establish the procedures of subparagraph E.(1) of this clause; or

(ii) Maintain and follow such procedures; or

(iii) Correct or eliminate any material deficiency in the procedures within thirty (30) days after the Contracting Officer notifies the Participant of such a deficiency.

I. Withholding of Payment (Not Applicable to Subcontracts).

(1) Any time before final payment of the amount of this Agreement, the Contracting Officer may, if he deems such action warranted, withhold payment until a reserve not exceeding $50,000 or 5 percent of the amount of this Agreement, whichever is less, shall have been set aside if in his opinion the Participant fails to:

(i) Establish, maintain and follow effective procedures for identifying and disclosing Subject Inventions pursuant to subparagraph E.(1) of this clause; or

(ii) Disclose any Subject Invention pursuant to subparagraph E.(2)(i) of this clause; or

(iii) Deliver the interim reports pursuant to subparagraph E.(2)(ii) of this clause; or

(iv) Provide the information regarding subcontracts pursuant to subparagraph J.(5) of this clause; or

(v) Convey to the Government in a DOE-approved form the title and/or rights of the Government in each Subject Invention as required by this clause.

18. PATENT RIGHTS - LONG FORM (Cont'd)

(2) The reserve or balance shall be withheld until the Contracting Officer has determined that the Participant has rectified whatever deficiencies exist and has delivered all reports, disclosures, and other information required by the clause.

(3) Final payment under this Agreement shall not be made by the Contracting Officer before the Participant delivers to Patent Counsel all disclosures of Subject Inventions and other information required by subparagraph E.(2)(i) of this clause, the final report required by subparagraph E.(2)(iii) of this clause, and Patent Counsel has issued a patent clearance certification to the Contracting Officer.

(4) The Contracting Officer may, in his discretion, decrease or increase the sums withheld up to the maximum authorized above. If the Participant is a nonprofit organization, the maximum amount that may be withheld under this paragraph shall not exceed $50,000 or 1 percent of the amount of this Agreement, whichever is less. No amount shall be withheld under this paragraph while the amount specified by this paragraph is being withheld under other provisions of the Agreement. The withholding of any amount or subsequent payment thereof shall not be construed as a waiver of any rights accruing to the Government under this Agreement.

J. Subcontracts.

(1) For the purpose of this paragraph the term "Participant" means the party awarding a subcontract and the term "subcontractor" means the party being awarded a subcontract, regardless of tier.

(2) Unless otherwise authorized or directed by the Contracting Officer, the Participant shall include the Patent Rights clause of 41 CFR 9-9.107-5(a) or 41 CFR 9-9.107-6 as appropriate, modified to identify the parties in any subcontract hereunder having as a purpose the conduct of research, development, or demonstration work. In the event of refusal by a subcontractor to accept this clause, or if in the opinion of the Participant this clause is inconsistent with DOE's patent policies, the Participant:

(i) Shall promptly submit written notice to the Contracting Officer setting forth reasons for the subcontractor's refusal and other pertinent information which may expedite disposition of the matter; and

(ii) Shall not proceed with the subcontract without the written authorization of the Contracting Officer.

18. PATENT RIGHTS - LONG FORM (Cont'd)

(3) Except as may be otherwise provided in this clause, the Participant shall not, in any subcontract or by using a subcontract as consideration therefor, acquire any rights in its subcontractor's Subject Invention for the Participant's own use (as distinguished from such rights as may be required solely to fulfill the Participant's Agreement obligations to the Government in the performance of this Agreement).

(4) All invention disclosures, reports, instruments, and other information required to be furnished by the subcontractor to DOE, under the provisions of a Patent Rights clause in any subcontract hereunder may, in the discretion of the Contracting Officer, be furnished to the Participant for transmission to DOE.

(5) The Participant shall promptly notify the Contracting Officer in writing upon the award of any subcontract containing a Patent Rights clause by identifying the subcontractor, the work to be performed under the subcontract, and the dates of award, and estimated completion. Upon the request of the Contracting Officer the Participant shall furnish him a copy of the subcontract.

(6) The Participant shall identify all Subject Inventions of the subcontractor of which it acquires knowledge in the performance of this Agreement and shall notify the Patent Counsel (with notification by Patent Counsel to the Contracting Officer) promptly upon the identification of the inventions.

(7) It is understood that the Government is a third party beneficiary of any subcontract clause granting rights to the Government in Subject Inventions, and the Participant hereby assigns to the Government all rights that the Participant would have to enforce the subcontractor's obligations for the benefit of the Government with respect to Subject Inventions. The Participant shall not be obligated to enforce the agreements of any subcontractor hereunder relating to the obligations of the subcontractor to the Government regarding Subject Inventions.

K. Background Patents.

(1) "Background Patent" means a domestic patent covering an invention or discovery which is not a Subject Invention and which is owned or controlled by the Participant at any time through the completion of this Agreement:

18. PATENT RIGHTS - LONG FORM (Cont'd)

(i) Which the Participant, but not the Government, has the right to license to others without obligation to pay royalties thereon; and

(ii) Infringement of which cannot reasonably be avoided upon the practice of any specific process, method, machine, manufacture or composition of matter (including relatively minor modifications thereof) which is a subject of the research, development, or demonstration work performed under this Agreement.

(2) The Participant agrees to and does hereby grant to the Government a royalty-free, nonexclusive, license under any Background Patent for purposes of practicing a subject of this Agreement by or for the Government in research, development, and demonstration work only.

(3) The Participant also agrees that upon written application by DOE, it will grant to responsible parties for purposes of practicing a subject of this Agreement, nonexclusive licenses under any Background Patent on terms that are reasonable under the circumstances. If, however, the Participant believes that exclusive or partially exclusive rights are necessary to achieve expeditious commercial development or utilization, then a request may be made to DOE for DOE approval of such licensing by the Participant.

(4) Notwithstanding the foregoing subparagraph K.(3), the Participant shall not be obligated to license any Background Patent if the Participant demonstrates to the satisfaction of the Secretary or his designee that:

(i) A competitive alternative to the subject matter covered by said Background Patent is commercially available or readily introducible from one or more other sources; or

(ii) The Participant or its licensees are supplying the subject matter covered by said Background Patent in sufficient quantity and at reasonable prices to satisfy market needs, or have taken effective steps or within a reasonable time are expected to take effective steps to so supply the subject matter.

L. Atomic Energy.

(1) No claim for pecuniary award or compensation under the provisions of the Atomic Energy Act of 1954, as amended, shall be

18. PATENT RIGHTS - LONG FORM (Cont'd)

asserted by the Participant or its employees with respect to any invention or discovery made or conceived in the course of or under this Agreement.

(2) Except as otherwise authorized in writing by the Contracting Officer, the Participant will obtain patent agreements to effectuate the provisions of subparagraph L.(1) of this clause from all persons who perform any part of the work under this Agreement, except nontechnical personnel, such as clerical employees and manual laborers.

M. Limitation of Rights. Nothing contained in this Patent Rights clause shall be deemed to give the Government any rights with respect to any invention other than a Subject Invention except as set forth in the Patent Rights article of this Agreement with respect to Background Patents and the Facilities License.

19. ADDITIONAL TECHNICAL DATA REQUIREMENTS

A. In addition to the technical data specified elsewhere in this Agreement to be delivered, the Contracting Officer may at any time during the Agreement performance or within one (1) year after final payment call for the Participant to deliver any technical data first produced or specifically used in the performance of this Agreement except technical data pertaining to items of standard commercial design.

B. The provisions of the "Rights in Technical Data" clause included in this Agreement are applicable to all technical data called for under this Additional Technical Data Requirements clause. Accordingly, nothing contained in this clause shall require the Participant to actually deliver any technical data, the delivery of which is excused by paragraph E. of the "Rights in Technical Data" clause.

C. When technical data are to be delivered under this clause, the Participant will be compensated for appropriate costs for converting such data into the prescribed form, for reproduction, and for delivery.

20. RIGHTS IN TECHNICAL DATA - LONG FORM

A. Definitions.

(1) "Technical Data" means recorded information regardless of form or characteristic, of a scientific or technical nature. It may, for example, document research, experimental, developmental, or demonstration, or engineering work, or be usable or used to define a design or process, or to procure, produce, support, maintain, or operate materiel. The data may be graphic or pictorial delineations in media such as drawings or photographs,

20. RIGHTS IN TECHNICAL DATA - LONG FORM (Cont'd)

text in specifications or related performance or design type documents or computer software (including computer programs, computer software data bases, and computer software documentation). Examples of technical data include research and engineering data, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identification, and related information. Technical data as used herein does not include financial reports, cost analyses, and other information incidental to Agreement administration.

(2) "Proprietary Data" means technical data which embody trade secrets developed at private expense, such as design procedures or techniques, chemical composition of materials, or manufacturing methods, processes, or treatments, including minor modifications thereof, provided that such data:

(i) Are not generally known or available from other sources without obligation concerning their confidentiality;

(ii) Have not been made available by the owner to others without obligation concerning its confidentiality; and

(iii) Are not already available to the Government without obligation concerning their confidentiality.

(3) "Contract Data" means technical data first produced in the performance of the Agreement, technical data which are specified to be delivered in the Agreement, technical data that may be called for under the "Additional Technical Data Requirements" clause of the Agreement, if any, or technical data actually delivered in connection with the Agreement.

C. Copyrighted Material.

(1) The Participant shall not, without prior written authorization of the Contracting Officer, establish a claim to statutory copyright in any Agreement data first produced in the performance of the Agreement. To the extent such authorization is granted, the Government reserves for itself and others acting on its behalf a royalty-free, nonexclusive, irrevocable, worldwide license for Governmental purposes to publish, distribute, translate, duplicate, exhibit and perform any such data copyrighted by the Participant.

(2) The Participant agrees not to include in the technical data delivered under the Agreement any material copyrighted by the Participant and not to knowingly include any material

20. RIGHTS IN TECHNICAL DATA - LONG FORM (Cont'd)

copyrighted by others without first granting or obtaining at no cost a license therein for the benefit of the Government of the same scope as set forth in subparagraph C.(1) above. If such royalty-free license is unavailable and the Participant nevertheless determines that such copyrighted material must be included in the technical data to be delivered, rather than merely incorporated therein by reference, the Participant shall request the written authorization of the Contracting Officer to include such copyrighted material in the technical data without a license.

D. Subcontracting. It is the responsibility of the Participant to obtain from its contractors technical data and rights therein, on behalf of the Government, necessary to fulfill the Participant's obligations to the Government with respect to such data. In the event of refusal by a subcontractor to accept an article affording the Government such rights, the Participant shall:

(1) Promptly submit written notice to the Contracting Officer setting forth reasons for the subcontractor's refusal and other pertinent information which may expedite disposition of the matter; and

(2) Not proceed with the contract without the written authorization of the Contracting Officer.

E. Withholding of Proprietary Data. Notwithstanding the inclusion of the "Additional Technical Data Requirements" clause in this Agreement or any provision of this Agreement specifying the delivery of technical data, the Participant may withhold proprietary data from delivery, provided that the Participant furnishes in lieu of any such proprietary data, so withheld technical data disclosing the source, size, configuration, mating and attachment characteristics, functional characteristics and performance requirements ("Form, Fit and Function" data, e.g., specification control drawings, catalog sheets, envelope drawings, etc.) or a general description of such proprietary data where "Form, Fit and Function" data are not applicable. The Government shall acquire no rights to any proprietary data so withheld except that such data shall be subject to the "Inspection Rights" provisions of paragraph F., and if included, the "Limited Rights in Proprietary Data" provisions of paragraph G. and the "Participant Licensing" provisions of paragraph H.

F. Inspection Rights. Except as may be otherwise specified in this Agreement for specific items of proprietary data which are not subject to this paragraph, the Contracting Officer's representatives, at all reasonable times up to three (3) years after final payment under this Agreement, may inspect at the Participant's facility any proprietary data withheld under paragraph E. and not furnished under paragraph G. for the purposes of verifying that such data properly fell within the withholding provision of paragraph E., or for evaluating work performance.

21. PATENT INDEMNITY

If the amount of this Agreement is in excess of $10,000, the Participant shall indemnify the Government and its officers, agents, and employees against liability, including costs, for infringement of any United States letters patent (except U. S. letters patent isued upon an application which is now or may hereafter be kept secret or otherwise withheld from issue by order of the Government) arising out of the manufacture or delivery of supplies or out of construction, alteration, modification, or repair of real property (hereinafter referred to as "construction work") under this Agreement, or out of the use or disposal by or for the account of the Government of such supplies or construction work. The foregoing indemnity shall not apply unless the Participant shall have been informed as soon as practicable by the Government of the suit or action alleging such infringement, and shall have been given such opportunity as is afforded by applicable laws, rules, or regulations to participate in the defense thereof; and further, such indemnity shall not apply to:

A. An infringement resulting from compliance with specific written instructions of the Contracting Officer directing a change in the supplies to be delivered or in the materials or equipment to be used, or directing a manner of performance of the Agreement not normally used by the Participant;

B. An infringement resulting from addition to, or change in, such supplies or components furnished or construction work performed which addition or change was made subsequent to delivery or performance by the Participant; or

C. A claimed infringement which is settled without the consent of the Participant, unless required by final decree of a court of competent jurisdiction.

22. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION

[This Agreement, to the extent that it is of a character specified in the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333), is subject to the following provisions and to all other applicable provisions and exceptions of such Act and the regulations of the Secretary of Labor thereunder.]

A. Overtime Requirements. The Participant or contractor contracting for any part of the Agreement work, which may require or involve the employment of laborers, mechanics, apprentices, trainees, watchmen, and guards, shall require or permit any laborer, mechanic, apprentice, trainee, watchman, or guard, in any workweek in which he is employed on such work, to work in excess of eight (8) hours in any calendar day, or in excess of forty (40) hours in such workweek, on work subject to the provisions of the Contract Work Hours and Safety Standards Act, unless such laborer, mechanic, apprentice, trainee, watchman, or guard receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of eight (8) hours in any calendar day, or in excess of forty (40) hours in such workweek, whichever is the greater number of overtime hours.

22. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION (Cont'd)

B. Violation; Liability for Unpaid Wages; Liquidated Damages. In the event of any violation of the provisions of paragraph A., the Participant and any contractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Participant and contractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, apprentice, trainee, watchman, or guard employed in violation of the provisions of paragraph A. in the sum of $10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of eight (8) hours or in excess of his standard workweek of forty (40) hours without payment of the overtime wages required by paragraph A.

C. Withholding for Unpaid Wages and Liquidated Damages. The Contracting Officer may withhold from the Government Prime Participant, from any moneys payable on account of work performed by the Participant or contractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Participant or contractor for unpaid wages and liquidated damages as provided in the provisions of paragraph B.

D. Subcontracts. The Participant shall insert paragraphs A. through D. of this clause in all subcontracts, and shall require their inclusion in all subcontracts of any tier.

E. Records. The Participant shall maintain payroll records containing the information specified in 29 CFR 516.2(a). Such records shall be preserved for three (3) years from the completion of the Agreement.

23. FLOOD INSURANCE

The Participant shall comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973, Public Law 93-234, 87 Stat. 975, approved December 31, 1976, Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal financial assistance for construction or acquisition purposes for use in any area that has been identified by the Secretary of the Department of Housing and Urban Development as an area having special flood hazards and provisions prescribed by the Federal Insurance Administration in 24 CFR Chapter X, Subchapter B., will be complied with.

24. DISPUTES

A. Except as otherwise provided in this Agreement, any dispute concerning a question of fact arising under this Agreement which is not disposed of by Agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail, or otherwise furnish a copy thereof to the Participant. The decision of the Contracting Officer shall be final and conclusive unless within 60 days from date of receipt of such copy, the Participant mails, or delivers a written notice of appeal to the Department of Energy Financial Assistance Appeals Board in accordance with 10 CFR Part 1024 (See Rule 1). The decision of the Department of Energy Financial Assistance Appeals Board shall be final and conclusive unless determined by a court of competent jurisdiction to have been fradulent, or capricious, or arbitrary, or so grossly erroneous as necessary to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Participant shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Participant shall proceed diligently with the performance of the Agreement and in accordance with the Contracting Officer's decision.

B. This "Disputes Clause" does not preclude consideration of law questions in connection with decisions provided for in paragraph A. above; provided, that nothing in this Agreement shall be construed as making final the decision of any administrative official, representative, or board, based on a question of law.

25. UTILIZATION OF LABOR SURPLUS AREA CONCERNS

(The following clause is applicable if this Agreement exceeds $10,000.00)

A. It is the policy of the Government to award contracts to labor surplus area concerns that agree to perform substantially in labor surplus areas, where this can be done consistent with the efficient performance of the Agreement and at prices no higher than are obtainable elsewhere. The Participant agrees to use its best efforts to place its subcontracts in accordance with this policy.

B. In complying with paragraph A. of this clause and with paragraph B. of the clause of this Agreement entitled "Utilization of Small Business Concerns Owned and Controlled by Socially and Economically Disadvantaged Individuals," the Participant in placing its subcontracts shall observe the following order of preference: (1) Small business concerns that are labor surplus area concerns, (2) other small business concerns, and (3) other labor surplus area concerns.

C. (1) The term "labor surplus area" means a geographical area identified by the Department of Labor as an area of concentrated unemployment or underemployment or an area of labor surplus.

25. UTILIZATION OF LABOR SURPLUS AREA CONCERNS (Cont'd)

(2) The term "labor surplus area concern" means a concern that together with its first-tier subcontractors will perform substantially in labor surplus areas.

(3) The term "perform substantially in a labor surplus area" means that the costs incurred on account of manufacturing, production, or appropriate services in labor surplus areas exceed 50 percent of the Agreement price.

26. LABOR SURPLUS AREA SUBCONTRACTING PROGRAM

A. The Participant agrees to establish and conduct a program which will encourage labor surplus area concerns to compete for subcontracts within their capabilities. In this connection, the Participant shall:

(1) Designate a liaison officer who will (a) maintain liaison with duly authorized representatives of the Government on labor surplus area matters, (b) supervise compliance with the "Utilization of Labor Surplus Area Concerns" clause and (c) administer the Contractor's Labor Surplus Area Subcontracting Program;

(2) Provide adequate and timely consideration of the potentialities of labor surplus area concerns in all "make-or-buy" decisions;

(3) Assure that labor surplus area concerns will have an equitable opportunity to compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of labor surplus area concerns;

(4) Maintain records showing the procedures which have been adopted to comply with the policies set forth in this clause and report subcontract awards (see 41 CFR 1-16.804-5 regarding use of Optional Form 61). Records maintained pursuant to this clause will be kept available for review by the Government until the expiration of one (1) year after the award of this contract, or for such longer period as may be required by any other clause of this contract or by applicable law or regulations; and

(5) Include the "Utilization of Labor Surplus Area Concerns" clause in subcontracts which offer substantial labor surplus area subcontracting opportunities.

B. (1) The term "labor surplus area" means a geographical area identified by the Department of Labor as an area of concentrated unemployment or underemployment or an area of labor surplus.

26. LABOR SURPLUS AREA SUBCONTRACTING PROGRAM (Cont'd)

(2) The term "concern located in a labor surplus area" means a labor surplus area concern.

(3) The term "labor surplus area concern" means a concern that, together with its first-tier subcontractors, will perform substantially in labor surplus areas.

(4) The term "perform substantially in labor surplus areas" means that the costs incurred on account of manufacturing, production, or appropriate services in labor surplus areas exceed 50 percent of the contract price.

C. The Participant further agrees to insert, in any subcontract hereunder which may exceed $500,000.00 and which contains the "Utilization of Labor Surplus Area Concerns" clause, provisions which shall conform substantially to the language of this clause, including this paragraph C., and to notify the Contracting Officer of the names of such subcontractors.

27. BUY AMERICAN ACT

A. In acquiring end products, the Buy American Act (41 U.S. Code 10a-10d) provides that the Government give preference to domestic source end products. For the purpose of this clause:

(1) "Components" means those articles, materials, and supplies which are directly incorporated in the end products;

(2) "End products" means those articles, materials, and supplies which are to be acquired under this contract for public use; and

(3) "A domestic source end product" means (i) an unmanufactured end product which has been mined or produced in the United States, and (ii) an end product manufactured in the United States if the cost of the components thereof which are mined, produced, or manufactured in the United States exceeds 50 percent of the costs of all its components. For the purpose of this subparagraph A.(3)(ii), components of foreign origin of the same type or kind as the products referred to in subparagraphs B.(2) or (3) of this clause shall be treated as components mined, produced, or manufactured in the United States.

B. The Participant agrees to give preference in all purchases under this Cooperative Agreement to domestic source end products.

28. UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL BUSINESS CONCERNS OWNED AND CONTROLLED BY SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUALS

A. It is the policy of the United States and the Department of Energy that small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals shall have the maximum practicable opportunity to participate in the performance of contracts let by DOE.

B. The Participant hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with the efficient performance of this Agreement. The Participant further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the Department of Energy as may be necessary to determine the extent of the Participant's compliance with this clause.

C. (1) As used in this Agreement, the term "small business concern" shall mean a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

(2) The term "small business concern owned and controlled by socially and economically disadvantaged individuals" shall mean a small business concern:

(i) Which is at least 51 per centum owned by one or more socially and economically disadvantaged individuals; or in the case of any publicly-owned business at least 51 per centum of the stock of which is owned by one or more socially and economically disadvantaged individuals; and

(ii) Whose management and daily business operations are controlled by one or more of such individuals.

The Participant shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, and other minorities, or any other individual found to be disadvantaged by the Small Business Administration pursuant to Section 8(a) of the Small Business Act.

D. Subcontractors shall provide a notarized statement to the Participant certifying their status as either a small business concern or a small business concern owned and controlled by socially and economically disadvantaged individuals.

29. UTILIZATION OF WOMEN-OWNED BUSINESS CONCERNS

A. It is the policy of the United States Government that women-owned businesses shall have the maximum practicable opportunity to participate in the performance of contracts awarded by any Federal agency.

29. UTILIZATION OF WOMEN-OWNED BUSINESS CONCERNS (Cont'd)

B. The Participant agrees to use its best efforts to carry out this policy in the award of subcontracts to the fullest extent consistent with the efficient performance of this Agreement. As used in this Agreement, a "woman-owned business" concern means a business that is at least 51% owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management. "Women" mean all women business owners.

30. STOP WORK ORDER

A. The Contracting Officer may at any time, by written order to the Participant, require the Participant to stop all, or any part, of the work called for by this Agreement for a period of ninety (90) days after the order is delivered to the Participant, and for any further period to which the parties may agree. Any such order shall be specifically identified as a stop work order issued pursuant to this article. Upon receipt of such an order, the Participant shall forthwith comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of ninety (90) days after a stop work order is delivered to the Participant, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either:

(1) Cancel the stop work order, or

(2) Terminate the work covered by such order as provided for in this Agreement.

B. If the stop work order issued under this article is cancelled or the period of the order or any extension thereof expires, the Participant shall resume work. An equitable adjustment shall be made in the delivery schedule, the estimated cost, or a combination thereof, and in any other provisions of the Agreement that may be affected, and the Agreement shall be modified in writing accordingly, if:

(1) The stop work order results in an increase in the time required for, or in the Participant's cost properly allocable to, the performance of any part of this Agreement, and

(2) The Participant asserts a claim for such adjustments within thirty (30) days after the end of the period of work stoppage; provided that, if the Contracting Officer decides the facts justify such action, he may receive and act upon any such claim asserted at any time prior to final payment under this Agreement.

APPENDIX B

PROJECT TASKS AND SCHEDULE BACKGROUND

Summary

The purpose of this Cooperative Agreement is to complete the necessary exploration to site, drill, complete and test a 3,000 feet deep geothermal production well to supply the energy requirements for an ethanol distillation plant. DOE will share the cost of this resource confirmation project with the participant. Each parties costs share will be determined by the negotiated Cost Share Plan set forth in Appendix D to this Agreement. The work to be performed under this Agreement is set forth by the following tasks.

Task 1 - Project Management

A. The Participant shall manage the project in a prudent manner consistent with successfully completing these project tasks. Management controls shall include technical assessment, budget assessment and schedule assessment. Approval authority will be the basis for much of the project management. DOE will communicate with Mr. Jerold R. Kirkman for matters concerning this project.

B. In addition to close general coordination with DOE, the Participant shall make immediate and full disclosure of problem areas to DOE, if necessary, so that timely corrective action may be taken with DOE support.

C. The Participant shall prepare and submit to DOE in accordance with Appendix C, "Reporting Requirements Checklist," a Management Plan and Milestone Report within ten (10) working days of award of this Agreement.

- Deliverable - Management Plan and Milestone Report

Task 2 - Environmental/Institutional

A. The Participant shall submit within 60 days of award and receive DOE approval prior to gradient hole drilling an Environmental Evaluation in accordance with the "Environmental Guidelines Handbook" provided by DOE. The Environmental Evaluation shall address all "site-specific" information relating to this project. Excluding any questions or clarification, the environmental evaluation should be approved by DOE within 2 weeks of receipt from the Participant.

- Deliverable - Environmental Evaluation
- Milestone #1

B. The Participant shall provide such information during the process of the project to all Federal, State and local agencies as are required by such agencies to drill, construct, test and complete a geothermal well, and obtain and furnish to DOE all required permits and approvals.

Task 3 - Exploration

A. The Participant shall provide to DOE, prior to the commencement of any exploration work, a detailed Exploration Plan which shall define all work, i.e., assemble and analyze all existing geoscience and other pertinent data, identify geologic and geophysical studies, and thermal gradient drilling, to be completed under this task.

B. Within ten (10) working days of the receipt of the Exploration Plan, DOE shall indicate concurrence or request modifications to the plan. Mutual agreement of both parties to the Exploration Plan will constitute the scope of work during exploration. Any change in scope of the agreed upon exploration plan will require mutual prior concurrence of DOE and the Participant. This concurrence shall be supported by a written modification to the Exploration Plan.

- Deliverable - Exploration Plan
- Milestone #2

C. The Participant, with support from appropriate consultants, shall gather and analyze available geoscience data; detail the structural interpretation of the site and surrounding area; review data and interpret the hydrogeology of the site, and review, conduct and analyze geophysical investigations to formulate a program of temperature gradient drilling.

D. The Participant shall call the DOE Representative weekly, or at intervals mutually agreed upon, to provide status of exploration activities.

- Deliverable - Weekly Exploration Status Reports.

E. The Participant with support from appropriate consultants shall analyze and interpret exploration data to pick drill site(s) for thermal gradient hole(s). The Participant shall submit to DOE for review the above data, findings and conclusions.

F. Within ten (10) working days from the receipt of the above data, DOE and the Participant will review and discuss the data. Mutual agreement of both parties will be reached prior to proceeding with thermal gradient drilling.

- Deliverable - Exploration Data

G. The Participant with support from the appropriate consultants shall provide necessary drilling supervision, prepare a gradient drilling, testing and completion plan and prepare bid specifications and submit to DOE for review and concurrence.

H. Within ten (10) working days from receipt of the above plan and bid specifications; DOE shall indicate concurrence or request modifications to the specifications and/or plan. Mutual agreement of both parties to

the thermal gradient drilling plan will constitute the scope of work during gradient drilling. Any change in scope will require prior mutual concurrence of DOE and the Participant. This concurrence shall be supported by written modification to the thermal gradient drilling plan.

- Deliverable - Thermal gradient drilling, testing and completion plan, bid specifications.

I. The Participant with support from appropriate consultants shall select a drilling subcontractor, with DOE concurrence. The proposed subcontract must be submitted for DOE review and approval. Within ten (10) working days of receipt DOE will indicate approval or request modifications to the subcontract.

- Deliverable - Thermal Gradient Drilling Subcontract

J. The Participant shall supervise the drilling of the well, in accordance with the detailed Thermal Gradient Drilling Plan and specifications. Periodically, the participant and DOE shall confer, to coordinate decisions concerning the drilling operation in a timely manner.

K. The Participant shall call DOE Representative each morning to provide daily drilling report and transmit a written copy of the report daily to DOE.

- Deliverable - Daily Drilling Report

L. The Participant shall collect fluid samples, cutting samples, well logs, bottom hole and gradient temperature data and perform all other tests consistent with industry practice and the Thermal Gradient Drilling Plan.

M. All data concerning the well shall be forwarded by the Participant to DOE as soon as they are acquired in order to minimize the time required for DOE review.

N. Within ten (10) working days or the completion of the well(s), the Participant and DOE shall discuss and review the data. A mutual written agreement between the parties will be reached prior to proceeding with the next task.

- Decision point - To proceed with Production Well Drilling
- Deliverables - Logs, Well cuttings, Fluid sample analysis and other thermal gradient well data
- Milestone #3

O. The Participant shall provide to DOE, prior to drilling the production well, all available data and the rationale used by the Participant for site selection and the basis for well parameters, i.e., well depth, anticipated flow and temperature requirements.

P. Within 10 working days of the receipt of the above data, DOE and the Participant will review and discuss the data. Mutual agreement of both parties will be reached concerning the need for additional data prior to the site selection agreement. If no additional data is required, then mutual written agreement will be required to proceed with the next task.

- Deliverable - Exploration & Site Selection Data Report
- Decision point - Site Selection
- Milestone #4

Q. The Participant shall provide to DOE a well location survey to the nearest geodetic marker of any and all wells and gradient holes involved in this project.

- Deliverable - Well location surveys

Task 4 - Drilling and Logging

A. The Participant shall provide for necessary drilling supervision services.

B. The Participant shall prepare and submit to DOE for review and concurrence, a detailed Drilling and Well Completion Plan based on the preliminary drilling program, updated to incorporate any data generated since proposal submission. This plan must include all aspects of the drilling phase, well construction, testing during drilling, well completion, and support.

C. The Participant shall prepare and submit to DOE, for review and concurrence, bid specifications for drilling subcontractor selection.

D. Within ten (10) working days from receipt of both the Drilling and Well Completion Plan and the Bid Specifications, DOE shall indicate concurrence or request modifications to the specifications and/or plan. Mutual agreement of both parties to the Drilling and Well Completion Plan will constitute the scope of work during drilling. Any change in scope of the agreed upon drilling plan will require the mutual concurrence of both parties, supported by a written modification to the Drilling Plan.

- Deliverables - Drilling and Well Completion Plan, Drilling Bid Specifications

- Milestone #5

E. The Participant, with support from appropriate consultants, shall select a drilling subcontractor, with DOE concurrence. The proposed subcontract must be submitted for DOE review and approval. Within ten (10) working days of receipt, DOE will indicate approval or request modifications to the subcontract.

- Deliverable - Drilling Subcontract

F. The Participant shall supervise the drilling of the production well, in accordance with the detailed Drilling and Well Completion Plan and specifications. Periodically, the Participant and DOE shall confer, to coordinate decisions concerning the drilling operation in a timely manner.

G. The Participant shall call DOE Representative each morning to provide daily drilling report and transmit a written copy of the report daily to DOE.

- Deliverable - Daily Drilling Report

H. The Participant shall collect fluid samples, cutting samples, well logs, bottom hole and gradient temperature data and perform all other tests consistent with industry practice and the Drilling Plan. Strata suitable for reinjection will be noted during drilling.

I. All data concerning the well shall be forwarded by the Participant to DOE as soon as they are acquired in order to minimize the time required for DOE review.

J. Within ten (10) working days or the completion of the well, the Participant and DOE shall discuss and review the data. A mutual written agreement between the parties will be reached prior to proceeding with the next task.

- Decision point - To proceed with flow testing
- Deliverables - Logs, Well cuttings, Fluid sample analysis
- Milestone #6

Task 5 - Flow Testing

A. The Participant shall provide the necessary flow testing services.

B. The Participant shall update the Well Test Plan and submit it to DOE for review and approval twenty (20) working days prior to testing. DOE shall indicate concurrence or request modifications to the plan within ten (10) working days. Mutual agreement of the parties to the Well Test Plan will constitute the scope of work during well testing. Any change in scope of the agreed upon plan will require mutual concurrence of the parties. Such concurrence shall be incorporated into the Well Test Plan.

- Deliverable - Well Test Plan
- Milestone #7

C. The Participant shall carry out a comprehensive well and reservoir test program.

D. The Participant shall call reports to the DOE representative each morning during testing.

E. The Participant shall assimilate the test data during the well test and estimate reservoir yield and production life.

F. The Participant shall prepare well testing and other available data forward it to DOE.

G. Within ten (10) working days of test completion the parties shall analyze the well test results.

H. A mutual, written agreement between DOE and the Participant must be reached to determine a suitable course of action for completion of this project.

- Decision point - Completion of Project
- Deliverables - Daily Reports Testing Data
- Milestone #8

Task 6 - Injection Well

A. The Participant shall review all water quality, well test data, regulatory requirements and utilization requirements to determine the need for an injection well. Should DOE and the Participant mutually agree to the necessity of an injection well, the Participant shall submit a Injection Well Drilling Plan to DOE for review and concurrence.

B. Within fourteen (14) working days of the submittal of the injection well drilling plan DOE shall indicate concurrence or request modifications to the specifications and/or plan.

C. The remainder of this task shall proceed as D thru J Task 4 Drilling and Logging and Task 5 Flow Testing. Mutual written agreement between DOE and the Participant to the Injection Well plan will constitute the scope of work during drilling.

- Decision Point - Injection Well
- Milestone #9

Task 7 - Determination of the Cost Share

A. The basis for determination of the cost shares shall be the variable Cost Share Plan contained in Appendix D of the Cooperative Agreement. The variable cost share will be based on energy produced from fluid temperature and flow.

B. DOE and the Participant shall review all well test results and incurred project costs and then determine the appropriate cost share ratios by use of the Cost Share Plan in Appendix D.

- Deliverables - Final Cost Report
- Milestone #10

Task 8 - Final Technical Report

A. The Participant shall prepare and submit the final technical report for DOE review within four (4) weeks of the termination of well testing. The report shall document all drilling, well completion, well testing data, and other such pertinent data generated during the project. DOE will indicate concurrence or request modifications to the final report within ten (10) working days of receipt of the document.

B. Copies of the Final Report including comments, if any, from DOE, must be received by DOE before final payment will be made by DOE.

- Deliverable - Final Technical Report
- Milestone #11

Task 9 - Reporting

The reports and deliverables identified on the attached Reporting Requirements Checklist, will be prepared and submitted as stated therein.

Task 10 - Dissemination of Information

A. Throughout the project the Participant may prepare press releases, business and technical articles for trade journals. DOE concurrence shall be obtained on all information prepared for public release, prior to the release of this information.

B. The Participant shall design and erect a job sign in good taste and of appropriate construction at the facility, which will define the project objective and identify the participants in the project. The sign should:

(1) Include appropriate recognition of the roles of the principal parties involved in work performed under this Agreement.

(2) Avoid statements or implications that the Department of Energy endorses any process or product arising out of the Agreement, without advance approval of the Contracting Officer.

C. A geothermal system display shall be prepared and installed in an appropriate location to support public awareness.

D. The Participant shall provide DOE one copy of any news releases, information folders, brochures, advertisements, technical papers, and magazine or newspaper articles pertaining to work performed under this Agreement.

E. The Participant shall advise the Contracting Officer in a timely manner of significant news media release or public reactions to work performed under the Agreement.

Task 11 - DOE Conferences

Ocassionally, the Participant shall attend geothermal technology conferences at DOE's request. DOE direction for participation in these conferences shall include a method for reimbursement by DOE.

Task 12 - Financial

A. The Participant shall be responsible for all non-DOE financial arrangements.

B. Payments will be made in accordance with Article IV - Method of Payment of the Special Provisions.

C. Incremental payments may be invoiced for and will be payed as milestones are achieved and reports and deliverables have been received and/or approved by DOE for each milestone. Refer to attached Milestone and Deliverable Schedule. Incremental payments may be invoiced for at the completion of milestones: #1, #3, #4, #6 with final payment after the satisfactory completion of all deliverables and Milestones through Milestone #11.

MILESTONE AND DELIVERABLE SCHEDULE

Milestone #1	Approved Environmental Evaluation
- Deliverables	1. Management Plan 2. Milestone Report 3. Environmental Evaluation 4. Exploration Report
Milestone #2	Approved Exploration Plan
Milestone #3	Completion of Exploration Phase
- Deliverables	1. Weekly Exploration Status Report 2. Exploration Data 3. Thermal gradient drilling, testing & Completion Plan 4. Bid Specifications 5. Thermal Gradient Drilling Subcontract 6. Daily Drilling Report 7. Thermal Gradient Well Data
Milestone #4	Site Selection Agreement
- Deliverables	1. Exploration and Site Selection Data Report 2. Well location surveys
Milestone #5	Approved Drilling and Completion Plan and Bid Specifications
- Deliverables	Drilling and Completion Plan Bid Specifications
Milestone #6	Completion of Drilling
- Deliverables	1. Drilling Subcontract 2. Daily Drilling Reports (both verbal and written) 3. Well logs 4. Well cuttings 5. Fluid sample analysis 6. Other pertinent data gathered during drilling for determination of flow testing parameters.
Milestone #7	Well Test Plan
- Deliverables	Well Test Plan
Milestone #8	Flow Testing
- Deliverables	Daily Testing Reports (both verbal and written) Testing Data

Milestone #9 — Injection Well

- Deliverables
  1. Drilling and Completion Plan
  2. Bid Specifications
  3. Drilling Subcontract
  4. Daily Drilling Reports (both verbal and written)
  5. Well Logs
  6. Well Cuttings
  7. Fluid Sample Analysis
  8. Other pertinent data gathered during drilling for determination of injection parameters
  9. Well Test Plan
  10. Daily Testing Reports (both verbal and written)
  11. Testing Data

Milestone #10 — Determination of Cost Share

- Deliverables — Final Cost Report

Milestone #11 — Project Completion

- Deliverables — Final Technical Report

PROSPECTIVE PROJECT COST AND SCHEDULE SUMMARY

	Item	Time Frame (Months)	Estimated Cost
1.	Project Management	0-9	$ 96,427
2.	Environmental/Institutional	0-2	13,915
3.	Exploration	2-5	311,031
4.	Drilling and Logging	5-6	454,933
5.	Flow Testing	6-7	126,776
6.	Injection Well	7-8	-
7.	Determination of Cost Share	8-8-1/2	-
8.	Final Technical Report	8-1/2-9	5,000
9.	Reporting	0-9	17,390
10.	Dissemination of Information	0-9	6,132
	Total	9 months	$1,031,604

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APPENDIX C

U.S. DEPARTMENT OF ENERGY

COOPERATIVE AGREEMENT NO. DE-AC07-81ID12257

REPORTING REQUIREMENTS CHECKLIST

FORM DOE 537
(Revised 10/80)

(See Instructions on Reverse)

FORM APPROVED
OMB NO. 38R-0190

1. IDENTIFICATION:	2. OBLIGATION INSTRUMENT:

3. REPORTING REQUIREMENTS:

A. PROJECT MANAGEMENT:	Frequency
1. ☒ Management Plan	0
2. ☒ Milestone Schedule & Status Report	0
3. ☐ Cost Plan	
4. ☐ Manpower Plan	
5. ☒ Contract Management Summary Report	M
6. ☒ Project Status Report	M
7. ☐ Cost Management Report	
8. ☐ Manpower Management Report	
9. ☒ Conference Record	A
10. ☒ Hot Line Report	A

B. TECHNICAL INFORMATION REPORTING:	Frequency
1. ☒ Notice of Energy RD&D Project	0
2. ☒ Technical Progress Report	Q
3. ☒ Topical Report	A
4. ☒ Final Technical Report	0
C. COST/SCHEDULE CONTROL SYSTEM CRITERIA REPORTING:	
1. ☐ Management Control System Description	
2. ☐ WBS Dictionary	
A. ☐ Index	
B. ☐ Element Definition	
3. ☐ Cost Performance Reports	
A. ☐ Format 1 - WBS	
B. ☐ Format 2 - Functional	
C. ☐ Format 3 - Baseline	

FREQUENCY CODES:

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

4. SPECIAL INSTRUCTIONS:

1. Topical reports are to be prepared and submitted as required by Attachment B of this Agreement. Those reports include:

1. Environmental Evaluation
2. Exploration Report
3. Drilling and Well Completion Reports
4. Well Test Report
5. Daily Drilling and Well Testing Reports
6. Testing Data
7. Logs
8. Fluid Samples
9. Well Cuttings
10. Final Cost Report
11. Site Selection Agreement
12. Drilling and Completion Bid Specifications

2. A complete reporting requirements checklist, containing the number of required copies, the due date, and the distribution list, is included in Attachment B.

5. ATTACHED HEREWITH:

☒ Report Distribution List ☐ WBS/Reporting Category ☐

6. PREPARED BY (Signature and date):	7. REVIEWED BY (Signature and date):

ATTACHMENT A

:D F-129 (Rev. 08-79)
Ref. DOE 13302
(use with DOE CR-527)

U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

REPORT DISTRIBUTION LIST

Contract No.

Addressees	Milestone Schedule & Status Report	Management Plan	Cost Plan	Manpower Plan	Project Status Report	Cost Management Summary Report	Manpower Management Report	Conference Record	Notice of Energy RD&D Project (SSIE)	Hot Line Report	Technical Progress Report	Topical Report **	Final Technical Report	Cost Performance Report	Cost/Schedule Status Report	Management Control System Description	Summary System Description	WBS Dictionary
	Number of Report Copies																	
Nell W. Fraser, Director Contracts Management Division U.S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, ID 83401	1	1			1	1			1	1	1	1	1	1				
Susan Prestwich, Energy & Technology Division (Address Same as Above)	10	10			10	10			8	1	1	16	4	32				
Bob Gray, DGE U.S. Department of Energy 12th & Pennsylvania Avenue Washington, D.C. 20585	1	1			1	1						1	1	1				
A. A. Churm, Director Office of Patent Counsel U.S. Department of Energy Chicago Operations Office 9800 South Cass Avenue Argonne, IL 60439												1		1				
Technical Information Center U.S. Department of Energy Oak Ridge Operations Office P. O. Box 62 Oak Ridge, TN 37830																		
Camera-Ready Copies												*	*	*				**

Special Instructions

1. Camera-ready copies of indicated * reports are to be delivered to Susan Prestwich at the above address at the completion of this project.

2. Topical reports identified in Attachment B. will be distributed in accordance to this column.**

ATTACHMENT NO. 1

REPORT REQUIREMENTS CHECKLIST

	Frequency 1/	No. of Copies 2/	Camera 2/ Ready Copy	Due Date 3/
A.1 Management Plan (1)*	O	10 + 1		15 days of award
A.2 Milestone Summary (1)	O	10 + 1		15 days of award
A.5-6 Progress Letter	M	10 + 1	--	20 da ARP
A.9 Conference or Workshop Record	A	8 + 1	--	20 da
A.10 Hot Line Report	A	--	--	--
B.1 SSIE (DOE Form 538)	O	1 + 1	--	30 da ASC
B.2 Technical Progress Report	Q	16+1+1	1	3 wk ARP
B.4A Draft Final Technical Report	O	4+1+1	--	3 wk ARP
B.4B Final Technical Report (11)	O	32 + 1	1	2 wk ADC
1. Environmental Evaluation (1)	O	8 + 1	1	60 da ASC
2. Exploration Report (1)	O	4 + 1	--	Per SOW
3. Drilling and Well Completion Plan (5)	O	4 + 1	--	Per SOW
4. Well Test Plan (7)	O	4 + 1	--	Per SOW
5. Daily Drilling and Testing Report (6)	A			Per SOW
6. Testing Data (8)	A			Per SOW
7. Logs (6)	A			Per SOW
8. Fluid Sample Analysis (6)	A			Per SOW
9. Well Cuttings (6)	A			Per SOW
10. Final Cost Report (10)	O	4 + 1	--	3 wk COP
11. Dissemination of Information	A	A + 1(*1)	--	--

1/ Frequency Nomenclature:

O = Once
A = As Required (expected number)
Q - Quarterly
M = Monthly

2/ First number: to DOE Technical Representative
Second number: to DOE Contracting Officer
Third number: to DOE Patent Counsel (if required)
Camera-ready copy to DOE Technical Representative, with one copy of document distribution Form DOE 426 (DOE-furnished)

3/ Due Date Nomenclature:

da, wk = Calendar days or weeks
ASC = After Start of Contract
ARP = After end of Report Period
ADC = After DOE Concurrence
SOW = Per scheduled task in Statement of Work
COP = Completion of Project

APPENDIX D

COST SHARE PLAN

DOE's Cost Share in Percent for conditions shown

		Flowrate, Gallons Per Minute				
		<300	300-400	400-500	500-600	>600
	<160°F	90	90	90	90	90
Geothermal	160-180°F	90	90	87	84	81
Water	181-200°F	87	81	74	68	62
Temperature	201-220°F	81	71	62	52	42
°F	221-240°F	74	62	49	36	23
	>240°F	68	52	36	20	20

The respective cost sharing of DOE and the Participant shall be as shown on the above cost share table.

A "successful well" is a well that produces at least 500 gpm at a temperature of at least 241°F. DOE will furnish 20% of the total allowable incurred project costs if a "successful well" is the result of the drilling program.

An "unsuccessful well" is a well that produces less than 400 gpm at temperatures less than 180°F. DOE will furnish 90% of the total allowable incurred project costs if an "unsuccessful well" is the result of the drilling program.

An "intermediate well" is a well that produces between the parameters describing a "successful well" and an "unsuccessful well." DOE's cost share will be determined by the above table if an "intermediate well" is the result of the drilling program.

The Participant shall pay all project costs not paid by DOE.