

Panel Scientific and Technical Review
(Note: Review comments will be anonymous, but public.)

Proposal number: 2001-F217

Short Proposal Title: Ag Drainage Se treatment

1a) Are the objectives and hypotheses clearly stated?

Summary of Reviewers comments:

The reviewers differed somewhat. One thought they were clearly stated. Another thought that no hypotheses were explicitly formulated or listed in the proposal, with the implied hypothesis that the selenium removal rates associated with a 20,000 gallon/day demonstration facility (>80%) will also apply to a scaled-up 1.5 million gallon/day facility.

Panel Summary:

The objective is clearly stated, but not stated as a testable hypothesis. The proposal makes clear that the objective is to expand the Se treatment process.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?

Summary of Reviewers comments:

Reviewer 1: The ABSR process is adequately described and the technical and policy setting for the project is given.

Reviewer 2: The conceptual model for Se treatment closely follows the conceptual model for a demonstration treatment facility previously funded. No conceptual model is presented to indicate how the economic evaluations of the proposed treatment facility are going to be conducted. No conceptual model is presented to support how the objective of demonstrating reduced bioaccumulation potential is going to be achieved.

Panel Summary:

The underlying basis is clear, but not model.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?

Summary of Reviewers comments:

The approach appears to be well designed.

Again, a mixed response. The approach seems well supported and appropriate for meeting the Se removal objective (but may not be the most appropriate, see below). Uncertainties regarding how well the performance parameters for a pilot-scale demonstration project can be expected to apply once the project is scaled-up 75-fold, as is being proposed, received scant attention (One sentence about having to re-calculate surface-volume ratios??).

Panel Summary:

The approach is well designed. The applicants now have ability to conduct control experiments, where in the past they have not.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?

Summary of Reviewers comments:

The project is justified as a full scale implementation project. The full-scale implementation project is based upon a pilot scale project successfully demonstrated by the project proponents.

Panel Summary:

Yes, this is a justifiable full scale implementation project.

1c2) Is the project likely to generate information that can be used to inform future decision making?

Summary of Reviewers comments:

Just as the pilot scale project provided useful information for the design of this full-scale implementation project, information obtained during the three-year study period of this project will provide useful information for expanded selenium treatment facilities.

Panel Summary:

This proposal will provide useful info for Se removable, but falls short of comparing to other types of methods that would also work well. Three approaches have been used in the past, but what needs to be done is an evaluation of these approaches to evaluate the problem (an integrated design) and best solutions for various locations. The proposed treatment relies on flow, not concentration. It will solve the problem at this site, but may not be applicable to all sites where Se is less concentrated.

Other limitations identified by the panel include: possible limits on the amount of Se removal per day and the wildlife considerations in the pond systems.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?

Summary of Reviewers comments:

There should be sufficient monitoring information to assess the outcome of the project as well as the intermediate successes and/or problems. There is, however, no explicit mention of flow measurement in the performance monitoring tasks. This task should include daily measurement of flow for the influent, effluent, and any possible losses, such as evaporation, from the treatment facility. Essentially, no monitoring or information assessment plans were presented in this proposal

with regard to evaluating the economic parameters of the project or the bioaccumulation segment of the project.

Panel Summary:

Yes, but not apparent here is the need to measure daily flow. This may be obvious but important to mention.

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?

Summary of Reviewers comments:

One reviewers felt it was adequately described, another felt the specifics of data collection were largely absent.

Panel Summary:

Adequately described, but more detail would be useful. Averaging period is critical (express as daily or monthly averages). Don't mention enough details on task 4.2 methodology (bioaccum. and monitoring). Some concerns about BIOLOG assay and the relevancy to this approach. Look at technical review comments on proposal 201 (which also uses BIOLOG) to confirm.

3) Is the proposed work likely to be technically feasible?

Summary of Reviewers comments:

Yes, barring unforeseen problems of scale. However, there is not enough information provided with regard to the bioaccumulation monitoring via caged organisms to allow assessment of its technical feasibility.

Panel Summary:

The believed the project was technically feasible.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?

Summary of Reviewers comments:

Reviewer 1: The same team that developed and managed the pilot scale ABSR will be developing and managing the proposed project. This team has the qualifications needed to implement the proposed project.

Reviewer 2: It is not clear who the project team is. It is stated that "possibly" the U.C. Berkeley research group that was affiliated with the demonstration project would conduct the basic monitoring and data collection tasks.

Panel Summary:

The same team is presumably managing the pilot scale project, so yes.

5)Other comments

One reviewer rated the proposal “VERY GOOD”, but had comments on the need to consider applicability of the project to Se loads from the entire GBP drainage area.

The other reviewer summarized the general outline for the project as promising. Implementation of the treatment processes deserves priority attention, but this proposal is missing too much methodological detail and is lacking too much documentation for statements of fact to be rated any higher than a “Good “ proposal on scientific merit. A good example of the scientific shortcomings of this proposal is the total absence in the proposal text of most of the literature citations listed in the Literature Cited section of the proposal.

Before funding any full scale Se treatment project, all options should be compared and evaluated by the Se workgroup. More information is needed before full scale implementation should be funded. Applicants are under waste discharge requirements, so is it appropriate for CALFED to fund?

This approach may have limited impact on bigger Se issue, the approach may not be useful in all instances.

Overall Evaluation PANEL SUMMARY COMMENTS

Technically, this proposal is very good, but implementation is premature. The technical approach provided for this process is appropriate, but the panel understands that there are two other processes currently under evaluation for Se treatment/reduction, that this method should be compared against. There are concerns about the efficiencies and risks involved and these need to be considered.

Summary Rating

- Excellent
- Very Good
- Good
- Fair
- Poor

Your Rating: GOOD