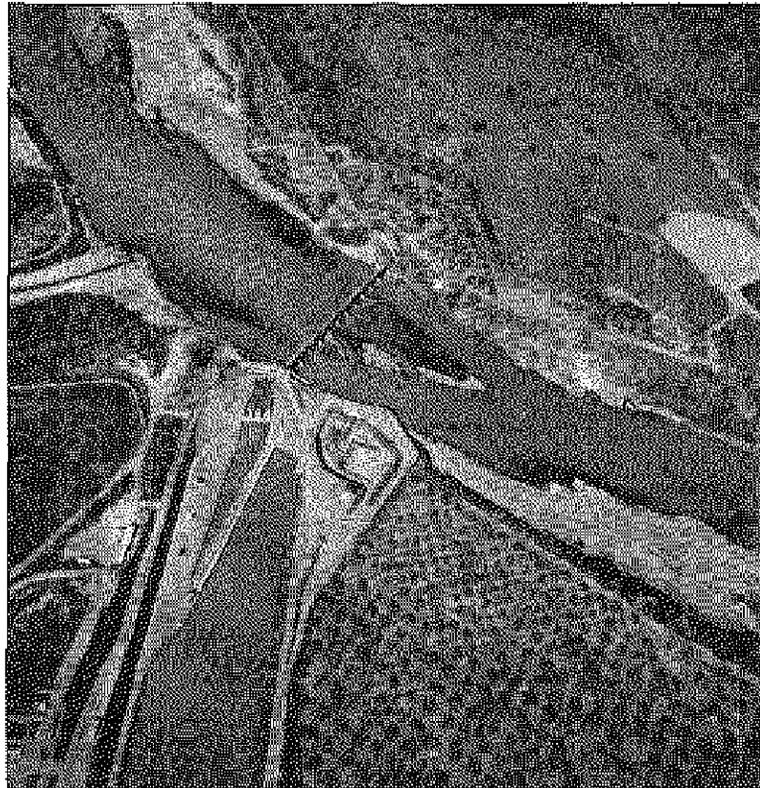


Proposal for the
CALFED Bay-Delta Program

Fish Passage Improvement Project at the Red Bluff Diversion Dam



July 1998

2467_01

Jehama-Colusa Canal Authority

Officers:

Robert Harper
Chairman
Ken LaGrande
Vice Chairman
Janice Jennings
Secretary/Treasurer
Arthur R. Bullock
General Manager

Member Agencies:

Directors:

Colusa County Water District
Douglas Griffin

Corning Water District
Barbara Patton-Siebel

Cortina Water District
Fritz Grimmer

Davis Water District
Tom Charter

Dunnigan Water District
Tom Mumma

4-M Water District
Marion C. Mathis

Glean-Colusa Irrigation District
Sandy Derr

Glide Water District
Norah Michael

Kanawha Water District
Ronald W. Vickery

Kirkwood Water District
Don Griffin

LaGrande Water District
Ken LaGrande

Orland-Artois Water District
John Enos

Proberta Water District
John Greiten

Thomas Creek Water District
Robert Williams

Westside Water District
Robert Harper

5513 Highway 162
P.O. Box 1025
Willows, CA 95988

Phone: (530) 934-2125
Fax: (530) 934-2355
Email: tcwatoman@aol.com

July 1, 1998

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

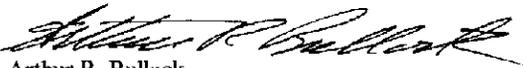
Re: Proposal, May 1998 Ecosystem Restoration Projects and Programs

To Whom It May Concern:

Attached are ten (10) copies of a proposal entitled Fish Passage Improvement Project at the Red Bluff Diversion Dam. This proposal is submitted for funding under your May 1998 Proposal Solicitation Package for Ecosystem Restoration Projects and Programs.

Should you have any questions or require additional information, please contact me.

Sincerely,



Arthur R. Bullock
General Manager

Enclosures (10)

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Fish Passage Improvement Project at the Red Bluff Diversion Dam
Applicant Name: Tehama-Colusa Canal Authority
Mailing Address: P.O. Box 1025, Willows, CA 95988
Telephone: (530) 934-2125
Fax: (530) 934-2355

Amount of funding requested: \$ 340,600 for 1 year

Indicate the Topic for which you are applying (check only one box).

- | | |
|---|---|
| <input type="checkbox"/> Fish Passage Assessment | <input checked="" type="checkbox"/> Fish Passage Improvements |
| <input type="checkbox"/> Floodplain and Habitat Restoration | <input type="checkbox"/> Gravel Restoration |
| <input type="checkbox"/> Fish Harvest | <input type="checkbox"/> Species Life History Studies |
| <input type="checkbox"/> Watershed Planning/Implementation | <input type="checkbox"/> Education |
| <input type="checkbox"/> Fish Screen Evaluations – Alternatives and Biological Priorities | |

Indicate the geographic area of your proposal (check only one box):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Sacramento River Mainstream | <input type="checkbox"/> Sacramento Tributary: _____ |
| <input type="checkbox"/> Delta | <input type="checkbox"/> East Side Delta Tributary: _____ |
| <input type="checkbox"/> Suisun Marsh and Bay | <input type="checkbox"/> San Joaquin Tributary: _____ |
| <input type="checkbox"/> San Joaquin River Mainstem | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Landscape (entire Bay-Delta watershed) | <input type="checkbox"/> North Bay: _____ |

Indicate the primary species which the proposal addresses (check no more than two boxes):

- | | |
|--|---|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | |
| <input checked="" type="checkbox"/> Winter-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input checked="" type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Delta smelt | <input type="checkbox"/> Longfin smelt |
| <input type="checkbox"/> Splittail | <input type="checkbox"/> Steelhead trout |
| <input type="checkbox"/> Green sturgeon | <input type="checkbox"/> Striped Bass |
| <input type="checkbox"/> Migratory birds | |

COVER SHEET (PAGE 2 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Indicate the type of applicant (check only one box):

- | | |
|---|---|
| <input type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit |
| <input checked="" type="checkbox"/> Local government/district | <input type="checkbox"/> Private party |
| <input type="checkbox"/> University | <input type="checkbox"/> Other: _____ |

Indicate the type of project (check only one box):

- | | |
|--|---|
| <input checked="" type="checkbox"/> Planning | <input type="checkbox"/> Implementation |
| <input type="checkbox"/> Monitoring | <input type="checkbox"/> Education |
| <input type="checkbox"/> Research | |

By signing below, the applicant declares the following:

- (1) the truthfulness of all representations in their proposal;
- (2) the individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and
- (3) the person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.


(Signature of Applicant)

EXECUTIVE SUMMARY

Project Title and Applicant Name

Title: Fish Passage Improvement Project at the Red Bluff Diversion Dam

Applicant: Tehama-Colusa Canal Authority

Project Description and Primary Biological/Ecological Objectives

The project will identify alternatives to operate the Red Bluff Diversion Dam (RBDD) to maximize fish passage while minimizing impacts to agricultural water supply by means of a new screened intake to the Tehama-Colusa (TC) Canal and Corning Canal (Canals). Alternative facility sites, land requirements and ownership, environmental and other regulatory requirements, preliminary design criteria, and potential funding sources to implement the project will be developed. The study will provide preliminary cost estimates and a project implementation plan.

The primary biological/ecological objective of the project is to reduce or minimize the impacts of the RBDD on juvenile and adult anadromous fish migration. The RBDD is a barrier to anadromous fish migration from May 15 through September 15 when its gates are closed and obstruct normal river flows. Eliminating the current dependence on the RBDD for agricultural irrigation supply would potentially enable RBDD operations to be modified to improve fish passage for spring-run, fall-run, late-fall-run, and winter-run chinook salmon and steelhead trout.

Approach/Tasks/Schedule

The proposed approach is to identify concepts and potential sites for facilities that will provide a year-round water supply to the Canals with reduced or eliminated reliance on gravity diversion at the RBDD. The new intake facility would potentially include a fish screen that meets all applicable regulatory criteria, conveyance system from the new intake to the TC Canal, and a pump station to lift water into the Canals.

The proposed study would include 13 tasks, including data compilation/review; map (siting) study; field reconnaissance; hydrologic/hydraulic studies; developing preliminary concepts for pipelines/canals, pump station, fish screens, and other structures; developing a biological monitoring plan; identifying permitting requirements, environmental issues, and rights-of-way; cost estimating and financial planning; developing a preliminary concept report; Board presentation; and project management. The study would commence as soon as funding is available and would be completed in 8 months. It is anticipated that funding will be available in September 1998 so that the proposed project could be completed by May 1999.

Justification for Project and Funding by CALFED

A reliable, year-round water delivery system that minimizes reliance on the RBDD, which the Ecosystem Restoration Program Plan (ERPP) identifies as an adult and juvenile anadromous fish migration barrier, will enhance fish passage at the RBDD. The ERPP identifies objectives, targets, and programmatic actions aimed at reducing or eliminating the RBDD anadromous fish migration barrier.

Budget Costs and Third Party Impacts

The amount requested from CALFED is \$340,600. The Tehama-Colusa Canal Authority (TCCA) would administer the project with input from resource agency staff who are involved with RBDD fish passage issues. These agencies, which have representatives on the Red Bluff Fish Passage Study Management Group (SMG) and include Reclamation, USFWS, NMFS, CDFG, DWR, and TCCA, should participate as part of their funded, ongoing efforts. The estimated total in-kind contribution from the state and federal agency SMG participants through their involvement in the project is about \$50,000. These costs are not included in the \$340,600 requested from CALFED.

TCCA's costs to administer the project, \$39,100, are included in the cost table on page 10 of this proposal to show total estimated project cost. However, TCCA will bear these administrative costs and these costs are not included in the \$340,600 requested from CALFED to fund the project.

Significant third party impacts are not anticipated, because it is not proposed under this project to remove the RBDD or eliminate operations of the RBDD. Potential project environmental impacts would be fully mitigated under NEPA and CEQA requirements. Third parties might realize significant project benefits as described below.

Applicant Qualifications

The TCCA is a joint powers authority formed approximately 10 years ago to improve maintenance procedures on the TC and Coming canals. TCCA, with a staff of 22 full-time employees, currently operates and maintains 140 miles of concrete-lined canals with an annual budget of more than \$2 million. TCCA has significant experience administering water supply capital improvement projects. TCCA partners with Reclamation in operating the RBDD and addressing associated fisheries issues. TCCA participates in public forums and technical groups doing RBDD fisheries research and makes significant financial and technical contributions to such efforts.

Monitoring and Data Evaluation

Task 6.0 of the Scope of Work involves developing a conceptual plan for a biological monitoring program to be implemented during later phases of the proposed project.

Local Support/Coordination with other Programs/Compatibility with CALFED Objectives

This project was authorized by the unanimous vote of 12 of the TCCA Member Districts on May 12, 1998. These Member Districts serve agricultural areas in Tehama, Glenn, Colusa, and Yolo counties. The proposed project is compatible with and supportive of the CALFED Bay-Delta Program, CVPIA, Biological Opinion for Operation of the RBDD, RBDD Research Pumping Plant, RBDD Long-term Fish Passage Program, and the Draft Winter-run Salmon Recovery Plan.

The proposed project relates explicitly to and will facilitate CALFED objectives and associated targets and programmatic actions relating to "Water Diversions"; "Dams, Reservoirs, Weirs, and Other Structures"; and "Predation and Competition" as presented on pages 151 through 153 in Volume II of the ERPP.

The proposed project has the apparent interest and support of the Red Bluff Fish Passage Study Management Group, described above, which will be given periodic progress reports, along with requests to review and provide information, as appropriate.

Title Page

Title of Project

Fish Passage Improvement Project at the Red Bluff Diversion Dam

Applicant

Tehama-Colusa Canal Authority

P.O. Box 1025

Willows, California 95988

Phone: 530/934-2125 **Fax:** 530/934-2355

Principal Investigator: Mr. Arthur R. Bullock, General Manager

E-mail: tewaterman@aol.com

Type of Organization and Tax Status

Non-profit Public Agency

Tax Identification Number

68-0139216

Participants/Collaborators in Implementation

U.S. Bureau of Reclamation, California Department of Water Resources, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Army Corps of Engineers, California Department of Fish and Game.

Project Description

Project Description and Approach

Water is currently delivered to the Tehama-Colusa and Corning canals (Canals) via a diversion at the RBDD. Gates across the Sacramento River at the RBDD back water up to allow a maximum of 2,600 cfs of water to flow by gravity into the Canals. The RBDD is permitted to operate only from May 15 through September 15 to allow for seasonal migration of most anadromous fish during the other 8 months of the year. Fishery agencies are seeking means to shorten the RBDD operating period. The RBDD operates during this period only to enable irrigation deliveries. This 4-month period does not provide the TCCA and its customers with sufficient water supply reliability and water delivery flexibility, because significant demand for irrigation water occurs during spring and fall, when the RBDD cannot be operated.

The purpose of this proposed project is to study the feasibility of pumping water from the Sacramento River to the Canals to reduce or eliminate TCCA influence on RBDD operations. This would enable modified RBDD operations without adversely impacting irrigation water deliveries, thus substantially improving fish passage conditions while improving the water supply reliability and water delivery flexibility for agricultural irrigation.

The Bureau of Reclamation installed a 300 cfs pilot intake (RBDD Research Pumping Plant) with fish screen and pumping facilities, using alternative technology pumping systems, just downstream from the diversion facility to determine the feasibility of pumping river water directly into the Canals. This system does not rely on the RBDD to operate and, thus, can operate year-round. However, the unconventional pumps in the pilot facility have not proven reliable. Regardless, the existing fish screens and intake structure might be incorporated into this proposed project to make use of these structures. The operation of the existing gravity intake system will also be reviewed to determine the feasibility of operating during higher river flows. If such operation could be accomplished, the TC Canal could be a major water supply source to existing and future offstream storage reservoirs.

The proposed approach to resolving the two primary issues—*anadromous fish migration barrier and water delivery reliability/flexibility*—is to identify potential locations and develop concepts for state-of-the-art fish screens, intake structures, a pumping station, delivery pipeline, and canal discharge structures with approximately 2,000 to 2,600 cfs capacity to provide year-round water delivery to the Canals. The new system would be independent of the RBDD. The feasibility study would lead to development of construction plans and specifications, construction, and facility startup. Potential intake locations along the Sacramento River from the RBDD to Woodson Bridge will be investigated.

Proposed Scope of Work—Phase 1

Task 1.0 Compile and Review Available Information

Compile and review previous studies, record drawings, and operation records for existing facilities. Existing documents would include:

- Previous and ongoing studies that address fisheries problems in the upper Sacramento River reaches and means of achieving water independently of the RBDD

- CALFED Bay-Delta Program
 - CVPIA
 - Biological Opinion for Operation of the RBDD
 - RBDD Long-term Fish Passage Program
 - Draft Winter-run Salmon Recovery Plan
- Topographic maps, geohydrology maps, soils information, flood elevation and minimum river stage data, assessor's maps and property ownership maps, and environmental databases
 - Record Drawings for:
 - Red Bluff Diversion Dam
 - Tehama-Colusa and Corning Canals in the RBDD vicinity
 - Bureau of Reclamation Research Pumping Plant facilities
 - Daily flow data for the Sacramento River and TCCA operations
 - Other data and studies related to potential sites and system operations

Task 2.0 Map Study and Geomorphic Data Review

Review maps and previous geomorphic studies to understand historical channel movements and to identify potential stable sections of the river. From topographic, land use, and property ownership maps, potential routes for pipe/canal facilities from the intake to the Canals and preliminary locations for a pumping station will be identified. It is anticipated that up to five intake sites will initially be identified, including an area at or adjacent to the current Reclamation RBDD Research Pumping Plant site and along the reach of the Sacramento River from the RBDD to Woodson Bridge. Map review findings and recommendations will be summarized in a draft initial siting memorandum. The siting memorandum will become an appendix to the feasibility study report.

Task 3.0 Field Reconnaissance

Conduct preliminary site investigations of the identified sites. The field reconnaissance team will include a geotechnical engineer, environmental planner, and civil engineer. The field conditions of the alternative sites will be reviewed. It is anticipated that two sites will be eliminated from further consideration by field reconnaissance results, leaving up to three sites to be evaluated in more detail.

Task 4.0 Hydrologic/Hydraulic Studies

River level stages at the potential sites for fish screens and other intake structures will be reviewed and preliminary fish screen and intake facility sizes will be determined. The hydraulic conditions affecting each alternative fish screen location and proposed configuration will be identified, and the potential impacts will be evaluated. Site-specific field data, including suspended sediment concentrations, sediment depths, and river hydraulics, will be used to develop an approach for managing the sediment near the screens to optimize screen performance and minimize maintenance cost.

Task 5.0 Develop Preliminary Concepts

In concert with the affected agencies, evaluation criteria will be developed for project alternatives to select the preferred alternative. Preliminary concepts for fish screens, intake facilities, and delivery conveyance systems will be developed for each screened alternative. The objective of the concept development phase is to define the least-cost, technically superior intake and delivery system that best satisfies environmental

and other needs. This task will also be used to identify land requirements and property ownership, develop conceptual level cost estimates, preliminary determine potential environmental issues, and select a preferred alternative that will be carried forward to design, construction, and operation. Comparative information for each project alternative will be displayed in a matrix format to facilitate comparison. All alternatives to be developed and evaluated must meet the resource agencies' fisheries protection criteria and the TCCA's project needs. Subtasks of Task 5 are described below.

Subtask 5.1 Pipelines/Canal

Evaluate topography, land use, pump station locations, and potential environmental impacts with respect to water delivery systems. Pipeline and canal options will be considered for each alternative. Pipelines can be buried to minimize surface impacts. Once the pipeline is installed, the ground above the pipeline can be used for agricultural purposes, whereas a canal precludes other uses. A canal system may be least expensive, depending on the ground surface topography. Preliminary pipeline sizes or the canal cross section will be determined.

Subtask 5.2 Pump Station

A pump station will be needed to lift water from the river to the Canals. A site plan, pump station concept, and preliminary facility sizes will be developed for various river flow and pump operating conditions.

Subtask 5.3 Fish Screens

Current state and federal agency fish protection criteria for juvenile salmonids will be incorporated into fish screen concepts. Exposure time, pumping operations, river conditions, expected velocity conditions at the screen, and screen area will be confirmed with the California Department of Fish and Game (CDFG) and the National Marine Fisheries Service (NMFS). The applicable design criteria/guidelines for a positive barrier screen for juvenile chinook salmon consist primarily of hydraulic constraints for approach velocity, sweeping-to-approach velocity ratio, screen exposure time, cleaning frequency, and structural constraints. Potential modifications to existing screening facilities at the RBDD also will be addressed.

Subtask 5.4 Structures

The size and configuration of the intake and discharge structures will be determined from location, site conditions, geotechnical considerations, and other factors. Structural modifications to the existing facilities will be evaluated. Alternatives will be evaluated for constructibility, capital cost, O&M cost, and other factors. Construction sequencing to preclude water delivery and fish migration interruptions would also be considered in evaluating constructibility.

Task 6.0 Biological Monitoring Plan

Develop a conceptual plan for a biological monitoring program to be implemented during later phases of the proposed project.

Task 7.0 Permitting/Rights-of-way

Permitting requirements and preliminary permanent and construction easement requirements will be identified for each site alternative. Permitting agencies and land requirements will be listed. A map will be prepared showing property needs.

Task 8.0 Preliminary Environmental Analysis

Potential environmental issues and concerns and potentially sensitive areas associated with each alternative will be identified.

Task 9.0 Cost Estimates

Develop order-of-magnitude construction and O&M cost estimates for the initial comparison of alternatives and a budget-level estimate for the preferred alternative.

Task 10.0 Financial Planning

Review possible funding sources for the preferred alternative and discuss funding potential with funding agencies. Financial planning will include cost sharing funding from participating agencies. Provide recommendations for project funding and prepare and submit funding application to the funding agencies.

Task 11.0 Feasibility Study Report

Prepare a preliminary concept report that summarizes and documents the findings of this study. The Feasibility Study Report will briefly describe existing facilities, the purpose of the proposed facilities, alternatives developed from the study, preliminary screening of alternatives, preliminary concepts, cost estimates, alternative comparison, funding alternatives, and an implementation plan, including scope of work, cost estimate, and a tentative schedule for design and construction.

Task 12.0 Progress Reports, Status Meetings, Board Presentation

Up to four progress meetings will be held during the feasibility study to update the project status, review preliminary siting concepts, and to generate input. The findings and recommendations resulting from the feasibility study will be presented to the TCCA Board of Directors and interested parties.

Task 13.0 Project Management

The project management task includes developing project instructions, work plan, schedule, staff resource plan, and budgets; monitoring the schedule, expenditures, and work progress; invoicing for work completed; preparing project status reports; and ongoing communications with participating agencies.

Location and/or Geographic Boundaries of the Project

The project is located on the main stem of the Sacramento River at the upper end of the Butte and Colusa Basin Watersheds in Tehama County. The project will have a positive effect on anadromous fish migration and propagation throughout the Sacramento River Watershed Region. Figure 1 shows the boundaries of the TCCA and the reach of the Sacramento River to be investigated for potential project sites.

Expected Benefits

Stressor Category: Alteration of Sacramento River flow, resulting in delayed migration, associated high mortality due to predation, entertainment, decrease in habitat biodiversity, and anadromous fish stranding.

Primary Priority Species—First Tier: Spring-, winter-, and late-fall-run chinook salmon and steelhead trout.

Primary Priority Species—Second Tier: Sacramento fall-run chinook salmon.

Priority Habitat: Instream aquatic habitat.

Benefits to CALFED Objectives: The proposed project represents a primary benefit to CALFED objectives, targets, and programmatic actions relating to "Dams, Reservoirs, Weirs, and Other Structures" as presented on page 152 in Volume II of the ERPP. Secondly, the proposed project will benefit

CALFED objectives relating to "Water Diversions" and "Predation and Competition" as presented on pages 151 and 153, respectively, in Volume II of the ERPP.

Potential Benefits to Third Parties, Other Ecosystem Restoration Programs, and CALFED Non-ecosystem Objectives. The primary non-ecosystem benefit of the implemented project would be to provide TCCA and its customers with a more flexible and reliable year-round water supply delivery system, thereby improving water management for beneficial uses. Additional potential project benefits include:

- Reduced or minimized juvenile and adult anadromous fish passage problems at the RBDD
- Possible supply to future off-stream storage reservoirs
- Incorporation of Reclamation pilot intake/pumping facilities into the proposed project
- Independence from backup water supplies from Black Butte Reservoir in spring, allowing this water to be used for other beneficial purposes, such as groundwater recharge or additional instream flows
- Recharge local groundwater basins
- Backup to Glenn-Colusa Irrigation District (GCID) canal system and more reliable backup water supply to three national wildlife refuges (Sacramento, Delevan, and Colusa)
- Provide fish flows through the Constant-head Orifice (CHO) on the TC Canal into Stony Creek

Related ecosystem restoration programs include the CALFED Bay-Delta Program, CVPIA, Biological Opinion for Operation of the RBDD, RBDD Research Pumping Plant, RBDD Long-term Fish Passage Program, and the Draft Winter-run Salmon Recovery Plan.

Background and Ecological/Biological/Technical Justification

Project Need. TCCA diverts up to 2,600 cfs of its allocated Sacramento River water into the Canals at the RBDD. However, RBDD operations are permitted only from May 15 to September 15. Water supplies to TCCA during other times of year, including supplementary supplies from Black Butte Reservoir, are not always reliable, particularly during dry years, and the RBDD blocks anadromous fish migration when the gates are down.

The fully implemented project would simultaneously address two needs: minimize the effect of the RBDD on anadromous fish migration and provide a more reliable, year-round water delivery system to the TCCA. These actions relate directly to the "Water Diversions" and "Dams, Reservoirs, Weirs, and other Structures" objectives presented in ERPP Volume II, pages 151 and 152 (see Target 1 and Programmatic Action 1A on page 152). Fish passage issues and gate operations at RBDD are also addressed under the "Predation and Competition" objective in ERPP Volume II, page 153 (see Target 1 and RBDD discussion under "Rationale" on page 153). By potentially contributing to more "fish-friendly" operations at RBDD, the project would contribute to the AFRP, which includes provisions for restoring habitat and reducing stressors, such as unscreened water diversions. The proposed project would be a screened diversion meeting all state and federal criteria.

Sensitivity to Hydrologic/Climatic Changes and Durability of Project Benefits. During normal years, TCCA requires supplemental water supplies during the 8-month period when the RBDD is precluded from operation, especially during the period prior to May 15. When available, CVP water can be provided from Black Butte Reservoir to the TC Canal via a diversion in Stony Creek. However, during dry years,

this supplemental water is least likely to be available. The project would permanently benefit the TCCA by reducing or eliminating shortfalls during dry years that might occur outside the annual period of permitted RBDD operations. Additional project benefits are that the TCCA would permanently be able to divert its full allotment year-round independently of both the RBDD and Black Butte Reservoir. This would enable more "fish-friendly" RBDD operations. CVP water stored in Black Butte Reservoir would be available for other beneficial uses, and there might be no need for an additional Stony Creek diversion to supply Black Butte Reservoir water to the TCCA.

Current Status and Supporting Documentation. The Bureau of Reclamation installed a 300 cfs RBDD Research Pumping Plant just downstream from the diversion facility, which does not rely on the RBDD and, thus, can operate mostly year-round. However, the pilot facility has not proven to be reliable. Other studies and programs are ongoing with the objective of delivering water independently of the RBDD and/or to address fisheries problems in the upper Sacramento River, including the CALFED Bay-Delta Program, CVPIA, Biological Opinion for Operation of the RBDD, RBDD Long-term Fish Passage Program, and the Draft Winter-run Salmon Recovery Plan. Task 1 would document these efforts to ensure that the proposed project is compatible with related efforts. Participants in these efforts will provide review and advisory support to the proposed project.

Monitoring and Data Evaluation

Task 6 of the scope of work will provide a conceptual plan for a biological monitoring program to be implemented in later project phases.

Implementability

Although this project is at the preliminary planning stage, several proposed tasks directly address implementability issues, including identifying regulatory and environmental compliance requirements, rights-of-way and easements, potential project sites, funding sources, and estimated cost. Consideration will be given to incorporating the RBDD Research Pumping Plant into the proposed project.

The current TCCA water delivery system is sensitive to hydrologic and climatic conditions, particularly dry year conditions. A primary project objective is a permanent, reliable, year-round delivery system with minimal influence on RBDD and Black Butte Reservoir operations.

Implementation would be facilitated by the participation of the Red Bluff Fish Passage Study Management Group (SMG) led by Reclamation. Other member agencies include the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, California Department of Water Resources, and the TCCA. Cultural impacts of the project, if any, would be addressed and mitigated through the project NEPA/CEQA process. Task 8 would identify the environmental and permitting requirements of the project.

Costs and Schedule to Implement Proposed Project

Budget Costs

The table below shows project costs distributed among 13 tasks. Included are TCCA's costs to administer the project and costs for consultant services that will be provided under a service contract with TCCA. Although TCCA costs shown in the Direct Salary/Benefits and Overhead Labor columns are included in the table to show total project costs, these costs will be borne by TCCA as TCCA's cost-sharing contribution and are not included in the amount requested from CALFED.

TABLE 1
Cost Breakdown

Project Phase/ Task	Direct Labor Hours	Direct Salary/ Benefits ⁴	Overhead Labor ⁴	Service Contracts	Material/ Acquisition Contracts	Misc./Direct Costs	Total
Task 1	30	\$600	\$0	55,600	\$0	\$100	\$6,300
Task 2	80	2,000	100	20,700	0	200	23,000
Task 3	30	700	0	7,300	0	100	8,100
Task 4	100	2,500	100	30,700	0	300	33,600
Task 5	380	9,200	500	98,400	0	1,100	109,200
Task 6	50	1,100	100	11,500	0	100	12,800
Task 7	50	1,100	100	11,600	0	100	12,900
Task 8	80	1,900	100	24,600	0	200	26,800
Task 9	30	700	0	11,900	0	100	12,700
Task 10	90	2,200	100	22,700	0	300	25,300
Task 11	200	4,800	200	48,200	0	600	53,800
Task 12	100	2,200	100	21,800	0	300	24,400
Task 13	190	4,500	200	25,600	0	500	30,800
Total							\$379,700

⁴The CALFED request of \$340,600 is equal to \$379,700 minus TCCA costs of \$39,100.

Schedule Milestones

A schedule for the feasibility study is shown on Figure 2. This 7½-month schedule assumes a start in the early fall 1998 so that river levels at potential fish screen sites can be gauged during low river flow. The tasks and the schedule were developed to allow an orderly and cost-efficient progression for site selection and concept development. A description of the tasks identified in the schedule is provided under the section "Proposed Scope of Work."

Third Party Impacts

Significant third party impacts are not anticipated, because it is not proposed under this project to remove the RBDD or eliminate operations of the RBDD. Potential project environmental impacts would be fully mitigated under NEPA and CEQA requirements. Third parties might realize significant project benefits as described below.

Applicant Qualifications

The TCCA is a joint powers authority of 15 water districts, which currently has a 25-year contract with Reclamation to operate and maintain the TC and Corning canals. TCCA, with a staff of 22 full-time employees, currently operates and maintains 140 miles of canal with an annual budget of more than \$2 million. The TCCA canals deliver more than 250,000 acre-feet per year of irrigation water to more than 150,000 acres of farmland in the western Sacramento Valley. TCCA partners with Reclamation to operate the RBDD and associated facilities to address fisheries issues associated with the dam. TCCA participates in public forums and technical groups doing RBDD fisheries research and has made significant financial and technical contributions to efforts to resolve RBDD fisheries issues. The TCCA also has significant experience in administering engineering and biological research and planning efforts and implementing capital improvements involving water supply, water delivery, and fisheries.

CH2M HILL, one of the largest U.S. firms providing comprehensive engineering, scientific, economic, and planning expertise for large-scale, complex fishery and water resources projects, will provide the TCCA with technical assistance. CH2M HILL has served Reclamation, the California Department of Water Resources, and numerous water and irrigation districts in the northern Sacramento Valley for more than 50 years and designed many of the intakes, pump stations, fish screens, and other water resources and fisheries management facilities on the Sacramento River.

Staff Organization and Key Project Personnel

As shown on the organization chart, TCCA General Manager, **Art Bullock**, will administer the project with the assistance of TCCA staff. Mr. Bullock will manage the budget and schedule and act as liaison to other cooperating agencies and organizations that will provide input during the project. The CH2M HILL consultant team will provide engineering, planning, scientific, and economic expertise from **Peter Rude**, P.E., **Howard Wilson**, P.E., **Mark Oliver**, **Bob Gatton**, P.E., **John Crowe**, P.E., and **Ken Iceman**, P.E. This consultant team has implemented pump station and fish screen projects on the Sacramento River that included environmental and permitting issues, fish screens, hydrology and hydraulics, pipelines, pump stations, and cost estimating.

Art Bullock, P.E., TCCA General Manager and Project Administrator

Registered Professional Engineer: California, Nevada, Oregon

Art Bullock has approximately 30 years of experience in the California public water supply industry, holding positions in four separate Southern California water districts. He served as General Manager and Chief Engineer of two of these districts prior to becoming General Manager of the TCCA in January 1996. Mr. Bullock has extensive experience in report preparation and administering large research and construction projects.

Jan Jennings, TCCA Assistant General Manager, Assistant Project Administrator

Jan Jennings joined the TCCA as its first employee in October 1988, serving first as Controller and later as Manager of Administration and, for the past 4 years, as Assistant General Manager. Ms. Jennings will assist in all aspects of data compilation and collection, as well as report preparation.

Cris Bujalski, TCCA Administrative Technician, Project Assistant

Chris Bujalski joined the TCCA in March 1994 as an Irrigation Systems Operator and was recently

reassigned to the Administration Division. While working full time for the TCCA, Mr. Bujalski is completing a degree at California State University, Chico, in Geoscience and Hydrology. Mr. Bujalski will assist in data compilation and other report preparation activities as needed.

Peter Rude, P.E., Consultant Team Project Manager

M.S., B.S., Agricultural Engineering; Registered Professional Engineer: California and Hawaii

Peter Rude is an experienced project manager for water resources projects with more than 13 years of engineering experience. For Reclamation District 108, he was design manager of the 700 cfs Wilkins Slough Positive Barrier Fish Screen and is currently managing construction services. For Reclamation, Peter prepared the Refuge Water Supply Project Decision Document, including design alternatives and construction and O&M cost estimates, for conveying 260,000 acre-feet of water annually to Central Valley wildlife refuges under the CVPIA. Also for Reclamation, Mr. Rude managed the Lower Stony Creek Fish, Wildlife, and Water Use Management Plan, leading an interdiscipline team from three consulting firms to develop a plan in 3 months. The study included coordinating input from a technical team and task force comprising 33 individuals representing 22 federal, state, and county agencies; irrigation districts; and businesses.

Howard Wilson, P.E., Senior Reviewer

B.S., Civil Engineering; Registered Professional Engineer: California, Nevada, Washington

Howard Wilson, has more than 30 years of engineering experience in agricultural irrigation systems, pumping, and fish protection facilities, project management, design, construction management, and agency coordination. He managed the design of a \$20 million rehabilitation and upgrade project for GCID, including a new 3,000-cfs pump station and improvements to the 65-mile-long main canal. He managed feasibility studies, design, and construction of the 3,000 cfs GCID Main Pump Station interim fish screens and design of the permanent screen facilities. He was senior consultant for the feasibility study, alternatives analysis, preliminary design, and final design of the Reclamation District 108 800 cfs Wilkins Slough Positive Barrier Fish Screen project. Mr. Wilson managed preliminary design of a screened intake on the Truckee River, 18,000 feet of 48-inch-diameter water pressure pipe with four river crossings, an 1,100-hp booster pump station, and other facilities for Westpac Utilities, Reno, Nevada.

Mark Oliver, Environmental and Permitting Issues

B.S., Environmental Policy Analysis and Planning

Mark Oliver is an environmental planner for water resources projects. He has managed impact studies and permit acquisition for federal, state, local, and private clients. He managed a joint NEPA/CEQA document for a siphon and associated water conveyance facilities on Butte Creek for the Western Canal Water District and USFWS. He also directed the NEPA/CEQA documentation for water conveyance facilities to seven wildlife refuges in the Sacramento and San Joaquin valleys for Reclamation and USFWS. He is managing a joint EIS/EIR to restore the Trinity River fishery for the USFWS, Hoopa Valley Tribe, and Trinity County. Major project issues include determining appropriate restoration actions and effects on water quality, power users, agriculture, and water contractors in the Sacramento Valley.

John Crowe, P.E., Pump Station Concepts

B.S., Mechanical Engineering; Registered Professional Engineer: California, Alaska

John Crowe has 29 years experience designing structures and mechanical systems in the Sacramento River and other rivers. For the Chalk Bluff Water Treatment Plant in Reno, Nevada, Mr. Crowe managed design of the 80-mgd Truckee River pump station, screened intake, and 2,700 feet of 48-inch pipeline. He was also lead engineer for the 3,300-hp treated water pump station at the plant. Mr. Crowe was lead engineer for design of a 30-mgd, 1,800 hp treated water pump station for Big Bend Water District's water

treatment plant at Laughlin, Nevada, and the 30-mgd, 2,500 hp treated water pump station for the City of Henderson, Nevada, water treatment plant.

Ken Iceman, P.E., Lead Project Engineer/Hydrology/Hydraulics

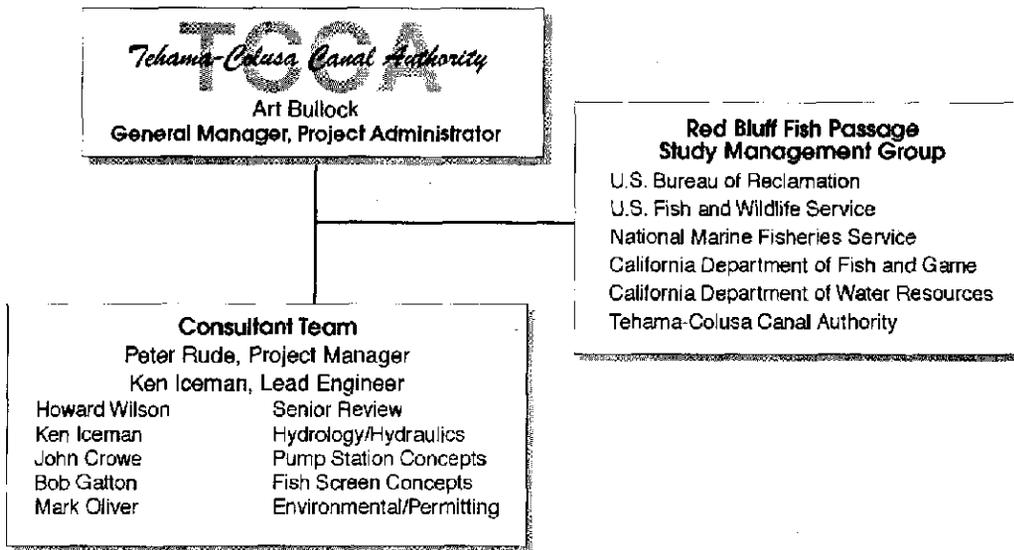
B.S., Mathematics; M.S., Civil Engineering; Registered Civil Engineer; California

Ken Iceman has more than 27 years of experience in hydrology and hydraulics. He managed the hydraulic monitoring program for GCID interim fish screen performance and designed the training wall and bypass channel system to improve screen hydraulics. He also managed the GCID "final solution" screen and Sacramento River gradient restoration feasibility study. He has served on the Steering Committee and Technical Advisory Group for more than 5 years with federal and state fishery agency staff during the GCID "final solution" development process. Mr. Iceman also provided hydraulic modeling and design and optimized screen hydraulics, minimizing erosion and sedimentation effects, and maximizing anadromous fish protection for the RD-108 positive barrier fish screen on the Sacramento River.

Bob Gatton, P.E., Fish Screen Design Concepts

M.S., Civil Engineering; M.S., Systems Management; B.S., Civil Engineering; Registered Professional Engineer; Washington

Bob Gatton specializes in designing fish screening, passage, and hatchery facilities. He is a design consultant for the GCID and RD-108 fish screening facilities on the Sacramento River. For the Rocky Reach Dam and Hydroelectric Facility on the Columbia River, he managed conceptual design, layout, equipment selection, and agency coordination for the construction 2,000 cfs and 5,000 cfs ganged screens and other fish protection facilities to pass more than 1 million fish around the dam, meeting a 10-week construction schedule to avoid disrupting fish outmigration and power service. Mr. Gatton provided similar services for Yelm Hydropower, North Shore Dalles Hydro, and Dryden Canal fish screens in Washington.



2467.05

Compliance with Standard Terms and Conditions

The terms and conditions discussed in Section O of the Request for Proposals are acceptable to the applicant. Forms 7 (Nondiscrimination Compliance Statement), 10 (Noncollusion Affidavit), and Form DI-2010 are attached.

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

TEHAMA-COLUSA CANAL AUTHORITY

The company named above (hereafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5, in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIALS NAME

Arthur R. Bullock

DATE EXECUTED

July 1, 1998

EXECUTED IN THE COUNTY OF

Glenn

PROSPECTIVE CONTRACTOR'S SIGNATURE



PROSPECTIVE CONTRACTOR'S TITLE

General Manager

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Tehama-Colusa Canal Authority

U.S. Department of the Interior

**Certifications Regarding Debarment, Suspension and
Other Responsibility Matters, Drug-Free Workplace
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used or use this form for certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010
June 1996
(This form replaces DI-1863, DI-1864,
DI-1865, DI-1866 and DI-1867)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing an ongoing drug-free awareness program to inform employees about—
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will —
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification numbers(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted —
 - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the sites for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Tehama-Colusa Canal Authority

5513 Highway 162

Willows, CA 95988

Check if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

DI-2010
June 1998
(This form replaces DI-1063, DI-1064,
DI-1056, DI-1066 and DI-1083)

PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements

CHECK IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT; SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.

CHECK IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.


SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

Arthur R. Bullock, General Manager

TYPED NAME AND TITLE

DATE July 1, 1998

DI-2010
June 1996
(This form replaces DI-1853, DI-1854,
DI-1855, DI-1864 and DI-1903)