

PENN STATE



SUBCONTRACT

SUBCONTRACT NO. 2048-CR-AWWA-2577

THIS AGREEMENT, entered into as of September 4, 2001, by and between The Pennsylvania State University, a Corporation organized and existing under the laws of the Commonwealth of Pennsylvania, with its principal office at University Park, Pennsylvania (hereinafter referred to as "Penn State") and the City of Redlands, Redlands, California (hereinafter referred to as "Subcontractor");

WITNESSETH THAT:

WHEREAS, Penn State has received Prime Contract No. 2577 from American Water Works Association Research Foundation (hereinafter referred to as "Sponsor") as a result of a U.S. Department of Environmental Protection Agency Cooperative Agreement, under CFDA Number 66.500, to provide for certain research work; and

WHEREAS, Penn State desires to have the Subcontractor perform a certain portion of said research work; and

WHEREAS, the Subcontractor has represented that it has the present ability to perform said research work;

NOW THEREFORE, the parties hereto do hereby mutually agree as follows:

SECTION A

Standard Provisions

ARTICLE I - Statement of Work

The work to be performed by the Subcontractor relates to a project entitled "Application of Bioreactor Systems to Low-Concentration Perchlorate-Contaminated Water."

The work to be accomplished is set forth in the Subcontractor's Statement of Work appended hereto as Attachment I.

ARTICLE II - Reports

The Subcontractor shall submit progress reports in accordance with the provisions of the prime agreement as contained in Attachment V. Reports are due to Penn State's Project Director, Dr. Bruce E. Logan, one week prior to the dates listed in Exhibit B of Attachment V.

ARTICLE III - Period of Performance

The period of performance under this subcontract shall commence on March 1, 2001 and continue through September 15, 2003.

ARTICLE IV - Cost

The total estimated cost to Penn State for the performance of this subcontract shall not exceed \$30,000 unless changed by written amendment to this subcontract. The Subcontractor's budget is appended hereto as part of Attachment I. The Subcontract shall provide In-Kind cost match to the extent set forth in Attachment I.

ARTICLE V - Payment

Penn State shall reimburse the Subcontractor not more often than monthly for allowable costs actually incurred and chargeable to Penn State in accordance with the budget categories indicated in Attachment I upon being invoiced by the Subcontractor and upon approval of the invoice by Penn State's Project Director. All invoices shall be submitted in a format similar to the sample invoice appended hereto as Attachment II, but at a minimum shall include applicable cost sharing, current and cumulative costs, subcontract number and certification. **INVOICES WHICH DO NOT REFERENCE PENN STATE'S SUBCONTRACT NUMBER SHALL BE RETURNED TO THE SUBCONTRACTOR.** Invoices shall be submitted to:

Raymond W. Eyerly, Senior Research Associate
Environmental Resources Research Institute
The Pennsylvania State University
105 Land & Water Research Building
University Park, PA 16801
Phone: (814) 865-0967
Fax: (814) 865-3378
Email: rwe2@psu.edu

A final statement of costs incurred, marked "FINAL", must be submitted NOT LATER THAN sixty (60) days after subcontract completion.

All payments shall be considered provisional and subject to adjustment within the total estimated cost established by Article IV, Section A in the event such adjustment is necessary as a result of an audit by the Commonwealth.

ARTICLE VI - Independent Contractor

Subcontractor, acting as an independent contractor and not as an agent of Penn State, is willing to perform said work upon the terms hereinafter provided. Penn State shall not maintain, and shall not be required to maintain, any direct control over the means or manner by which the Subcontractor performs the obligations contained in the Statement of Work or any revisions thereof.

ARTICLE VII - Record Retention

All pertinent records and books of accounts related to this subcontract shall be retained for a period of three (3) years after the conclusion of the subcontract. Records relating to any litigation or claim arising out of the performance of this agreement, or costs and expenses of this agreement to which exception has been taken as a result of audit and/or inspection, shall be retained by the Subcontractor until such litigation, claim or exception has been resolved.

ARTICLE VIII - Reports Distribution

During the performance of this subcontract, as may be extended from time to time, the Subcontractor shall be responsible for submitting reports in accordance with Article II and any other article of this subcontract requiring reports to the individuals identified in the "Addresses for Reports Distribution" appended hereto as Attachment III.

ARTICLE IX - Publicity

No publicity matter having or containing any reference to Penn State, or in which the name of Penn State is mentioned, shall be made use of by the Subcontractor until written approval has first been obtained from Penn State.

ARTICLE X - Governing Laws

This subcontract shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

ARTICLE XI - Disputes

Any and all claims, disputes or controversies arising under, out of, or in connection with this Agreement, which the parties shall be unable to resolve within sixty (60) days, shall be mediated in good faith. The party raising such dispute shall promptly advise the other party of such claim, dispute or controversy in a writing which describes in reasonable detail the nature of such dispute. By not later than five (5) business days after the recipient has received such notice of dispute, each party shall have selected for itself a representative who shall have the authority to bind such party, and shall additionally have advised the other party in writing of the name and title of such representative. By not later than ten (10) business days after the date of such notice of dispute, the party against whom the dispute shall be raised shall select a mediation firm in Pennsylvania and such representatives shall schedule a date with such firm for a mediation hearing not to exceed one (1) day in length, and less where applicable. The parties shall enter into good faith mediation and shall share the costs equally. If the representatives of the parties have not been able to resolve the dispute within fifteen (15)

business days after such mediation hearing, the parties shall have the right to pursue any other remedies legally available to resolve such dispute in either the Courts of the Common Pleas of Centre County of Pennsylvania or in the United States District Court for the Middle District of Pennsylvania, to whose jurisdiction for such purposes Penn State and Subcontractor each hereby irrevocably consents and submits.

Notwithstanding the foregoing, nothing in this clause shall be construed to waive any rights or timely performance of any obligations existing under this Research Agreement.

ARTICLE XII - Assignment and Subcontracting

Subcontractor shall not assign, transfer or subcontract its interest or obligations hereunder without the written consent of Penn State.

ARTICLE XIII - Supersedure

This subcontract supersedes and replaces any previous arrangements, oral or written, between the parties hereto pertaining to this subcontract.

ARTICLE XIV - Changes

The conditions of this subcontract may be changed at any time by mutual agreement. Said changes shall be in the form of a duly executed amendment to this subcontract.

ARTICLE XV - Review of Human Subjects in Research Projects

The Subcontractor assures that adequate safeguards shall be taken whenever using human subjects in research projects and an institutional review committee composed of sufficient members with varying backgrounds to assure complete and adequate review of projects involving the use of human subjects has reviewed and approved the projects. The Subcontractor will abide by all applicable provisions of the U.S. Department of Health and Human Services regarding the use of human subjects. In the event human subjects are required under this subcontract and/or subsequent amendments, the Subcontractor shall forward to Penn State's Contracting Office its most recent institutional review committee written approval.

ARTICLE XVI - Review of Animal Welfare in Research Projects

The responsibility for the humane care and treatment of laboratory animals used in any research project supported under this subcontract rests with the Subcontractor. The Subcontractor shall comply with the Animal Welfare Act (Pub. L. No. 89-544, 1996, as amended, Pub. L. No. 91-579, Pub. L. No. 94-279, and Pub. L. No. 99-198, 7 U.S.C. 2131 et seq.) and the regulations promulgated thereunder by the Secretary of Agriculture in 9 CFR Parts 1, 2, 3 and 4. The Subcontractor hereby certifies that the project is in compliance with the Animal Welfare Act of 1966 and 9 CFR Subchapter A (Laboratory Animals), as amended; and is reviewed and approved by the Institutional Animal Care and Use Committee. In the event animal subjects are required under this subcontract and/or subsequent amendments, the Subcontractor shall forward to Penn State's Contracting Office its most recent institutional review committee written approval.

ARTICLE XVII - Penn State Representation

Matters concerning compliance relative to performance of this subcontract should be directed to Penn State's Project Director at the following address:

Dr. Bruce E. Logan
Project Director
The Pennsylvania State University
205 Sackett Building
University Park, PA 16802
Telephone: (814) 863-7908
Fax: (814) 863-7304
Email: blogan@psu.edu

Matters concerning the direction or negotiation of any changes in the terms, conditions or amounts cited in this subcontract should be directed to Penn State's Contracting Office, or his duly authorized representative, at the following address:

Mr. Robert Killoren, Assistant Vice President for Research and Director of Sponsored Programs

As represented by:

Timothy M. Stodart
Contracts and Proposals Specialist
Office of Sponsored Programs
The Pennsylvania State University
110 Technology Center Building
University Park, PA 16802
Telephone: (814) 865-1027
Fax: (814) 865-3377
E-mail: tms21@psu.edu

ARTICLE XVIII - Closeout Requirements

The following items, appended hereto as Attachment IV, are required for Subcontract Closeout and shall be submitted along with a Final Technical Report, if applicable, and a Final Statement of Costs Incurred or final invoice itemizing cumulative costs to the individuals identified in Attachment III not later than sixty (60) days after subcontract ending date:

- Subcontractor's Release
- Subcontractor's Assignment of Refunds, Rebates, Credits and Other Amounts
- Inventory of Property
- Report of Inventions and Subcontracts
- A-133 Certification

Payment of Final Invoice shall be withheld pending receipt and acceptance of all Closeout Documents.

ARTICLE XIX – Order of Precedence

If any conflicts or discrepancies should arise in the terms and conditions of this subcontract, or the interpretation thereof, the order of precedence for resolution shall be: (a) Section A; (b) Section B; and Section C.

SECTION B

Special Prime Agreement Provisions (Check One)

☐ Special Provisions are not applicable.
☒ Special Provisions are applicable. Please refer to Attachment V, appended hereto.

The terms are modified in that the term "Foundation" means "Penn State"; "Participant" means "City of Redlands"; and "Subcontractor" means "Lower-Tier Subcontractor"; except that the term "Foundation" shall retain its meaning relative to Articles 13, 14, and 20.

SECTION C

General Provisions and/or Certifications (Check One)

☒ General Provisions and Certifications are not applicable.
☐ General Provisions and/or Certifications are applicable. Please refer to Attachment _____, appended hereto.

IN WITNESS WHEREOF, the parties have caused these presents to be executed in duplicate as of the day and year first above written.

By An Authorized Official of Penn State

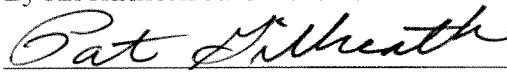


Name: Robert Killoren

Title: Assistant Vice President for Research
and Director of Sponsored Programs

Date: August 28, 2001

By An Authorized Official of Subcontractor

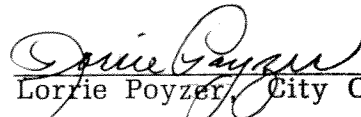


Name: Pat Gilbreath

Title: Mayor

Date: September 4, 2001

Attest:


Lorrie Poyzer, City Clerk

3.0 PROPOSAL FOR PHASE 2

3.1 INTRODUCTION

The primary purpose of Phase 2 of this project is to conduct pilot-scale testing at the Crafton-Redlands site in Redlands, CA, of an acetate-fed, packed-bed bioreactor, referred to here as the Penn State University Perchlorate Treatment (PSU-O₄) System. To fully evaluate scale up and operating considerations, we propose to field test two acetate fed reactors, one packed with sand and the other with plastic media.

The Crafton-Redlands groundwater source contains necessary trace minerals for biological growth of perchlorate-reducing bacteria. However, in addition to perchlorate, it contains as competing electron acceptors, dissolved oxygen and nitrate-nitrogen. Dissolved oxygen is the preferred electron acceptor and the system is designed to biologically remove this first in the treatment system. As flow progresses through the reactor, nitrate and perchlorate will be simultaneously removed by the perchlorate-acclimated culture. All three electron acceptors will be removed in the fixed bed reactor by adding an electron donor (acetate) at sufficiently high concentrations to ensure their complete removal. A small amount of ammonia phosphate and ammonia-nitrogen may be needed to satisfy bacterial nutritional requirements. Residual electron donor in the effluent will be removed in a post treatment system (biological aerobic filter).

The major questions, or outstanding issues, that need to be addressed during this phase of the project are:

- What are the major design criteria for facilities to reliably remove perchlorate with the tested processes?
- How much will the facility cost to construct and operate? Costs of the various processes tested can then be compared with each other to determine what is the best approach to treat perchlorate-laden waters.
- How much time is needed to stabilize the process?
- How difficult will it be to operate? For example, is it more difficult to operate and maintain process stability than a POTW wastewater treatment facility?
- What are the auxiliary needs for this process? Do we need to treat the waste product before discharging to a sewer or stream?
- What treatment processes are needed downstream of the bioreactor to produce water that meets drinking water standards?
- What will the primacy regulatory agencies require to approve this process?

We have organized this phase into the following major steps:

1. **Process design** – This includes coordination with AWWARF, other researchers (to share appropriate needs), Utility staff, Penn State, and CDM. Therefore, all of the design details are covered and duplication of effort is avoided. Testing protocol will also be developed in this step.
2. **Facility set-up and fabrication** – This step mainly requires the City of Redlands and CDM to prepare the site and equipment for testing. Because CDM's pilot facility is located in Long Beach, California, some on-site assistance is available to the City if needed.
3. **On-site testing** – The primary person staffing the pilot system is from Penn State with assistance from CDM and the City.

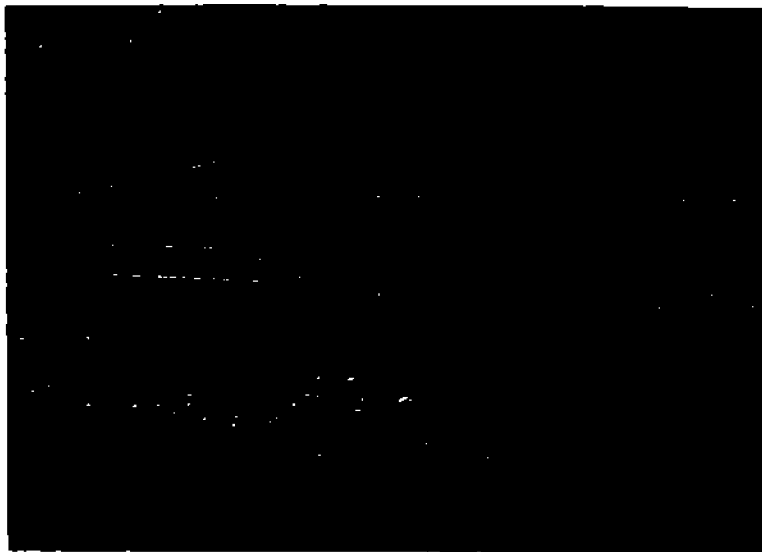
4. Report preparation – To document the findings from these proposed tests, the standard progress and final reports are part of our plans. Details for various submittals will be worked out with AWWARF staff.
5. Optional – This includes any additional services that may become necessary as the project progresses due to unanticipated operational problems inherent in any research-level effort.

3.2 SITE DESCRIPTION

We propose to house the pilot system inside an existing building on the site with GAC contactors. The City of Redlands will furnish the labor, utilities, and necessary equipment to prepare the site for the pilot plant and install any drains or inlet lines needed. The photograph below shows the existing building that will be used for this work. Work needed to prepare the sites includes:

- Remove existing equipment from this building
- Verify electrical utilities are functioning
- Install inlet and drain pipelines
- Install pilot equipment and pads, as needed.

The water quality at this site is well documented as it has been treated for several years to remove TCE and DBCP. We anticipate similar water quality to that previously obtained, but we will obtain water quality data as these wells ~~have not~~ have not operated for several months.



3.3 SYSTEM CONFIGURATION

The PSU-O₄ system consists of a packed-bed reactor fed an electron donor (acetate) and essential nutrients dissolved in the water. To ensure long term performance of the system, it has the capability for temporary fluidization of media (sand) or backwashing (plastic random media), depending on the system, to reduce the potential for reactor plugging due to biological growth. Such backwashing will be needed during long term operation to prevent excessive biofilm accumulation leading to reactor plugging. There is also a separate regeneration tank that can optionally be inoculated with perchlorate-reducing microorganisms (PRMs) for reactor bioaugmentation for system start up or PRM biofilm community revival. The regeneration tank is ordinarily a separate tank, but here it will be the same tank used for backwash water in order to minimize site area requirements. The regeneration tank is filled with high concentrations of acetate (electron donor), nutrients (phosphate and ammonia-nitrogen), and chlorate. When the contaminated water stream entering the packed bed reactor is turned off, the regeneration tank water is recirculated through the reactor. The direction of flow of the regeneration water is preferably in a direction opposite to that of the process water (although this is not known to be a critical factor). If the column is operated in downflow mode the regeneration and/or backwash water is in upflow mode. The purpose of the regeneration tank is to ensure that a high concentration of biomass of PRMs is maintained in the tank. The system should have a feed water equilization basin accessible for returning reactor effluent during startup. A process flow diagram, submitted with Progress report No. 4, is attached as an appendix.

the event that backwashing removes too much biofilm for the reactor to be immediately restored to full operation, the regeneration system can also be used to regenerate the biofilm and restore system performance.

3.5.6 Post Treatment Requirements

One of the key question is how to meet drinking water standards following perchlorate removal. We plan to have a wide-range of pilot systems available to monitor and treat the water coming from the bio-reactor. For this site and because the City of Redlands has a series of pressure filters with GAC to remove TCE and DBCP, we plan to simulate the impact of the bio-reactor on this system. If needed, other GAC sizes can be tested inside pilot filter columns. Also, CDM can provide processes such as ozone contactors to determine if oxidation can remove excess carbon in the treated water stream.

For the waste stream from the bio-reactor, several options are available and should be tested to determine the best and most economical method. Also, CDM plans to contact local regulatory agencies to determine the acceptable discharge limits into neighboring sewer systems. The facilities, costs, and acceptable method will most likely depend on the frequency backwashing is needed for this system.

3.5.7 Assessing Plant Performance

The pilot plant design will consider methods to assess plant performance on a frequent basis. This includes installing the necessary sample ports for manual collection of data along with in-line monitors for items such as turbidimeters, pH monitors, and flow meters. Sketches showing the locations, space requirements, drain routing, and valves will be developed to help operators perform duties and monitor performance of the tests and equipment.

3.5.8 Regulatory Concerns

The key regulator concern is how to reliably treat perchlorate-laden water to meet current and anticipated drinking water standards. As included and discussed in Project Report No. 4, the State of California has established a rigorous process to prove reliability of significantly impaired water sources. The steps, challenges, strategies, and costs for complying with these strict requirements will be assessed for this project and will be used to compare it with other ongoing AWWARF funded projects related to perchlorate.

4.0 SCHEDULE AND BUDGET

The budget for this project is attached, indicating tasks for and Redlands and CDM as subcontracts to Penn State. The personnel on this project, and their areas of responsibility are:

Penn State: Bruce Logan, Kijung Kim;

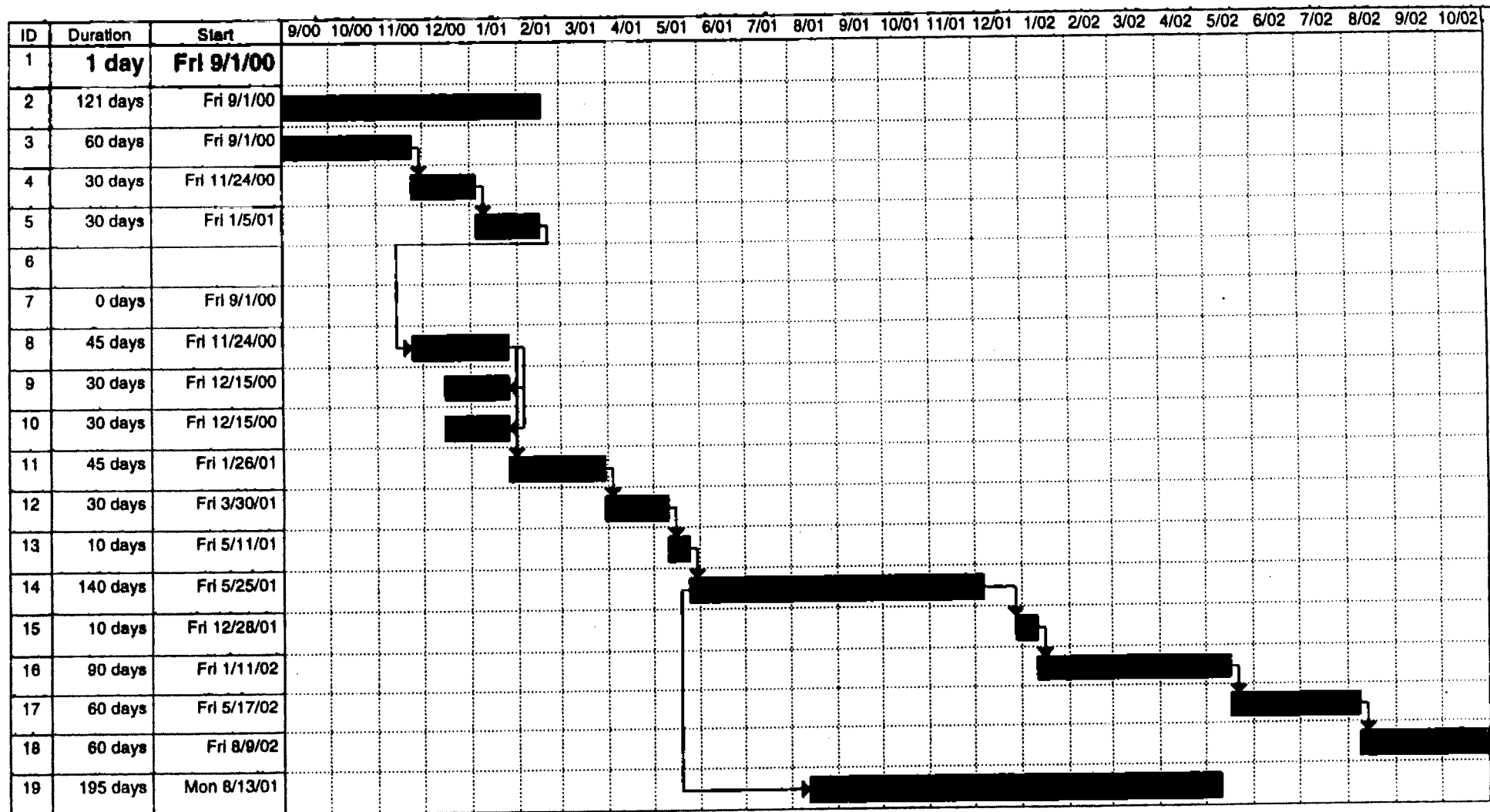
CDM: Steve Price, Al Bourquin, Michael Zafer, Phil Davis, and Harold Pepple

Redlands: Doug Headrick;

A schedule showing the completion of Phase 1, pilot plant development efforts, and field work is attached.

Phase 2 - Perchlorate Research

Activity	Funds Needed By:		Total	Year 1	Year 2	Comment
	AWWARF	In-Kind				
Prepare site for pilot plant	\$ 5,000	\$ 2,000	\$ 7,000	\$ 7,000		Clean garage, verify utilities
Assist with installation	\$ 5,000	\$ 2,000	\$ 7,000	\$ 7,000		Help move items into garage
Operate site equipment	\$ -	\$ 2,000	\$ 2,000	\$ 1,000	\$ 1,000	Existing well pump, etc.
Assist with on-site testing	\$ 5,000	\$ 2,000	\$ 7,000	\$ 1,750	\$ 5,250	Sample collection
Laboratory	\$ 10,000	\$ 2,000	\$ 12,000	\$ 3,000	\$ 9,000	Sample analysis
Utilities	\$ -	\$ 3,000	\$ 3,000	\$ 750	\$ 2,250	Electrical, wastewater, etc..
Contingency	\$ 5,000	\$ -	\$ 5,000		\$ 5,000	Reserve for unforeseen work
Totals	\$ 30,000	\$ 13,000	\$ 43,000	\$ 20,500	\$ 22,500	
	70%	30%				



Project Schedule

Application of Bioreactor Systems to Low-Concentration Perchlorate-Contaminated Water (Phase 1 and 2)

Penn State University
Camp Dresser and McKee Inc.
City of Redlands, California

ATTACHMENT II

STATEMENT OF EXPENDITURES
April 1, 1998 THROUGH April 30, 1998

FUND NAME:
FUND NO.:
CONTRACT NO.:
AWARD AMOUNT:

<u>CATEGORY</u>	<u>EXPENDITURES THIS PERIOD</u>	<u>EXPENDITURES TO DATE</u>
Salaries		
Total Salaries		
Supplies		
Communication Services		
Domestic Travel		
Printing & Copying		
Capital Equipment		
Software		
Fringe Benefits		
Total Direct Costs		
Indirect Costs		
Total Costs		
Cost Sharing		
Total Costs		

"SAMPLE"

Certification

"I hereby certify that all payments requested are for appropriate purposes in accordance with the agreement set forth in the application and award document."

Signature:

Date:

ADDRESSES FOR REPORTS DISTRIBUTION

<u>Report</u>	<u>Mail To</u>	<u>Copy To</u>
Progress Report	1	2 Note A
Final Report (Draft & Approved)	1	2 Note A
Monthly Invoices	3	
Final Invoices	3	
Subcontractor's Release	2	
Subcontractor's Assignment of Refunds, Rebates, Credits and Other Amounts	2	
Inventory of Property	2	
Report of Inventions and Subcontracts	2	1
A-133 Certification	2	

1. Dr. Bruce E. Logan
Project Director
The Pennsylvania State University
205 Sackett Building
University Park, Pennsylvania 16802
Telephone (814) 863-7908
2. Timothy M. Stodart, Contracts and Proposals Specialist
Office of Sponsored Programs
The Pennsylvania State University
110 Technology Center Building
University Park, Pennsylvania 16802
Telephone (814) 865-1027
FAX 814-865-3377
E-Mail: tms21@psu.edu
3. Manager
Research Accounting
The Pennsylvania State University
120 South Burrowes Street
313 Rider Building
University Park, Pennsylvania 16801
Res-Acct@psu.edu

Note A - The Subcontractor shall provide only a copy of the transmittal letters for satisfying this requirement of the Reports Distribution.

ATTACHMENT IV

CLOSEOUT DOCUMENTS

SUBCONTRACTOR'S RELEASE

Prime Award No. 2577
Subcontract No. 2048-CR-AWWA-2577

Pursuant to the terms of Subcontract No. 2048-CR-AWWA-2577 and in consideration of the sum of _____ which has been or is to be paid under the said subcontract to the City of Redlands (hereinafter called the Subcontractor) or to its assignees, if any, the Subcontractor upon payment of the said sum by The Pennsylvania State University, University Park, Pennsylvania (hereinafter called the Contractor) does remise, release, and discharge the Contractor, its officers, agents and employees, of and from all liabilities, obligations, claims, and demands whatsoever under or arising from the said subcontract, except:

1. Specified claims in stated amounts or in estimated amounts where the amounts are not susceptible of exact statement by the Subcontractor, as follows:
2. Claims, together with reasonable expenses incidental thereto, based upon the liabilities of the Subcontractor to third parties arising out of the performance of the said subcontract, which are not known to the Subcontractor on the date of the execution of this release and of which the Subcontractor gives notice in writing to the Contractor within the period specified in the said subcontract.
3. Claims for reimbursement of costs (other than expenses of the Subcontractor by reason of its indemnification of the Contractor against patent liability), including reasonable expenses incidental thereto, incurred by the Subcontractor under the provisions of the said subcontract relating to patents.

The Subcontractor agrees, in connection with patent matters and with claims which are not released as set forth above, that it will comply with all of the provisions of the said subcontract, including without limitation those provisions relating to notification to the Contractor and relating to the defense or prosecution of litigation.

IN WITNESS WHEREOF, this release has been executed this ____ day of _____, 20__.

SUBCONTRACTOR _____

By _____

Title _____

CERTIFICATE

I, _____, certify that I am the _____ of the corporation named as Subcontractor in the foregoing release; that _____ who signed said release on behalf of the Subcontractor was then _____ of said corporation; that said release was duly signed for and in behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

(CORPORATE SEAL)

**SUBCONTRACTOR'S ASSIGNMENT OF REFUNDS, REBATES,
CREDITS AND OTHER AMOUNTS**

Prime Award No. 2577
Subcontract No. 2048-CR-AWWA-2577

Pursuant to the terms of the subcontract in consideration of the reimbursement of costs and payment of fee, as provided in the said subcontract and any assignment thereunder, the City of Redlands (hereinafter called the Subcontractor) does hereby:

1. Assign, transfer, set over and release to The Pennsylvania State University, University Park, Pennsylvania (hereinafter called the Contractor), all right, title and interest to all refunds, rebates, credits or other amounts (including interest thereon) arising out of the performance of the said subcontract, together with all the rights of action accrued or which may hereafter accrue thereunder.
2. Agree to take whatever action may be necessary to effect prompt collection of all refunds, rebates, credits or other amounts (including any interest thereon) due or which may become due, and to promptly forward to the Contractor checks (made payable to The Pennsylvania State University, University Park, Pennsylvania) for any proceeds so collected. The reasonable costs of any such action to effect collection shall constitute allowable costs when approved by the Contractor as stated in the said subcontract and may be applied to reduce any amount otherwise payable to the Contractor under the terms hereof.
3. Agree to cooperate fully with the Contractor as to any claim or suit in connection with refunds, rebates, credits or other amounts due (including any interest thereon); to execute any protest, pleading, application, power of attorney or other papers in connection therewith; and to permit the Contractor to represent it at any hearing, trial or other proceeding arising out of such claim or suit.

IN WITNESS WHEREOF, this assignment has been executed this ____ day of _____, 20__.

Subcontractor _____

By _____

Title _____

CERTIFICATE

I, _____, certify that I am the _____ of the corporation named as Subcontractor in the foregoing release; that _____ who signed said release on behalf of the Subcontractor was then _____ of said corporation; that said release was duly signed for and in behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

(CORPORATE SEAL)

SUBCONTRACTOR A-133 CERTIFICATION

Subcontractor Name: City of Redlands

Subcontract No.: 2048-CR-AWWA-2577

The undersigned, being an authorized financial officer of the referenced Subcontractor, hereby certifies that:

_____ The Subcontractor's total Federal expenditures for fiscal year ending _____ do not exceed \$300,000.00 a fiscal year. The Subcontractor is exempt from Federal Audit requirements for the subcontract Period of Performance.

_____ The Subcontractor has had an A-133 compliance audit for fiscal year ending _____ and has not been informed of any instances of non-compliance with federal laws and regulations that have a direct bearing on this subcontract. A COPY OF THE SUBCONTRACTOR'S WRITTEN NOTIFICATION AS PROMULGATED IN SUBPART C, SECTION .320(e)(2) OF OMB CIRCULAR A-133 IS ATTACHED.

_____ The Subcontractor has had an A-133 compliance audit for fiscal year ending _____ and has been informed of instances of non-compliance with federal laws and regulations that have a direct bearing on this subcontract. COPIES OF THE SUBCONTRACTOR'S WRITTEN NOTIFICATION AND REPORTING PACKAGE AS PROMULGATED IN SUBPART C, SECTION .320(e)(1) AND (2) OF OMB CIRCULAR A-133 IS ATTACHED.

_____ The Subcontractor has not yet completed an A-133 compliance audit for fiscal year ending _____. The audit is to be completed by _____. A COPY OF THE SUBCONTRACTOR'S WRITTEN NOTIFICATION AND, IF APPLICABLE, THE REPORTING PACKAGE WILL BE FORWARDED TO PENN STATE WHEN AVAILABLE.

Typed Name and Title

Date

Signature

THE PENNSYLVANIA STATE UNIVERSITY

**INVENTORY OF PROPERTY
FOR**

SUBCONTRACT NO. 2048-CR-AWWA-2577

PRIME CONTRACT NO. 2577

FROM _____ TO _____

Please check whether property was acquired under the above referenced Subcontract. If property was acquired, please complete the requested information below.

_____ **NO Property was acquired under this Subcontract.**

_____ **YES Property was acquired under this Subcontract.
Please complete the information requested below.**

<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Date Purchased</u>	<u>Dollar Amount</u>
--------------------	---------------------	---------------------	----------------------	-----------------------	----------------------

Date

Signature

Title

REPORT OF INVENTIONS AND SUBCONTRACTS

(Pursuant to "Patent Rights" Contract Clause (See Instructions on Reverse Side)

Form Approved
OMB No 9000-0095
Expires July 31, 1995

Public reporting for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, search existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22203-4302, and to the Office of Management and Budget Paperwork Reduction Project (9000-0095), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES. RETURN COMPLETED FORM TO THE CONTRACTING OFFICER.

1a. NAME OF CONTRACTOR/SUBCONTRACTOR	c. CONTRACT NUMBER	2a. NAME OF GOVERNMENT PRIME CONTRACTOR	c. CONTRACT NUMBER	3. TYPE OF REPORT (X one) a. INTERIM b. FINAL
b. ADDRESS (Include ZIP Code)	d. AWARD DATE (YYMMDD)	b. ADDRESS (Include ZIP Code)	d. AWARD DATE (YYMMDD)	4. REPORTING PERIOD (YYMMDD) a. FROM b. TO

SECTION I - SUBJECT INVENTIONS

5. "SUBJECT INVENTIONS" REQUIRED TO BE REPORTED BY CONTRACTOR/SUBCONTRACTOR (If "None" so state)

NAME(S) OF INVENTOR(S) (Last, First, M) a.	TITLE OF INVENTION(S) b.	DISCLOSURE NUMBER, PATENT APPLICATION SERIAL NUMBER OR PATENT NUMBER c.	ELECTION TO FILE PATENT APPLICATIONS d.				CONFIRMATORY INSTRUMENT OR ASSIGNMENT FORWARDED TO CONTRACTING OFFICER e. (1) YES (2) NO	
			(1) UNITED STATES		(2) FOREIGN			
			(a) YES	(b) NO	(a) YES	(b) NO		

f. EMPLOYER OF INVENTOR(S) NOT EMPLOYED BY CONTRACTOR/SUBCONTRACTOR		g. ELECTED FOREIGN COUNTRIES IN WHICH A PATENT APPLICATION WILL BE FILED	
(1)(a) NAME OF INVENTOR (Last, First, M)	(2)(a) NAME OF INVENTOR (Last, First, M)	(1) TITLE OF INVENTION	(2) FOREIGN COUNTRIES OF PATENT APPLICATION
(b) NAME OF EMPLOYER	(b) NAME OF EMPLOYER		
(c) ADDRESS OF EMPLOYER (Include ZIP Code)	(c) ADDRESS OF EMPLOYER (Include ZIP Code)		

SECTION II - SUBCONTRACTS (Containing a "Patent Rights" clause)

6. SUBCONTRACTS AWARDED BY CONTRACTOR/SUBCONTRACTOR (If "None" so state)							
NAME OF SUBCONTRACTOR(S) a.	ADDRESS (Include ZIP Code) b.	SUBCONTRACT NUMBER(S) c.	DRAR "PATENT RIGHTS" d.		DESCRIPTION OF WORK TO BE PERFORMED UNDER SUBCONTRACT(S) e.	f. SUBCONTRACT DATES (YYMMDD)	
			(1) CLAUSE NUMBER	(2) DATE (YYMMDD)		(1) AWARD	(2) ESTIMATED COMPLETION

SECTION III - CERTIFICATION

7. CERTIFICATION OF REPORT BY CONTRACTOR/SUBCONTRACTOR (Not required if		Small Business or	Non-Profit organization.) (X appropriate box)
a. NAME OF AUTHORIZED CONTRACTOR/SUBCONTRACTOR OFFICIAL (Last, First, MI) ...	c. I certify that the reporting party has procedures for prompt identification and timely disclosure of "Subject Inventions," that such procedures have been followed and that all "Subject Inventions" have been reported.		
b. TITLE	d. SIGNATURE		e. DATE SIGNED

~~This Project Funding Agreement (hereafter the "Agreement") is effective as of 11/1/1998~~
 1998 by and between American Water Works Association Research Foundation (hereafter the
 "Foundation"), a Colorado non-profit corporation whose principal place of business is located at
 6666 W. Quincy Avenue, Denver, Colorado 80235 and The Pennsylvania State University
 (hereafter the "Participant"), a university, whose principal place of business is located at 216
 Sackett Building, University Park, PA 16802.

* * *

~~Parties hereby agree to the following.~~

I. DEFINITIONS

For purposes of this Agreement, the terms and definitions detailed below, and throughout this Agreement shall control:

- A. The term "Derivative Work" is defined as a work of authorship that is based on any pre-existing written report, study, test result or other work of authorship, and that modifies, transforms, or recasts that pre-existing work so as to alter it in any way.
- B. The term "Educational Purpose" is defined as any non-commercial and non-profit use of Intellectual Property including, but not limited to, a Foundation owned publication or report, as defined by Art. I., Para. D. below as a research tool and/or reference, or to inform the drinking water community, water utility personnel and the general public of the outcome of this Project.
- C. The "Foundation" is a non-profit corporation organized to sponsor practical applied research on behalf of the drinking water industry through planning, managing, and funding research and development regarding the subject of drinking water. It shall be defined to include all officers, directors, employees, volunteers, independent contractors (with the exception of the Participant), affiliates, agents, and related entities of the American Water Works Association Research Foundation.
- D. The term "Intellectual Property" shall be defined as all inventions, innovations, creations, works, reports, figures, tables, processes, designs, methods, formulas, drawings, plans, technical data, specifications, logos, computer programs, computer chips and circuits, whether or not protectable through patent, copyright, trademark or mask work and whether produced in any medium now known or hereafter produced or developed.
- E. The "Participant" shall be defined as the named individual(s) and/or entity(ies) described in the introductory paragraph of this Agreement or the party(ies) entering into this Agreement with the Foundation. The singular form of Participant shall include all individuals and entities detailed herein. The Participant shall include all officers, directors, employees, affiliates, and agents of the Participant.
- F. The "Principal Investigator" shall be defined as the Participant's employee, as specifically designated herein, with primary responsibility for ensuring that all terms and conditions of this Agreement are met and to whom notice of insufficiencies shall be given by the Foundation.
- G. The "Project" shall be defined as the work to be completed by the Participant pursuant to this Agreement and as described more specifically in the Project Proposal.

H. The "Project Advisory Committee" or "PAC" shall be defined as a group of volunteers gathered by the Foundation to provide technical review, assistance and/or expertise to the Foundation regarding the Project.

I. The "Project Manager" shall be defined as the Foundation's employee(s), as specifically designated herein, with responsibility for reviewing all actions taken by the Participant and as having authority to communicate all Foundation decisions concerning the process, procedure, scheduling requirements, funding requirements, and outcome of the Participant's Project.

J. A "Subcontractor" shall be defined as any individual or entity, with whom the Participant shall separately contract, to complete one or more specific tasks required by the Project.

K. Definitions for terms included in Exhibit F are included herein by reference.

~~II. AGREEMENT~~

1. **Project Proposal.** The "Project Proposal" shall be defined as the initial request by the Participant for funding and shall include all relevant correspondence and/or other written communications subsequent to that request but prior to the execution of this Agreement. The Participant shall perform research and prepare written reports concerning that research as detailed by the Project Proposal attached as Exhibit A to this Agreement.

2. **Scope of Work.** This document shall be prepared by the Participant and may be a Derivative Work of the Project Proposal. It shall be submitted to the Foundation within thirty (30) days of the execution of this Agreement. The Scope of Work shall be used by the Foundation for informational purposes. In the event any conflict exists between this Agreement and the Project Proposal or the Scope of Work, the terms of this Agreement shall control.

3. **Project Personnel.** The Principal Investigator shall be: Bruce E. Logan, Ph.D., Professor located at The Pennsylvania State University, 216 Sackett Building, University Park, PA 16802, (814) 863-7908. No changes or substitutions for this position shall be made for any reason without the prior written approval of the Foundation including, but not limited to, sabbatical or other extended absences. Further, changes in any essential personnel (coinvestigators, subcontractors, etc.) identified in the Project Proposal, require prior written approval from the Foundation. The Project Manager shall be: Frank Blaha, however, the Foundation may change the Project Manager from time to time as deemed necessary by the Foundation without the Participant's approval. All technical communications by the Participant to the Foundation shall be conducted through the Principal Investigator and shall be directed to the Project Manager. Communications regarding contractual or administrative matters shall be conducted through Paul M. Antolosky, Office of Sponsored Programs, 110 Technology Center, University Park, PA 16802 (814) 863-0681 and shall be directed to the Project Manager.

4. **Time of Performance.** All Project tasks, reports, and other obligations shall be completed by the Participant as detailed on Exhibit B to this Agreement unless amended by the mutual written agreement of the parties. The Foundation retains the option to temporarily suspend work on this project if payment has not been received from EPA.

5. **Surveys.** Any and all questionnaires and/or survey instruments to be used in this Project must be submitted to the Foundation for review and approval prior to distribution.

6. Periodic Reports. The "Periodic Reports" shall be defined as written summaries submitted throughout the Project by the Participant and to the Foundation pursuant to a schedule determined by this Agreement. The Participant shall provide Periodic Reports to the Foundation pursuant to the schedule detailed by Exhibit B and as defined in this Agreement. Six (6) copies of each required Periodic Report shall be provided to the Foundation. Each Periodic Report shall include a Status Report, Budget Report, and Outreach Report. Periodic Reports must provide sufficient information to allow the PAC and the Foundation to evaluate, at their reasonable discretion, the progress and quality of the work completed as detailed by Art. II., Para #6.a. and b.

a. Status Reports. The purpose of each Status Report is to record the work completed and document the execution of the tasks and activities described in this Agreement. The Status Report shall describe the progress of the Project, document the tasks accomplished, detail any problems encountered by the Participant, and provide a brief overview of the next period's work to be completed. Each report must be sufficiently detailed to allow the Foundation to monitor the Participant's performance on the Project, including quality assurance/quality control activities as outlined in the Quality Assurance Project Plan (QAPP)(Exhibit G) The Status Report should follow the format of the Foundation's *Format-Style Guide for Preparing Research Reports*, as may be edited from time to time. In addition, the Status Report shall include, on a three and one-half (3.5") computer disk using WordPerfect® or Microsoft Word® word processing format, a one (1) page summary of the Status Report suitable for distribution by the Foundation to its subscribers on the Internet.

b. Budget Reports. Each Budget Report shall be in the form detailed by Exhibit C to this Agreement. ~~Any changes in budget line item(s) as described in Exhibit A of greater than ten percent (10%) of the line item or more than one thousand dollars (\$1000.00) must be approved in writing by the Foundation.~~

(1) All expenses, whether for cash or in-kind services, must be detailed by these Reports.

(2) The final Budget Report submitted must reconcile all payments made, Project costs incurred, and all in-kind contributions as detailed in the project proposal.

c. Outreach Reports. The purpose of the Outreach Report is to provide information on presentations, papers, reports, etc. related to the Project. A comprehensive list of presentations made or papers, reports, etc. submitted during the course of the Project including a copy of any such presentation, paper, or report, as detailed in Art. II., Para. 14.d., must be included in this section and updated for each period including information on where and when presented or submitted.

7. Final Project Report/Drafts. The Final Project Report is the official report detailing the results of the Project. The report shall include all relevant materials and methodology, results, innovations, inventions, conclusions, recommendations, and data resulting from the Project. Further, the parties agree the target audience for these documents is the drinking water community. As a result, the report must include a clearly identified section explaining the practical benefits of the Project results to the drinking water community. The Participant shall submit a three and one-half inch (3.5") computer disk for each Final Project Report draft and the Final Project Report contained on it in WordPerfect® or Microsoft Word® word processing

for submission of the Final Project Report are as follows:

a. **Format.** The content, form and format shall follow the Foundation's *Format-Style Guide for Preparing Research Reports*, as may be edited from time to time. Strict adherence to this guide is required.

b. **Format Sample.** This report detailing the Final Report's format, and utilizing the format described in Art. II., Para. #7.a. above, shall be submitted to the Foundation pursuant to the schedule detailed by Exhibit B. This report shall include examples of the front matter, text, equations, figures, tables, and references as described in the *Format-Style Guide for Preparing Research Reports*.

c. **Final Project Report Draft.** A Final Project Report draft shall be submitted for review, in the format detailed by Art. II., Para. #7.a. above, pursuant to the schedule detailed by Exhibit B. The Participant shall submit six (6) copies of this draft, bound or on three-hole punched paper. Additional drafts of this report may be required by the Foundation pursuant to Art. II., Para. #9. below in order to address the Foundation's comments or questions.

d. **Final Project Report.** The Participant shall submit one (1) original Final Project Report and two (2) copies unbound and on undrilled paper, pursuant to the schedule detailed by Exhibit B, and with all explanations and/or revisions requested by the Foundation pursuant to Art. II., Para. #9 of this Agreement.

(1) Additional form and/or style standards may be required and/or made by the Foundation.

(2) The Participant shall review the edited Final Project Report and respond to any formatting or editorial questions posed by the Foundation within a timeframe negotiated with the Project Manager (usually 21 days). The Participant shall also correct and/or change any camera-ready figures as required by the Foundation to conform to publishing formats as detailed by Art. II., Para. #7.a.

(3) The Foundation may forward the Final Project Report, as prepared for publication, to the Participant for review. In this event, the Participant shall use its best efforts to review the report in a timely manner as reasonably requested by the Foundation.

~~8. **Project Profile.** This Profile shall be provided to the Foundation in the format outlined by Exhibit D. This two (2) page profile will be edited and formatted for inclusion in the Foundation's Project Profile Notebook. The parties agree that the target audience for this Project Profile is the drinking water community. As a result, the profile must include a clearly identified section explaining the practical benefits of the Project results to water system operation.~~

9. **Review of all Written Materials and Alterations.** All drafts and final documents shall be reviewed by the Foundation. The Foundation shall have the right to require Participant to respond to the Foundation's (including the PAC's) technical review of written material either by providing explanations of technical information or by responding to reasonable requests for revisions to technical reports. The Foundation shall also have the right to require grammatical, spelling, and punctuation corrections to all documents submitted to the Foundation.

Furthermore, the Participant agrees to respond to all technical and/or editorial comments made by the Foundation within the time periods detailed on Exhibit B of this Agreement. In the event the Foundation requests that the Participant make alterations to any document detailed in Exhibit B, including, but not limited to, the Project Proposal, Scope of Work, Periodic Reports, Format Sample draft, Final Project Report draft, Final Project Report, or Project Profile, the Participant shall be required to submit another draft of the requested document, with the requested alterations, within six (6) weeks of any such request. Whether a new draft is required shall be determined at the sole reasonable discretion of the Foundation.

10. Accuracy of Testing. The Participant shall use its best efforts to ensure that all data and test results developed during the course of this Agreement and included, or relied upon, in the Final Project Report are accurate to the best of its knowledge, information and belief. Since this is an EPA funded project, a written quality assurance project plan (QAPP) will be submitted to AWWARF before sample analysis begins. The QAP will conform to the guidelines in Exhibit G and the EPA manual for writing quality assurance plans. The QAPP will be reviewed by EPA. In the event the Participant obtains any data, test result, information derived from such data or test results, or other information to be included in the Project from water utilities or any Subcontractor, the Participant will utilize reasonable and customary efforts to ensure the accuracy of the information obtained.

~~**11. Participating Utility Review.** The Participant shall, with each participating utility, be responsible for a) describing in full and in writing the understanding of the parties for entering into a cooperative relationship for purposes of this Project, (b) granting the participating utility the right to review the Project's use and conclusions concerning that organization's data and/or test results, and (c) provide the participating utility with the reasonable opportunity to correct, or if correction will take an unreasonably long time, to respond to, any problems or difficulties uncovered by the data, information, or test results, all of which must occur prior to the publication or use of such information. This provision shall apply to each water utility participating in any manner with the Project, including, but not limited to, providing services, data, materials for testing, test results, or documentation. The Participant shall be responsible for providing letters for each participating utility confirming that they have been made aware of the nature of the cooperative relationship and have reviewed all applicable data, information, or results as described in this Paragraph. Letters of confirmation must be received by the Foundation prior to submittal of the Final Project Report draft and must include the signature of a representative for the participating utility.~~

12. Compensation. The total compensation to be paid by the Foundation to the Participant for this Project shall be [REDACTED] in United States currency. In no event shall compensation exceed this amount. All disbursements shall be utilized solely for the purposes detailed by this Agreement. The compensation is composed partially of funds advanced through the Environmental Protection Agency and so is subject to the requirements of Section 2(d) of the Prompt Payment Act (P.L. 97-177). As such, compensation may not be utilized to pay late fees or interest payments. The Participant agrees to provide [REDACTED] (dollars) in in-kind services for the Project. All disbursements to the Participant shall be mailed to the following address: James Matter, Research The Pennsylvania State University, Accounting Office, 120 S. Burrowes St, 313 Rider Bldg., University Park, PA 16801.

a. Advance. [REDACTED] shall be paid to the Participant upon execution of this Agreement.

b. Payments. Payments are based on submission of the Periodic Reports detailing expenses.

incurred during the period and displayed according to the budget line items as included in Exhibit A. The Participant's request for payment must identify and display all cash and in-kind contributions committed to the Project during each period on the Foundation Budget Report. No payment will be disbursed by the Foundation unless and until each Periodic Report is received and accepted as detailed by Art. II., Para. #6.a.- c. above. The final request for payment must reconcile all payments made, Project costs incurred, and in-kind contributions. All requests for reimbursement for property, equipment, supplies, travel costs, and other expenses shall comply with the requirements of OMB Circular A-110, as amended from time to time.

(1) The initial payment detailed by Art. II., Para. #12.a. is to be carried over as an advance into each period and to be reconciled in the last period's request for payment.

(2) The Foundation shall withhold twenty percent (20%) of the total compensation from disbursement to the Participant. One-half of this amount, or ten percent (10%), will be disbursed to the Participant upon receipt of the Final Project Report draft. The other one-half or ten percent (10%) of the total compensation will be disbursed to the Participant after Participant responds to editor queries and provided all tasks are performed as detailed in this Agreement and termination is not caused by the Participant's breach of this Agreement.

c. **Final Payments.** Subsequent to response to editor queries but no later than within thirty (30) days of the Termination Date, as defined by Art. II., Para. #16., provided termination is not caused by the Participant's breach of this Agreement which is not cured, the Foundation shall make all final payments required.

d. **Payment of Subcontractors.** Payment for services of any and all Subcontractors shall be the Participant's sole obligation and responsibility. The Participant hereby indemnifies the Foundation for any liability concerning such payment.

e. **Allowable Expenses/Costs.** The allowable expenses or costs of performing this Agreement will be determined in accordance with the terms herein and the principles set forth in the Federal Acquisition Regulation (FAR) at 48 CFR Subpart 31.3 governing expenses or costs incurred by educational institutions.

13. Accounting. The Participant and all Subcontractors shall maintain accurate accounting information and financial records regarding the Project according to Standards for Financial Management Systems set forth in Attachment F to Office of Management and Budget (OMB) Circular No. A-110, Subpart C. 21 (1995). The retention and access requirements for records set forth at OMB Circular No. A-110, Subpart C. 53 (1995) shall apply to this Agreement. The Foundation and/or its agents shall have access to such records at any reasonable time during normal business hours.

14. Proprietary Rights to Intellectual Property. The Foundation's primary purpose in funding this Project through the Participant is to further scientific and technological knowledge in the area of research covered by this Project. Rights to patentable inventions, including software inventions, made under this Agreement are subject to the provisions of 37 CFR Part 401 (1995) and any CRADA between the EPA and the Foundation as specified by Exhibit F to this

a. Foundation's Intellectual Property. Parties intend that the Foundation shall own all U.S. and world-wide copyright in the Scope of Work, all Periodic Reports, the Format Sample, the Final Project Report, the Project Profile, all drafts of these works and reports, and all computer software developed as a deliverable for this Project. Such property is hereafter referred to as "Foundation's Intellectual Property". None of the Foundation's Intellectual Property shall be distributed by the Participant without the prior written approval of the Foundation. The Participant shall execute whatever documents are required in order to comply with this Paragraph, including, but not limited to, assignments as necessary for any world-wide copyright protection.

(1) The Foundation hereby grants the Participant a royalty free, non-exclusive license to utilize the Foundation's Intellectual Property solely for Educational Purposes as defined in Article I.B. above.

(2) Other than for Participant's use as specified in Art. II., Para. #14 (a) (1) above, any use, distribution, presentation, or publication of the Foundation's Intellectual Property may not occur without the prior written authorization of the Foundation. As the Foundation is highly interested in the distribution of the information developed through this Agreement, reasonable requests to present portions of the Foundation's Intellectual Property will be seriously considered.

(3) The U.S. Government is granted those Intellectual Property rights detailed by OMB Circular A-110 regarding Intangible Property and by 37 CFR 401 et seq. Concerning patents and inventions unless waived by the Environmental Protection Agency.

b. Participant's Intellectual Property. Except as otherwise detailed by Paragraph #14.a. above, or as described by Exhibit F attached to this agreement, all patentable inventions and improvements shall be considered Participant's Intellectual Property, including, but not limited to, the right to file for patent registration. The Participant shall be responsible for any and all disclosures required to the U.S. Government pursuant to 37 CFR 401. If the Participant intends to abandon its rights to any of Participant's Intellectual Property, Participant shall assign to the Foundation those rights not accruing to the United States Government under 37 CFR Part 401. Participant shall not withhold any findings based on Participant Intellectual Property, patentable or otherwise, from works and reports detailed in Art. II., Para. #6. And #7. if such information is relevant to the project findings as detailed in Art. II., Para #7. The Participant shall have the burden of demonstrating the existence of confidential information and/or trade secrets should it designate information as such by legend and that designation is questioned by the U.S. Government.

c. Jointly Owned Intellectual Property. For the purpose of allowing both the Foundation and the Participant to make use fully of all Intellectual Property which is not defined above as owned by either party solely, certain Intellectual Property shall be considered Jointly Owned Intellectual Property. The Foundation and the Participant may utilize such property for any and all purposes throughout the world. Further, the Participant hereby grants to the Foundation's subscribers a nontransferable, nonterminable, and nonexclusive license, without royalty, to utilize Jointly Owned Intellectual Property. The Participant shall execute whatever documents are required in order to comply with this Paragraph, including, but not limited to, assignments as necessary for any world-wide copyright protection. Jointly Owned Intellectual Property is defined as:

(1) all Intellectual Property developed during the term of, and pursuant to, this Agreement which is not defined above as Foundation's Intellectual Property, Participant's Intellectual Property, or as U.S. Government's Intellectual Property as detailed in Art. II. Para. #14.a. (3) above. Please note: the Foundation shall own only the copyright in those works, reports, and computer software detailed in Art. II, Para. #14.a. above; information reported in these documents such as innovations, creations, processes, designs, methods, formulas, plans, technical data, and specifications shall be considered Jointly Owned Intellectual Property.

(2) the Project Proposal, excluding the statement of qualification and resumes.

d. Publication of Jointly Owned Intellectual Property. The Foundation encourages the Participant to publish Jointly Owned Intellectual Property based on this Project and to utilize Foundation's Intellectual Property for Educational Purposes as detailed in Art. I, Para. B. Any publication of Foundation Intellectual Property must comply with the requirements of Article II., Para. #14.a. (1) - (2) above. The Participant agrees to comply with the following steps prior to such distribution, presentation, or publication:

(1) The Participant hereby agrees to provide to the Foundation copies of any such publication or presentation of Jointly Owned Intellectual Property at least three (3) weeks prior to submission of such publication or presentation.

(2) The Participant agrees and understands that it shall not dispose of or injure the Foundation's rights to Jointly Owned Intellectual Property or the Foundation's Intellectual Property, including, but not limited to, any computer software, by any presentation or publication of such property and shall take all steps necessary to preserve such rights of the Foundation. This Paragraph shall not prevent the Participant or the Foundation from transferring its undivided one-half share of the Jointly Owned Intellectual Property to a publication.

(3) In the event the Participant publishes Jointly Owned Intellectual Property and is required by the publisher to assign its copyright ownership to the work, the Participant agrees to include the following or similar language on any copyright assignment: *The submitted manuscript [publication][presentation] has been made possible through funding from the American Water Works Association Research Foundation. The information contained herein is based upon Intellectual Property which is jointly owned by The Pennsylvania State University and the Foundation. The Foundation retains its right to publish or produce the Jointly Owned Intellectual Property in part or in its entirety.*

e. Student Thesis. In the event a college or graduate student is employed by Participant to work on the Project contemplated by this Agreement and that student completes a thesis, dissertation, or report relating to this Project, solely for Educational Purposes, the student shall own the copyright in that thesis or report. In the event a portion of Foundation Intellectual Property is included in that thesis or report, the Foundation hereby grants the student a nonexclusive license to utilize that Foundation Intellectual Property for the specific thesis or report. The student must obtain proper authorization from the U.S. government, where necessary, to utilize any Intellectual Property owned by the federal government pursuant to OMB Circular A-110 and 37 CFR 401 et seq.

f. Copyright Notice. Any Jointly Owned Intellectual Property, or Derivative Works thereof, utilized by the Participant or the Foundation shall include a United States' copyright notice of ownership as detailed below:

2000 [or date of publication], AWWA Research Foundation and The Pennsylvania State University

ALL RIGHTS RESERVED

g. Participant's Acknowledgment. Any public presentation or publication by the Participant, including a student writing a thesis, dissertation, or report, based on the parties' Jointly Owned Intellectual Property, Participant's Intellectual Property or any portion of the Foundation's Intellectual Property, shall include the following, or a similar, statement acknowledging the Foundation for providing financial and administrative support: *The The Pennsylvania State University gratefully acknowledges that the AWWA Research Foundation is the joint owner [owner] of the [certain] technical information upon which this publication [manuscript] [presentation] is based. The The Pennsylvania State University thanks the Foundation and the U.S. government, through the Environmental Protection Agency for its financial, technical, and administrative assistance in funding and managing the project through which this information was discovered.*

h. Disclaimer. All publications and presentations utilizing the Foundation's Intellectual Property or the Jointly Owned Intellectual Property shall include the following disclaimer: *The comments and views detailed herein may not necessarily reflect the views of the AWWA Research Foundation, its officers, directors, affiliates or agents, or the views of the U.S. Federal Government.*

15. Originality. The Participant shall use its best efforts to warrant that it, and its Subcontractors, are the sole creator(s) and originator(s) of any Intellectual Property created or utilized during the course of the Project referenced in this Agreement; none of those rights have been bargained, sold, or conveyed in any other manner to any person or entity except as detailed and permitted by this Agreement. Further, the Participant shall use its best efforts to ensure that no portion of this Project, including any portion completed by Subcontractors, infringes upon the Intellectual Property rights of any other person or entity or violates the common law or statutory right, title, or interest of any person or entity.

16. Termination. This Agreement, except for those provisions which, by their own terms, extend beyond the life of this Agreement, shall terminate upon the Foundation approving the Final Project Report and the completion of all scheduled events as detailed in Exhibit B. The Termination Date shall be the date upon which all scheduled events have occurred and no further work remains to be completed pursuant to this Agreement. This Agreement, however, may be terminated earlier if both parties agree the Project is no longer technically feasible or if Participant has failed to comply with the terms and conditions of this Agreement. If the Participant or any Subcontractor has any of the Foundation's funds remaining, such funds, excluding those committed for noncancellable obligations, shall be returned with the accounting. Further, the Foundation shall not be responsible for any expenditures made by the Participant or its Subcontractors after the Termination Date.

a. Breach/Below standard performance. If the Foundation reasonably determines that the Participant, or any Subcontractor, is not in compliance with its contractual obligations under this Agreement, the Foundation may so notify the Participant in writing at any time.

b. **Failure to cure.** If the Participant fails to eliminate problems detailed by the Foundation, or fails to cure a breach of this Agreement, within thirty (30) days of the Foundation's notice, this Agreement shall terminate. The "Termination Date" shall be the date on which the thirtieth (30th) day falls.

17. **Return of Property.** In the event of early termination, the Participant shall provide, within thirty (30) days, to the Foundation legible copies of all Foundation Intellectual Property and Jointly Owned Intellectual Property. Further, Participant shall provide copies, and originals where the Participant has abandoned, or otherwise lost, its rights to patentable inventions or discoveries, as provided by 37 CFR 401 et. seq., to the Environmental Protection Agency. Such information shall be provided in whatever medium is reasonably designated by the Foundation or the Environmental Protection Agency, respectively.

18. **Indemnification.** The responsibilities detailed by this Agreement in order to protect the parties' Intellectual Property rights shall continue throughout this Agreement and shall remain in effect after its termination. Further, in addition to the responsibilities detailed elsewhere in this Agreement, each of the parties shall have the responsibilities detailed below:

a. **Responsibilities of the Foundation.** In the unlikely event of any liability, obligation, damage, loss, cost, claim, lawsuit, cause of action or demand whatsoever of any kind or nature arising from any actions taken by the Participant, or its Subcontractors, pursuant to this Agreement, the Foundation's responsibility shall be limited to providing the Participant with evidence of the existence of this Agreement and the amount of funds paid to the Participant. Notwithstanding this Paragraph, the Foundation shall be responsible for any and all proven damages caused by negligent or unintentional actions taken by its own officers, directors, employees or volunteers.

b. **Responsibilities of the Participant.** At all times, all obligations performed by the Participant or by any Subcontractors pursuant to this Agreement shall be performed in a manner consistent with professional standards governing such services. Further, the Participant shall be responsible for, and shall indemnify the Foundation and the Environmental Protection Agency, their officers, directors, affiliated organizations, employees, agents, and volunteers, from any and all liability, obligation, damage, loss, cost, claim, lawsuit, cause of action, or demand whatsoever of any kind or nature, including, but not limited to, attorneys fees and costs, arising from any actions taken or omissions by the Participant, its officers, directors, Subcontractors, employees, independent contractors, or other related entities or individuals (i) arising from the Project or this Agreement in any manner, (ii) concerning use or misuse of Intellectual Property, or (iii) caused by the Participant's breach of this Agreement. Such indemnification shall be only in proportion and to the extent liability, obligation, damage, loss, cost claim, lawsuit, cause of action, or demand are caused by or result from the reckless, intentional, or negligent acts or omissions of the Participant, its officers, directors, Subcontractors, employees, independent contractors, or other related entities or individuals.

c. **Insurance.**

As a state-supported institution of higher education, the University of Nevada, Las Vegas, is a self-insured agency of the State of Nevada. UNLV certifies that, with respect to workers' compensation, unemployment insurance, and disability requirements and

~~the schedule detailed by Exhibit B.~~

~~d. Worker's Compensation. The Participant shall, at its sole cost and expense, maintain Worker's Compensation which complies with the applicable state laws. Proof of such insurance shall be presented to the Foundation pursuant to the schedule detailed by Exhibit B. In the event Participant utilizes Subcontractors during the course of this Project, the Participant shall obtain proof that such Subcontractors maintain Worker's Compensation which proof shall be provided to the Foundation as well.~~

d. ~~Subcontractor acceptance of Agreement.~~ Participant shall require any and all Subcontractors to comply with the applicable terms of this Agreement prior to working on the Project in any manner. The Participant shall execute a statement, as detailed by Exhibit E, ensuring that all Subcontractors have executed an agreement with the Participant regarding such compliance. Copies of all executed Exhibit Es shall be provided to the Foundation promptly upon Participant engaging the services of any Subcontractor.

~~19. Breach/Damages. The specific remedies detailed in this Agreement shall not constitute a waiver of any and all other rights and remedies available to the Foundation at law or equity. In the event the Participant fails to comply with this Agreement, and thus causes a breach of this Agreement, the Foundation may, in its reasonable discretion, remove that Participant from eligibility for receiving any and all funding for future research projects.~~

20. Equal Opportunity/Affirmative Action. The Foundation is an equal opportunity employer and, as such, does not discriminate on the basis of age, sex, race, religion, color, national origin, physical or mental disability, or veteran status. Upon execution of this Agreement, the Participant agrees to (a) support the Foundation's non-discrimination policy and require all Subcontractors to support this policy; and (b) abide by all laws, rules, and executive orders governing equal employment opportunity. The Participant also agrees to make available to the Foundation, upon reasonable request, proof of its efforts, as well as all Subcontractors' efforts, to comply with this Paragraph. See Attachment VI

~~21. Relationship of the Parties. The Parties agree that the Participant is an independent contractor with respect to the Foundation. Nothing in this Agreement shall be construed to make the parties partners or joint ventures or to create an employment relationship between the parties. Any and all relationships created relating to Subcontractors shall be between the Participant and such Subcontractors only and shall not create any relationship between such Subcontractors and the Foundation.~~

22. Modification in Writing. This Agreement may not be modified or amended, nor may any term or provision be waived or discharged, including this particular Paragraph, except in writing, signed by the party or parties against whom such amendment, modification, waiver, or discharge is sought to be enforced. Any modification must be executed by the Foundation to be effective.

23. Transferability. This Agreement shall not be assignable by the Participant without the prior written authorization of the Foundation.

**Exhibit B (Phase 2)
Project 2577**

Application of Bioreactor Systems to Low-Concentration Perchlorate-Contaminated Water

PHASE 2 - EXHIBIT B (SCHEDULE)

<u>TASK</u>	<u>DUE DATE</u>
Phase 2 Project Advance Payment (10%)	December 31, 2000
Detailed Scope of Work	January 15, 2001
USEPA-Required Quality Assurance Project Plan, Phase 2	January 15, 2001
Summary Phase 1 Report	January 15, 2001
First Phase 2 Periodic Report	April 15, 2001
Second Phase 2 Periodic Report	October 15, 2001
Third Phase 2 Periodic Report	April 15, 2002
Letters of Confirmation for participating utilities (II.11)	November 15, 2002
Draft Final Project Report (II.7)	November 15, 2002
Revised Draft Final Project Report and Project Profile to Editors	March 15, 2003
Final (Published) Project Report & Project Profile (II.7 & II.8)	September 15, 2003
Execution of Assignment Documents for Foundation Intellectual Property & Jointly Owned Intellectual Property (II.14.a. & c.)	September 15, 2003
Termination Date (II.16)	September 15, 2003
Document transfer for Intellectual Property, and Final Compensation (II.17 & II.12.c)	October 15, 2003

U.S. GOVERNMENT INTELLECTUAL PROPERTY RIGHTS
37 CFR Part 401 § 401.14

Application of Bioreactor Systems to Low-Concentration Perchlorate-Contaminated Water

Patent Rights (Small Business Firms and Nonprofit Organizations)

(a) Definitions

- (1) *Invention* means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321 et seq.).
- (2) *Subject invention* means any invention of the *contractor* conceived or first actually reduced to practice in performance of work under this *contract*, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of *contract* performance.
- (3) *Practical Application* means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or government regulations, available to the public on reasonable terms.
- (4) *Made* when used in relation to any invention means the conception or first actual reduction to practice of such invention.
- (5) *Small Business Firm* means a small business concern as defined at section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standards for small business concerns involved in government procurement and subcontracting at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.
- (6) *Nonprofit Organization* means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

(b) Allocation of Principal Rights

The *Contractor* may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the *Contractor* retains title, the Federal government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

(c) Invention Disclosure, Election of Title and Filing of Patent Application by Contractor

- (1) The contractor will disclose each subject invention to the *Federal Agency* within two months after the inventor discloses it in writing to *contractor* personnel responsible for patent matters. The disclosure to the agency shall be in the form of a written report and shall identify the *contract* under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding of the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the *agency*, the *Contractor* will promptly notify the *agency* of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the *contractor*.
- (2) The *Contractor* will elect in writing whether or not to retain title to any such invention by notifying the *Federal agency* within two years of disclosure to the *Federal agency*. However, in any case where publication on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the *agency* to a date that is more than 60 days prior to the end of the statutory period.
- (3) The *contractor* will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The *contractor* will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secret Order.
- (4) Requests for extension of the time for disclosure, election, and filing under subparagraphs (1), (2), and (3) may, at the discretion of the *agency*, be granted.

(d) Conditions When the Government May Obtain Title

The *contractor* will convey to the *Federal agency*, upon written request, title to any subject invention-

- (1) If the *contractor* fails to disclose or elect title to the subject invention within the times specified in (c), above, or elects not to retain title; provided that the *agency* may only request title within 60 days after learn of the failure of the *contractor* to disclose or elect within the specified times.
- (2) In those countries in which the *contractor* fails to file patent applications within the times specified in (c) above; provided, however, that if the *contractor* has filed a patent application in a country after the times specified in (c) above, but prior to its receipt of the written request of the *Federal agency*, the *contractor* shall continue to retain title in that country.
- (3) In any country in which the *contractor* decides not to continue the prosecution of any application for, to the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.

(e) Minimum Rights to Contractor and Protection of the Contractor Right to File

- (1) The *contractor* will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the *contractor* fails to disclose the invention within the times specified in (c), above. The *contractor's* license extends to its domestic subsidiary and affiliates, if any, with the exception that the license is a party and includes the right to grant sublicenses of the

scope to the extent the *contractor* was legally obligated to do so at the time the *contract* was awarded. The license is transferable only with the approval of the *Federal agency* except when transferred to the successor that party of the *contractor's* business to which the invention pertains.

(2) The *contractor's* domestic license may be revoked or modified by the *funding Federal agency* to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR part 404 and *agency* licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the *contractor* has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the *funding Federal agency* to the extent the *contractor*, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, the *funding Federal agency* will furnish the *contractor* with written notice of its intention to revoke or modify the license, and the *contractor* will be allowed thirty days after such other time as may be authorized by the *funding Federal agency* for good cause shown by the *contractor* after the notice to show cause why the license should not be revoked or modified. The *contractor* has the right to appeal, in accordance with applicable regulations in 37 CFR part 404 and *agency* regulations (if any) concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of the license.

(f) *Contractor* Action to Protect the Government's Interest

(1) The *contractor* agrees to execute or to have executed and promptly deliver to the *Federal agency* all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the *contractor* elects to retain title, and (ii) convey title to the *Federal agency* where requested under paragraph (d) above and to enable the government to obtain patent protection throughout the world in that subject invention.

(2) The *contractor* agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the *contractor* each subject invention made under *contract* in order that the *contractor* can comply with the disclosure provisions of paragraph (c), above, and to execute all papers necessary to file patent applications on subject inventions and to establish the government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by (c)(1), above. The *contractor* shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

(3) The *contractor* will notify the *Federal agency* of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.

(4) The *contractor* agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement, "This invention was made with government support under (identify the *contract*) awarded by (identify the *Federal agency*). The government has certain rights in the invention."

(g) Subcontracts

(1) The *contractor* will include this clause, suitably modified to identify the parties, in all subcontracts,

domestic nonprofit organization. The subcontractor will retain all rights provided for the *contractor* in this clause, and the *contractor* will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.

(2) The *contractor* will include in all other subcontracts, regardless of tier, for experimental developmental or research work the patent rights clause required by (cite section of agency implementing regulations or FAR).

(3) In the case of subcontracts, at any tier, when the prime award with the Federal agency was a contract (but not a grant or cooperative agreement), the *agency*, subcontractor, and the *contractor* agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and the Federal agency with respect to the matters covered by the clause; provided, however, that nothing in this paragraph is intended to confer any jurisdiction under the Contract Disputes Act in connection with proceedings under paragraph (j) of this clause.

(h) Reporting on Utilization of Subject Inventions

The *Contractor* agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the *contractor* or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the *contractor*, and such other data and information as the *agency* may reasonably specify. The *contractor* also agrees to provide additional reports as may be requested by the *agency* in connection with any march-in proceeding undertaken by the *agency* in accordance with paragraph (j) of this clause. As required by 35 U.S.C. 202(c)(5), the *agency* agrees it will not disclose such information to persons outside the government without permission of the *contractor*.

(i) Preference for United States Industry

Notwithstanding any other provision of this clause, the *contractor* agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the *Federal agency* upon a showing by the *contractor* or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

(j) March-in Rights

The *contractor* agrees that with respect to any subject invention in which it has acquired title, the *Federal agency* has the right in accordance with the procedures in 37 CFR 401.6 and any supplemental regulations to require the *contractor*, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the *contractor*, assignee, or exclusive licensee refuses such a request the *Federal agency* has the right to grant such a license itself if the *Federal agency* determines that:

(1) Such action is necessary because the *contractor* or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the

- (3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the *contractor*, assignee or licensees; or
- (4) Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

(k) Special Provisions for Contracts with Nonprofit Organizations

If the *contractor* is a nonprofit organization, it agrees that:

- (1) Rights to a subject invention in the United States may not be assigned without the approval of the *Federal agency*, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the *contractor*;
- (2) The *contractor* will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the agency deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;
- (3) The balance of any royalties or income earned by the *contractor* with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions will be utilized for the support of scientific research or education; and
- (4) It will make efforts that are reasonable under the circumstances to attract licensees of subject inventions to small business firms and that it will give a preference to a small business firm when licensing a subject invention if the *contractor* determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided, that the *contractor* is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the *contractor*. However, the *contractor* agrees that the Secretary may review the *contractor's* licensing program and decisions regarding small business applicants, and the *contractor* will negotiate changes to its licensing policies, procedures, or practices with the Secretary when the Secretary's review discloses that the *contractor* could take reasonable steps to implement more effectively the requirements of this paragraph (k)(4).

(l) Communication

(Complete According to Instructions at 37 CFR 401.5(b), i.e., fill in the EPA-supplied point-of-contact for intellectual property rights matters and any other EPA-supplied communication instructions.)



AWWA RESEARCH FOUNDATION

EQUAL EMPLOYMENT OPPORTUNITY PLAN

AUGUST 1997

The AWWA Research Foundation is fully committed to the concept and practice of equal opportunity in all aspects of employment. This document has been prepared for the purpose of defining the Foundation's policy of nondiscrimination in all phases of employment

TABLE OF CONTENTS

	PAGE
EEO Policy Statement	1
Dissemination of EEO Policy Statement	2
Responsibility for Implementation	4
EEO Initiatives	6
Affirmative Action Commitments	
Policy Statement for Disabled and Veterans	7
Policy Statement for Religion and National Origin	7
Policy Statement for Compliance With Guidelines on Sex Discrimination	8

EEO POLICY STATEMENT

It is the policy of the AWWA Research Foundation to provide equal employment opportunity (EEO) to qualified individuals regardless of their age, race, color, national origin, sex, religion, physical or mental disability, or veteran status. The provisions of this policy on equal employment opportunity include:

1. Nondiscrimination in the advertising, recruitment, hiring, training, and promotion of persons in all job classifications within the Foundation.
2. Effective employment decision making that will enhance the principle of equal employment opportunity.
3. Ensuring that all personnel actions, such as compensation, benefits, transfers, layoffs, recalls, Foundation-sponsored events, training, education and tuition assistance, social programs, and all other matters related thereto, are administered without regard to age, sex, race, color, religion, national origin, physical or mental disability, or veteran status.

The Foundation's policy of equal employment opportunity is applicable to all divisions and departments of the Foundation, and shall be interpreted and pursued in good faith by all employees to insure that the Foundation's policy of equal employment opportunity is carried out.

All forms of discrimination with regard to employees or applicants for employment including any form of racial slurs, religious intimidation, racial epithets, sexual advances or harassment are prohibited.

DISSEMINATION OF EEO POLICY STATEMENT

1. Internal Dissemination

In order to assure greater employee cooperation and participation in the AWWA Research Foundation's efforts, the EEO policy statement shall be distributed internally as broadly as possible. To the extent possible, the policy shall be disseminated as follows:

- a. The Foundation's policy of nondiscrimination shall be periodically communicated by the Executive Director to Foundation employees. To ensure continued compliance with the Foundation policy, the Executive Director will continue to effect such directives as necessary.
- b. The EEO policy statement will be included in the Policies Manual.
- c. The EEO policy statement will be posted on bulletin boards. Included with this posting will be the name of the EEO officer. All questions, comments, or complaints relating to the EEO plan will be addressed by the officer.
- d. The Foundation will display equal employment opportunity posters and the Foundation's policy letters on nondiscrimination and sexual harassment at its locations. This information will be displayed on bulletin boards at conspicuous places so that applicants and visitors may be informed of the Foundation's policies.
- e. The Foundation's policy of nondiscrimination will be communicated to each new employee in an employee orientation handbook, that the Foundation is an equal opportunity employer and does not discriminate on the basis of race, color, sex, religion, national origin, age, veteran status, or disability.

2. External Dissemination

In order to assure proper external dissemination of the AWWA Research Foundation's EEO policy, the following outreach activities shall be undertaken:

- a. The Foundation's policy on nondiscrimination shall be periodically transmitted orally and in writing to all recruitment sources, minority, and female organizations, etc. Sources will be requested to refer applicants without regard to race, color, sex, national origin, age, disability, or veteran status.
- b. All classified advertising for vacant positions in the Foundation shall inform the reader of the Foundation's policy on nondiscrimination through continued use of the phrase, "An Equal Opportunity Employer: M/F/H/V" (Male/Female/Handicap/Veteran).

- c. The Foundation's application for employment will contain the following:

AN EQUAL OPPORTUNITY EMPLOYER

We do not discriminate on the basis of race, color, religion, national origin, sex, age or disability. It is our intention that all qualified applicants be given equal opportunity and that selection decisions be based on job-related factors.

- d. The Foundation shall use outreach techniques to improve recruitment and increase the flow of minority, female, disabled, and veteran employee applicants, such as, but not limited to, the following:
- Request referrals from local recruitment sources specializing in minority, female, disabled, and veteran applicants.
 - Network with certain organizations (universities, professional societies, etc.) that can refer minority, female, disabled, and veteran applicants.
 - Encourage minority, female, disabled, and veteran employees to refer applicants.

RESPONSIBILITY FOR IMPLEMENTATION

The Director of Administrative Services, acting as the EEO officer, located at the Foundation's headquarters in Denver, Colorado, has the responsibility for the administration and maintenance of the Foundation's EEO plan. The responsibilities of the EEO officer include, but are not limited to, the following:

1. To develop, implement, and modify, when necessary, the EEO plan, which is to be used as an administrative tool to remove barriers to equal employment opportunity and allow for increased representation and participation by minorities at all levels of employment within the Foundation's staff.
2. To evaluate, on a continuing basis, the effectiveness of all phases of operations related to the EEO plan and institute action for correction and improvements as necessary.
3. To investigate remedial suggestions and/or actions that assist management and supervisory personnel in arriving at solutions to problems in the conduct of this EEO plan.
4. To keep management informed of the latest developments in equal employment opportunity.
5. To afford minority, female, disabled, and veteran employees full opportunity and encouragement to participate in all Foundation-sponsored educational, training, and social activities.
6. To serve as liaison between the Foundation and enforcement and compliance agencies, as well as minority and female organizations, community groups and recruitment sources that refer disabled persons, and Vietnam Era veterans. Additionally, to act as the Foundation's minority business liaison representative.
7. To investigate and assist in resolving any equal opportunity employment complaints or suspected instances of sexual harassment, whether originating from Foundation employees, or federal or state enforcement or compliance agencies or authorities.

Responsibility of Management

Under the general supervision of the Executive Director, it is the responsibility of every supervisor and manager with promotional or hiring authority to administer the plan without reservation. As part of their overall duties each member of management is held accountable for the following:

1. Early identification and resolution of any problem areas related to equal employment opportunity.

2. Taking action to prevent harassment of any employee either because of their placement through EEO efforts or because of their race, color, religion, national origin, age, sex, veteran status, or disability.
3. Encourage minority, female, disabled, and veteran employees to participate in educational and training activities.
4. Conduct reviews with lower level managers, supervisors, and employees to insure AWWARF's policies and practices are being followed.
5. Review the qualifications of all employees to insure that minority, female, disabled, and veteran employees are given full opportunities for promotion.

EEO INITIATIVES

The Foundation shall maintain an effort to identify and counter practices which have an adverse impact on minorities and women. Policies and procedures which the Foundation will follow include, but are not limited to, the following:

1. Reasonable steps shall be taken by the Executive Director, Deputy Executive Director, and unit directors to ensure that the plan is implemented.
2. The Director of Administrative Services shall conduct meetings with all supervisory personnel to discuss objectives, issues, and implementation procedures, and to emphasize the importance of the plan.
3. Any person should feel free to apply for employment with the Foundation with the full assurance that selection is based on an individual's qualifications.
4. Employees will be advised of any job vacancies through posting. The posting will include the job title, short descriptions of the position, and minimum qualifications required.
5. Foundation-sponsored activities shall be monitored to assure that they are free from illegal discrimination or sexual harassment.
6. The Director of Administrative Services shall provide a written summary to the Equal Opportunity/Ethics Committee indicating minority employment, retention, and promotional statistics.
7. The Executive Director is ultimately responsible for overall implementation of this plan.

Complaints Relative to Alleged Discrimination

If any employee believes that he or she has suffered discrimination and/or that he or she has not been treated in accordance with the intent of the plan, said employee may file a written grievance with the EEO officer stating the specifics of the alleged discrimination that will be reduced to writing for signature by the employee.

AFFIRMATIVE ACTION COMMITMENTS

POLICY STATEMENT FOR DISABLED AND VETERANS

1. It is the policy of the AWWA Research Foundation to provide equal employment opportunity to all individuals and to ensure that there is no discrimination on the basis of an individual's mental or physical disability, or status as a veteran. It is the Foundation's intent to fully comply with Section 503 of the Rehabilitation Act of 1973 and Section 402 of the Vietnam Era Veterans Readjustment Assistance Act of 1974. Further, the Foundation shall make "reasonable accommodation" to the physical and mental limitations of an employee or applicant, if such accommodation does not cause undue hardship.
2. This policy extends to recruitment, advertising, hiring, layoff, recall, promotion, demotion, transfer and related terms, conditions, and privileges of employment, including all facilities, Foundation-sponsored programs and activities, etc.
3. In line with our policy on nondiscrimination, the Foundation will continue to maintain an EEO plan that speaks to the recruitment, hire, and promotion of the disabled and Vietnam Era veterans.

POLICY STATEMENTS FOR RELIGION AND NATIONAL ORIGIN

It is the policy of the AWWA Research Foundation to provide equal employment opportunity to all individuals and to ensure that there is no discrimination on the basis of a person's religion or national origin. In addition, the Foundation shall ensure that all personnel activities affecting applicants for employment and employees are implemented without regard to an individual's religion or national origin. This policy extends to all personnel actions, including advertising, recruiting, selection, retention, compensation, benefits, promotion, transfer, layoff, recall, Foundation-sponsored training, education and tuition assistance, social and recreation programs, and all other practices, terms, and conditions of employment.

Religious Accommodation

The Foundation shall provide religious accommodation to applicants, candidates for employment and employees, for religious observances and practices of the applicant/candidate/employee, unless such accommodation denies another individual his/her rights and/or any action of accommodation requires undue hardship to the Foundation.

It is the responsibility of the employee requiring religious accommodation to notify the Foundation of the need for the accommodation.

National Origin

The Foundation shall not discriminate on the basis of an individual's national origin. In line with this, the Foundation must comply with all applicable laws, rules, and regulations governing the employment of noncitizens/aliens, including the Immigration and Reform Control Act of 1986, which requires that employees be authorized to work in the United States.

POLICY STATEMENT FOR COMPLIANCE WITH GUIDELINES ON SEX DISCRIMINATION

The AWWA Research Foundation policy provides for equal employment and advancement opportunities to qualified individuals regardless of their sex. This policy covers all personnel practices, including hiring, upgrading, demotion, or transfer, recruitment or recruitment advertising, termination, rates of pay, or other forms of compensation and selection.

1. The Foundation, in its recruitment activity, shall recruit employees of both sexes for all jobs.
2. The Foundation's pension plan shall have identical provisions for females and males and other benefit programs shall provide identical coverage for male and female employees, including dependent children.
3. The Foundation shall not make any distinction based upon sex in employment opportunities, wages, hours, or other conditions of employment.
4. The AWWA Research Foundation has a Family Medical Leave Policy that covers pregnancy and childbirth. Women on such leave accrue service credit and have reinstatement rights to the same extent as other employees covered under the same policy.
5. The Foundation shall provide equal access to the full range of educational and training activities to both sexes.