Draft Individual Review Form

Proposal number:_2001-F200-3____ Short Proposal Title: Transformations of Se and C in the Delta

1a) Are the objectives and hypotheses clearly stated?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The objectives are not clearly stated. An apparent hypothesis is that CAL FED restoration alternatives will markedly change inflows to the Delta from the SJR and thus the loading of Se to the Delta and San Francisco Bay. No basis for such a hypothesis is presented. Rather, it seems likely from past experience that loadings and concentrations of Se derived from the SJR will either remain virtually unchanged in the future or actually decrease. While we may learn more about the fate of Se and C and the system's hydrodynamics in this project, it is unclear how this knowledge will affect CAL FED alternatives at the scales being considered.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The conceptual model provides a general description of the problem, but it fails to recognize the dynamics of Se and C transformations in relation to the hydrodynamics of the Delta under highly variable hydrologic and water quality boindary conditions. The rates of chemical and biochemical transformations differ greatly from the hydrodynamics of tidally driven flows in Delta channels.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The approach is strongly oriented toward extension of DELTA-TRIM to the entire Delta channel system, on the grounds that it has been calibrated and verified for the northern portion of the system including the open shallow water embayments of Suisun and Grizzly Bay. The model may be unsuitable for modeling the complex system of channels of the Central and South Delta, in part because of the need to approximate such irregular boundaries with high resolution rectangular grids. Other models, already operational for the Delta, may better address the important hydraulic and water quality concerns of the Delta.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Two of the special study sites proposed, Mildred Island and Frank's Tract, are shallow water bodies that can be well characterized hydrodynamically using the 2D finite difference modeling approach. Three-Mile Slough, on the other hand, presents special difficulties because of the highly variable mass fluxes between the Sacramento and San Joaquin channels. It would be a good test for the model, especially with the instrumentation proposed to be deployed, but may be of less value to description of the fate of Se between the two river because of the unstable nature of flows through this part of the Delta channel system.

1c2) Is the project likely to generate information that can be used to inform future decision making?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Information generated by the project is likely to be of most value to scientists concerned with Se, and other reactive constituents, but of questionable value to decision makers. Cal FED options for reallocation of flows within the Delta are unlikely to significantly affect the loadings of Se that arise in the San Joaquin Basin upstream of Vernalis.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Proposed monitoring would add much useful information to the overall Delta data base, but the great uncertainty in spatial and temporal changes in water quality within the Delta and at its boundaries, may well preclude quantitative, explicit assessments of the performance of the system during the three-year project period. Hydrologic variability alone may well limit the utility of the information base. SJR runoff during the irrigation season, for example, has varied by nearly an order of magnitude during the past decade.

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Excellent technology for data acquisition, management and analysis is available and would be implemented in the project. An exception relates to data for the hydrodynamic model DELTA-TRIM. While the model is an excellent tool for simulation of shallow embayments where the bathyrnetry is well defined, it is less well suited to simulation of meandering channel systems like those of the middle and southern Delta which are highly variable in cross-sectional configuration.

3) Is the proposed work likely to be technically feasible?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

It is likely that the work proposed is technically feasible and that the expertise to carry out the work would be available. This is not to presume that the proposal fully addresses the important issues of CAL FED.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The proposal team is made up of qualified individuals, experts in their respective fields. Some are new to the team approach. A major concern is the geographic separation of components of the proposed team: California, New York and Virginia, a factor that may compromise efficient performance. One might ask, "Why is it necessary to have researchers at SUNY and ODU, with more than $900K of the total budget assigned to them, as partners in this project?"

Miscellaneous comments
[Note: in the electronic version, this will be an expandable field]

1. It should be appreciated that despite being the constituent of primary concern Se is a poor tracer of water movement, due to its speciation, reactivity, sorption, and bio-uptake. In modeling it may be preferable to use a conservative, non-reactive tracer like chloride or a non-reactive dye.

2. Budget sheets attached to the proposal contain many numerical errors.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
☐ Excellent ☐ Very Good X Good ☐ Fair ☐ Poor	[Note: in the electronic version, this will be an expandable field] The proposed project would enhance scientific understanding of factors determining the fates of Se and C in an estuarine environment. Also, it could add significantly to hydrodynamic and water quality characterization of the Delta system under some special hydrological, hydrodynamic and operational conditions. However, it appears unlikely to this reviewer that these factors could be resolved to a degree that would significantly affect decisions on water management in the Delta.