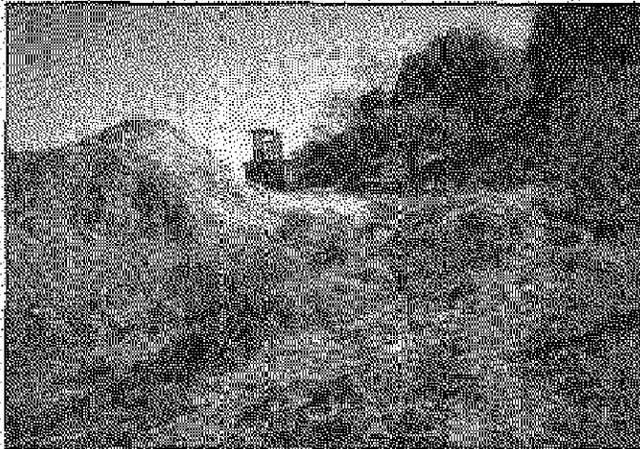


99B-467

Proposal for
**RESTORATION OF COPPER CREEK
AND
NEWTON COPPER MINE**



Prepared for
CALFED BAY-DELTA PROGRAM

Prepared by
SN
Consulting Engineers
& Geologists, Inc.

April 1999



CONSULTING ENGINEERS
& GEOLOGISTS

John R. Selvaige, P.E.
K. Jeff Nelson, P.E.
Kokone A. Johnson, Jr. C.E.O.

812 W. Wabash
Eureka, CA 95601-2138
(707) 441-8866
FAX (707) 441-6877

480 Hensied Drive
Redding, CA 96002 0117
(530) 221-5424
FAX (530) 221 0135

599020.100

April 15, 1999

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

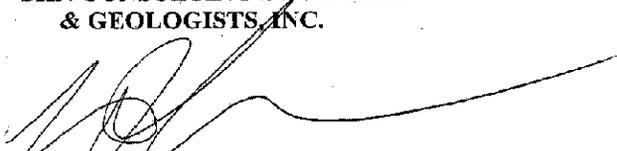
**SUBJECT: CALFED PROPOSAL
COPPER CREEK/NEWTON MINE
RESTORATION PROJECT
AMADOR COUNTY, CALIFORNIA**

Attached please find a copy of the CALFED Proposal for the Copper Creek and Newton Copper Mine Restoration Project.

If you have any questions, please call me or Mr. Clayton Giuntini at (530) 221-5424.

Sincerely,

**SHN CONSULTING ENGINEERS
& GEOLOGISTS, INC.**



Wendy L. Johnston
Regional Manager

cc: Geraldine Cassinelli

599020.100\CALFED Prop.doc

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I-016080

PSP Cover Sheet

Proposal Title: Restoration of Copper Creek and Newton Copper Mine
 Applicant Name: Geraldine Cassinelli
 Mailing Address: P.O. Box 6648 Tahoe City, CA 96145
 Telephone: (530) 581-2039
 Fax: (530) 583-0801
 Email: _____

Amount of funding requested: \$ 122,916.00 for 1 years.

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

- Fish Passage/Fish Screens
- Habitat Restoration
- Local Watershed Stewardship
- Water Quality
- Introduced Species
- Fish Management/Hatchery
- Environmental Education

Does the proposal address a specified Focused Action? X yes _____ no

What county or counties is the project located in? Amador

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

- Sacramento River Mainstem
- Sacramento Trib: _____
- San Joaquin River Mainstem
- San Joaquin Trib: _____
- Delta: _____
- East Side Trib: Mokelumne River
- Suisun Marsh and Bay
- North Bay/South Bay: _____
- Landscape (entire Bay-Delta watershed)
- Other: _____

Indicate the primary species which the proposal addresses (check all that apply).

- 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
- Other: California Red-Legged Frog
Western Pond Turtle
- Spring-run Chinook salmon
- Fall-run Chinook salmon
- Longfin smelt
- Steelhead trout
- Striped Bass
- All Chinook species
- All anadromous salmonids

Specify the ERP strategic objective and target(s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II.

ERP Strategic Objective, Targets and Programmatic Actions
associated with loading of contaminants in all aquatic
environments in the CALFED region (ERP, Vol. 1, 1999, p506)

CALFED Ecosystem Restoration Program Goal No. 6 associated
with water quality and toxic impacts on ecosystem organisms
(SPER, 1999, p27)

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 type="checkbox"/> Local government/district | <input checked="" 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 checked="" 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 the 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 2.4) 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.

Don Mardani Doris Mardani Gerri Cassinelli
Printed name of applicant

Don Mardani Doris Mardani Gerri Cassinelli
Signature of applicant

RESTORATION OF COPPER CREEK AND NEWTON COPPER MINE

PRIMARY CONTACT: Geraldine Cassinelli
P.O. Box 6648
Tahoe City, CA 96145
Home: (530) 581-2039
Fax: (530) 583-0801

PARTICIPANTS AND COLLABORATORS:

SHN Consulting Engineers and
Geologists Inc.
480 Hemsted Drive
Redding, CA 96002
(530) 221-5424
Fax: (530) 221-0135
Email: shn@snowerest.net

Department of Conservation
Office of Mine Reclamation
Abandoned Mined Lands Unit
801 K Street, MS09-06
Sacramento, CA 95814
(916) 323-8564
Fax: (916) 322-4862
Email: gnewton@consrv.ca.gov

Amador County RCD
42-A Summit Street
Jackson, CA 95642
(209) 223-1846
Fax: (209) 223-3758

Douglas Mondani
P.O. Box 1104
Jackson, CA 95642
(209) 610-6008

Geraldine Cassinelli
P.O. Box 6648
Tahoe City, CA 96145
Home: (530) 581-2039
Fax: (530) 583-0801

Donald Mondani
4250 Old Sacramento Rd.
Plymouth, CA 95669

TYPE OF ORGANIZATION AND TAX STATUS: Private, for profit

TAX IDENTIFICATION NUMBER:

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ATTACHMENTS

1. Letters of Support

EXECUTIVE SUMMARY

The Newton Copper Mine has been identified as a source of acid mine drainage (AMD) within the boundaries of the CALFED ERP study area. This proposed restoration project will occur in the Eastside Delta Tributary Ecological Zone on the Mokulemne River Ecological Unit. The primary biological/ecological objectives are to decrease the contaminants entering the 1130 acre Copper Creek watershed from Newton Mine and to restore the aquatic, riparian, and wetland habitats in the vicinity of the mine.

The Newton Mine is an historic copper mine discovered in 1863. The mine was heavily worked for decades until it was abandoned in 1947. It was recently determined by sample analysis that AMD was adversely impacting the water quality and aquatic life of nearby Copper Creek, which drains into Sutter Creek, a tributary to Dry Creek, which is a tributary to the Mokelumne River. Samples taken from the creek exhibited low pH levels and high concentrations of dissolved copper, cadmium, and zinc exceeding both consumptive and fresh-water aquatic life criteria. Discharge from the site has caused degradation of the ephemeral ecosystems in the vicinity of the site. The owners have insufficient funds to undertake the necessary restorative activities.

Mine restoration will use a phased approach. The initial phases of the project will consist of surface water diversion, geomorphic stabilization, and other ecologically-based processes to abate the adverse impacts of the mine drainage on Copper Creek and the surrounding habitat. Specifically, these include:

- Surface water diversion
- Shaping of tailings piles
- Restoration of Stream
- Soil amending, seeding, and planting
- Monitoring

Environmental impacts to the immediate and extended vicinities of this project area will be positive. There are no adverse impacts associated with this project that would affect third parties. Downstream users will benefit from the restorative effects that will result from the activities of this project.

Total project costs have been budgeted for each task. Detailed descriptions of the specific tasks are presented in the scope of work. Quarterly budgets and in-kind cost share estimates are also specified in their respective sections of this proposal.

This restoration project is a collaboration of effort with the current owners of the mine and SHN Consulting Engineers and Geologists in Redding, CA. The Department of Conservation, Office of Mine Reclamation (OMR), in Sacramento, CA, will serve as technical consultant.

The managing personnel from SHN in charge of the project are Ms. Wendy Johnston (Regional Manager), and Mr. John Andrews (Senior Hydrogeologist). Wendy Johnston has over 20 years of experience in resource management, hazardous waste site remediation, and restoration of mine sites.

She served as a member of the Regional Water Quality Control Board under California Governor Deukmajian and prepared the regulatory ARARS analysis for the Boulder Creek Operable Unit at Iron Mountain Mine. Most recently, she served as project manager for the Afterthought Mine investigation and restoration design in Shasta County. John Andrews has over 15 years of experience in the evaluation of hazardous material and site remediation and is a Registered Geologist in California and Nevada, and a Registered Environmental Manager in Nevada. He holds a Masters degree in Hydrogeology from the University of Arizona and is a Ph.D. candidate at the University of Nevada, Reno with a dissertation in the degradation of organic constituents. He served as the Project Manager and expert witness for cost recovery litigation at the Diamond Match Superfund site in Chico, California.

The OMR staff includes Gail Newton (Manager), and Stephen Reynolds (Associate Engineering Geologist), both of the Abandoned Mined Lands Unit (AMLU). Gail Newton has over nineteen years experience in restoration of California native habitats. The AMLU performs site inventories and designs remediation strategies for abandoned mined lands, including SUPERFUND sites. Gail was previously the Revegetation Specialist for the state, with a state-wide responsibility for reviewing revegetation plans for all mined lands. She received her undergraduate degree in Botany from U.C. Santa Barbara and her graduate degree in Biology at Humboldt State University. Stephen Reynolds is a Registered Geologist, Certified Engineering Geologist and a Certified Hydrogeologist with 20 years professional experience specializing in the areas of hydrology and environmental restoration. Mr. Reynolds has worked for the California Department of Water Resources, the California EPA, the U.S. Army Corps of Engineers, and is currently employed by the California Department of Conservation in the Office of Mine Reclamation's Abandoned Mined Lands Unit. Mr. Reynolds received a Bachelor of Science Degree in physical geology in 1979. Monitoring prior to, during and following implementation will provide the basis for evaluating the ecological benefits of the project and providing information needed to initiate adaptive management of the site. This approach will include a series of water quality analyses, the results of which will be integrated with test data previously obtained by CVRWQCB. Monitoring will also be conducted to assess slope stability and restoration of local riparian vegetation. The data evaluation approach will consist of a basic (before vs. after) comparative analysis.

Local groups and affected parties have been informed and are in support of this restorative project. Groups in support include:

- CVRWQCB
- Amador County Board of Supervisors
- Mokulemne River Watershed Group
- Amador County RCD
- Office of Congressman J.T. Doolittle

This project is in coordination with the ERP's actions addressing the reduction of input of contaminants and the restoration of aquatic, wetland, and riparian habitats. It also is compatible with CALFED non-ecosystem objectives including watershed management and water quality.

PROJECT DESCRIPTION

Proposed Scope of Work

The project includes the remediation and restoration of the Newton Copper Mine and surrounding ecosystem. The Newton Copper Mine operated as an active copper mine through 1946. Some tailings removal activities have been undertaken since that time, however the mine itself remains idle. The mine has passed from the active operators through a number of non-operating owners. The current owners wish to improve the ecological conditions at the site and reduce the impact of the mine on adjacent water quality and the surrounding wetlands ecosystem. When the California Department of Transportation rebuilt Highway 88 in the late 1960's, the Highway was widened and encroached on main workings of the mine. It is reported that mine tailings were used as base material under the highway. In addition, the Highway diverted the tributary to Copper Creek to a location abutting the mine tailings pile. It is possible that these activities have contributed to the adverse impact to the existing ecosystem in the vicinity of the mine. The proposed restoration activities will also enhance the aesthetic quality of this popular scenic highway.

The proposed project includes the initiation of a phased remedial and restoration activities to reduce the impact of the mine on the tributary of Copper Creek and the surrounding ecosystem. The phases proposed include the construction of surface water diversion structures to divert surface runoff from around the tailings, removing the tailings from the stream channel and flood plain, shaping and amending (soil building) the tailings to provide substrate for plant growth, regrading to integrate the tailings into the geomorphology and to promote proper hydrology (run-on, run-off control), and vegetating the tailings with native perennial plants. Following restoration activities the tributary will be monitored for flow, pH and metals to verify project success.

No specific sampling and analytical procedures apply to the planning and construction phases of this project. These procedures are associated with the monitoring and data collection processes. Construction methods include surface water diversion controls and tailings management, which will be completed using heavy construction equipment. The importation of soil cover will also be completed with heavy equipment. Seeding will be completed using hydroseeding and planting techniques. Materials required for revegetation are lime amendment, topsoil and seed. Equipment to be used for surface water diversion and regrading of mine tailings includes a mid sized crawler tractor, backhoe, dump trucks and hydroseeding equipment. No special facilities are required for this project.

The specific tasks for each phase of the project are included in the schedule and are listed below:

- Preparation and submittal of the Remedial/Restoration Plan Document to the agencies
- Agency Review
- Response to Agency Comments
- Permitting: CEQA Compliance, DFG 1603
- Construction
- Surface water controls

- Regrading and contouring of tailings
- Amending and soil building
- Revegetation Seeding
- Monitoring

Deliverables for the project include the Remedial Action Plan (submitted to the Regional Water Quality Control Board for approval), supplemental data report, interim progress reports, performance monitoring data reports, and a final completion report.

The principle phases of the project include: engineering and design, permitting, construction, and performance monitoring.

Engineering and Design phase will entail the following tasks:

- *Design of interim surface water controls and diversions*
- *Design of final site contours (grading plan)*
- *Supplemental sampling of waste piles to determine soil amendment application rates*
- *Selection of appropriate native plants for revegetation of waste piles and stream*
- *Design of stream restoration including:*
 - *Proper grade and profile to stream*
 - *Bankfull profile and proper sized flood plain*
 - *Proper pool and riffle frequency*

Permitting phase will entail the following tasks:

- *Obtaining necessary permits from DFG and RWQCB*
- *Verifying CEQA compliance especially with respect to historical significance*

The Construction phase entails the following tasks:

- *Removal and consolidation of tailings*
 - *Regrade to promote proper drainage*
 - *Amend residual soil with waste lime and organic matter*
- *Revegetation and Winterization of tailings and waste rock management area*
 - *Cover with temporary erosion control species*
 - *Plant with perennial native grasses and deep-rooting native perennial shrubs*
 - *Install temporary erosion control such as straw punches*
- *At a minimum the upper 2-3 feet of the tailings will be amended with lime*
 - *Application rate for waste lime will be determined during design phase*
- *Cover Amended tailings with top soil*
- *Restoration of Stream*
 - *Regrade to establish proper grade and profile to stream*
 - *Bankfull profile and proper size flood plain*
 - *Establish proper pool and riffle frequency*
- *Revegetation & Winterization of Stream Banks and Flood Plain*

- *Cover with temporary erosion control species*
- *Plant with perennial native riparian species, e.g. willows and other shade generating species*
- *Install temporary erosion control such as willow waddles*

Because of the short time frame required for the project the proponents wish to undertake all facets of the project. In lieu of the complete project any partial funding would be appreciated. The proponents will undertake portions of the project as matching fund moneys, such as the preparation of the permitting document and construction of the surface water controls. If only partial funding is available they request funding for the reshaping covering and seeding portion of the project.

Location and Geographic Boundaries

The Newton mine is an abandoned copper mine located in Amador County, six miles west of the city of Jackson, California, adjacent to Hwy. 88 (Fig. X). The mine is on property identified by Amador County APN 11-160-009 in Section 28 T6N, R10, MDB&M. The parcel consists of approximately 64 acres and is co-owned by Donald and Douglas Mondani, and Geraldine Cassinelli.

A tributary to Copper Creek originates about a half-mile northeast of Newton Mine. The tributary is intruded by a portion of the mine tailings before reaching its confluence with Copper Creek about a half-mile downstream of the mine. Copper Creek travels northwest about 1.5 miles where it joins Sutter Creek, which flows west to Dry Creek, a tributary to the Mokelumne River. The Mokelumne joins the San Joaquin River in the region of the Delta.

The Newton Mine resides in the northeast quadrant of the 1130-acre Copper Creek watershed. The mine is an identified source of AMD discharge into the tributary of Copper Creek and has adversely impacted the aquatic, riparian, and wetland habitats in the vicinity of the mine. The boundaries of this remediation and restoration project will be limited to the mine site and are shown in Figure 1.



FIGURE 1
PROJECT SITE LOCATION
NEWTON COPPER MINE
AMADOR COUNTY, CALIFORNIA

SOURCE: USGS, 1962

SCALE: 1" = 1000'

SHN 599020 APRIL 1999

SHN CONSULTING ENGINEERS & GEOLOGISTS

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ECOLOGICAL/BIOLOGICAL BENEFITS

Ecological/Biological Objectives

The primary ecological/biological objectives are to decrease the contaminants entering the Copper Creek watershed from the Newton Mine and to restore the aquatic, riparian, and wetland habitats in the vicinity of the mine. Sample test data gathered for the past three years have concluded that the mine tailings are a definite source of AMD discharge into a tributary to Copper Creek. Discharge from the site has resulted in significant degradation to the local ecosystem. Low pH, metal-laden water has directly impacted the riparian zone vegetation, decreased biodiversity, and contaminated in-stream sediments and organisms. A long-term, comprehensive plan is needed to restore the health of the local ecosystem.

The scientific hypothesis that will be evaluated through the project is that the restoration of Newton Mine will noticeably decrease heavy metal-loading to Copper Creek and result in increased aquatic, wetland, and riparian habitat values. Our proposed project will enhance and restore in-stream aquatic, shaded riverine, and seasonal wetland habitats in the Copper Creek watershed by eliminating future contamination of the water and restoring the creek. The natural processes of vegetation and stream flow will be utilized and incorporated into an ecosystem-based approach to restore and enhance the delicate balance of the natural ecosystem. The project will follow an adaptive management framework to refine the implementation, monitoring, and assessment processes.

The proposed project will be a self-sustaining, long-term solution to this 50+ year old problem. Many mine remediation projects have implemented methodologies that meet short-term needs, to the detriment of long-term sustainability (e.g., Penn Mine and Leviathan Mine). Short-term methods commonly consist of encapsulation and compaction of mine wastes which are then capped with a shallow topsoil layer and seeded with exotic annual grasses. The standard approach of entombment with an engineered liner and cap system may remediate the short-term discharge from the site, but will result in a finite life-span of the project with costly maintenance. The proposed ecosystem/geomorphic approach provides long-term sustainability and re-integration of the site into the surrounding ecosystems. The methods proposed by this project will use restoration ecology as the driving force behind the remediation engineering. The low pH materials will be removed from contact with the stream, neutralized with waste lime materials, and blended with soil amendments and topsoil to provide a growth medium that will support perennial native plant species. This general methodology has been successfully demonstrated by DOC on various mines in CA, including Spenceville (Copper Mine), Gambonini (Mercury Mine), and Sulphur Bank (Mercury Mine), thus establishing a basis for project durability and the expected benefits to Newton Mine.

The Primary stressors to the ecosystem in the vicinity of the mine are the high concentrations of dissolved metals as constituents of the acidic drainage that has and continues to degrade the Copper Creek watershed. The contaminants from the mine tailings severely decrease local water quality and cause a significant loss of aquatic, wetlands, and riparian habitat values. The elevation of these stressors will be one focus of this restorative project. A directly related focus of this project is the improved health of several riparian habitats and their respective species.

The habitats associated with the riparian areas of the Copper Creek watershed include:

- Instream aquatic
- Shaded riverine aquatic
- Seasonal wetland
- Seasonal aquatic

Several species of these habitats are designated as "Priority At-Risk" in the ERPP. Many species have been adversely impacted by the discharge from the Newton Mine. These species include:

- California Red-legged Frog
- Western Pond Turtle
- Native anuran amphibians
- Non-native warmwater gamefish
- Migratory birds

The above-named primary stressors, habitats, and species are integrated into the focus of this long-term, comprehensive plan aimed at restoring the health of the ecosystem in the vicinity of the mine. The primary benefits expected from this project will be realized as increased values to the Copper Creek watershed ecosystem. Environmental and aesthetic benefits associated with the restoration of the Newton Mine property and increased water quality for downstream users will be considered as secondary benefits.

Linkages

This project specifically addresses the ERP's Strategic Objective, Targets, and Programmatic Actions associated with the loading of contaminants in all aquatic environments in the CALFED region (ERPP, V1, 1999, p506). The common goal is the reduction of concentrations and loading of contaminants to eliminate the adverse impact to the aquatic environment. The project is also in direct accordance with CALFED Ecosystem Restoration Program Goal No. 6 which includes the maintenance of water quality to eliminate toxic impacts on ecosystem organisms (SPER, 1999, p27). These common goals will assist the overall CALFED objective to improve the quality of the Bay-Delta ecosystem via the ERP. Additionally, the restoration of Newton Mine can be used to further demonstrate appropriate long-term solutions to abandoned mine remediation in California. The Water Quality Program will need such case studies as they progress into the enormous issue of restoration of abandoned mine lands. The Newton Mine exists under Cleanup and Abatement Order No. 98-718 issued by CVRWQCB on May 20, 1998. The project is presently awaiting appropriate funding so that specific planning and implementation can be initiated.

System-Wide Ecosystem Benefits

The system-wide benefits of this project will be largely related to water quality and the demonstration of appropriate, ecosystem restoration techniques for abandoned mine remediation. The improved health of the environment that was adversely impacted by the mine will benefit the overall ecosystem of the region by enhancing the natural processes vital to the balance of the system. The positive benefits of this project in the form of an improved aquatic environment will

compliment other ecosystem restoration projects within the Copper Creek watershed.

Compatibility with Non-Ecosystem Objectives

This project provides direct benefits for CALFED objectives addressing water quality. CALFED programs associated with watershed management are also benefited by this project. Benefits to third parties will include improved water quality for downstream users and aesthetic improvements to the mine site and surrounding environment.

TECHNICAL FEASIBILITY AND TIMING

Methodologies for mine site remediation and restoration were evaluated on the basis of their ability to sustain a level of success consistent with the attainment of long-term goals shared by this project and CALFED. The standard approach of entombment with an engineered liner and cap system was evaluated using this criteria and was found to be metastable with respect to environmental conditions. The finite life span of this system would result in the need for either costly routine maintenance or very costly cyclic replacement.

The preferred long-term ecosystem approach provides the greatest stability and permanence by integrating the reclamation into the ecosystem, utilizing natural (rather than artificial) processes to abate the adverse impacts from the mine site. Processes and their associated expected benefits include:

Regrading

- Improved slope stability to eliminate mass-wasting and sedimentation and associated sedimentation problem
- Abatement of acid mine drainage (AMD) by controlling infiltration from surface water (run-on, run-off control, and final grading)

Soil Building

- Establishment of a suitable substrate for revegetation
- Restoration of natural attenuation and buffering capacity of soil system

Revegetation

- Enhanced evapotranspiration by deep-rooted native species
- Controlled infiltration by precipitation and reduction of AMD discharge
- Enhanced slope stability through moisture control and enhancing soil mass aggregation

Environmental compliance documents needed for this project to proceed include CEQA compliance (expected mitigated negative declaration), and a stream altering agreement from CDFG. Permits needed to be in place before initiating the tasks described in the Scope of Work include a COE 404 permit and a local grading permit. The above permits and agreements are currently in the process of being prepared. Delays in the procurement of these necessary documents could present constraints that could impact scheduling and/or implementability of this project. Preparations are being made to make the processing of these required compliance documents as efficient as possible.

MONITORING AND DATA COLLECTION METHODOLOGY

Ecological/Biological Objectives

The primary biological/ecological objectives are to decrease the contaminants entering the Copper Creek watershed from the Newton Mine and to restore the aquatic, riparian, and wetland habitats in the vicinity of the mine. The scientific hypothesis is that the restoration of the mine will noticeably decrease heavy-metal loading to Copper Creek and result in increased aquatic, riparian, and wetland habitat values. Similar projects completed successfully using the ecosystem approach will serve as models for the expected long-term success of this project. This approach is preferred over the standard approach of entombment with an engineered liner and cap system due to its stability and utilization of natural processes to sustain ecological/biological benefits for the long term.

Monitoring Parameters and Data Collection Approach

Monitoring and data collection will commence prior to reclamation and will continue during and after project implementation. The property owners will be responsible for the monitoring activities and will follow the guidelines set forth in SW846. Water samples will be taken from 2 locations, one upstream and one downstream of the mine site (Fig. 2). Grade and profile measurements will be taken by field technicians. Monitoring and Data Collection information are shown in Table 1. Data Collection Characteristics and Monitoring Parameters are presented in Table 2. The monitoring effort will be coordinated with the WDR adapted to the site.

Data Evaluation Approach

Grab samples will be collected and handled in accordance with SW846 and placed in cool storage (4°C). The samples will then be sent to a California State Certified Laboratory for analysis. A tabular presentation of the data will be prepared and included in an annual report. The initial set of data will be compared to previously performed analyses to confirm the level of impact from the mine. The continuing monitoring data will be used to evaluate the level of project success at periodic stages of the restoration. The approach will be a basic (before vs. after) comparative analysis.

Summary (Table 1)

The primary biological/ecological objectives are to decrease the contaminants entering the Copper Creek watershed from the Newton Mine and to restore the aquatic, riparian, and wetland habitats in the vicinity of the mine. The scientific hypothesis is that the restoration of the mine will noticeably decrease heavy-metal loading to Copper Creek and result in increased aquatic, riparian, and wetland habitat values. Data will be collected from water samples and grade profile measurements. Monitoring parameters include flow, pH, and concentrations of dissolved metals. Data will be evaluated to determine the level of success of the project.

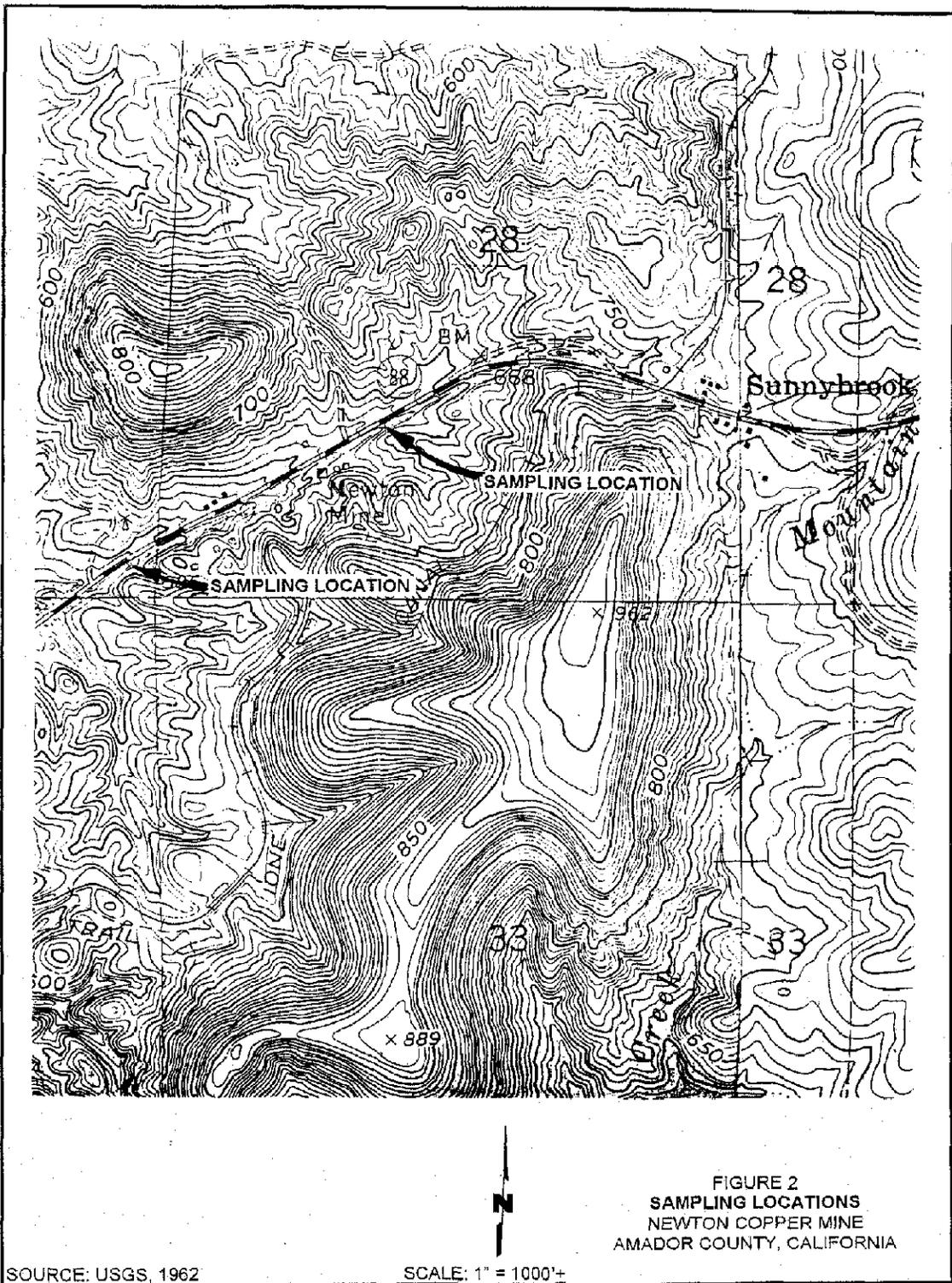


FIGURE 2
 SAMPLING LOCATIONS
 NEWTON COPPER MINE
 AMADOR COUNTY, CALIFORNIA

SOURCE: USGS, 1962

SCALE: 1" = 1000'

SHN 599020 APRIL 1999

SHN CONSULTING ENGINEERS & GEOLOGISTS

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Table 1 Monitoring and Data Collection Information			
Biological/Ecological Objectives:			
1) Decrease contaminants entering Tributary from Newton Mine			
2) Restore aquatic, riparian and wetland habitats			
Hypotheses/Questions to be Evaluated	Monitoring Parameter(s) and Data Collection Approach	Data Evaluation Approach	Comments/Data Priority
1) Restoration of mine will decrease metal-loading to Copper Creek	Water, grading profile data collected	Grab samples analyzed by Certified Lab	Data collection
2) Subsequent increased values of ecosystem will occur	Water and vegetation monitored	Evaluation to determine level of progress success	Data evaluation

Table 2 Monitoring Parameters and Data Collection Characteristics				
Medium	Parameter	Unit	Duration/Frequency of Testing	Equipment used for Testing
Water	Flow	cfs	Monthly	Field Meter
	Temperature	°C		
Water	pH	unit	Semi-Annually	State-Certified Lab
	Electrical Conductivity (EC)	µmho/cm		
	Turbidity			
	Redox Potential	mg/L		
	Copper	ug/L		
	Cadmium	ug/L		
	Iron	ug/L		
	Zinc	ug/L		
Grading	Baselines/profile		Prior to, during, and post construction	
Vegetation			Semi-Annually	

LOCAL INVOLVEMENT

The Newton Mine property owners are acting in coordination with county and local governments to maintain understanding of the proposed remediation/restoration project. Local environmental groups, conservancies, and local landowners are being notified to ensure awareness of the project and its associated impacts. Copies of Letters of Support from Congressman John T. Doolittle and the Amador County Board of Supervisors are included as Attachment 2. Organizations and groups that have been notified include:

- CVRWQCB
- Amador County Board of Supervisors
- Mokulemne River Watershed Group
- Amador County RCD
- Office of Congressman J.T. Doolittle

The plan for public outreach will include the posting of public notices to concerned parties and public meetings conducted by the Amador County Board of Supervisors and the Amador County RCD. Potential third party impacts will be positive and realized as improvements to the health and aesthetic values of the ecosystem and water quality of the Copper Creek watershed.

COST

Budget

The total budgeted costs requested from CALFED for each task listed in the Scope of Work are shown in Table 3. The budget for each task on a quarterly basis is listed in Table 4. A breakdown of the Project Management Task is presented in Table 5 and includes the specific costs associated with insuring the accomplishment of each project task.

Schedule

Table 6 shows the start/completion dates for each tasks specified in the Scope of Work. A list of other key milestones and a brief description of how payments would relate to the milestones is shown in Table 7. The proposed Scope of Work is developed to be implemented in several phases and thus would be appropriately accommodated by incremental funding.

Table 3 Total Budget								
Task	Direct Labor Hours	Direct Salary and Benefits ¹	Service Contracts	Material and Acquisition Costs	Misc. and other Direct Costs	Overhead and Indirect Costs ²	Total Cost	Matching Dollars ⁴
Planning Develop and Submit Plan	137	1,311	0	0	0	1,535	13,015	0
Surveying and Mapping	50	1,311	0	0	0	1,535	6,000	0
Plan Amendments	21	1,311	0	0	0	1,535	2,000	0
Permitting (CEQA, etc.)	53	1,311	0	0	0	1,535	5,000	0
Construction Surface Drainage	0	N/A	0	0	0	N/A	1,040	1,040
Shaping/Grading	0	N/A	2,040	0	0	N/A	22,040	20,000
Topsoil Acquisition	0	N/A	0	30,000	0	N/A	30,000	0
Lime Acquisition/Amendment	0	N/A	30,000	9,000	0	N/A	39,000	0
Seed/Plant Acquisition	0	N/A	0	5,000	0	N/A	5,000	0
Topsoil Place/Seed	0	N/A	20,000	0	0	N/A	29,940	9,940
Monitoring/Lab Services Field Time	0	N/A	600 ³ 3,076	0	0	N/A	3,676	3,076
Project Management Task	139	1,311	0	0	0	1,535	13,205	0
Totals			89,772	44,000	0		169,916	34,056
1. Raw Labor Cost * 1,311 2. Raw Labor Cost * 1,535 w/10% profit. Basis of overhead and indirect costs is March 1999 audit performed by CALTRANS for award of State contract. 3. Lab 4. See Cost Share Section Page 12 Note: All cost share dollars from mine owner with exception of DOC Survey.								

Task	Quarterly Budget Apr-Jun 99	Quarterly Budget Jul-Sept 99	Quarterly Budget Oct-Dec 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Jul-Sept 00	Total Budget¹
Develop and Submit Plan & Surveying	19,015	0	0	0	0	19,015
Plan Amendments	2,000	0	0	0	0	2,000
Permitting (CEQA, etc.)	5,000	0	0	0	0	5,000
Construction	0	127,020	0	0	0	127,020
Monitoring	0	0	300	0	300	600
Project Management Task	2,640	9,245	660	660	0	13,205
Totals	28,655	136,265	960	660	300	166,840
NOTE: FIGURES EXCLUDE MATCHING FUND AMOUNTS						

Task	Associated Cost
Inspect Construction (75 hours construction inspection)	7,125
Review Monitoring (24 hours perform analysis and review)	2,280
Project Oversight/Cost Validation (40 hours coordination and logistics)	3,800

**Table 7
Key Milestones and
Relationship to Payment**

Milestone	Expected Date of Completion	Date Payment Requested
Submittal of Plan	April 23, 1999	April 23, 1999
Agency Review	June 8, 1999	June 8, 1999
Amend Plan	July 2, 1999	July 2, 1999
Acquire Permits	July 14, 1999	July 14, 1999
Construction	August 24, 1999	August 24, 1999
Project Management Inspect Construction Review Monitoring Project Oversight	August 24, 1999 September 24, 1999 August 24, 2000	August 24, 1999 September 24, 1999 August 24, 2000
Monitoring	August 24, 2000	August 24, 2000

COST SHARING

The mine property owners can provide limited earth-moving and surface drainage control services providing equipment, fuel, operators and insurance. They will also cover most of the monthly monitoring costs for the post restoration evaluation. Estimated in-kind cost share includes:

Surface Drainage Controls	16 hrs @ \$65/hr	\$ 1,040
Earth Moving & Grading	2000 yards @ \$10/yd	\$20,000
Monthly Monitoring	50 hrs @ \$50/hr	\$ 2,500
Mileage	1800 miles @ \$.32/mile	<u>\$ 576</u>
		\$24,116

The mine owners can also assist as necessary in the earth moving, topsoil placement and grading; estimated share:

Dozer	100 hrs @ \$85/hr	\$8,500
Trucking	24 hrs @ \$60/hr	<u>\$1,440</u>
		\$9,940

Total anticipated cost share: \$34,056

DOC will provide technical consulting as necessary on the project, including consultation in design of vegetation system and soil amending.

APPLICANT QUALIFICATIONS

The primary contact for this proposal is one of the landowners, Ms Geraldine Cassinelli. She will be responsible for administering the grant. The engineering firm, SHN Consulting Engineers and Geologists, will be responsible for project management. The DOC will provide technical support and consultation. A breakdown of tasks identifying the specific individual responsibilities covering technical, administrative, and project management roles is shown in Table 8. Brief biosketches identifying individual qualifications of staff personnel are included below.

This restoration project is a collaboration of effort with the current owners of the mine and SHN Consulting Engineers and Geologists in Redding, CA, with technical consulting and assistance from the Department of Conservation, Office of Mine Reclamation (OMR), in Sacramento, CA

The managing personnel from SHN in charge of the project are Ms. Wendy Johnston (Regional Manager), and Mr. John Andrews (Senior Hydrogeologist).

Wendy Johnson has over 20 years of experience in resource management and hazardous waste site remediation. She has significant experience in remediation and restoration of mine sites. She served as a member of the Regional Water Quality Control Board under California Governor Deukmajian during the initial Iron Mountain Mine Record of Decision and prepared the regulatory ARARS analysis for the Boulder Creek Operable Unit at Iron Mountain Mine. Most recently, she served as project manager for the Afterthought Mine investigation and restoration design in Shasta County. She is an expert in regulations pertaining to water quality, hazardous waste, and Superfund site remediation. She has served as witness in Superfund cost recovery litigation and is considered an expert in CERCLA requirements and the National Contingency Plan.

John Andrews has over 15 years of experience in the evaluation of hazardous material and site remediation and is a Registered Geologist in California and Nevada, and a Registered Environmental Manager in Nevada. He holds a Masters degree in Hydrogeology from the University of Arizona and is a Ph.D. candidate at the University of Nevada, Reno with a dissertation in the degradation of organic constituents. Prior to joining the SHN team, Mr. Andrews served as Senior Hydrogeologist for CH2MHILL in Redding, California. He has performed technical review on hundreds of Hydrogeology projects and has published numerous papers on mining sites including the evaluation of water flow through fractures at the Santo Nino and Magma Copper Mines. He conducted modeling and evaluation of water flow through bedrock and mine workings for the original Record of Decision at the Iron Mountain Mine site in Redding, California. He is currently pioneering work in the degradation of organic and inorganic constituents through microbial bioremediation.

The OMR staff includes Gail Newton (Manager), and Stephen Reynolds (Associate Engineering Geologist), both of the Abandoned Mined Lands Unit (AMLU).

Gail Newton has over nineteen years experience in restoration of California native habitats. She currently manages the Abandoned Mined Lands (AML) Unit of the Office of Mine Reclamation in the California Department of Conservation, which inventories AML sites and designs

remediation strategies for abandoned mined lands, including SUPERFUND sites. She was previously the Revegetation Specialist for the state, with a state-wide responsibility for reviewing revegetation plans for all mined lands. She was principal of a consulting firm for ten years prior to entering state employment. Her firm specialized in revegetation of native habitats in Northern California. She received her undergraduate degree in Botany from U.C. Santa Barbara and her graduate degree in Biology at Humboldt State University.

Stephen Reynolds is a Registered Geologist, Certified Engineering Geologist and a Certified Hydrogeologist with 20 years professional experience specializing in the areas of hydrology and environmental restoration. Mr. Reynolds has worked for the California Department of Water Resources, the California EPA, the U.S. Army Corps of Engineers, and is currently employed by the California Department of Conservation in the Office of Mine Reclamation's Abandoned Mined Lands Unit. Mr. Reynolds received a Bachelor of Science Degree in physical geology in 1979.

**Table 8
Breakdown of
Tasks/Responsibilities**

Task	Responsible Personnel
Plan Development and Submittal	SHN (with technical consulting from DOC)
Agency Review	California Regional Water Quality Control Board and DOC
Plan Amendments	SHN
Permitting	SHN
Construction	Licensed Construction Company and Mine Owners
Construction Inspection	SHN and DOC
Monitoring	Owners (with assistance from SHN and DOC)

ATTACHMENT 1
LETTERS OF SUPPORT

JOHN T. DOOLITTLE
4TH DISTRICT, CALIFORNIA

DEPUTY WHIP

COMMITTEES:
GOVERNMENT REFORM

RESOURCES

CHAIRMAN—SUBCOMMITTEE ON
WATER AND POWER

TRANSPORTATION AND
INFRASTRUCTURE

JOINT ECONOMIC COMMITTEE



RECEIVED APR 14 1999

1528 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0504
(202) 225-2511

2130 PROFESSIONAL DRIVE, SUITE 190
ROSEVILLE, CA 95661-3738
(916) 786-5590
(800) 232-1336

Doolittle@mail.house.gov
<http://www.house.gov/doolittle>

Congress of the United States
House of Representatives

April 9, 1999

Mr. Lester Snow
Executive Director
CALFED Bay Delta Program
1416 9th Street, Suite 1155
Sacramento, CA, 95814

Dear Mr. Snow:

I am writing to request your support for a CALFED grant for a watershed restoration project outside the City of Ione in Amador County. The grant would help cover the engineering costs and watershed restoration efforts at the Newton Copper Mine site, which is adjacent to State Highway 88 on the east side of Ione.

The mine was originally established in the 1860's as a wartime source of copper and was worked several times during periods of war, until it was abandoned in 1947. The tailings and excavations are quite apparent to anyone passing from Ione to Jackson along State Highway 88. It has also been a source of pollution into the Mokelumne River Watershed.

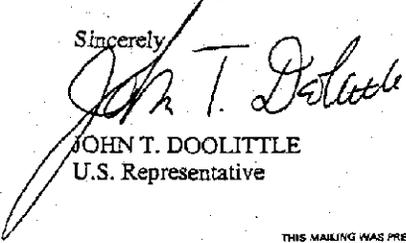
The present owners of the property – who have never operated the mine – have been ordered to restore and clean up the site by the California Regional Water Quality Control Board, Central Valley Region. The owners responded to the order by commencing studies on a clean-up. The water and soil tests are complete, and the engineering report is nearing completion. The cost of the reports and studies, along with the final clean-up and restoration work itself, have gone beyond the financial means of the property owners.

The owners, in conjunction with the State Office of Mine Reclamation, have applied to CALFED for a grant of approximately \$200,000 to complete the project and provide for monitoring operations after completion. The grant would be matched by in-kind contributions from the State Department of Conservation. The owners would provide the construction machinery and labor themselves.

Due to the close proximity of the Newton Copper Mine to the Bay Delta itself, this would be a worthy watershed restoration project for CALFED's participation. It would also serve as a model for many other abandoned mine sites throughout the Central and Southern Foothills in need of clean up and watershed restoration work. I strongly urge you to approve this grant application.

Thank you for your consideration of this important matter.

Sincerely,


JOHN T. DOOLITTLE
U.S. Representative

OFFICE OF
GENERAL SERVICES ADMINISTRATION

MAIL: 12280 Airport Road - Jackson, CA 95622 - (209) 222-4375 - FAX 222-0749 - E-MAIL - uragras@codepot.net
LOCATION: 12280 Airport Road - Marshall, CA



March 22, 1999

CALFED Bay Delta Program
1416 9th Street, Suite 1155
Sacramento, CA 95814

To Whom It May Concern:

This letter is in support of a proposal being submitted by the owners of the Newton Copper Mine site in Amador County, Mr. Douglas Mondani, Mr. Donald Mondani, and Mrs. Gerri Cassinelli. The Amador County Board of Supervisors has been and is supportive of the owners in their efforts to obtain the funding necessary for reclamation of the mine.

The Newton Mine is an old wartime copper mine which is located adjacent to State Highway 88 between the cities of Jackson and Ione. Operation of the mine began in the 1860's and was a source of copper during wartime and operations ceased in 1947. The California Regional Water Quality Board requested the water drainage through the mine site be cleaned up by the owners of the property in 1994, even though the owners had never operated the mine. The owners had consultants complete water tests and a waste characterization report and an engineering plan is currently being developed.

As a result of the reports, proposed reclamation costs were too expensive for the owners to pursue. In an effort to perform the reclamation, the owners, the Resource Conservation District (RCD) and the Conservation Department Reclamation of Abandoned Mines, are submitting a grant proposal for funding from CALFED. This grant would be for engineering and reclamation of the Newton Mine site, with the end result being achieving and/or surpassing the water goals of the State.

Much work has been performed by the owners to develop an acceptable plan. However, the high costs make it impossible for them to continue. Please give this proposal consideration and help us help you clean up the environment.

If you have any questions, please don't hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Trevor Mottishaw".

Trevor Mottishaw
Director



Amador County Resource Conservation District
42 Summit Street #A - Jackson, CA 95642

RESOLUTION 99-1
AMADOR RESOURCE CONSERVATION DISTRICT

A RESOLUTION OF THE AMADOR RESOURCE CONSERVATION DISTRICT TO ESTABLISH SUPPORT FOR THE NEWTON MINE.

WHEREAS, Resolution 99-1 of the Amador Resource Conservation district, adopted by the Board of Directors on Monday, April 12, 1999, hereby supports the reclamation of the Newton Mine, and,

WHEREAS, the Newton Mine has been historically documented of releasing contaminants into the upper watershed of the Bay-Delta, and,

WHEREAS, The Newton Mine has been operated by various companies and government institutions before becoming property of the Mondani family, and,

WHEREAS, the current owners are submitting an application for reclamation work under the Califed Bay-Delta Ecosystem Restoration Program, and,

NOW, THEREFORE, BE IT RESOLVED, that the Amador Resource Conservation District hereby fully supports the grant application to accomplish the work needed to reclaim the Newton Mine and improve water quality standards within the Mokelumne River watershed.

I hereby certify that the above is a true and correct copy of Resolution of 99-1, adopted on the motion of Director Jerauld, seconded by Director Cannon, and duly passed at a special meeting held by the Board of Directors at 7pm on Monday, April 12, 1999, at 42A Summit Street, Jackson, California.

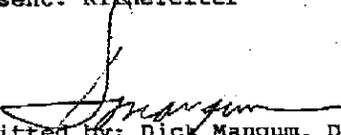
Roll call was as follows:

Ayes: Jerauld, Arnold, Cannon, Mangum

Noes:

Abstain:

Absent: Klonefelter


Submitted by: Dick Mangum, District President