

G1043

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Sacramento River Tributaries Water Quality Assessment
Applicant Name: Gerald Boles - California Department of Water Resources
Mailing Address: 2440 Main Street, Red Bluff, California 96080
Telephone: (530) 529-7326
Fax: (530) 529-7322

Amount of funding requested: \$30,000 for two years (for each tributary selected for inclusion - up to 17 tributaries proposed)

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision: see page __ of the Proposal Solicitation Package for more information.

- Fish Passage Assessment
- Floodplain and Habitat Restoration
- Fish Harvest
- Watershed Planning/Implementation
- Fish Screen Evaluations - Alternatives and Biological Priorities
- Fish Passage Improvements
- Gravel Restoration
- Species Life History Studies
- Education

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

- Sacramento River Mainstem
- Delta
- Suisun Marsh and Bay
- San Joaquin River Mainstem
- Landscape (entire Bay-Delta watershed)
- Sacramento Tributary: upper tributaries
- East Side Delta Tributary: _____
- San Joaquin Tributary: _____
- Other: _____
- North Bay: _____

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

- San Joaquin and East-side Delta tributaries fall-run chinook salmon
- Winter-run chinook salmon
- Late-fall run chinook salmon
- Delta smelt
- Splittail
- Green sturgeon
- Migratory birds
- Spring-run chinook salmon
- Fall-run chinook salmon
- Longfin smelt
- Steelhead trout
- Striped bass

COVER SHEET (PAGE 2 of 2)

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

- | | |
|--|---|
| <input checked="" type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit |
| <input 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 type="checkbox"/> Planning | <input type="checkbox"/> Implementation |
| <input checked="" 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.

Herald Boles

(Signature of Applicant)

Executive Summary

Project Title: Sacramento River Tributaries Water Quality Assessment

Applicant: Gerald Boles
California Department of Water Resources
2440 Main Street
Red Bluff, California 96080

Project Description: The proposed project is a water quality assessment program for tributaries to the Sacramento River to determine stream water quality and suitability for beneficial uses, and factors contributing to degraded conditions. This program will also establish baseline conditions against which future restoration activities can be compared to gauge effectiveness. Information developed by the proposed project can be used for focusing water quality improvement efforts, development of watershed management plans, and improvement of salmonid survival and reproduction.

Primary Biological and Ecological Objectives: The primary biological and ecological objectives are to determine water quality factors that may be adversely affecting aquatic life and their habitats in tributaries to the Sacramento River, especially for spring-run salmon, fall-run salmon, and steelhead trout. This information will be used by the Sacramento River Watershed Program, Central Valley Regional Water Quality Control Board, Department of Fish and Game, and other groups to protect and improve habitat conditions for these important fish species and other aquatic life in the tributaries.

Approach: Monitoring stations will be established at the mouth of each tributary. Descriptive stream condition and habitat assessments will be conducted at each site. Basic water chemistry (minerals, nutrients, minor elements (metals), and physical parameters) will be assessed

since these parameters determine the beneficial uses of water and become elevated due to pollution, which often results in deleterious effects to aquatic life and other beneficial uses. Water temperature will be assessed via continuous recorders since this parameter has often been significantly altered from stream management activities and is important for determining the suitability of a water body for survival and reproduction of anadromous fish. Coliform bacteria levels will be assessed since these organisms are indicative of contamination which may impact health. Aquatic macro-invertebrates, which form the basis of the aquatic food web and are excellent indicators of long-term water quality conditions, will also be assessed.

The direct measurement of toxicity to aquatic organisms will be used to determine the ability of the stream to support aquatic life. Toxicity assessment in stream bed sediments and the water column will identify potential impacts to fish and their food organisms from toxic substances. Fish tissues, which accumulate various toxic substances, will be analyzed to determine the presence of toxic substances which may not be identifiable through other means.

Sedimentation is a major impairment in streams, adversely impacting salmonid reproduction and food organisms. Analyses of sediments in stream gravels will determine areas of impact and aid in identification of sources of sediments.

Justification: The proposed project will provide information about system stressors in tributaries to the Sacramento River which affect priority aquatic species and their habitats. The draft Restoration Plan for the ARFP (May 1997) recommended monitoring long-term changes in water quality, among others. Monitoring water resources in the watershed is essential to detect and

document pollution. Water quality affects the beneficial uses of streams, including the beneficial use as fish habitat. Yet, very little water quality data are available for tributaries to the Sacramento River. Without water quality data, environmental effects to migrating, spawning, and rearing salmon and steelhead cannot be realistically determined, nor can mitigation be developed until the scope of the problem is defined.

Data developed by the proposed project will be used by a variety of agencies and groups to implement mitigation activities to improve habitat conditions related to water quality. This project is important to water resource managers and will provide a strong basis for better decision making by federal, State, and local agencies and environmental groups.

BudgetCosts: The total annual cost for this project is \$30,000 per tributary. Seventeen significant tributaries are identified, which would bring the total annual cost to \$510,000 if all 17 tributaries were included in the program. However, tributary monitoring can be staged by conducting monitoring on a select set of tributaries each time. The annual cost, therefore, depends on the number of tributaries that are selected for inclusion in the current monitoring. Monitoring for each individual or set of tributaries should be conducted for a two year period. There are no third party impacts associated with the conductance of this project.

Applicant Qualifications: The project manager and field staff have many years of experience with the Department of Water Resources conducting similar projects. The Department has all necessary equipment to conduct the project.

Monitoring and Data Evaluation: Data will be used to determine present effects from stressors to instream aquatic habitat and priority species, and to determine effectiveness of watershed management and mitigation activities. Data from the proposed

project will be compared to the sparse historic data that is available on some tributaries to determine long-term changes that may have occurred. Data will also be compared with criteria established for protection of aquatic life and assessment results from the Sacramento River Watershed Program, which is assessing similar parameters in the mainstem of the Sacramento River.

A quality assurance project plan will be developed to ensure that data are accurate. All staff will be familiar with the QA project plan and receive appropriate training in data collection techniques.

Support/Coordination: The Sacramento River Watershed Program, Central Valley Regional Water Quality Control Board, and Department of Fish and Game all support this project. Coordination will also occur with watershed groups if they exist on each tributary. This project was designed to offer data comparable to the mainstem data collection efforts of the SRWP.

Compatibility with CalFed Objectives: This project addresses water quality problems which adversely impact high-risk aquatic species and their habitats, including spring-run and fall-run chinook salmon, steelhead trout, and instream aquatic habitat. The project also provides information necessary for actions to improve and increase aquatic habitats and improve ecological functions, consistent with the objectives in the Ecosystem Restoration Program Plan.

Sacramento River Tributaries Water Quality Assessment

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Northern District
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**Type of Organization: State Government
(Tax Exempt)**

**Implementation Participants and Collaborators
Sacramento River Watershed Program
Central Valley Regional Water Quality Control Board**

July 2, 1998

Project Description

Project Description and Approach: The proposed project is a water quality assessment program for tributaries to the Sacramento River. The assessment program is needed to identify water quality parameters that are contributing to the water quality degradation in the Sacramento River and the decline of anadromous fish in the tributary watersheds. Information developed by the proposed project will be used for focusing water quality improvement efforts, development of watershed management plans, and improvement of salmonid survival and reproduction.

Water quality affects the beneficial uses of streams, including municipal, industrial, and agricultural water supply, recreation, and use as fish and other wildlife habitat. Yet, very little water quality data are available for the tributaries to the Sacramento River. Without water quality data, sources of impairment and effects to beneficial uses cannot be determined, nor can watershed management plans be developed to remedy detrimental impacts to water quality and beneficial uses.

Monitoring stations will be established at sites established near the mouth of each tributary. Water samples will be collected monthly for laboratory determination of chemical constituents, including minerals (calcium, sodium, potassium, magnesium, sulfate, chloride, boron, and alkalinity), nutrients (nitrate, ammonia, dissolved orthophosphate, and total phosphorus), minor elements (aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, selenium, and zinc), and total suspended solids. Minor elements

will be analyzed for total recoverable concentrations to determine whether each individual element is contributed by a tributary. Where significant levels of a minor element are identified, subsequent analyses will also assess the dissolved fraction to determine bio-availability and the relation between total recoverable and dissolved fractions.

Field measurements taken monthly will include water temperature, dissolved oxygen, turbidity, pH, and conductivity. Temperature recorders will also be installed in each tributary to the Sacramento River to continuously record water temperatures.

Stream gravels will be sampled with appropriate devices (such as the McNeil sampler) for laboratory determination of particle size distributions. Samples will be collected at several riffles near the mouth of each tributary.

Additionally, aquatic insect samples will be collected to identify biotic response to water quality and productivity of organisms important as fish food. Both fecal and total coliform bacteria levels will be assessed in each tributary. Toxicity tests will be performed using fathead minnow and Ceriodaphnia for water column tests, and Hyalella for bed sediment tests. Fish will be collected from each station for analyses of tissues to determine the presence of metals and organic compounds. Pesticides will be analyzed from samples collected from the tributaries in the fall, following the first significant runoff, and in the winter. The presence of pathogens, including Cryptosporidium and Giardia, will also be determined from water samples collected from the tributaries.

Proposed Scope of Work: Field sample and data collection for water quality assessments will be conducted according to the schedule presented in Table 1.

After collection, samples will be submitted to laboratories for analyses while field data and laboratory results will be entered into a database. The data will be reviewed monthly to insure the program is on schedule and that the data being collected are providing useful information. Progress reports will be made to the CalFed Bay Delta Program, Sacramento River Watershed Program, and other interested parties at agreed upon intervals.

The project is proposed to continue for two years (for the selected set of tributaries; subsequent proposals will be submitted to conduct assessments on tributaries not included in the set approved for this proposal). An annual report documenting the achievements of the project will be prepared at the end of the first year, while a final report will be prepared at the end of the second year of the program.

Location: The proposed project would occur on all or a selected set of the following tributaries, depending on the funding level that is approved:

- Battle Creek
- Bear Creek
- Cottonwood Creek
- Butte Creek
- Antelope Creek
- Spring Creek
- Stillwater Creek
- Red Bank Creek
- RD 70 Drain
- Elder Creek
- Thomes Creek
- Stony Creek
- Paynes Creek
- Cow Creek
- Churn Creek
- Toomes Creek
- Pine Creek

These tributaries occur along the

Sacramento River from near Redding to Knights Landing.

Expected Benefit: These data will allow determination of impacts related to water quality in the tributaries, and provide information on the source of water quality impairments to the Sacramento River. As adverse tributary water quality is identified, subsequent proposals will be developed to identify specific sources of impairment in the tributaries and develop appropriate remediation, which may include formation of watershed groups composed of concerned landowners and other stakeholders.

The stressors for which this project will provide valuable information include: 1) alteration of flows and other effects of water management, including hydrograph alterations, migration barriers and straying; 2) water quality; 3) water temperature; and 4) land use, including hydropower production, grazing, urbanization, and forestry and agricultural practices.

The habitat types affected by stressors in the tributary watersheds are primarily instream aquatic habitat. The priority species in this habitat type in the tributary watersheds include spring-run, fall-run, and late-fall-run chinook salmon and steelhead trout. This project will provide primary benefits to this habitat type and these species by identifying water quality impairments that are limiting the quality of the habitat and reducing survival of these species. The project provides secondary benefits for adaptive management by establishing baseline conditions to evaluate the effects of other mitigation activities that occur in the watershed. The project also fosters efforts by watershed stake-

holders by providing basic data for watershed planning and management.

Background and Biological/Technical Justification: The proposed project conforms to the goals of the implementation strategy of the ERPP. This strategy focuses on indicators to determine effectiveness of the ERPP, and comprehensive monitoring to determine the status of the indicators (p. 3, Vol. 1). This proposed program will monitor water resource indicators to determine present ecological conditions and health, provide a benchmark to determine effectiveness of future restoration efforts, and identify ecosystem stressors.

Implementation Objectives of the ERPP for the Sacramento River Ecological Zone are to reduce concentrations and loading of contaminants in the aquatic environment and reduce losses of fish and wildlife resulting from pesticide, hydrocarbon, heavy metal, and other pollutants in the Sacramento River (p. 154, Vol. 1, ERPP). The ERPP vision for contaminants (p. 328, Vol. 1) is to ensure that all waters of mainstem rivers and tributaries entering the Bay-Delta are free of high concentrations of toxic substances. Furthermore, the process of ecosystem restoration would be initiated by implementing actions to prevent, control, and reduce contaminant sources that represent immediate or potential toxicological hazards to ecosystem processes.

The CALFED Water Quality Program goal is to provide good water quality for environmental, agricultural, drinking water, industrial, and recreational beneficial uses (p. 329, Vol. 1). "Monitoring programs that identify long-term trends in contaminants found in ecosys-

tem biota have helped to guide restoration efforts" (p. 330, Vol. 1). Similarly, this proposed program to evaluate water quality conditions in tributaries to the Sacramento River will identify contaminants and guide restoration efforts by CALFED, Sacramento River Watershed Program, Department of Fish and Game, CVPIA, watershed groups, and others.

The May 1997 Draft AFRP identifies development of watershed management plans as high priorities for many of the tributaries in the upper Sacramento River watershed. Paramount in the development of watershed management plans is analysis of current conditions and data for determining baseline conditions against which future restoration activities can measure progress. The draft Restoration Plan for the ARFP recommended monitoring long-term changes in water quality, among others. The proposed program will provide information vital for development of watershed management plans and analyses of existing conditions.

The Ecosystem Restoration Projects and Programs Proposal Solicitation Package identifies primary species and their stressors. For spring-run salmon, the ERPP-PSP states that tributary water quality is better than the mainstem. However, while significant problems have been identified for the mainstem (mine discharges, pesticides), little documentation is available for most tributaries. Mines also exist in tributary watersheds that may adversely affect water quality, and other stressors that affect water quality and aquatic habitat in the main stem also occur along tributaries, such as pesticides and stormwater runoff. The ERPP-PSP also states that pesticides and urban runoff in lower

portions of tributaries are a risk to rearing for spring-run, fall-run, and winter-run chinook salmon and steelhead trout.

Monitoring the water resources in a watershed is essential to detect and document pollution. Monitoring is also necessary to continually assess water quality and the health of the water resource. The most reliable way to determine if changes in land-based activities have affected water quality is to monitor the water resource before, during, and after a change in land management or restoration occurs. At a watershed scale, this relationship between changes in land management and water quality can only be determined by following a strict experimental plan, or monitoring protocol. Detailed tracking of water quality is essential to provide information to decision makers about the effectiveness of nonpoint source pollution control efforts.

The Sacramento River supports fall, late-fall, winter, and spring-run chinook salmon and steelhead trout, but numerous dams and diversions, inadequate spawning gravel, and poor water quality have contributed to the decline of fish populations. According to the Department of Fish and Game's report Restoring Central Valley Streams: A Plan for Action, many juvenile salmonids perish due to poor water quality, and attributed the decline of the chinook salmon and steelhead fisheries to poor water quality and other habitat issues. However, very little water quality data are available for tributaries to the Sacramento River, which affect water quality in the main river and also affect suitability of the tributaries for fisheries habitat. Without water quality data, environmental effects to migrating, spawning, and rearing

salmon and steelhead cannot be realistically determined, nor can mitigation be developed until the scope of the problem is defined.

Water quality assessment and monitoring are necessary to characterize existing conditions within the tributary watersheds, determine contaminants and their origins, and understand the interactions of toxicants and biological components of the ecosystem. Data will be developed by the proposed program that identify current conditions of various resource issues related to water quality, and provide a baseline to determine the effectiveness of mitigation activities in the watersheds. This assessment plan will address historic as well as current water quality conditions to define those factors that most affect the water quality conditions within the tributary watersheds.

Data developed by the proposed project will be used by a variety of agencies and groups to implement mitigation activities to improve habitat conditions related to water quality, including stream temperatures, toxicants, and stream sediments. This project is important to water resource managers and will provide a strong basis for better decision making by federal, State, and local agencies and environmental groups.

Monitoring and Data Evaluation: Data generated from this project will establish baseline water quality conditions for the tributaries to the Sacramento River. These data will be used to determine present effects from stressors to instream aquatic habitat and priority species, and to determine effectiveness of watershed management and mitigation activities.

Data from the proposed project will be compared to the sparse historic data that is available to determine long-term changes that may have occurred. Data will also be compared with criteria established for protection of aquatic life and assessment results from the Sacramento River Watershed Program, which is assessing similar parameters in the mainstem of the Sacramento River. Data from the proposed assessment program will be used by the Sacramento River Watershed Program to determine the contribution from tributaries to water quality impairment in the Sacramento River.

A quality assurance program plan will be developed prior to beginning of monitoring to assure that data are of high quality and suitable for intended uses. All staff working on the project will be familiarized with the quality assurance plan and program objectives.

Implementability: Department of Water Resources staff have current valid scientific collecting permits to enable completion of biological assessments for this project. No other environmental permits are required. Access permission to private property will be obtained through local landowners and stakeholder groups.

Although climatic conditions affect the flow in tributaries, collection of environmental samples are not impeded by such conditions. Access to assessment sites is generally via paved roads or improved dirt roads. Water quality samples during high flows can be collected from bridges, using appropriate sampling equipment. Other parameters, such as aquatic macroinvertebrates and bulk sediment samples, are scheduled

to be collected during low flow conditions.

The Department has received endorsement for the program from the Sacramento River Watershed Program. Monthly progress presentations to CALFED and the Sacramento River Watershed Program will insure that information generated from the program is meeting the needs for assessment and mitigation efforts. All draft reports will be reviewed by these groups.

Costs and Schedule to Implement Proposed Project

BudgetCost: The cost for water quality assessment for each tributary would be \$30,000 (Table 1). The cost for monitoring all 17 tributaries would be \$517,000. The amount of funding available will determine the number of tributaries that can be monitored under this proposed program.

Schedule Milestones: The Department of Water Resources will begin the monitoring program according to the schedule in Table 1 upon completion of a contract for funding. Data generated by the project will be reviewed monthly. The project may be modified following data review and consultation with CALFED staff and the Sacramento River Watershed Program.

Third Party Impacts: No direct third party impacts are associated with this project. However, third parties may be affected as the results of this tributary assessment project are used to remediate sources of impairment. Third parties may bear some of the costs of remediation, or additional grants will be needed to remediate impairment. The extent of

costs for remediation of impairments cannot be determined until the proposed project is implemented and results are obtained.

Applicant Qualifications

The project will be conducted by staff of the Northern District of the California Department of Water Resources. The project will be directed by Gerald Boles, who is Chief of the Water Quality and Biology Section in the Northern District. Gail Kuenster, an Environmental Specialist II in the Water Quality and Biology Section, will be the lead investigator responsible for field sample collection and data archiving and analyses under direction of the project director. Perry LeBeouf, an Environmental Specialist I in the same section, will be responsible for overseeing laboratory work for aquatic macroinvertebrate and coliform bacteria analyses. General administrative functions, such as accounting, billing, and contract administration, will be conducted by the Northern District's Administrative Officer, Barbara Polson.

The Sacramento River Watershed Program is the primary participant that will help guide the program. The SRWP is comprised of representatives from the Department of Fish and Game, Regional Water Quality Control Board, California State University (Chico), landowners, consultants, environmental groups, and concerned citizens. The SRWP will review project progress and results, and make recommendations concerning direction for the project.

Biosketches: Gerald Boles has been the supervisor of the Water Quality and Biology Section in the Northern District of

the Department of Water Resources since 1990, and has been conducting water quality studies for the Department since 1975. He has a B.A. degree in Microbiology (minor in Chemistry) and a M.A. degree in Biological Sciences. In addition to years of experience with budgets and general supervisory functions, he has supervised and conducted numerous water quality investigations. He is responsible for both the Water Quantity and Quality Measurement Program and the Water Quality Evaluation Program in the Northern District. His duties have required him to develop and implement studies and research projects to determine environmental effects on water quality, wildlife, plants, and fisheries associated with future water supply projects, geothermal development, weather modification, water transfers, and other projects. Some of the projects for which he has been directly responsible include assessment of impacts to the aquatic macroinvertebrate community following the metam sodium chemical spill in the upper Sacramento River in 1991, development and implementation of a water quality assessment program at Lake Almanor in cooperation with Plumas County, long-term water quality monitoring at both Clear and Eagle lakes, evaluation of effects to aquatic resources from cloudseeding in the upper Feather River area, groundwater quality assessments in the Sacramento Valley, Eagle Lake, and Cady Springs areas, and assessment of factors affecting the water quality of a drinking water supply reservoir. References include Steve Turek, Department of Fish and Game, 2440 Athens Avenue, Redding, California; Lauri Zander, Lahontan Regional Water Quality Control

Board, 2501 Lake Tahoe Boulevard, South Lake Tahoe, California; Laura Barnhouse, Plumas County Environmental Health Department, P.O. Box 545, Chester, California; and Dennis Heiman, Central Valley Regional Water Quality Control Board, 415 Knollcrest Drive, Suite 100, Redding, California.

Perry LeBeouf earned a B.S. degree in Biology from California State University, Chico and has been employed since 1996 by the Department of Water Resources. He has been involved in all phases of the District's extensive aquatic macroinvertebrate program, including field sampling, taxonomy, program design, and QA/QC. He currently is responsible for the macroinvertebrate and coliform bacteria programs in the District. Some of his projects have involved identification and enumeration of macroinvertebrates from surface water quality monitoring sites, several lake water quality monitoring programs, and assisting other Environmental Specialists with water quality related projects. He also participates as a docent to local schools in conducting field trips in stream and vernal pool ecology. He is a member of the California Inland Invertebrate Working Group.

Gail Kuenster has been employed by the Department of Water Resources since 1995. With both a B.A. and M.S. degree, she has been extensively involved in the District's water quality monitoring program, as well as thermograph maintenance and data acquisition, aquatic macroinvertebrate collection, and database administration. She currently is responsible for the collection and processing of water quality, toxicological, and biological samples and data that the Department is collecting from the Sacramento River and its tributaries,

including Big Chico Creek. She is the Water Quality and Biology Section's liaison to the Big Chico Creek Watershed Alliance. References include Linnea Hanson, U. S. Forest Service, Oroville Ranger District, Oroville, California; Dr. Rob Schlising, Biology Department, California State University, Chico, California; and Lawrence Janeway, U. S. Forest Service, Oroville Ranger District, Oroville, California.

Compliance with Standard Terms

As a public agency, all standard terms and conditions will be approved at signing of the contract. No forms are necessary for submission with this proposal per Table D1 of the RFP.

Table 1. Cost for tributary monitoring

<u>Parameter</u>	<u>Cost/Run/Station</u>	<u>#/Year</u>	<u>Annual cost/Station</u>
Inorganic Chemical Analyses:			
Minerals	\$120	12	\$1,440
Nutrients	77	12	974
Minor Elements	708 ^a	12	8,496 ^a
TSS	36	12	432
Field Measurements/			
Sample Collection	216	12	2,592
Temperature Recorders	140 ^b	*	140
Aquatic Macroinvertebrates	500	1	500
Coliform Bacteria	50	12	600
Toxicity Tests			
Fathead minnow	285	12	3,420
Ceriodaphnia	250	12	3,000
Hyalella	1100	2	2,200
Fish Tissue	1925	1	1,925
Pesticides	500	2	1,000
<u>Pathogens</u>	<u>800</u>	<u>4</u>	<u>3,200</u>
Total Cost	\$6,707		\$29,919

^a includes cost for analyzing all metals as both total recoverable and dissolved; actual cost will be less depending on the number of total recoverable metals that are found at significant levels for which dissolved fraction will be analyzed

^b Cost to purchase recorder; maintenance cost included in Field Measurements/Sample Collection costs