

i. Proposal number:# 2001-F-207*

ii. Short proposal title .# Mercury removal from groundwater using PRBs*

APPLICABILITY TO CALFED ERP GOALS AND IMPLEMENTATION PLAN

1a1. Link to ERP Strategic Goals: What Strategic Goal(s) is /are addressed by this proposal? List the letter(s) of all that apply.

- A. At-risk species**
- B. Rehabilitate natural processes**
- C. Maintain harvested species**
- D. Protect-restore functional habitats**
- E. Prevent non-native species and reduce impacts**
- F. Improve and maintain water quality# D, C, F***

1a2. Describe the degree to which the proposal will contribute to the relevant goal. Quantify your assessment and identify the contribution to ERP targets, when possible .# ERP Goal D - The proposal will provide a successful technology to remove Hg from groundwater. The general goal of removal/reduction of Hg to the Putah Creek/Sacramento River system is important and consistent with this CALFED goal. However, without data to quantify the magnitude and contribution of the Hg in groundwater, numerous uncertainties with this proposal remain. Therefore it difficult to find a strong link to this goal at this time.

ERP Goal C - If bench-scale tests determine the technology can be applied to the site then there is a potential for a Hg load reduction to Putah Creek, Yolo Bypass, and Sacramento River and the Delta from the Knoxville Mine Site. The impact of a small reduction in Hg load to the system is unknown, but may be beneficial to harvested species that have been impacted by bioaccumulation of MeHg. The degree to which this proposal contributes to this goal is somewhat significant.

ERP Goal F - The contribution to this goal from this study is somewhat significant. See above discussion for details.

The proposal is directly linked ERPP Target #24 (Restore/maintain water quality in Putah Creek Watershed).*

1b. Objectives: What Strategic Objective(s) is/are addressed by this proposal? List Objective (from the table of 32 objectives) and describe potential contribution to ERP Goals. Quantify your assessment, when possible .# ERP Goal F, Objective 1 (Reduce loadings and toxic contaminants...)

The degree that the proposal addresses this objective is considered somewhat significant. The basis for this is that the Hg load from groundwater has not been assessed. At this time it is assumed that surface water and sediments contribute to most of the Hg load. The proposal did not estimate or quantify the Hg contribution to Putah Creek surface water from contaminants in groundwater from the Knoxville Mine Site.*

1c. Restoration Actions: Does the proposal address a Restoration Action identified in Section 3.5 of the PSP? Identify the action and describe how

well the proposed action relates to the identified Restoration Action.# The proposal addresses RA #6 (Contaminants in Central Valley). Specifically the proposal addresses the need for bench scale testing on corrective measures to remove mercury or trace metals at their sources. The degree to which this proposal addresses RA #6 is considered significant.*

1d. Stage 1 Actions: Is the proposal linked directly, indirectly or not linked to proposed

Stage 1 Actions? If linked, describe how the proposal will contribute to ERP actions during

Stage 1.# Ecosystem Restoration State 1 Action #8 (Complete targeted research on 12 uncertainties). This State 1 Action is indirectly linked.

Environmental Water Quality State 1 Action 4 (Mercury evaluation and abatement work in Sacramento River) and State 1 Action #6 (Trace metals and remediation of mine sites). The proposal is directly linked to both Stage 1 Actions. The proposal will contribute to the Stage 1 Actions by performing bench-scale testing on a treatment technology designed to remove Hg and other trace metals from groundwater. The testing will determine the feasibility of using the PRB technology to cleanup groundwater at mine sites. The degree to which the proposal is linked to the Stage 1 Actions is considered moderate.*

1e. MSCS: Describe how the proposal is linked to the Multi-Species Conservation Strategy and if it's consistent with the MSCS Conservation measures. Identify the species addressed and whether the proposal will

"recover", "contribute to recovery" or "maintain" each species.# The proposal is not directly relevant to the MSCS; it's only relevance would be the gross assumption that any incremental reduction in Hg load to the system is beneficial to the ecosystem. *

1f. Information Richness/Adaptive Probing related to the proposal: Describe the degree to which the proposal provides information to resolve one of the 12 scientific uncertainties (Section 3.3 of the PSP), and whether the proposal offers a prudent approach to answer these uncertainties.#

The proposal provides information related to scientific uncertainty in #11 (Contaminants in Central Valley). The degree to which the proposal contributes to this needed information is ranked as somewhat significant.*

1g. Summarize comments from section 1a through 1f related to applicability to CALFED goals and priorities. Identify the strengths and weaknesses of the proposal, highlighting the applicability of the proposed project to CALFED and CVPIA goals and priorities. Focus on aspects of the proposal that may be important to later stages in the project review and selection process.#

The study does not present adequate justification or need for the development of a groundwater treatment technology. The current emphasis on research and source identification has been in surface water largely because of the close relationship between Hg and sediment/particulate transport. The proposal should have included more detail on the importance and magnitude of Hg in the site groundwater (e.g. extent of the plume, estimated mass of Hg in groundwater at the site). The proposal also did not discuss what is

currently know about the hydraulic connection of site ground water to surface water. The conceptual model was somewhat weak in that it did not provide the above linkages.

Proposal would have been strengthened if letters of support from the Sacramento River Watershed Project/Delta Tributaries Mercury Counsel were included. A discussion of any links to their goals and objectives would also have been useful.

If the scope of the study was to investigate/assess the groundwater load to surface water, the project could be more supportable.

Study does not discuss the likelihood of both anthropogenic and non-anthropogenic sources of Hg in groundwater for the area and how they would be evaluated in the study.*

APPLICABILITY TO CVPIA PRIORITIES

1i. Describe the expected contribution to natural production of anadromous fish. Specifically identify the species and races of anadromous fish that are expected to benefit from the project, the expected magnitude of the contribution to natural production for each species and race of anadromous fish, the certainty of the expected benefits, and the immediacy and duration of the expected contribution. Provide quantitative support where available (for example, expected increases in population indices, cohort replacement rates, or reductions in mortality rates).# No anadromous fish are expected to benefit from the project.*

1j. List the threatened or endangered species that are expected to benefit from the project. Specifically identify the status of the species and races of anadromous fish that are expected to benefit from the project, any other special-status species that are expected to benefit, and the ecological community or multiple-species benefits that are expected to occur as a result of implementing the project.# No listed species would directly benefit from the project. The research

will investigate in-situ removal techniques of mercury from Putah Creek watershed. If effective, and applied on a larger scale, this project could have potential future benefits in the Bay-Delta ecosystem that could have unspecified benefit to anadromous fish. Although the proposal does not indicate this linkage. This project has a linkage to Central Valley-wide Action 3 of the Revised Draft Restoration Plan which is focused on actions to remove toxic chemicals and trace element contamination.*

1k. Identify if and describe how the project protects and restores natural channel and riparian habitat values. Specifically address whether the project protects and restores natural channel and riparian habitat values, whether the project promotes natural processes, and the immediacy and

duration of benefits to natural channel and riparian habitat values.# The project has no effect on natural channel and

riparian habitat values, and speculatively could improve natural chemical processes through reduced levels of mercury contamination if the research is successful in developing an effective applied technology.*

1l. Identify if and how the project contributes to efforts to modify CVP operations. Identify the effort(s) to modify CVP operations to which the proposed project would contribute, if applicable. Efforts to modify CVP operations include modifications to provide flows of suitable quality, quantity, and timing to protect all life stages of anadromous fish as directed by Section 3406 (b)(1)(B) of the CVPIA, including flows provided through management of water dedicated under Section 3406(b)(2) and water acquired pursuant to Section 3406(b)(3).# There is some potential to improve water quality of CVP water supplies (export water of delta) through results of this research project.*

1m. Identify if and how the project contributes to implementation of the supporting measures in the CVPIA. Identify the supporting measure(s) to which the proposed project would contribute, if applicable. Supporting measures include the Water Acquisition Program, the Comprehensive Assessment and Monitoring Program, the Anadromous Fish Screen Program, and others.#The project does not contribute to implementing the supportive measures in CVPIA.*

1n. Summarize comments from section 1i through 1m related to applicability to CVPIA priorities (if applicable, identify the CVPIA program appropriate to consider as the source of CVPIA funding [for example, the Anadromous Fish Restoration Program, Habitat Restoration Program, Water Acquisition Program, Tracy Pumping Plant Mitigation Program, Clear Creek Restoration Program, Comprehensive Assessment and Monitoring Program, and Anadromous Fish Screen Program]). Identify the strengths and weaknesses of the proposal, highlighting the applicability of the proposed project to CALFED and CVPIA goals and priorities. Focus on aspects of the proposal that may be important to later stages in the project review and selection process.# Project has potential to improve water quality in the Putah Creek Watershed (a delta tributary) and thus have some indirect benefits to anadromous fish and other aquatic species. But the time frame and certainty of this benefit is dependent on the results of the research and how effectively a remediation approach could be applied on a larger scale. This proposed research does have a linkage to Central Valley-wide Action 3 in the Revised Draft Restoration Plan for the AFRP*

RELATIONSHIP TO OTHER ECOSYSTEM RESTORATION PROJECTS

2a. Did the applicant explain how the proposed project relates to other past and future ecosystem restoration projects, as required on page 57 in the PSP? Type in yes or no.#yes*

2b. Based on the information presented in the proposal and on other information on restoration projects available to CALFED and CVPIA staff, describe how the proposed project complements other ecosystem restoration projects, including CALFED and CVPIA. Identify projects or types of projects that the proposed project would complement, now or in the future. Identify source of information.#

Project is designed to test a groundwater mercury removal method (permeable reactive barriers) at a mine site which contributes mercury to the Putah Creek Watershed, which drains into the Yolo Basin. Preliminary lab tests indicate a potential for mercury removal. Complements projects researching mercury levels in the Sacramento and related watersheds (97C05, 99B06). Information source: Proposal, CALFED tracking table.*

RESULTS AND PROGRESS ON PREVIOUSLY FUNDED CALFED AND CVPIA PROJECTS, INCLUDING REQUESTS FOR NEXT-PHASE FUNDING

3a1. Based on the information presented in the proposal and on project reports and data available to CALFED and CVPIA staff, has the applicant previously received CALFED or CVPIA funding? Type CALFED, CVPIA, both, or none.#none*

3a2. If the answer is yes, list the project number(s), project name(s) and whether CALFED or CVPIA funding. If the answer is none, move on to item 4.#

If the answer is no, move on to item 4.*

3b1. Based on the information presented in the proposal and on project reports available to CALFED and CVPIA staff, did the applicant accurately state the current status of the project(s) and the progress and accomplishments of the project(s) to date? Type yes or no.#*

3b2. If the answer is no, identify the inaccuracies:#

3c1. Has the progress to date been satisfactory? Type yes or no.#*

3c2. Please provide detailed comments in support of your answer, including source of information (proposal or other source):#

REQUESTS FOR NEXT-PHASE FUNDING

3d1. Is the applicant requesting next-phase funding? Type yes or no.#no*

3d2. If the answer is yes, list previous-phase project number(s) here. If the answer is no, move on to item 4.#*

3e1. Does the proposal contain a 2-page summary, as required on pages 57 and 58 of the PSP? Type yes or no.#*

3e2. Based on the information presented in the summary and on project reports available to CALFED and CVPIA staff, is the project ready for next-phase funding? Type yes or no.#*

3e3. Please provide detailed comments in support of your answers, including source of information (proposal or other source):#*

LOCAL INVOLVEMENT

4a. Does the proposal describe a plan for public outreach, as required on page 61 of the PSP? Type yes or no.# No.*

4b. Based on the information in the proposal, highlight outstanding issues related to support or opposition for the project by local entities including watershed groups and local governments, and the expected magnitude of any potential third-party impacts.# There has been technical support for the project by several scientists.*

ENVIRONMENTAL COMPLIANCE

4d. List any potential environmental compliance or access issues as identified in the PSP checklists.# May have to comply with city and or local ordinances for building the shed. The monitoring does not require environmental compliance. They will need NPDES/404 permit if they plan to discharge contaminated water.*

4e. Specifically highlight and comment on any regulatory issues listed above that may prevent the project from meeting the projected timeline.# The project proponent does not list any local permits. If they are building a new shed with electricity they will need a building or other city permit.*

COST

5a. Does the proposal include a detailed budget for each year of requested support? Type yes or no.# yes*

5b. Does the proposal include a detailed budget for each task identified? Type yes or no.# yes*

5c. Is the overhead clearly identified? Type yes or no.# yes*

5d. Are project management costs clearly identified? Type yes or no.# yes*

5e. Please provide detailed comments in support of your answers to questions 5a - 5d.# All information requested has been provided by project proponent in a clear, concise, and understandable format.*

COST SHARING

6a. Does the proposal contain cost-sharing? Type yes or no.# yes*

6b. Are applicants specifically requesting either state or federal cost share dollars? Type state, federal, or doesn't matter.# Desn't matter*

6c. List cost share given in proposal and note whether listed cost share is identified (in hand) or proposed.

6c1. In-kind:# yes-\$16,500*

6c2. Matching funds:# n/a*

6c3. Show percentage that cost sharing is of total amount of funding

requested along with calculation.# 8%. \$16,500 divided by \$208,235.*

6d. Please provide detailed comments in support of your answers to questions

6a - 6c3.# n/a*