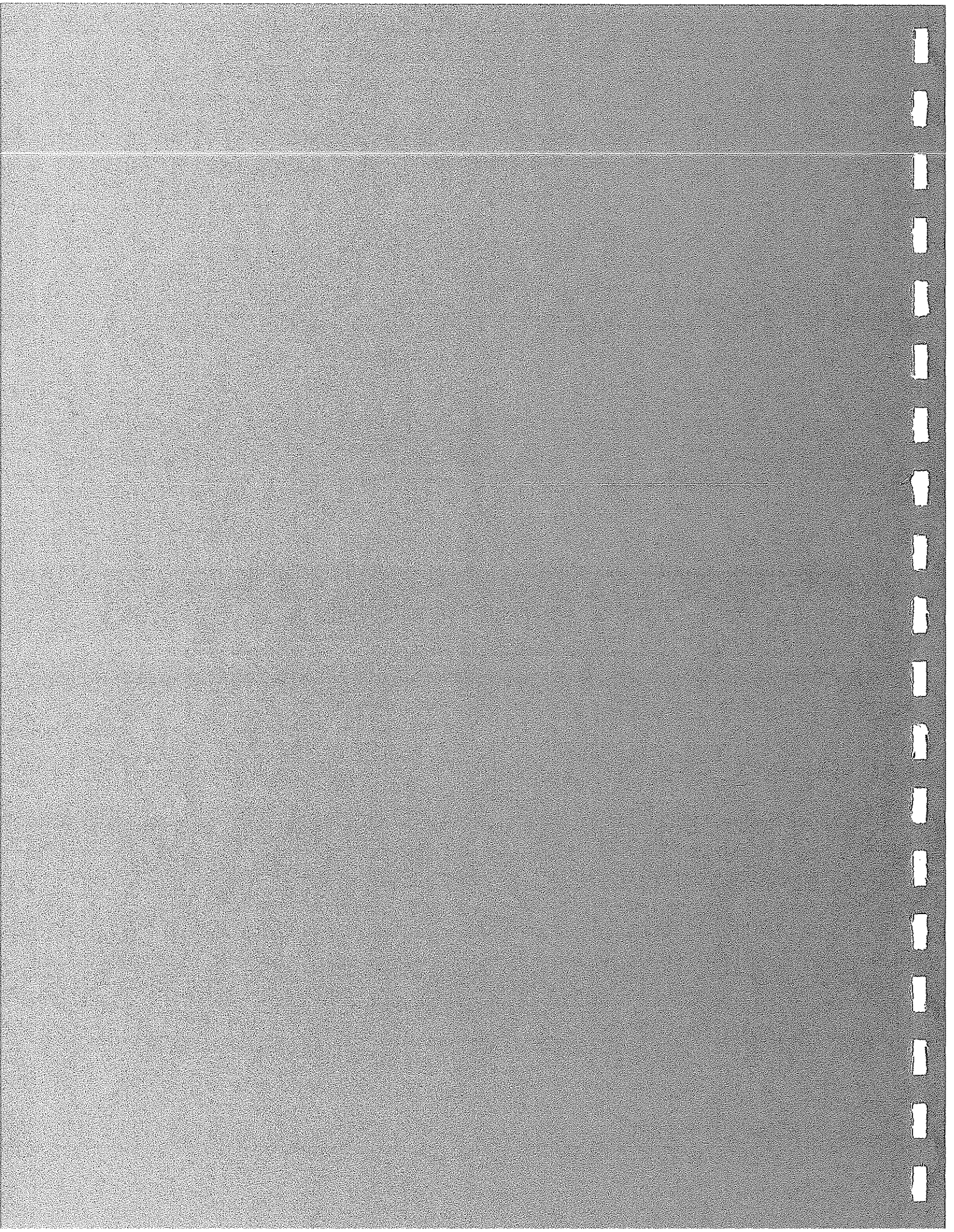


CHAPTER 4.0 RESPONSE TO COMMENTS



SUMMARY MINUTES FROM PUBLIC HEARING ON DRAFT EIR FOR THE **OFF-CHANNEL MINING PLAN (OCMP) PROGRAM-LEVEL ENVIRONMENTAL IMPACT REPORT (EIR)** HELD APRIL 17, 1996

The item was introduced by Chair Jim Grey. The staff explained the purpose was to provide a second workshop on the Draft OCMP and to receive oral comments from the public regarding the adequacy of the Draft EIR.

The audience was informed that summary minutes would be prepared. Those wanting their comments verbatim in the record were informed to submit them in writing by the comment closure date of May 11, 1996.

The staff provided an overview of the Draft OCMP and the **EIR** consultants provided an overview of the main conclusions of the Draft EIR.

The hearing was opened to comments from the audience.

Lois Linford, League of Women Voters of Woodland: The OCMP is a huge plan with huge significance. Off-channel resources are not renewable. Will the County be an importer after 50 years? We should go slower.

Impacts to agriculture are significant. Will land be assessed at Williamson Act levels? The staff responded that it would not.

Regarding traffic impacts, will citizens be safe? The Supervisors are being far-sighted to look at the Conoway Ranch. They should be equally **concerned** about water **quality** here. The Creek is impaired.

What does **"non-detect"** mean? The staff responded that it meant the sample was either at "0", or below the detection threshold.

The commentor read a quote from the **DEIR** in support of the environmentally superior alternative.

A personal comment -- it is ironic that Henry can not comment on the documents, but **the** Scalmanini report was hired by the applicants.

Avery Tindell, Rumsey: Due to the limited time to read the documents, he offered general observations. Several of them attended a Mines and Geology Board meeting yesterday. This morning there was a favorable report on Hornestake Mine. These are good examples of why there should be a public member on the TAC.

The requirements for the TAC should be amended to include a public member. The technicians don't know anything outside their field -- this is the public perception.

Has the staff looked at whether mining below the thalweg could occur under the proposed CCRMP? The Chair directed the commentor to focus on the OCMP. Questions about the CCRMP are not appropriate at this meeting.

What about the **question** of liability? If anyone "touches" the stream they become legally liable.

1-2

The County is trying to induce the miners to help within the creek by going off-creek. The miners are absolved of responsibility unless you can absolutely prove their effect.

The Scalmanini report is a conflict of interest.

Percy Haugen: Why was this plan initiated? The staff responded that it was at the Board's direction. Did private enterprise initiate this with their interest in expanded mining. The staff responded that this was a **part** of the reason.

1-3

Gretchen Seterus: What about water quantity. Everything is about water quality. Creating large areas of open pit mines sinking into the aquifer could only draw water up to the surface and lose more to evaporation. Commissioner Grey indicated that the **DEIR** does address water quantity issues.

Commissioner Walker indicated that as a rule of thumb, evaporation accounts for one inch of water a week, on average, over a water body.

1-4

Commissioner Lang asked whether the March 1995 flooding on Cache Creek was a 15 year event. Staff indicated their understanding that it was considered a 50-year event, though they had heard some informal discussions that classification as a 15-year event could result from reinterpretation of the baseline data. This is just a rumor.

The public hearing was closed.

Commissioner Lang asked about the size of the materials used to backfill the pits. The EIR consultant responded that sand and silt would be used. The make-up **would** then be similar to the best soils in the area.

Jim George of the Farm Bureau asked a follow-up to Commissioner Lang's question. Can we assume others have similar material and how do we ensure that the material is not impervious. The EIR consultant responded that there is some variability in the percentage of fines, but it is generally 10 to 12 percent. The reason these aggregates are valuable is that there is not a lot of fine material. The backfill material is representative of overall conditions.

1-5

Commissioner Lang asked whether the miners would have to "deep rip" the soils. The EIR consultant responded that the OCMP does require that and the EIR supports it.

Commissioner Lang indicated that the 1,400 acres **returned** to agricultural uses would be better ground than normal.

Commissioner Walker asked what production index could be assigned to the reclaimed soils. The EIR consultant indicated that that depends on what you start with. You will get uniformity, Class 2 at least.



Commissioner Lea indicated that there was no point in restating her issues. Commissioner Heringer had no comments. Commissioner Grey concurred with Lois Linford that timing and staging of the road repair and impacts are important.

1-5

The hearing was concluded.

C:\WP51\HEIDRYOLO\OCMPDEIR.MIN

LETTER 1: MINUTES FROM PUBLIC HEARING ON THE DEIR

Response to Speaker 1-1, Lois Linford, League of Women Voters of Woodland:

As discussed on page 3-10 of the DEIR, additional reserves would be available for development once the mining applications processed under the OCMP are completed. Those areas within the mineral resource zones that do not have the SG or AGR overlay would be conserved for mining beyond the year 2047 or perpetuity.

The DEIR identifies five impacts to agriculture in Section 4.5. One is identified as less than significant, three as significant but mitigable, and two as significant and unavoidable.

The Transportation and Circulation section of the DEIR (Section 4.8) considers the safety impacts of the project in detail. Traffic safety was evaluated by reviewing accident data to identify frequent accident locations, and the physical characteristics of the roadway system to locate current deficiencies (e.g., deteriorated pavement, sharp curves and narrow bridges) that could cause safety concerns. The safety of pedestrians, bicyclists and school bus traffic was also analyzed. Impacts 4.8-5 through 4.8-16 relate to potential safety hazards, and each is mitigated by Measure 4.8-2a and 4.8-3a. The commentor is also referred to the extensive discussion of potential impacts to water quality, starting on Page 4.4-30 of the DEIR.

Staff responded to other comments during the public hearing as noted in the summary minutes, and no further response is necessary.

Response to Speaker 1-2, Avery Tindell:

The meeting of a subcommittee of the Mines and Geology Board, to which the commentor refers was regarding the CCRMP. The OCMP does not propose a Technical Advisory Committee (TAC). The TAC proposed in the CCRMP includes three scientists and one county staff member. No change in this composition is proposed at this time. No maintenance mining below the thalweg is proposed in the CCRMP. This issue is not relevant to the OCMP DEIR.

Response to Speaker 1-3, Percy Haugen:

Staff responded to the comment during the public hearing as noted in the summary minutes. No further response is necessary.

Response to Speaker 1-4, Gretchen Ceteras:

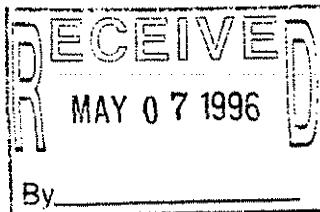
With regard to the questions regarding water, the commentor is referred to discussions regarding groundwater quantity (flow and groundwater levels) and evapotranspiration on pages 4.4-23 and 4.4-52 of the DEIR, respectively. Staff also responded to the comments

during the public hearing as noted in the summary minutes, and no further response is necessary.

Response to post-public hearing Commissioner's Comments 1-5:

Staff responses follow the comments raised during the public hearing, and no further response is necessary.

DEPARTMENT OF CONSERVATION
STATE MINING AND GEOLOGY BOARD
801 K Street, MS 24-05
Sacramento, California 95814-3528



TELEPHONE: (916) 322-1082
TDD UNE: (916) 324-2555

DeWayne Holmdahl, Chairman
Julie Mann, Vice Chairwoman
Sands Figuers
Alvin Franks
Bob Grunwald
Raymond Krauss
Robert Munm
Sheila M. Murphy
Lee Thibadeau

May 3, 1996

David Morrison
Resource Management Coordinator
Community Development Agency
Yolo County
292 West Beamer Street
Woodland, California 95695

Re: **Preliminary Review of Draft Yolo County Ordinances Concerning Cache Creek**

Dear Mr. Morrison:

A preliminary review of the **Yolo** County Surface Mining Reclamation Ordinance (Chapters 4 and 5 of Title 10 of the **Yolo** County Code) has been completed. In general, the Ordinance appears quite thorough and well thought out. You and your staff certainly have worked long and hard on this **document**.

As you know, in-stream mining (principally Cache Creek) was not addressed in Chapters 4 & 5. In order for the Ordinance to meet full compliance with SMARA, any in-stream mining operations need to be addressed. This topic was touched upon during the public meeting of the State Mining & Geology Board's (SMGB) Mining Reclamation Standards Committee on April 16th in which Ms. Heidi Tschudin of your staff gave an excellent presentation. It was the Committee's opinion that the proposed in-stream operations under the CCRMP would be subject to SMARA. In that light, the County's proposed Ordinance should address in-stream mining operations.

2-1

It appears, also, that the proposed off-channel mining operations do not require County permits. Unless surface mining operations are deemed vested, SMARA requires the lead agency to issue permits.

Although not thoroughly explored by our staff, the proposed draft Ordinance seems to allow for the release of financial assurances when phases of sites are reclaimed but later destroyed or "adversely affected" by a disaster (e.g. flood,

David Morrison
Proposed **Yolo** Mining Ordinance
May 3, 1996
Page 2

earthquake, or other natural occurrence beyond control of the operator). SMARA allows for the release of financial assurances when the entire reclamation plan has been completed, and the lead agency agrees to "sign-off" on the whole reclamation operation. It is suggested that you may wish to revisit this language.

2-1

Also, you may wish to reference or include SMGB **reclamation** standards in the Ordinance. For your reference, I have enclosed a draft copy of the **SMGB's proposed** Model SMARA Ordinance for use by City and County Lead Agencies.

2-2

Thank you for allowing us to make a preliminary review of the County's new Ordinance. We will be pleased to review any later editions or answer any additional questions you may have.

Sincerely,



John G. Parrish
Executive Officer

enc:

DEPARTMENT OF CONSERVATION
STATE MINING AND GEOLOGY BOARD
801 K Street, MS 24-05
Sacramento, California 95814-3528



DeWayne Holmdahl, Chairman
Julia Mann, Vice Chairwoman
Sends Figuers
Alvin Franks
Bob Grunwald
Raymond Krauss
Robert Munro
Shelia M. Murphy
Lao Thibadeau

TELEPHONE: (916) 322-1082
TDD LINE: (916) 324-2555
SIMILE: (916) 324-0948

March 6, 1996

TO INTERESTED PARTIES:

The Surface Mining and Reclamation Act (**SMARA**, Public Resources Code Section 2710 et seq.) became effective in 1976 to ensure adverse environmental impacts caused by surface mining **activities** are mitigated through prudent reclamation practices. **SMARA** requires all lead agencies (cities and counties having surface mines within their jurisdictions) to adopt surface mining ordinances in accordance with state policy which establish procedures for the review and approval of reclamation plans, financial assurances, and the issuance of **permits** to conduct surface mining operations.

Since the enactment of **SMARA**, the Board and the Department of Conservation have received numerous inquiries from lead agencies regarding the formulation of their ordinances in conformance with **SMARA**. The Division of Mines and Geology **Special Publication 51 (1979)** contained a section entitled Model Ordinance for Counties and Cities for Use in Meeting Minimum **Standards** in Compliance with the **SMARA**. Since that 1979 publication, **SMARA** has been amended by the Legislature no less than 15 times, and the example model ordinance has been considerably outdated.

The **SMGB's** Policy Committee approved the enclosed draft revised Model **SMARA** Ordinance for use by City and County **Lead Agencies** at its February 15, 1996 meeting. The purpose of this revised Model **SMARA** Ordinance is to assist lead agencies in developing and revising their own **SMARA** ordinances. The **SMGB** will consider adoption of this Model during its May, 1996 meeting. In the mean time, the **SMGB's** Policy Committee is soliciting your comments regarding the new Model **SMARA** Ordinance for its improvement. Please return any comments to the **SMGB's Office** not later than Friday, **April 12, 1996** so that they may be considered by the Policy Committee and the **SMGB**.

Sincerely,

John G. Parrish, Ph. D.
Executive Officer

MODEL SMARA ORDINANCE

for use by City and County "lead agencies"

Chapter _____

Surface Mining and Reclamation

Sections:

- 1.0 Purpose and Intent
- 2.0 Definitions
- 3.0 Incorporation by Reference
- 4.0 Scope
- 5.0 Vested Rights
- 6.0 Process
- 7.0 Standards for Reclamation
- 8.0 Statement of Responsibility
- 9.0 Findings for Approval
- 10.0 Financial Assurances
- 11.0 Interim Management Plans
- 12.0 Annual Report Requirements
- 13.0 Inspections
- 14.0 Violations and Penalties
- 15.0 Appeals
- 16.0 Fees
- 17.0 Mineral Resource Protection
- 18.0 Severability
- 19.0 Effective Date

DRAFT

This ordinance is intended for use by City and County lead agencies needing assistance in developing their SMARA ordinances. While it contains each of the elements required to be in a SMARA ordinance, as well as additional elements common to ordinances utilized statewide, it should be appropriately modified to reflect local conditions and practices. Some provisions may not be applicable to some lead agencies.

DRAFT SUBJECT TO CHANGE

§1.0 Purpose and Intent

The City/County of _____ recognizes that the extraction of minerals is essential to the continued economic **well-being** of the City/County and to the needs of society and that the reclamation of mined lands is necessary to prevent or **minimize** adverse effects on the environment and to protect the public health and safety. The City/County also recognizes that surface **mining** takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefore may vary accordingly.

The purpose and intent of this Chapter is to ensure the continued **availability** of important **mineral resources**, while regulating surface mining operations as required by **California's** Surface Mining and Reclamation Act of **1975** (Public Resources Code Sections **2710** et seq.), **as** amended, hereinafter referred to as "**SMARA**", Public Resources Code (**PRC**) Section **2207** (relating to **annual** reporting requirements), and State Mining and Geology Board regulations (hereinafter **referred to as** "State regulations") for surface **mining** and reclamation practice (**California** Code of Regulations [CCR], Title 14, Division **2**, Chapter 8, **Subchapter 1**, Sections 3500 et seq.), to **ensure** that:

- (a) Adverse environmental effects are prevented or **minimized** and that mined lands are reclaimed to a usable condition which is **readily** adaptable for alternative land uses.
- (b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.
- (c) Residual hazards to the public health and safety are eliminated.

§2.0 Definitions

The definitions set forth in this section shall govern the **construction** of this chapter.

Area of Regional Significance. An area designated by the State Mining and Geology Board which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the State within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the premature loss of minerals that are of more than local significance.

Area of Statewide Significance. An area designated by the Board which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the State and which, if prematurely developed for

DRAFT SUBJECT TO CHANGE

alternate incompatible land uses, **could** result in the permanent loss of minerals that are of more than local or regional significance..

Borrow Pits. Excavations created by the surface mining of rock, unconsolidated geologic deposits or soil to provide material (borrow) for **fill** elsewhere.

Compatible Land Uses. Land uses inherently compatible with mining **and/or** that **require** a **minimum public** or private investment in structures, land **improvements**, and which **may allow mining because of the** relative economic value of the land **and its improvements**. **Examples** of such uses may include, but shall not be limited to, very low **density** residential, geographically extensive but low impact industrial, recreational, agricultural, **silvicultural**, **grazing**, and open space.

Haul Road. A road along which material is **transported** from the area of excavation to the processing plant or stock pile area of the surface **mining** operation.

Surface mining operations curtailed for a period of one year or more, by more than 90 percent of the operation's previous **maximum annual** mineral production, with the intent to resume those surface mining operations at a future date.

Incompatible Land Uses. Uses, uses inherently incompatible with mining **and/or** that require public or private investment in structures, land improvements, and landscaping and that may prevent **mining** because of the greater economic value of the land and its improvements. Examples of such uses may include, **but shall** not be limited to, high density residential, low density residential with high unit value, public facilities, geographically **limited** but impact intensive industrial, and commercial.

Mined Lands. The surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

Minerals. Any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, **including**, but not limited to, coal, peat, and bituminous rock, but **excluding geothermal** resources, natural gas, and petroleum.

DRAFT SUBJECT TO CHANGE

Operator. Any person who is engaged in surface mining operations, or who contracts with others to conduct operations on **his/her** behalf, except a person who is engaged in surface mining operations **as** an employee with wages **as his/her** sole compensation.

Reclamation. The combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is **readily** adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require back filling, **grading, resoiling, revegetation, soil compaction, stabilization,** or other measures.

Stream Bed Skimming. Excavation of sand and gravel from stream bed deposits above the **mean summer** water level or **stream** bottom, whichever is higher.

Surface Mining Operations. All, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and **mining** directly from the mineral deposits, open-pit **mining** of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations include, but are not **limited** to, **inplace** distillation or retorting or leaching, the production and disposal of mining waste, prospecting and exploratory activities, borrow pitting, streambed skimming, and segregation and **stockpiling** of mined materials (and recovery of same).

§3.0 Incorporation by Reference

The provisions of **SMARA (PRC §2710 et seq.)**, PRC Section **2207**, and State regulations **CCR §3500 et seq.**, as those provisions and regulations may be amended from time to time, are made a part of this Chapter by reference with the same force and effect as if the provisions therein were specifically and fully set out herein, excepting that when the provisions of this Chapter are more restrictive than correlative State provisions, this Chapter shall prevail.

§4.0 Scope

Except as provided in this Chapter, no person shall conduct surface mining operations unless a **permit**, Reclamation Plan, and financial assurances for reclamation have **first** been approved by the **City/County**. Any applicable exemption from this requirement does not automatically exempt a project or activity from the application of other regulations, ordinances or policies of the **City/County**, including but not limited to, the application of CEQA, the requirement of Site Approvals or other permits, the payment of development impact fees, or

DRAFT SUBJECT TO CHANGE

the imposition of other dedications and exactions as may be permitted under the law. The provisions of this Chapter shall apply to all lands within the City/County, public and private.

This Chapter shall not apply to the following activities, subject to the above-referenced exceptions:

(a) Excavations or **grading** conducted for farming or on-site construction or for the purpose of restoring land following a flood or natural **disaster**.

(b) **Onsite** excavation and **onsite earthmoving** activities which are an integral and necessary **part** of a construction project that are undertaken to prepare a site for construction of structures, landscaping, or other **land** improvements, including the related excavation, **grading**, compaction, or the creation of **fills**, road cuts, and embankments, whether or not **surplus** materials are exported from the site, subject to **all** of the following conditions:

(1) All required permits for the construction, landscaping, or related land improvements have been approved by a public agency in accordance with applicable provisions of state law **and** locally adopted plans **and ordinances**, **including**, but not limited to, the California Environmental Quality Act (CEQA". Public Resources Code, Division 13, **§21000** et seq.).

(2) The City/County's approval **of the** construction project included consideration of the **onsite** excavation and **onsite** earthmoving activities pursuant to CEQA.

(3) The approved construction project is consistent with the general plan or zoning of the site.

(4) Surplus materials shall not be exported from the site unless and until actual construction work has commenced and shall cease if it is determined that construction activities have terminated, have been **indefinitely** suspended, or are no longer being actively pursued.

(c) Operation of a plant site used for mineral processing, including associated **onsite** structures, **equipment**, machines, tools, or other materials, including the **onsite stockpiling** and **onsite** recovery of mined materials, subject to all of the following conditions:

(1) The plant site is located on lands designated for industrial or commercial uses in the City/County's general plan.

(2) The plant site is located on lands zoned industrial or commercial, or are contained within a zoning category intended exclusively for industrial activities by the City/County.

DRAFT SUBJECT TO CHANGE

(3) None of the **minerals being** processed are being extracted **onsite**.

(4) All reclamation work has been completed pursuant to the approved Reclamation Plan for any mineral extraction activities that occurred **onsite** after January 1, 1976.

(d) Prospecting for, or the extraction of, minerals for **commercial** purposes and the removal of overburden in total amounts of less **than 1,000** cubic yards in any one location of one acre or less.

(e) Surface mining operations that **are required** by federal law in order to protect a **mining** claim, if those operations are conducted solely for that purpose.

(f) Any other surface mining operations that the **State Mining and Geology Board** determines to be of an infrequent nature **and** which involve **only** minor surface disturbances.

(g) The solar evaporation of sea water or bay water for the production of salt and related minerals.

(h) Emergency excavations or **grading** conducted by the Department of Water Resources or the Reclamation Board for the purpose of averting, alleviating, repairing, or restoring damage to property due to imminent or recent floods, disasters, or other emergencies.

(i) Road construction and maintenance for timber or forest operations if the **land** is owned by the same person or entity, and if the excavation is conducted adjacent to timber or forest operation roads. This exemption is only available if slope **stability** and erosion are controlled in accordance with Board regulations and, upon closure of the site, the person closing the site implements, where necessary, revegetation measures and postclosure uses in consultation with the Department of Forestry and Fire Protection. This exemption does not apply to **onsite** excavation or grading that occurs within **100** feet of a Class One watercourse or **75** feet of a Class Two watercourse, or to excavations for materials that are, or have been, sold for commercial purposes.

§5.0 Vested Rights

No person who obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall be required to secure a **permit** to mine, so long as the vested right continues and as long as no substantial changes have been made in the operation except in accordance with SMARA, State regulations, and this Chapter. Where a person with vested rights has continued surface mining in the same area subsequent to **January 1, 1976**, he shall obtain **City/County** approval of a Reclamation Plan covering the mined lands disturbed by

DRAFT SUBJECT TO CHANGE

such subsequent surface mining. In those cases where an overlap exists (**in** the horizontal **and/or** vertical sense) between pre- and post-Act mining, the Reclamation Plan shall call for reclamation proportional to that disturbance caused by the mining after the effective date of the Act (January 1, 1976).

All other requirements of State law and this Chapter shall apply to vested mining operations.

(Note: Section 5.0 may be eliminated in jurisdictions processing only post-Act mining operation applications.)

§6.0 Process

(a) Applications for a Site Approval or Reclamation Plan for surface mining or land reclamation projects **shall** be made on **forms** provided by the Planning Department. Said application shall be **filed** in accord with **this** Chapter and procedures to be established by the Planning Director. The forms for Reclamation Plan applications shall require, at a **minimum**, each of the elements required by SMARA (**§2772-2773**) **and State** regulations, and any other requirements deemed necessary to facilitate an expeditious and fair evaluation of the proposed Reclamation Plan, to be established at the direction of the Planning Director. As many copies of the Site Approval application **as** may be required by the Planning **Director** shall be submitted to the Planning Department.

(b) As many copies of a Reclamation Plan application **as** may be required shall be submitted in conjunction with all applications for Site Approvals for surface mining operations. For surface mining operations that are exempt from a Site Approval pursuant to this Chapter, the Reclamation Plan application shall include information concerning the mining operation that is required for processing the Reclamation Plan. All documentation for the Reclamation Plan shall be submitted to the City/County at one time.

(c) Applications shall include all required environmental review **forms** and information prescribed by the Planning Director.

(d) Upon completion of the environmental review procedure and **filing** of all documents required by the Planning Director, consideration of the Site Approval or Reclamation Plan for the proposed or existing surface mine shall be completed pursuant to Section _____ of the _____ Code at a public hearing before the Planning Commission, and pursuant to Section 2774 of the **Public Resources** Code.

(e) Within thirty (30) days of acceptance of an application for a Site Approval for surface **mining** operations **and/or** a Reclamation Plan as complete, the **Planning** Department shall notify the State Department of Conservation of the **filing** of the **application(s)**. Whenever

DRAFT SUBJECT TO CHANGE

mining operations are proposed in the 100-year flood plain of any stream, as shown in Zone A of the **Flood** Insurance Rate Maps issued by the Federal Emergency Management Agency, and **within** one **mile**, upstream or downstream, of any state **highway** bridge, the **Planning** Department shall also **notify** the State Department of Transportation that the **application** has been received.

(f) The **Planning** Department shall process the **application(s)** through environmental **review** pursuant to the **California Environmental** Quality Act (**Public** Resources Code **Sections 21000** et seq.) and the **City/County's** environmental **review** guidelines.

(g) Subsequent to the **appropriate environmental** review, the **Planning** Department shall prepare a staff report **with** recommendations for **consideration** by the **Planning Commission**.

(h) The **Planning Commission** shall **hold** at least one **noticed public hearing** on the **Site Approval and/or Reclamation** Plan.

(i) **Prior** to final approval of a **Reclamation** Plan, **financial** assurances (as **provided in** this Chapter), or any amendments to the **Reclamation** Plan or existing **financial** assurances, the **Planning Commission** shall certify to the State Department of Conservation that the **Reclamation** Plan **and/or financial assurance complies with** the applicable requirements of State law, and **submit** the plan, assurance, or amendments to the State Department of Conservation for **review**. The **Planning Commission** may conceptually approve the **Reclamation** Plan and **financial** assurance before **submittal** to the State Department of conservation. If a **Site Approval is being** processed concurrently **with** the **Reclamation** Plan, the **Planning Commission** may **simultaneously** also conceptually approve the **Site Approval**. However, the **Planning Commission** may defer **action** on the **Site Approval until taking final action** on the **Reclamation** Plan and **financial** assurances. If necessary to comply with permit processing **deadlines**, the **Planning Commission** may **conditionally** approve the **Site Approval with** the condition that the **Planning** Department shall not **issue** the **Site Approval** for the **mining operations until** cost estimates for **financial** assurances have been **reviewed** by the State Department of Conservation and **final** action has been taken on the **Reclamation** Plan and **financial** assurances.

Pursuant to PRC §2774(d), the State Department of **Conservation** shall be **given** 30 days to **review** and comment on the **Reclamation** Plan and 45 days to **review** and comment on the **financial** assurance. The **Planning Commission** shall evaluate **written** comments **received**, **if** any, from the State Department of **Conservation** during the comment **periods**. Staff shall prepare a written response **describing** the disposition of the major **issues raised** by the State for the **Planning Commission's** approval. In **particular**, when the **Planning Commission's position** is at **variance with** the **recommendations** and **objections raised in** the State's comments, the **written** response shall address, **in detail**, why **specific** comments and **suggestions** were not

DRAFT SUBJECT TO CHANGE

accepted. Copies of any written comments received and responses prepared by the Planning Commission shall be promptly forwarded to the **operator/applicant.**

(j) The Planning Commission shall then take action to approve, conditionally approve, or deny the Site Approval **and/or** Reclamation Plan, and to approve the financial assurances pursuant to PRC **§2770(d).**

(k) The Planning Department shall forward a copy of each approved Site Approval for mining operations **and/or** approved Reclamation Plan, and a copy of the approved **financial assurances** to the State **Department of Conservation.** **By July 1 of each year,** the **Planning Department** shall submit **to** the State Department of Conservation for each active or idle **mining** operation a copy of the Site **Approval** or Reclamation Plan amendments, as applicable, or a statement that there have been no changes during the previous year.

§7.0 Standards for Reclamation

(a) ***ALL*** Reclamation Plans shall comply with the provisions of SMARA (§2772 and §2773) and State regulations (CCR **§3500-3505**). Reclamation Plans approved after January 15, 1993, Reclamation Plans for proposed new mining operations, and any substantial amendments to previously approved Reclamation Plans, shall also comply with the requirements for reclamation performance standards (CCR §3700-3713).

(b) The **City/County** may impose additional performance standards as developed either in review of individual projects, **as** warranted, or through the formulation and adoption of **City/Countywide performance** standards.

(c) Reclamation activities shall be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance. Interim reclamation may also be required for mined lands that have been disturbed and that may be disturbed again in future operations. Reclamation may be done on an annual basis, in stages compatible with continuing operations, or on completion of all excavation, removal, or fill, as approved by the **City/County.** Each phase of reclamation shall be specifically described in the Reclamation Plan and shall include (a) the beginning and expected ending dates for each phase; (b) all reclamation activities required; (c) criteria for measuring completion of specific reclamation activities; and (d) estimated costs for completion of each phase of reclamation.

§8.0 Statement of Responsibility

The person submitting the Reclamation Plan shall sign a statement accepting **responsibility** for reclaiming the mined lands in accordance with the Reclamation Plan. Said statement shall be kept by the Planning Department in the mining operation's permanent

DRAFT SUBJECT TO CHANGE

record. Upon sale or transfer of the operation, the new operator shall submit a signed statement of responsibility to the Planning Department for **placement** in the permanent record.

§9.0 Findings for Approval

(a) Site Approvals. In addition to any findings required by the City/County _____ Code, Site Approvals for surface mining operations shall include a **finding** that the project complies with the provisions of SMARA and State regulations.

(b) Reclamation Plans. **For** Reclamation Plans, the **following findings** shall be **required**:

(1) That the Reclamation Plan complies with SMARA Sections 2772 and 2773, and any other applicable provisions;

(2) That the Reclamation Plan complies with applicable requirements of State regulations (CCR \$3500-3505, and 53700-3713).

(3) That the Reclamation Plan and potential use of reclaimed land pursuant to the **plan** are consistent with this Chapter and the City/County's General Plan and any applicable resource plan or element.

(4) That the Reclamation Plan has been reviewed pursuant to CEQA and the City/County's environmental review **guidelines**, and all **significant** adverse impacts from reclamation of the surface **mining** operations are mitigated to the **maximum** extent feasible.

(5) That the land **and/or** resources such as water bodies to be reclaimed will be restored to a condition that is compatible with, and blends in with, the surrounding natural environment, topography, and other resources, or that suitable off-site development will compensate for related disturbance to resource values.

(6) That the Reclamation Plan will restore the mined lands to a usable condition which is readily adaptable for alternative **land** uses consistent with the General Plan and applicable resource plan.

(7) That a written response to the State **Department** of Conservation has been prepared, **describing** the disposition of major issues raised by that Department. Where the City/County's position is at variance with the recommendations and objections raised by the State Department of Conservation, said response shall address, in detail, why specific comments and suggestions were not accepted.

DRAFT SUBJECT TO CHANGE

§10.0 Financial Assurances

(a) To ensure that reclamation will proceed in accordance with the approved **Reclamation Plan**, the **City/County** shall require as a condition of approval security which **will** be released upon satisfactory performance. The applicant may pose security in the form of a surety bond, trust fund, **irrevocable** letter of credit from an accredited financial institution, or other method acceptable to the **City/County** and the State Mining and Geology Board as specified in State regulations, and which the **City/County** reasonably determines are adequate to perform reclamation in accordance with the surface mining operation's approved Reclamation Plan. Financial assurances shall be made payable to the **City/County** of _____ and the State Department of **Conservation**.

(b) Financial assurances will be required to ensure compliance with elements of the Reclamation Plan, including but not **limited** to, revegetation and landscaping requirements, restoration of aquatic or wildlife habitat, restoration of water bodies **and** water quality, slope **stability** and erosion and drainage control, disposal of hazardous materials, and other measures, if necessary.

(c) Cost estimates for the **financial** assurance shall be submitted to the Planning Department for review and approval prior to the operator securing **financial** assurances. The Planning Director shall forward a copy of the cost estimates, together with any documentation received supporting the amount of the cost estimates, to the State Department of **Conservation** for review. If the State Department of Conservation does not comment within 45 days of receipt of these estimates, it shall be assumed that the cost estimates are adequate, unless the **City/County** has reason to determine that additional costs may be incurred. The Planning Director shall have the **discretion** to approve the financial assurance if it meets the requirements of this Chapter, **SMARA**, and State regulations.

(d) The amount of the financial assurance shall be based upon the estimated costs of reclamation for the years or phases stipulated in the approved Reclamation Plan, **including** any maintenance of reclaimed areas as may be required, subject to adjustment for the actual amount required to reclaim lands disturbed by surface mining activities since January 1, 1976, and new lands to be disturbed by surface **mining** activities in the upcoming year. Cost estimates shall be prepared by a California registered Professional Engineer **and/or** other similarly licensed and qualified professionals retained by the operator and approved by the Planning Director. The estimated amount of the financial assurance shall be based on an analysis of physical activities necessary to implement the approved Reclamation Plan, the unit costs for each of these activities, the number of units of each of these activities, and the actual administrative costs. **Financial** assurances to ensure compliance with revegetation, restoration of water bodies, restoration of aquatic or wildlife habitat, and any other applicable element of the approved Reclamation Plan shall be based upon cost estimates that include but may not be

DRAFT SUBJECT TO CHANGE

limited to labor, equipment, materials, **mobilization** of equipment, administration, and reasonable profit by a commercial operator other than the **permittee**. A **contingency** factor of ten **percent (10%)** shall be added to the cost of financial **assurances**.

(e) In projecting the costs of financial assurances, it shall be assumed without prejudice or **insinuation** that the surface mining operation could be abandoned by the operator and, consequently, the **City/County** or State Department of Conservation may need to contract with a third party commercial company for reclamation of the site.

(f) The **financial** assurances shall remain in effect for the duration of the surface mining operation and any additional period until reclamation is completed (including any maintenance required).

(g) The amount of financial assurances required of a surface **mining** operation for any one year shall be adjusted annually to account for new lands disturbed by surface mining operations, inflation, and reclamation of lands accomplished in accordance with the approved Reclamation Plan. The financial assurances **shall** include estimates to cover reclamation for existing conditions and anticipated activities during the upcoming year, excepting that the **permittee** may not claim credit for reclamation scheduled for completion during the coming year.

(h) Revisions to **financial** assurances shall be submitted to the Planning Director each year prior to the anniversary date for approval of the financial assurances. The financial assurance shall cover the cost of existing disturbance and anticipated activities for the next calendar year, including any required interim reclamation. If revisions to the financial assurances are not required, the operator shall explain, in writing, why revisions are not required.

§11.0 Interim Management Plans

(a) Within 90 days of a surface mining operation becoming idle, the operator shall submit to the Planning Department a proposed Interim Management Plan (**IMP**). The proposed IMP shall fully comply with the requirements of **SMARA**, including but not limited to **all** Site Approval conditions, and shall provide measures the operator will implement to maintain the site in a stable condition, taking into consideration public health and safety. The proposed IMP shall be submitted on forms provided by the Planning Department, and shall be processed as an amendment to the Reclamation Plan. **IMPs** shall not be considered a project for the purposes of environmental review.

(b) Financial assurances for idle operations **shall** be maintained as though the operation were active, or as otherwise approved through the idle mine's **IMP**.

DRAFT SUBJECT TO CHANGE

(c) Upon receipt of a complete proposed IMP, the Planning Department shall forward the IMP to the State Department of Conservation for review. The IMP shall be submitted to the State Department of Conservation at least 30 days prior to approval by the Planning Commission.

(d) Within 60 days of receipt of the proposed IMP, or a longer period mutually agreed upon by the Planning Director and the operator, the Planning Commission shall review and approve or deny the IMP in accordance with this Chapter. The operator shall have thirty (30) days, or a longer period mutually agreed upon by the operator and the Planning Director, to submit a revised IMP. The Planning Commission shall approve or deny the revised IMP within sixty (60) days of receipt. If the Planning Commission denies the revised IMP, the operator may appeal that action to the City Council/Board of Supervisors.

(e) The IMP may remain in effect for a period not to exceed five years, at which time the Planning Commission may renew the IMP for another period not to exceed five years, or require the surface mining operator to commence reclamation in accordance with its approved Reclamation Plan.

§12.0 Annual Report Requirements

Surface mining operators shall forward an annual surface mining report to the State Department of Conservation and to the City/County Planning Department on a date established by the State Department of Conservation, upon forms furnished by the State Mining and Geology Board. New mining operations shall file an initial surface mining report and any applicable filing fees with the State Department of Conservation within 30 days of permit approval, or before commencement of operations, whichever is sooner. Any applicable fees, together with a copy of the annual inspection report, shall be forwarded to the State Department of Conservation at the time of filing the annual surface mining report.

§13.0 h _____

The Planning Department shall arrange for inspection of a surface mining operation within six months of receipt of the Annual Report required in Section 12, to determine whether the surface mining operation is in compliance with the approved Site Approval and/or Reclamation Plan, approved financial assurances, and State regulations. In no event shall less than one inspection be conducted in any calendar year. Said inspections may be made by a state-registered geologist, state-registered civil engineer, state-licensed landscape architect, or state-registered forester, who is experienced in land reclamation and who has not been employed by the mining operation in any capacity during the previous 12 months, or other qualified specialists, as selected by the Planning Director. All inspections shall be conducted using a form approved and provided by the State Mining and Geology Board.

DRAFT SUBJECT TO CHANGE

The Planning Department shall notify the State **Department** of Conservation within thirty (30) days of completion of the inspection that said inspection has been conducted, and shall forward a copy of said inspection notice and any supporting **documentation** to the mining operator. The operator shall be solely responsible for the reasonable cost of such inspection.

§14.0 Violations and Penalties

If the Planning **Director**, based upon an **annual** inspection or otherwise confirmed by an inspection of the mining operation, determines that a surface mining operation is not in **compliance** with **this** Chapter, the applicable Site Approval, any required permit **and/or** the Reclamation Plan, the **City/County** shall follow the procedures set forth in Public Resources Code, Sections **2774.1** and **2774.2** concerning violations and penalties, as well as those provisions of the **City/County** Development Code for revocation **and/or** abandonment of a Site Approval which are not preempted by **SMARA**.

§15.0 Appeals

Any person aggrieved by an act or determination of the **Planning** Department in the exercise of the authority granted herein, shall have the right to appeal to the Planning Commission or the **City Council/Board of Supervisors**, whichever is the next higher authority. An appeal shall be filed on forms provided, within fifteen **(15)** calendar days **after** the rendition, in writing, of the appealed decision.

(Note: Section 15.0 should be appropriately modified to reflect local appeal procedures. This language has been provided only as a "placeholder" for such provisions.)

§16.0 Fees

The **City/County** shall establish such fees as it **deems** necessary to cover the reasonable costs incurred in implementing this Chapter and the State regulations, including but not limited to, processing of applications, annual reports, inspections, monitoring, enforcement and compliance. Such fees **shall** be paid by the operator, as required by the **City/County**, at the time of filing of the Site Approval application, Reclamation Plan application, and at such other times as are determined by the **City/County** to be appropriate in order to ensure that all reasonable costs of implementing this Chapter are borne by the mining operator.

DRAFT SUBJECT TO CHANGE

§17.0 Mineral Resource Protection

Mine development is encouraged in compatible areas before encroachment of conflicting uses. Mineral resource areas that have been classified by the State Department of Conservation's Division of Mines and Geology or designated by the State Mining and Geology Board, as well as existing surface mining operations that remain in compliance with the provisions of this Chapter, shall be protected from intrusion by incompatible land uses that may impede or preclude mineral extraction or processing, to the extent possible for consistency with the City/County's General Plan.

In accordance with PRC §2762, the City/County's General Plan and resource maps will be updated to reflect mineral information (classification **and/or** designation reports) within **12 months** of receipt from the State Mining and Geology Board of such information. Land use decisions within the City/County will be guided by information provided on the location of identified mineral resources of regional significance. conservation and potential development of **identified** mineral resource areas will be considered and encouraged. Recordation on property titles of the presence of important mineral resources within the identified mineral resource areas may be encouraged as a condition of approval of any development project in the impacted area. Prior to approving a use that would otherwise be incompatible with mineral resource protection, conditions of approval may be applied to encroaching development projects to **minimize** potential conflicts.

§18.0 Severability

If any section, subsection, sentence, clause or phrase of this Chapter is for any reason held to be invalid or unconstitutional by the decision of a **court** of competent jurisdiction, it shall not affect the remaining portions of this Chapter.

§19.0 Effective Date

This Chapter shall take effect thirty (30) days following its adoption.

LETTER 2 DEPARTMENT OF CONSERVATION, STATE **MINING** AND GEOLOGY BOARD

Response to Comment 2-1:

Thank you for your letter. Staff agrees with the description of what transpired as a result of the committee meeting on April 16th, however, a final determination regarding the applicability of SMARA to the CCRMP has yet to be made. An ordinance to regulate in-channel activities will be prepared following consideration of the OCMP, CCRMP, and long-term surface mining applications. This is in accordance with the schedule for the OCMP and CCRMP set forth in the work plan attached to Board of Supervisor's Resolution 94-82. At that time, if the CCRMP and CCIP are determined to be subject to the requirements of SMARA, then an in-stream mining ordinance will be prepared and submitted to the State Mining and Geology Board (SMGB) for review.

Staff disagrees that the proposed ordinance does not require County permits for off-channel surface mining operations. Section 104.301 states: "Unless otherwise provided in this article, no person shall conduct off-channel surface mining operations unless a surface mining permit has been approved in accordance with this chapter." Similarly, Section 10-5.301 requires the following: "Unless otherwise provided in this article, no person shall conduct surface mining operations within the unincorporated area of the County unless a reclamation plan has been approved and adequate financial assurances have been submitted, in accordance with this chapter." The only exceptions to these requirements are those that are allowed under SMARA. In addition, Section 104.419 states: "Operators shall obtain any and all permits and approvals required by other agencies having jurisdiction over the proposed mining operations and shall provide copies to the County." Staff believes that these provisions are consistent with the requirements of SMARA and fulfill the County's responsibility as lead agency.

Staff disagrees with the need to revisit language concerning financial assurances. The reference is to Section 10-5.712 of the Surface Mining Reclamation Ordinance, which describes the factors to be taken into consideration in determining the operator's responsibility for financial assurances following a natural disaster. This language was taken from Resolution 92-24 of the SMGB, which was adopted in response to a request for direction by a lead agency. The provision was included by staff in order to assure conformity of the County ordinance with State policy. This information has been discussed with John Parrish, Executive Director of the SMGB, who has informed the County that the comment should be considered withdrawn.

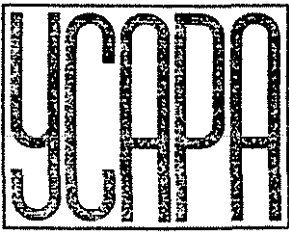
Response to Comment 2-2:

Staff agrees with the need to reference the SMGB reclamation in the County Surface Mining Reclamation Ordinance. Section 10-5.501 states:

"This article sets forth minimum acceptable practices to be followed in reclamation operations to implement this general standard. These minimum acceptable standards shall be considered and discussed in every reclamation plan approved pursuant to this chapter. In addition, the minimum statewide reclamation practices and *standards* set forth in the Regulations shall also be considered and discussed in every reclamation plan approved pursuant to this chapter. These standards shall be followed in addition to any other conditions of approval or regulations imposed on the surface mining permit." (emphasis added)

The term "Regulations" is defined in Section 10-5.217 as the State Mining and Geology Board Reclamation Regulations. This provision is reinforced in Section 10-5.601, which describes the necessary contents for a reclamation plan application. Subsection (a)(6) requires: "Separate sections demonstrating compliance of the proposal with each minimum performance standard set forth in the Regulations and Article 5 of this chapter." Staff believes that these requirements are consistent with SMARA and fulfill the County's responsibility as lead agency.

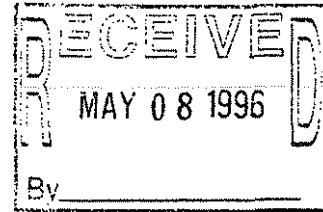
Since the time that this letter was submitted, the SMGB has distributed a copy of the adopted Model SMARA Ordinance. After review of the final version, staff believes that the County Mining and Reclamation Ordinances are consistent with the state model ordinance. The Board's assistance is appreciated.



YOLO COUNTY
AGGREGATE
PRODUCERS
ASSOCIATION

(916) 662-3218

624 COURT STREET ■ WOSDLAND ■ CA ■ 95635



TO: Mr. David **Morrison**, Resource Management Coordinator
FROM: **Yolo** County Aggregate Producer's Association
SUBJECT: Comments on **DEIR** - Off-Channel Mining Plan
DATE: May 6, 1996

The **Yolo** County Aggregate Producers Associatiin (**YCAPA**) has reviewed the Draft EIR for the Off-Channel Mining Plan (OCMP) for Lower Cache Creek and offer the following comments. Our comments are indexed by page and section number corresponding to the page and section numbers found in the Draft EIR. Please **call** Anthony Russo, YCAPA President, if you have questions or need clarification about any of our comments..

3-1

1. Sections 1.1, Introduction and 3.1 Proiect Description. We suggest that the Final **EIR include** a simple summary acreage table to help the reader quickly understand how the various acreage figures used throughout the document are derived. Please see the example below:

ACREAGE SUMMARY

Acreage to be Mined During 30 Year Permit	2211
Borrow Area to Facilitate Reclamation	45
Total 30 Year Acreage Affected by Mining and Reclamation	2256
Reserve Acreage for Mining (Years 31-50)	676
Total 50 Year Acreage Affected by Mining and Reclamation	2932
Acreage to be Mined During 30 Year Period	2211
Reserve Acreage for Mining (Years 31 -50)	676
Total 50 Year Mining Acreage	2887

2. Sections 1.2 and 1.5, Introduction. We recommend that line 10 in paragraph one under the Section heading 1.2 have reference to Chapter 5.0 added at the end of the parenthetical reference to the environmentally superior alternative. We **also** recommend that the description of the contents of chapter 5.0, found at the top of page 1-7, have reference to the environmentally superior alternative added.

3. Section 22, Areas of Controversy. Although Section 22 refers to the interpretation of Net Gain as an area of controversy we do not find adequate discussion of this topic in the DEIR. The original concept and definition of Net Gain should be reported along with the justification for any subsequent modifications. We recommend that a page or section number reference be given

3-3

following the Net Gain reference and each of the other listings in Section 2.2 so that the reader can find the relevant discussion.

A copy of the original "no net loss" concept, prepared by Sandy **McLellan**, which later evolved to the "net gain" idea, is attached. Also attached is a May 1992 analysis of the original net gain concept. Please see Attachments A and B. The current interpretation of net gain being used in the OCMP seems to differ substantially from the original intent.

3-3

4. Page 3-4, Heading Project Location. This paragraph describes the CCRMP **planning** area as equal to the in-channel area of the creek system with the **boundary** to said **system defined** by the 100 year flood elevation described in the U.S. Army Corps **Westside** Tributaries Study. This study is out of date and is superseded by the detailed 100 Year flood analyses provided as part of the **Off-Channel** Mining **applications**. A more accurate boundary for **purposes** of the OCMP DEIR and **Figure 3.2-4** would be defined by **deleting** reference to the **Westside Tributaries** Study and rewriting the **sentence beginning** at line four to read as follows: "The **planning** area for the CCRMP is equal to the in-channel area of the creek system, as **defined** by the present channel bank line, or the current 100 year flood elevation, whichever is wider".

3-4

5. Page 3-10, Paragraph 2 Line 8. The brief discussion of the 30 year mining term and its purpose does not include reference to the possibility that permits may need to be renewed or extended to allow continued work in the event the acreage or mining tonnage has not been **depleted** by the end of a 30 year term. A **more complete statement** at this **location would read** as follows: "The OCMP also recommends a 30-year term for **off-channel** mining permits, in order to address the issue of vested rights and to allow for periodic review, update and possible renewal of permits, for up to 20 additional years, if necessary".

3-5

6. Page 4.2-19, Paragraph 3. The brief statement about rezoning the channel to Open Space leaves the reader with no understanding as to how the in-channel area will continue to be maintained. A more **complete** statement would read as follows: "Since commercial mining would not be allowed within the channel, and the County is considering rezoning the channel to Open Space, this subsection would be deleted. **In-channel** extraction for stream maintenance purposes would be implemented through the open space provisions of the CCRMP".

3-6

7. Page 4.2-26, Bottom of page. The final statement on this page suggests that implementation of Mitigation Measures 4.2-4a and 4.4-3a would reduce the

3-7

impact of non-consistency with the Water Board's Basin Plan. Please clarify how the implementation of these measures would accomplish the implied mitigation.

3-7

8. Page 4.2-32, Figure 4.2-1. This figure shows growth management study areas for **Esparto**, Madison and **Yolo**; it does not delineate the actual **spheres** of influence. **The map** title is misleading.

3-8

9. Page 4.2-36, Impact **4.2-8**, Heading Draft OCMP etc. Please refer to comment number 4, above. The reader would better understand the reference to adoption of a new creek boundary if the definition were to be repeated here in the form of a new fourth sentence reading as follows: "**The** new channel boundary would be equal to the existing channel bank line or the current 100 year flood **line**, whichever is wider".

3-9

Aggregate conveyors will need to cross the creek in some instances to **carry** aggregate from extraction sites to process plants. The original **fourth** sentence in this section would be more accurate if it read as follows: "The only permanent structures within the new creek boundary would be limited to existing power line towers, access roads (which would be protected), levees (which may be removed or breached to restore the flood plain) and aggregate conveyors".

10. Page 4.3-3, Paragraph 1. There is no basis given in the **DEIR** for the speculative statement that subsidence of the ground surface east of the Dunnigan Hills in the vicinity of Woodland is likely related to high rates of groundwater withdrawal. Ground water level hydrographs in Woodland show no perennial declining trend.

3-10

11. Page **4.3-5**, Table 4.3-1 and Text re CRSBBZ. The CRSBBZ does not belong in Table 4.3-5 along with established faults since it currently has the status of being a potential fault. Research is continuing. This fault has not been **placed** on the State of California Geologic **Map** and there are still **outstanding** questions about its activity.

3-11

12. Page 4.3-7, Bottom Paragraph. There is no Capay Creek - the reference needs to be changed to read "Cache Creek".

3-12

13. Page 4.3-15, Bottom Paragraph. Capay dam may have had some historic effect on downstream sediment reduction but field investigation reveals that the creek bed is currently level with the spillway. Therefore, Capay dam does not currently have the capacity to act as a sediment trap.

3-13

14. Page 4.3-17, Heading Channel Stability. The reference to work by **Cunningham Engineers** was most recently dated 1995 - not 1993. Work dated 1995 was also contributed by **Murray, Burns and Kienlen Engineers**. 3-14

15. Page 4.3-27, Performance Standard 2.5-21. This standard would require that erosion control **seeding** be "established" on slopes prior to November 1 each year. We **recommend** that the wording be revised to require that erosion control seeding "occur" or "be installed" prior to November 1 since "establishment" suggests a much earlier planting sequence which would interfere with mining. 3-15

16. Page 4.3-30, Performance Standard 2.5-17. The standard does not **clearly** state that it applies to runoff from reclaimed lands. This standard would be **more** easily understood if it read: 'Storm water runoff from reclaimed mining areas ...' 9-16

17. Page 4.3-38, Action 4.4-3. This action **item** suggests that the off-channel modifications should be evaluated based on criteria contained in the in-stream plan. Cross reference between two plans is inconvenient. A stronger approach can be achieved by using the same definition for the channel boundary (See Comment 4, above) for both the in-stream and off-channel plans, and, making **off-channel** evaluation criteria part of the **off-channel** plan. 3-17

18. Page 4.3-38, Performance Standard 4.51. The **100** year flood protection line will be established upon approval of the off-channel mining plans. However, in-stream channel maintenance procedures must be established so that increased flood risk does not occur and the 100 year flood line does not become a moving target with the potential to invalidate the off-channel mining setbacks. The term "protection" needs to be clarified so as to define the amount of freeboard required above the 100 year flood line. 3-18

19. Page 4.3-38, Performance Standard 4.5-3. This standard is not clearly written. The intent seems to be that off-channel mining would be acceptable when a properly engineered levee, a minimum of 200 feet wide, and constructed to provide 100 year flood protection, is located at or beyond the Test 3 line. This needs to be clarified. 3-19

The DEIR authors propose a list of bulleted items following the initial statement of this performance standard. These bulleted items carry over onto page 4.3-39. Mining applications have been submitted pursuant to this performance standard, prior to the amendments recommended by the DEIR authors, with the understanding that this standard has been adequately addressed and no additional studies are required. This needs to be confirmed.

20. Page 4.4-3, Headina Surface Water. Paraaraoh 3. The text is not clear regarding diversions. Indian Valley Dam was constructed to store water on the north fork of Cache Creek for subsequent release down the channel and ultimate diversion at Capay Dam. Clarification is needed regarding what is meant by the discussion of diversions of Cache Creek at Indian Valley Dam and at an earthen dam at Rumsey. 1 3-20
21. Page 4.4-6, Top of Paae. The thickest deposits occur several miles west of the Plainfield Ridge, west of Interstate 505; the thinnest deposits occur on and immediately west of the Plainfield Ridge. 3-21
22. Page 4.4-10, Paragraph 3. Limited historical data suggest that TDS concentrations in the OCMP area have been consistently below the state recommended 500 mg/l secondary drinking water standard for TDS and notably better than some other nearby areas such as Capay Valley and Davis. The statement that groundwater quality in the western portion of the valley is typically poorer than elsewhere needs to be qualified so that the reader knows what areas are being compared. 3-22
23. Page 4.4-15, Table 4.4-2. Footnotes 1 and 2 appear to be reversed. 3-23
24. Page 4.4-15, Paragraph 1. SWTR provisions apply to groundwater if it is considered under the influence of surface water. Municipal wells in the vicinity of the mining project area are not near enough to surface water supplies to be considered under the influence of surface water, therefore the SWTR does not apply. Statements about ground water being considered surface water are misleading. 8-24
25. Page 4.4-18, Paraaraph 2. A delineation of the current 100 year flood line has been provided to Yolo County for each of the five, off-channel mining applications. It is incumbent upon the County staff to forward this information to FEMA in a timely manner to assist in the updating of FIRM maps. 3-25
3-26
26. Page 4.4-18, Paragraphs 3 and 4. References to Figure 4.4-7 should actually be to Figure 4.48. Although people commonly refer to the "chipped tea cup theory", Woodward-Clyde originated this as an analogy to illustrate the relationship between lowering the thalweg elevation and its effect on potential groundwater storage. This analogy was not intended to illustrate the basic concept of a gaining reach of a creek.
27. Page 4.4-20, Topic State Reclamation Board Policy #1. This policy is not clearly written in the context of the OCMP. Clarification needs to be added in the 3-27

EIR to specify whether the setback applies to the land side or creek side toe of a Reclamation Board levee. The reference to setbacks from adjacent property lines does not indicate where such property lines are located relative to Reclamation Board jurisdiction.

3-27

28. Page 4.4-20, Topic State Reclamation Board Policy #2. The statement most likely refers to the land side of a levee; not a landslide.

3-28

29. Page 4.4-22, Topic Flood Ordinance. The Flood Ordinance Development Permit provision needs to be incorporated into the OCMP review and approval process so that a separate permit procedure is not retained. information required as part of the off-channel mining permit applications provide information that addresses the ordinance objectives.

3-29

30. Page 4.4-23, Heading Impact 4.4-1, first paragraph, line two. The reference to Figure 4.4-8 is incorrect. The relevant figure is number 4.4-9.

3-30

31. Page 4.4-26, Mid-page. The speculative discussion of low permeability zones leading to the emergence of groundwater as surface flow is misleading and fails to recognize that the Cache Creek system effectively infiltrates all stream flow (under low flow conditions) immediately downstream of Plainfield Ridge. Groundwater discharges into the perennially gaining reach above the Plainfield Ridge are effectively recaptured by the groundwater basin now; and that would be expected to continue for any other groundwater discharged to the channel.

3-31

32. Page 4.4-29, Performance Standard 3.5-1. The suggested expansion of this performance standard specifies that analyses of off-site groundwater level impacts be limited to **MODFLOW** model simulations. There are other public and proprietary model codes which could be equally applicable. Specifying one **currently** available model code is overly **restrictive considering** that mining operations may span several decades during an era where available analytic tools are rapidly evolving.

3-32

There is no support or justification for the recommended standard that two (2) feet of water level change would be considered **significant**. By **discussing** this standard in the same sentence with "well failure" the reader is given an improper impression that the two might be linked. The term "well failure" is not defined in the **DEIR** but in common usage it means some type of collapse or other catastrophic changes which precludes use of the well. A **two (2)** foot change in water depth in a well will not cause well failure. Consider the fact that seasonal fluctuation in the groundwater level routinely ranges from **20** to **40** feet without well failure.

The recommended mitigation measures following this recommended standard are not realistic. One alternative, well redesign, is not necessary to mitigate for water level change in a well. A two foot water level change in a well will cause no effective change in the pump performance (due to the performance characteristics of **deepwell** turbine pumps) and therefore there will be no change in the discharge capacity from a well. The second alternative, well relocation, is totally inappropriate given the existing seasonal fluctuations already noted above.

3-32

33. Page 4.4-29, **Performance Standard 3.5-17**. This performance standard refers to wet pit mining. The words "wet pit" need to be inserted in front of the word "mining".

3-33

34. Page 4.4-30, Heading **Impact 4.4-2, paragraph one**. This paragraph is not clear. A recommended revision would read "Mining below the water table **results** in the creation of wet pits, which have a potential for groundwater degradation because wet pit mining allows the **groundwater** to be exposed at its surface".

3-34

35. Page 4.4-30, **Paragraph 2**. The listing of potential sources of water quality degradation associated with wet pit mining includes bioaccumulation of **mercury** in flora and fauna, yet the subsequent discussion is limited to fauna. Note also that the reference to Impact **4.3-3** should be 4.4-3.

3-35

36. Page 4.4-31, Heading **OCMP and Implementing Ordinances**. Line six lists the types of mining equipment that may be operated. Dredges need to be added to the list.

3-36

37. Page 4.4-35, **Performance Standard 3.5-6**. Both paragraphs one and two need to be amended by inserting "**wet pit**" before the word "mining". See comment 33, above.

3-37

The suggested expansion of performance standard 3.5-6 specifies that capture zone analyses utilize the **USEPA** model WHPA. This single layer model is not appropriate for use in the multi-layer Cache Creek environment where mining is **proposed** in the alluvium while nearby wells are **completed** in the underlying **Tehama** Formation. See also **Comment 32**, above, regarding the specification of a single model code in an era where analytical tools are rapidly evolving.

38. Page 4.4-37, **Performance Standard 3.5-3**. The recommended wording in paragraph one is not clear despite the first sentence that refers to preventing surface water from entering mining areas. The intent seems to be that the 20 year storm criteria would apply and be limited to drainage at the perimeter of the

3-38

mining excavations. Water in **below** grade excavations would not be expected to flow up out of the excavations into surrounding creeks and sloughs.

The recommended wording in paragraph two would establish a program to inspect drainage facilities every five years following reclamation. This is an impractical requirement. It is recommended that the inspection requirement be deleted and replaced with two deed provisions: **1)** that County staff has the right to enter property and inspect ditches, etc.; and **2)** corrective action, if warranted, is required of the property owner.

The responsibility for inspection of berms and ditches for control of surface erosion is normally assigned to soil scientists or civil engineers rather than to geologists.

39. Page **4.4-38**, Performance Standard 3.5-4. The first paragraph needs to be amended by adding the word "wet pit" preceding the word "mining" in several places. See comment **33**, above.

At the end of the first paragraph the recommended new language would require that water levels be measured to an accuracy of **0.01** foot. This is unnecessary. Readings to **0.10** foot provide sufficient accuracy to interpret the results. Note that all of the follow up action (reporting and reaction to ground water quality degradation) does not include any specification for water level interpretation.

40. Page **4.4-39**, Performance Standard 3.5-4. The bulleted items on this page recommend well sampling at the start of excavation and monitoring on a semi-annual basis for the first year. This is unnecessary. The information is generated if the wells are tested six months prior to excavation and the wet pits are tested on a semi-annual basis. It is recommended that the well testing be made only an annual requirement and that the standard be rewritten to specify that the **semi-annual** testing be performed prior May 1 and prior to December 1 each year.

The suggested **modification** to require semi-annual pit monitoring for pesticides (EPA **8140** and **8150**) and semi-annual well monitoring for these same two pesticides is unnecessary. Remember that the **DEIR** already requires permanent maintenance of berms and ditches to preclude agricultural **runoff** from entering the pits, and, the potential for aerial drift of agricultural chemicals to cause a significant impact is dismissed in Appendix 7.4 of the **DEIR**. As a result, the monitoring requirements suggested here do not apply to any apparent impact resulting from wet-pit mining.

1

3-38

3-39

3-40

Monitoring of wet pits and wells is also **recommended** on a semi-annual basis for general mineral and inorganic chemicals. If this requirements were literally interpreted in accordance with the California Code of Regulations Title 22 for general mineral and inorganic chemical constituents, **testing** would have to be done on a semi-annual basis for a minimum of 18 general minerals and 18 inorganic chemicals. This is excessive when the real thrust of the measure seems aimed at major cations and anions, related to evaporation, and nitrates, related to past or adjacent agricultural land uses. Concern about mercury is comprehensively addressed elsewhere. Most inorganic chemicals monitored to date are at levels below analytical detection limits. Therefore, once baseline monitoring has been done a more appropriate recommendation would be to limit the testing to cations, anions, nitrates and, if necessary, any site-specific constituents of concern.

3-40

Mid-page is a **recommendation** that groundwater testing results be provided in a report to the County within 30 days of testing. This is impractical. It is recommended that this requirement be changed to specify that the report to the County must be sent within 60 days of testing or combined with the Spring **Report/Annual** Review.

41. Page 4.4-39, Performance Standard 3.516. Bonding for monitoring is not required during the mining period because it can be made a condition of the **permit**. This provision needs to be revised so that it applies just to the 10 year period following reclamation.

3-41

42. Page 4.440, Top Paragraph Clarification is needed to specify that the cost of copies and coordination among public agencies is a cost to be born by the County.

3-42

43. Page 4.440, Second Paragraph. This section needs to be clarified by including a statement that no further testing or review is required when all constituents fall within allowable ranges.

3-43

44. Page 4.440, Fourth Paragraph The vicinity needs to be quantified. Perhaps a 1,000 foot criteria would be appropriate.

3-44

45. Page 4.4-50, Bottom of the Page. An additional performance standard is recommended which would require testing of A-horizon soil before it is reused for reclamation within the drainage area of a wet pit. This is overreaction since A-horizon soil sediments are typically part of all agricultural tail water in the County including existing runoff directly to Cache Creek Previous testing of **soils** at the **Solano** Concrete operation has shown that historic, residual pesticide levels in the soil are not a problem. Testing of agricultural soils contributing **such**

3-45

runoff is currently not done elsewhere. The planned testing of water in the wet pits will provide sufficient monitoring data without including this unnecessary requirement. Note, also, that the recommendation here is inconsistent with the finding that no mitigation is required for Impact 4.12-2 (Historic Pesticide Use) discussed on pages 4.12-10 and 4.12-11.

3-45

46. Page 4.4-51, **Impact 4.4-3**. The suggested additions to the OCMP standards mandate sampling of sediments, water and predatory fish. However, there are no provisions in the recommended verification standards for comparing the results of the sediment analyses.

The DEIR text (page 4-4-47) concludes, after much speculative logic, that there could be some health effects to people consuming certain fish. The "potential increased conversion of inorganic mercury to methylmercury as a consequence of development of anaerobic conditions within lakes formed in proposed mining areas is a possible impact"; the "increased production of methylmercury could have a significant impact on aquatic life within the lakes"; and, "bioaccumulation of methylmercury within fish inhabiting the lakes could present health effects to people consuming these fish". An appropriate and logical mitigation would be to simply control the consumption of fish by humans. Fencing of pits is already a recommended mitigation for general public safety; warning signs against eating fish could be included.

3-46

An extensive investigation is being conducted of the occurrence of mercury in soil and ground water near Cache Creek, its environmental fate in reclaimed lakes and a more comprehensive risk assessment of its presence. The results should provide more technical knowledge on the issues, including the appropriateness of using EPA guidelines as performance standards for mercury-related sampling and evaluation requirements.

47. Page 4.4-52, Heading **Impact 4.4-4, paragraphs 2 and 3**. This discussion is incomplete. The loss of water to evaporation is more than made up by the increased storage capacity provided by the wet pits. Groundwater occupies from 16 to 25 percent of the aquifer volume when sand and gravel is in place and it occupies 100 percent of the aquifer volume in those areas where the aggregate has been removed. A 771 acre area 40 feet deep could contain up to 7,710 acre feet of water before wet pit mining and up to 30,840 acre feet after wet pit mining. Even though 3,022 acre feet may be lost to evaporation consider the fact that 23,130 acre feet is gained by wet pit mining.

3-47

Another way to look at this analysis is to recognize that precipitation that does not run off stays within the basin as soil moisture (used by plants) or groundwater recharge. Under existing conditions, 16.5 inches of the average 19

inches of rainfall remains in the basin. However, if one accepts the water budget approach an **average** of **16.5** inches of **precipitation** offsets the **consumptive** use **by current** agriculture. From Table 4.4-1, for example, tomatoes evapotranspire **27.4** inches per year; the net consumptive use on land planted to tomatoes, based on the **DEIR** water budget **approach**, would then be **10.9** inches per **year (27.4 - 16.5)**. Continuing the same **logic**, the contribution of precipitation to offset evaporation from a ground water lake would then be the full **19** inches per year (no runoff). For consistency, then, the net loss would be **2.34** feet per year from lakes (**3.72 - 1.85**) and **3.84** feet per year from wetland habitat (**5.42 - 1.58**). The total net loss for reclaimed wet pits would then be on the order of **1,761** to **1,861** acre feet per year rather than **2,861** as reported in the DEIR.

3-47

48. Page 4.4-55, Impact 4.4-5. The discussion of potential impacts associated with groundwater recharge is misleading. Recharge can only occur if supplemental water is brought to the aquifer. Pumping water from the aquifer and putting it back into the same aquifer is not a logical recharge scheme and does not belong in the DEIR. It is recommended that the entire discussion be made in the context of the **Yolo** County Flood Control and Water conservation District's planned recharge and recovery project which, although still conceptual, would introduce supplemental water using surplus storm flows as a primary source.

348

49. Page 4.4-59, Action 4.4-1. The U.S. Army Corps **Westside** Tributaries Study is out of date for use in determining the current **100** year flood line. See Comment 4, above.

349

50. Page 4.4-60, Action 4.4-7. It is not clear how maintenance of a stable low flow channel would allow for natural revegetation of offchannel areas along Cache creek. This needs to be discussed. Manipulation of flows in the creek will have impacts on the YCFCWCD system and impacts on the availability of the irrigation water supply.

3-50

51. Page 4.4-64, Bottom of Page. The text mentions "extreme conditions" that could render a reclaimed surface unfarmable. No example of such extreme condition is given. Consider, for instance, the **Yolo** Bypass area where the land is inundated each year and the beginning of the farming season is delayed but the land is not rendered unfarmable.

3-51

52. Page 4.4-67, Performance Standard 3.5-16. This suggested Performance Standard is extreme. The distance from reclaimed surfaces to ground water **can** be five to six feet to provide sufficient unsaturated rooting depth for agriculture. Wet season groundwater elevations are too conservative and would not

3-52

practically impact typical farming; spacing above dry season ground water levels will effect acceptable unsaturated rooting depths during the growing season. 3-52

53. Page 4.5-21, Paragraph two. This section acknowledges the site **specific** soil analyses that were required as part of each **off-channel** mining application. The SCS mapping is superseded by this information. Soil **mapping** in the OCMP need to be amended **accordingly**. 3-53

54. Page 4.5-24, Performance Standard 4.5-9. Mining is an **acceptable use** in the AP **agricultural Prime** zone. **Hi** **thi** standard would require a mining **operator** to place one acre of agricultural land into an open space easement for each acre of land **subject** to mining or, alternatively, to upgrade non-prime agricultural soils or **provide** irriation to **non-prime** lands on a one-to-one basis. **The** nexus for this proposed requirement is not explained nor is it clear whether this type of requirement is universally applied to other conversions of **prime** agricultural lands. This **proposal** does not seem to acknowledge that there is already mitigation in **the form** of the open space values of the **reclaimed** mining sites and the net gain amenities that will be provided. 3-54

55. Page 4.5-24, Performance Standard 4.5-9. The second bulleted item in this section suggests that a permanent agricultural preserve easement should be applied to all lands that are not **currently** under Williamson Act contract. Since Williamson Act contracts are not **permanent** the statement would be more useful if it read "Placement of a **permanent** Agricultural Preserve easement on lands meeting the Williamson Act definition of "prime farmland". 3-55

56. Page 4.5-24, Bottom of Paae. **Yolo** County has no jurisdiction or ability to regulate mining operations in other counties; this statement does not belong in the OCMP EIR. 3-56

57. Page 4.5-26, Table 4.5-4. Each of the mining applications submitted to **Yolo** County identified a gross acreage figure for the area subject to mining. There was no requirement to break this number down into acreage devoted to hedgerows, access roads, pump station sites, utility rights-of-way and actual agricultural fields. Therefore it could easily be assumed that the entire gross acreage figure was devoted to agricultural fields. The subject table, however, subtracts land devoted to side slopes, access roads and ponds, after reclamation, to reach a net figure which is then compared to the original gross agricultural acreage. The **difference** is termed a loss of agricultural land. In order to get a true comparison the net acreage before mining needs to be compared to the net acreage after reclamation and proper recognition needs to be given to the habitat values created by the ponds and vegetated side slope areas. 3-57

58. Page 4.5-31, Action 5.5-2. Clarification is needed so that aggregate stockpiles are exempted from the erosion control seeding requirement. 3-58

59. Page 4.5-38, Mitigation Measure 4.5-6a. The statement regarding the OCMP and ordinances does not make sense. It appears that the statement may be incomplete. 3-59

60. Page 4.6-34, Performance Standard 6.57. It is logical that the County would provide copies of proposed habitat restoration or mitigation plans to the specified agencies in the normal process of interagency coordination and project review. This responsibility should be specified herein. 3-60

61. Page 4.636, Policy 6.4-9. The net gain concept discussed here is not consistent with the original concept. See Comment 3, above. 3-63

62. Page 4.7-12, Performance Standard 2.5-6. Subsection (a) of this standard would require that soil be kept vegetated, enclosed, covered or watered at all times. However the factors listed at AP42 indicate that an inactive stockpile emits very minor amounts of particulate emissions because a resistant crust develops if the soil is simply watered and then left alone. It is more practical to water active stockpiles, as recommended, but to leave inactive stockpiles alone unless the soil will not be returned within a mining season. Soil retained more than a single season would then be broadcast seeded for longer term erosion control.

Subsection (b) of this standard would require unpaved roads to be watered at all times. It is not appropriate or practical to require that this be extended to weekends and holidays when the roads are not in use. To increase the frequency as suggested would be disruptive. 3-62

Subsection (c) of this standard would require that inactive portions of the site be seeded or watered until vegetation is grown, or, shall be stabilized using methods such as chemical soil binders, jute netting or other YSAQMD approved methods. It is more practical to water or otherwise treat active work areas but to leave inactive areas alone unless the areas will remain inactive for more than one season. Inactive portions of the site will produce little in the way of fugitive dust. Additionally, the YSAQMD may have acted to approve certain chemical agents but the Regional Water Quality Control Board has not.

63. Page 4.7-19, Performance Standard 2.57. This performance standard specifies that vehicles should not be left idling for longer than five minutes. Five minutes is not a reasonable period of time for three reasons: 1) Vehicle 3-63

emissions at start up are larger than at idle, **2)** Start up generates excessive wear of vehicle engines, and **3)** Fueling and lubing of **most** equipment cannot be completed in five minutes. Fifteen minutes is a more reasonable limit.

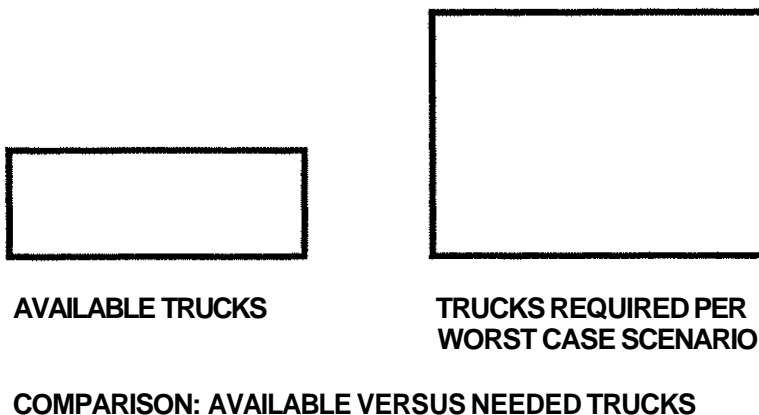
3-63

64. Page 4.8-30, Footnote 21. The worst case condition should be analyzed in the **EIR**. If this is the worst case it should be so identified. If it is not then the worst case should be evaluated.

3-64

65. Page 4.8-34, Analysis of Cumulative Conditions with the Project Alternatives. The worst case analysis throughout this section is **artificially** high because it assumes that each of the five mining operations could be shipping at maximum production at one time. This has never happened in the history of mining along Cache Creek. In reality there are two factors that limit the cumulative effect. One is the limited number of jobs that require aggregate at any one time. Second is that the trucking firms that serve the area have a cumulative fleet that is sized to serve the average production level. The mining **companies** do not maintain their own fleets of **delivery** trucks. In effect, only one or **two** operations could be running at maximum **production before the available** trucks are fully committed. Trucking firms, like other businesses, can be expected to structure themselves to serve the average requirement of an **industry**; it would be uneconomical to retain a truck fleet and a staff of drivers that **may** not be utilized on a regular basis. **Consequently**, it is recommended that the average **traffic** level based on the average production level be utilized in estimating the real impact on intersections for purposes of determining when **signals** and other traffic control devices may be needed. The worst case analysis **shows** a possible Level of Service problem at two locations whereas the **average** condition would not reveal such a problem. A Method of monitoring the real impact on intersections needs to be devised so that improvements would only be **initiated** when a real Level of Service deficiency is detected.

3-65



A second concern about the estimate of traffic is the assumption that trucks carry 22 tons per **load**. In actuality a figure closer to 25 tons per load is more representative. By using the lower figure an artificially high number of trips is generated.

3-65

A third concern is the use of a passenger car equivalent to account for the greater length and slower acceleration ability of trucks. This is a conservative approach which uses one multiplier for all trucks. In the present case this effect may be overestimated since most of the trucks coming to the aggregate plants are empty trucks.

66. Page ~~4.8-44~~, Performance Standard 2.5-5. This standard would require that **operators** share the **responsibility** for certain pavement maintenance with the **County**. Clarification is needed **to confirm that** repairs to roadway segments affected by mining traffic would not be expected to meet a higher standard than that applied to other roadway repairs, and, that the shared responsibility will not extend to the assumption of liability of any kind.

3-66

The proposal to evaluate roadway segments on an annual basis seems to be more frequent than necessary. It is suggested that a review every five years might be more appropriate for those segments that have been **repaired to County** standards.

67. Page ~~4.8-46~~, Mitigation Measure 4.8-3a. This proposed mitigation measure does not identify the procedure that would be used to determine how the work is to be done. It is suggested that work affecting one operator's haul route be negotiated with the affected operator and that a bid procedure be avoided.

3-67

68. Page 4.4-47, Mitigation Measure 4.8-3a. This measure would require operators to pay a fair share toward improvements required to maintain LOS C on County roads and LOS D on State Highways. The text needs to be revised to clarify that this measure does not **apply** to all County roads nor all State Highways.

3-68

69. Page ~~4.9-14~~, Mitigation Measure 4.9-1a. Leq (Equivalent Noise) **is a** valid yardstick for noise measurement in a rural setting and was the standard required when mining applications in the rural Cache Creek area were submitted. A change to CNEL (Community Noise Equivalent) imposes an urban standard and is unfair. The residences of concern are rural residences in an agricultural setting. If CNEL is used as the yardstick for measuring noise then "agriculture" is the appropriate land use category, in Table ~~4.9-3~~, from which to draw the noise

3-69

exposure standard. The applicable standard for normally acceptable noise would then be a maximum of 75 dB. 3-69

70. Page 4.9-15, Mitigation Measure 4.9-1c. Using the CNEL noise standard and applying it to the residential land use category is not appropriate. See Comment 49, above. Mining applications were submitted to meet the established 60 Leq standard. 3-70

71. Page 4.9-24, Mitigation Measure 4.9-4a. All of the noise analyses submitted to the County as part of the Off-Channel mining applications included back up alarms in the calculation of total noise impact. Mitigation measure 4.9-4a seems to indicate that additional mitigation is needed to account for back up alarms and that the effect was not considered earlier. If this is true then Mitigation measure 4.9-4a would double count the effect of back up alarms. In effect, if the standard for nighttime noise is met then no further mitigation is necessary. 3-71

72. Page 4.10-1, Bottom paragraph. Farming practices include personal vehicles and farm equipment that leave a trail of dust as they move along unpaved roads and over unpaved fields. A common view of farm equipment includes the plume of dust behind it. This needs to be added to the characterization of farming operations. 3-72

73. Page 4.10-15, Mitigation Measure 4.10-1b. An impact needs to be added for mining operations that are screened. See Performance Standard 7.5-3 documented on page 4.10-17. 3-73

74. Page 4.10-17, Mid-Page. The sentence starting just below the documentation of Action Item 6.4-11 makes no sense. 3-74

75. Page 4.10-20, Mitigation Measure 4.10-2a. If there is no impact then no mitigation is needed. This section needs to be omitted. 3-76
3-75

76. Page 4.10-27, Top Paragraph. Careful thought needs to be given to the designation of scenic roads. A scenic "river road", for instance, is normally applied to a road that parallels a river and offers scenic views towards the river for some extended period of time. A road that crosses a river perpendicular to the flow of the river does not normally fall into the definition of a scenic "river road" because the river is only seen for a few seconds and is sometimes not seen at all due to view blockage by the bridge railing. 3-77

77. Page 4.12-9, Action Item 24-2. This recommended action item is not consistent with the discussion found at the top of page 4.12-7. Submittal of 3-77

Hazardous Materials Business Plans and associated Spill Control and Countermeasure Plans are anticipated on a biannual basis. These plans are not subject to frequent change therefore filing of plans on an annual basis is unnecessary. It is recommended that the annual filing requirement be dropped from this action item.

3-77

78. Page 4.12-10, Performance Standard 4.5-9. Dredges are included in the equipment for some mining operations. This standard needs to be amended to read "Fueling and maintenance activities of heavy equipment (except draglines and dredges) ..."

3-78

79. Page 5-7, Section 5.4. The discussion of Alternative 4 (Environmentally Superior Alternative) is **misleading**. Positive aspects of the alternative are noted **but** significant **negative** aspects **are** omitted. **Fundamental** to the discussion is the irrefutable fact that the state Department of Conservation has established a quantity of aggregate that will be needed over the next **fifty** years to meet the demands of society. Most important to understanding the negative aspects of Alternative 4 is the fact that a choice must be made between supplying needed aggregate from sources within the County versus importing such materials from the outside.

If the demand for **future** aggregate is to be met by local sources, under Alternative 4, then the amount of land identified in the five mining applications will **be** insufficient to meet demand. The shallow **mining approach** in Alternative 4 involves the surface removal of topsoil and overburden, identical to the process proposed by the five mining applications, however once the surface soil has been removed only a small amount of aggregate is removed before the surface soil must be replaced. **If mining proceeds** at the rate necessary to meet demand all of the **acreage** identified in the five mining applications will be used up by the end of six years. In fact, in order to generate the quantity of aggregate necessary to meet the demand established by the state Department of Conservation an additional **18,000** acres of land will be needed. This means that much more land will be disturbed and that dust, noise and visual impacts, for instance, will be more wide spread.

3-79

If the demand is to be met from outside of the County, the County will become an importer within six years. Importation raises the cost of the aggregate, causes more traffic, more wear on roads and contributes more air pollutants. Importation means a loss of **jobs** and tax revenue **locally**, less **money** in the local economy and a higher **cost** for all construction **projects** including **road** repairs, bridge repairs, erosion control projects, drainage improvements, new schools and even road rock for rural driveways. Importation means that there will be no net gain amenities derived from mining.



Finally, there is the issue of vested rights that has not been addressed in this section. Alternative 4 would not provide off-channel extraction at a level which has historically been utilized within the channel for some of the mining companies. Consequently, some of the mining companies would **continue** to **operate** within the channel to make **up** the difference and the cumulative objectives of the Cache Creek **Resource** Management Plan could not be met.

3-79

PREAMBLE TO MINING ALTERNATIVE

Sandy **McLellan** has prepared the following discussion of the over-riding philosophy upon which consideration of any future mining activities are based:

Yolo County aggregates are **non-renewable**; **removal** means the depletion of a valuable resource. Aggregate mining should not be allowed in ways which will deplete or reduce the quality or capacity of the other, **equally valued resources** within the County. These include, but are **not** limited to, **our agricultural land** base, groundwater aquifers, surface water supplies, **the natural environment, biological** and ecological **habitats** and the **quality** of our human **environment**.

Although the removal of aggregate causes an interference with the existing landscape and land uses, in order to be **acceptable to the County**, **this interference will be temporary and short lived**. Mining of **any allowable reserves must leave the resulting landscape in a state that can be used and enjoyed by current as-well-as future generations, in perpetuity**.

This **Alternative** is therefore **based on the premise that, to be acceptable**, all mining **proposals being reviewed for permit must have pre-designed reclamation plans to ensure that the operations will lead to "no net loss"**, either through degradation or deterioration, to the co-existing resources or to the qualities of life enjoyed by the citizens of **Yolo County**. **Indeed, inherent within our policy objectives is the expectation that, as part of their acceptability, mining proposal practices should present opportunities for the enhancement and enrichment of these resources and qualities** (a "net gain" philosophy should be fully expected).

ATTACHMENT A

NET GAIN, cont.

Map # 1: Ww down using Figures 3.1-9, 3.1-10 and 3.1-11 of the DEIR and indicates aggregate resources along the Creek which fall into three types:

- a) Those areas with 20' of gravel above the water table.
- b) Those areas with 20' of gravel above the water table and 40' of gravel below the water table.
- c) Those areas with 40' of gravel only below the water table.

Map # 2 Was developed from information in the Dames and Moore EIR. It uses red and yellow numbered dots to indicate areas which the document indicated were problem spots. Such problems may be groundwater, visual, dust, vegetation, wildlife, transportation, noise, developed areas or other structures. Also included on the map was the delineation of where the gaining and losing reaches of the creek occur as well as the area which are in transition between the two. Areas of potential recharge are also shown.

Members of the DEIR Study Group were concerned that the information shown on the maps was not complete because it did not represent the issues or information brought out in the public's comments to the Draft EIR. Sandy responded that the maps he generated were to help in understanding some of the issues we are facing. They are not meant to be the complete picture, especially because we have not gotten responses to the comments yet. What we know, he said, is that we don't have as much aggregate as the State document says. Some areas don't have as much gravel as the State says and other areas have no gravel at all. He felt it was useful to see that visually. Certain planning restrictions, may also eliminate areas altogether from consideration for mining. This knowledge, added to areas marked by YCAPA on their map as ones of no interest to them, will cause the DD mining area to be expanded. These maps will continue to be updated as we get more and more information.

A member of the Working Group asked how the water table had been defined for the map. Sandy answered that it was evolutionary data based on the contours the DEIR provided.

Building In Benefits For Yolo County

McLellan introduced a Preamble which he had written for a potential future ordinance. He explained that it was, again, something he had done for his own use and thought process. The Preamble moves beyond a "no net loss" concept of resource planning to one of a "net gain". He

explained that the State regulations speak in terms of a net loss. If mining occurs in the county, then the benefit the miners accrue must result in a net gain to the community and the residents as well. An illustration of the concept, McLellan showed a series of slides of a mining project in Canada which created a series of pits next to the Grand River in Waterloo. Previous flood control projects had destroyed the floodplain habitat adjacent to the river. Fish species had declined, as had the diversity of all species. The mining project was designed to restore and upgrade the area. Warm and cold water ponds were designed then excavated to create habitat for both warm and cold water fish species. Details were given of the project's design and construction.

There was concern among members of the Working Group that this plan was not an appropriate model for Yolo County because Cache Creek is not a year-round stream. Sandy acknowledged that we will have to develop our own plans based on our situation, but that the Grand River project was used to illustrate the "net gain" concept.

ATTACHMENT B

LETTER 3: YOLO COUNTY AGGREGATE PRODUCERS ASSOCIATION

Response to Comment 3-1:

Thank you for your letter. In response to the comment, a new table has been added to the end of Section 1.1 Background and Nature of Project on page 1-3 (Introduction) of the DEIR. See Text Change # 1.

Response to Comment 3-2:

In response to the comment, the Text Change # 2 has been added.

Response to Comment 3-3:

The current concept of net gain is taken from Board of **Supervisor's** Resolution No. 94-82, regarding the short-term mining applications. Subsection **B,(1)** of the Resolution states:

The application shall contain a program which will result in the restoration of some unrestored portion of Cache Creek, or shall **promote** educational and interpretive values relating to Cache Creek, or **will** result in some other net gain, based on social, economic, or other benefits to the County;

Although this use of the term may have differed from earlier discussions and document, it is the most recent direction provided on the subject to staff by the Board of **Supervisors**. Subsequently, it is this definition that is used in both the Mining and Reclamation Ordinances, as well as the OCMP.

The issue of Net Gain is addressed in more detail on a project by project basis within the individual mining application **EIRs**.

Response to Comment 3-4:

The boundary has been defined based on the best available, current, published information at the time the OCMP and CCRMP were prepared. Where more recent, detailed studies have become available, as in the case of the individual mining applications, the information will be incorporated into the plans. Staff is therefore not recommending any text changes to the DEIR.

Response to Comment 3-5:

In response to the comment, Text Change # 3 has been added.

Response to Comment 3-6:

There are no "open space" provisions within the CCRMP. In-stream maintenance activities would be coordinated through the CCIP, as contained in the CCRMP, consistent with the requirements of the OS Zone. In response to the comment, the Text Change # 8 has been added.

Response to Comment 3-7:

As described in the discussion of impacts 4.4-2 and 4.4-3, the proposed off-channel mining projects under the OCMP could result in the degradation of water quality during and after mining. Specifically, the mining and reclamation activities could result in the release of hazardous material, particularly fuels, to the water-filled mining areas. Although these activities should be regulated under NPDES non-point sources permitting requirements, a potential for releases that does not currently exist could result from the activities posed under the OCMP. In addition, creation of lakes within the Cache Creek watershed could result in the increased potential for methylation of mercury, a compound occurring throughout sediments in the watershed. The potential for mixing creek waters (known to contain relatively high levels of mercury) and water in the mining areas could occur during low-frequency (larger than 100-year) flooding events. The **DEIR** presents mitigation measures for the mining and reclamation periods (Mitigation Measure 4.4-2a) and the **post-reclamation** period (Mitigation Measure 4.4-3a) which would reduce the potential for the development of water quality impacts that could be inconsistent with the objectives of the Basin Plan, including numerical standards set for oil and grease and dissolved oxygen.

Response to Comment 3-8:

In response to the comment, the Text Change # 9 has been added.

Response to Comment 3-9:

Please refer to Response to Comment 3-5. In response to the comment on aggregate conveyors, the Text Change # 10 (page 4.2-36) has been added.

Response to Comment 3-10:

The Technical Studies for the CCRMP (NHC, 1995) present data documenting subsidence in the Woodland area. Although tectonic movement presents a possible contribution to the measured subsidence, fluid withdrawal is the most common cause of subsidence. Hydrographs presented in the Technical Studies (David Keith Todd Consulting Engineers, 1995) for the Woodland area show significant groundwater level declines during the period from 1945 to 1985. Although groundwater levels appear to have recovered in recent years, depressed levels during the previous four decades would have created conditions favorable for subsidence.

Response to Comment 3-11:

The Coast Range-Sierran Block Boundary Zone (CRSBBZ), described as an active seismic source in the DEIR, is a complex system of multiple faults and folds. The CRSBBZ includes at least one fault (Dunnigan Hills fault) in the vicinity of the project site that is identified on the "Fault Activity Map of California and Adjacent Areas" (Jennings, 1994) as having Holocene activity. Active seismicity in the region also supports recognition of the CRSBBZ as an active seismic source. The requested change has not been made.

Response to Comment 3-12:

In response to the comment, the Text Change # 12 has been added.

Response to Comment 3-13:

Information provided in the comment suggests that sediment deposition at Capay Dam has resulted in filling of the area upstream of the dam. As the commentor suggests, the period during which the dam served as a sediment trap may be over. However, the response of the channel to previous alteration of the sediment budget and changes in stream gradient caused by the aggradation may still be influencing the channel dynamics of the creek. The information provided in the comment does not invalidate the description of channel morphology presented in the DEIR.

Response to Comment 3-14:

In response to the comment, Text Change # 13 has been added.

Response to Comment 3-15:

The preparers of the EIR do not consider seeding of a slope prior to the beginning of the rainy season as sufficient erosion protection. As stated in Performance Standard 2.5-21 of Mitigation Measure 4.3-2a, alternate erosion control can be proposed if the vegetative cover is not established prior to November 1.

Response to Comment 3-16:

In response to the comment, Text Change # 17 has been added.

Response to Comment 3-17:

Staff does not agree with the premise of the comment which indicates that the intention of the Performance Standard would be met by a redefinition of the planning area boundary. The CCRMP planning area is bounded by the OCMP planning area. The purpose of the performance standard is to provide not only physical continuity for the two plans but to

acknowledge that activities conducted under the OCMP could result in changes to or be influenced by the provisions of the CCRMP.

Response to Comment 3-18:

In response to the comment, Text Change # 18 has been amended.

Response to Comment 3-19:

Staff considers Performance Standard 4.5-3 to be clearly and succinctly presented. The standard requires that all mining areas be set back a minimum of 200 feet from the existing channel bank. The standard does not require construction of levees. However, levees may be required to provide 100-year flood protection for a project. Levees can be located within the 200-foot setback provided that the setback does not include former historic stream channels or formerly mined areas. The standard does not reference the Test 3 boundary as a datum for definition of the setback zone. However, the Test 3 boundary and related modifications should be considered in the design and approval off-channel mining plans. In some circumstances, channel improvement projects that would promote development of the more stable channel configuration under the Test 3 model could be appropriately integrated into an acceptable setback area.

The second part of the comment requests clarification on the specific requirements **presented** in the standard for evaluation of **mining** areas within 700 feet of the active channel with respect to previously filed mining **applications**. As described on page 4.3-7, the **preparers** of the EIR considered that the OCMP **performance** standard did not include specific requirements which would provide a **sufficient** technical basis for evaluation of channel stability. The preparers of the EIR and staff consider it necessary to strengthen the intent of the performance standard with specific requirements which define the level and methodology of channel stability evaluations. The appropriateness of individual evaluations will be evaluated in the project-specific **EIRs** prepared for each of the proposed long-term permit applications. However, it should be pointed out that each applicant has previously documented in a signed statement their understanding that changes to the draft OCMP could occur subsequent to their application submittal and that compliance with those changes would be required, including possible modifications to proposed projects.

Response to Comment 3-20:

In response to the comment, the Text Change # 20 has been added.

Response to Comment 3-21:

In response to the comment, the Text Change # 22 has been added.

Response to Comment 3-22:

The statement that "groundwater quality in the western portion of the valley is typically poorer than elsewhere..." was a general characterization made by the California Department of Water Resources. The commentor states that "limited TDS concentrations in the OCMP area have been consistently below the state recommended 500 mg/l secondary drinking water standard for TDS..." The data presented in Appendix 7.4 of this DEIR (Luhdorff and Scalmanini, et al., 1996) does not support this statement. Of the 26 TDS measurements made on water samples collected from within the OCMP area, 11 of the samples contained greater than 500 mg/l TDS.

Response to Comment 3-23:

In response to the comment, Table 4.4-2 has been modified. See Text Change # 23.

Response to Comment 3-24:

The commentor and staff appear to be in agreement on this issue. Staff believes that the last sentence of the first paragraph on page 4.4-15 "None of the municipal wells in the vicinity of the project site are near enough to surface water supplies to be considered under the SWTR." clearly states the relevance of the SWTR and is not a misleading statement.

Response to Comment 3-25:

100-year flood delineations submitted with the applications have been sent by staff to FEMA for use in their current efforts to revise and update **FIRM** maps for Cache Creek. In addition, a procedure to address the periodic updating of the **FIRMs** for the OCMP area has been presented in the Cache Creek Resource Management Plan DEIR (Mitigation Measure 4.4-2). Under this mitigation measure, the County Floodplain Administrator shall file for a Letter of Map Revision with FEMA every ten years, or as needed.

Response to Comment 3-26:

No implication was intended that the "chipped teacup theory" was developed to illustrate the concept of a gaining reach. However, channel incision and high groundwater levels in adjacent banks (the chipped teacup) would result in a gaining reach. In response to the comment, the Text Change # 24 has been added.

Response to Comment 3-27:

The policy is quoted verbatim from Reclamation Board requirements. Staff believes that it is adequately clear that the policy refers to **landside** excavations, since the statement falls under the heading of "...off-channel excavations..." and this is the type of excavation being evaluated in the DEIR. Any ambiguity regarding location of property boundaries relative

to Board jurisdiction would be resolved on a project-by-project basis during the permit application process.

Response to Comment 3-28:

In response to the comment, the Text Change # 25 has been added.

Response to Comment 3-29:

A Floodplain Development Permit (FDP) is identified in each of project-level EIRs, as a required entitlement where proposed mining sites would be located within floodplains as designated on the most current FIRMs. Upon revision and release of new FIRMs, most of the proposed mining sites would no longer be located within the 100-year floodplain, and therefore would likely not require subsequent permits. However, some projects may require FDPs for channel bank protection improvements. More importantly, the Flood Ordinance applies to all 100-year floodplains (as determined by FEMA) throughout the County. These requirements do not apply to Cache Creek alone, and since this is a federally mandated program, the County cannot restrict its scope.

Response to Comment 3-30:

In response to the comment, the Text Change # 26 has been added.

Response to Comment 3-31:

The intent of the discussion in the DEIR was to inform the reader that backfilling a series of wet pits near the creek could increase groundwater levels locally, **resulting** in increased discharges to the creek, relative to the existing condition. The comment states that the "Cache Creek system effectively infiltrates all streamflow (under low flow conditions) immediately downstream of the Plainfield Ridge." The discussion in the DEIR was not intended to be limited to low flow conditions only. The EIR did not analyze data to support the assertion that the system recaptures all emergent groundwater that may result from proposed backfilled pits during the entire year.

Response to Comment 3-32:

MODFLOW is based on a series of partial differential equations which describe, in three dimensions, fluid flow through a **porous** media. It is unlikely that these basic equations will be modified in the future. Furthermore, **MODFLOW** is generally considered the most used and rigorously tested model available today. **However**, as the commentor indicates, other models may be applicable.

The DEIR states that two feet of groundwater level change, resulting from backfilling of wet pits with fine-grained sediment, would be considered a significant impact. The commentor challenges this significance criteria. Staff has considered 1) the analytical data available,

2) the standards of significance employed in similar situations in other jurisdictions, and 3) the burdens potentially placed on nearby well operators resulting from increased electricity required to lift water from deeper in the aquifer or deepen wells that become too shallow.

The analytical data suggests that groundwater level perturbations caused by **backfilled** wet pits are limited to near the pit boundaries (Todd, 1996) and therefore, few wells are likely to be impacted, relieving the applicants of the likelihood of protracted analysis. The EIR preparers acknowledges that the "two foot" standard is somewhat arbitrary, but recognizing that some standard is required to establish significance, considers it a reasonable criteria, based on interpretation of analytical data and precedent.

"Well failure", as used in the DEIR, refers to a condition in which a well suddenly or gradually fails to produce an adequate volume of water. This type of well failure would occur if the groundwater level was lowered below the screened intake of the well. Staff agrees that lowering or fluctuation of groundwater levels would not cause collapse of a well. A shallow well operating with little tolerance with regard to the saturated water column overlying a submersible pump could conceivably break suction (fail) with a two foot drop in summertime water levels. Well relocation is the only practical mitigation for a mining plan that would result in significant impact to a nearby well. The situation described above is likely to be uncommon, requiring a very shallow well in close proximity to a **backfilled** wet pit. The fact that the commentor disagrees with the significance criteria and mitigation measures regarding impacts to wells is noted for the record.

In response to the comment, the Text Change # 27 has been added.

Response to Comment 3-33:

In response to the comment, the Text Change # 27 has been added.

Response to Comment 3-34:

Staff believes that the existing statement is adequately clear and very similar to the commentor's suggested wording.

Response to Comment 3-35:

In response to the comment, the Text Change # 21 has been added.

Response to Comment 3-36:

In response to the comment, the Text Change # 30 has been added.

Response to Comment 3-37:

In response to the comment, the Text Change # 32 has been added.

Response to Comment 3-38:

The intent of the performance standard is to keep as much runoff as possible out of the wet pits. It is recognized that during mining, the pit area would be internally drained and that rainfall falling on pit sideslopes may drain into the pits. However, the post reclamation drainage plan must direct runoff from the reclaimed lowered surfaces away from wet pits and accommodate the 20 ~~year~~/1 hour storm. To add clarity, Text Change # 32 has been added.

Response to Comment 3-39:

The first sentence of Performance Standard 3.54 requires that all proposed off-channel excavations extending below the groundwater table "shall develop and maintain a groundwater monitoring program..." The requirements of the program are further discussed in the performance standard. Adding "wet pit" in front of each reference to mining would be redundant, in this case, since monitoring programs are only required for wet pit mining.

The second part of the comment states that groundwater level measurements collected with an accuracy of 0.1 foot is adequate, rather than the 0.01 foot accuracy required in the performance standard. Numerous brands of reasonably priced electronic water level measurement devices are available that provide measurement accuracy of 0.01 foot. Particularly in early phases of mining, when fewer more closely spaced monitoring wells may be installed at a wet pit mining site, the added accuracy may prove beneficial. Since the accuracy can be achieved without additional effort, the EIR preparers believe 0.01 foot accuracy is appropriate. In addition, groundwater level data will be important to successful implementation of a monitoring program. It is required that wells be placed in a downgradient position, relative to wet pit locations. This positioning could not be confirmed without water level data. Furthermore, any additional investigation **and/or** remediation of identified degradation of water quality would require a thorough understanding of the hydrogeologic regime.

Response to Comment 3-40:

The preparers of the DEIR disagree with the commentor. Several monitoring scenarios and schedules were considered, and the program thought to be most conservative (protective of the environment) and reasonable (feasible to implement) was presented in Performance Standard 3.54. Analyzing only a subset of the full scan of general mineral and inorganic chemicals would eliminate the primary method for early detection of potential trends in water quality in the vicinity of the wet pits. The commentor suggest establishing a baseline with the full scan and then limiting subsequent tests to a few constituents, yet provides no practical method for further evaluation of the discontinued constituents.

The preparers of the **DEIR** believe that submittal of analytical results to the County within 30 days of testing is reasonable. Typically analytical laboratories can complete the

analytical work within five to ten working days of submittal of samples, leaving the applicant at least two weeks to analyze the data and submit a report. The preparers of the DEIR believe a rapid analysis and submittal is an important component of the monitoring program.

Response to Comment 3-41:

In response to the comment, the Text Change # 23 has been added.

Response to Comment 3-42:

In response to the comment, the Text Change # 32 has been added.

Response to Comment 3-43:

In response to the comment, the Text Change # 32 has been added.

Response to Comment 3-44:

The preparers of the DEIR disagree that the vicinity needs to be quantified. This could vary considerably based on site conditions or the contaminant of concern.

Response to Comment 3-45:

A primary objective of mitigation measures to protect water quality in the wet pits is to eliminate, or at least minimize, runoff into the pits that may contain contaminants. Agricultural soils (A-horizon) in the vicinity have been demonstrated to contain residual quantities of pesticides. The sampling and analysis done at the Solano Concrete site indicated that DDE, a breakdown product of DDT, was present at concentrations up to 3.4 parts per billion. It was determined that these concentrations were not high enough to be a significant health risk to humans that may be exposed to the soils during mining and reclamation, but standards for the protection of water quality are more stringent. The staff and preparers of the DEIR believe that all controllable potential sources of water quality contamination should be eliminated to the extent possible.

Response to Comment 3-46:

The comparison of results from the initial and verification sampling events is not required. The purpose of the verification sampling is to provide confirmation that the exceedance of the water and/or fish tissue thresholds presented in the Mitigation Measure 4.4-3a. Therefore, the results of the verification sampling should be compared to the thresholds. This comparison could be made by standard statistical methods for comparison of mean values of the data to a regulatory value (e.g., Student's t-test using a 95 percent upper confidence limit). Although not required by the performance standard, the results of the initial and verification sampling could be compared using, standard statistical methods, to

determine if the data sets are sufficiently similar to be considered a single data set. However, standard statistical techniques may be difficult to apply if the variability in the data set is high or if the data sets differ in their composition. For example, fish population samples for the two events may not be identical due to availability of species at the time of sampling.

The preparers of the EIR recognize that, as currently worded, the portion of the performance standard under Mitigation Measure 4.4.3a which addresses sampling of the existing wet pit does not specify that the standard of 0.5 mg/kg for fish samples applies to the mean value for the fish sample population. Text Change #3-46 has been made for clarification.

Staff considers that the DEIR presented sufficient information and analysis to establish that the production of methylmercury in lakes in reclaimed mining pits was a significant environmental impact. The commentor suggests that the impact of the accumulation of methylmercury in fish could be mitigated by controlling the consumption of affected fish by humans. Staff agrees that prohibiting access and posting the lakes with signs that warn of potential health hazards would be an appropriate mitigation. However, these measures would only address the potential impacts to humans. The potential production of methylmercury in the lakes would ultimately affect the food chain. Bioaccumulation of sufficient concentrations of methylmercury could result in a toxic environment for biota within the lake. The creation of an environment that could be detrimental to wildlife is considered a significant impact.

The final point of the comment is not clear. The "extensive investigation" described in the comment is not identified. However, staff assumes that the commentor is referring to the sediment and water quality presented in Comment Letter 14 from Foster & Wheeler. The commentor is referred to Responses to Comments 14-1, 14-2, 14-3, 14-4, and 14-5. These responses also discuss the results of the investigation of the mercury levels in the existing mining pit lakes at the Solano Concrete Company, Inc. property which is presented in Appendix C of this document.

Response to Comment 3-47:

Excavation of aggregate and creation of wet pits may increase the storage capacity, but does not increase the actual storage of groundwater within the system. The mining process does not bring more water to the aquifer, nor does it retain water that may leave the system. Creation of a wet pit lake, resulting in increased storage capacity locally, results in the slight lowering of groundwater in the surrounding aquifer as groundwater flows in to fill the pit. Actual storage within an aquifer cannot be increased without either increasing inputs or decreasing outputs.

The DEIR acknowledges that evaporative losses would occur at the wet pit lakes, but that these losses are acceptable (as a matter of Regional Water Quality Control Board policy

and per the draft OCMP) to support biological habitat diversity. The preparers of the DEIR have revised the water balance calculations and present revisions in Text Change # 35.

Response to Comment 3-48:

The purpose of the discussion in the DEIR regarding groundwater recharge was to clarify that no County recharge plan had yet been formalized, and therefore the assertion by the applicants that the proposed wet pit lakes were groundwater recharge features was deemed premature. Staff believes that the discussion is adequately clear.

Response to Comment 3-49:

Please refer to Response 3-4.

Response to Comment 3-50:

The concerns of the commentor are noted for the record. Maintenance of a stable low flow channel would contribute to revegetation of in-channel areas, not off-channel areas as indicated in Action Policies 4.4-7 and 6.4-1 of the OCMP. In response to the comment, Text Change # 37 has been added to delete these policies, since they are more appropriately discussed in the CCRMP.

Response to Comment 3-51:

In response to the comment, Text Change # 39 has been added.

Response to Comment 3-52:

The performance standard requires a minimum of five feet between the elevation of average high groundwater and the reclaimed surface. If the lowered surface were to be reclaimed to the level of average high groundwater, the surface would be inundated, on average, every other winter. This would severely limit winter crop opportunities. It should be noted that the successfully reclaimed agricultural surface at **Solano Concrete** was reclaimed to eight feet above average high groundwater.

Response to Comment 3-53:

The commentor is correct in pointing out that **Yolo** County required each long-term mining application to include a site-specific soils analysis. The **DEIRs** for each of the project applications summarize the results of these analyses. The project **DEIRs** also include the soil classifications in the **Yolo County Soil Survey**, prepared by the U.S. Soil Conservation Service. The commentor suggests that "soil mapping in the OCMP **need[s]** to be amended accordingly." The draft OCMP does not include a soils map figure, so no amendment to soil mapping needs to be done. The DEIR for the OCMP includes Figure 4.5-1, Site Soils, which is based upon the **Yolo** County Soil Survey. The figure presents the various soil

types throughout the entire OCMP planning area as mapped by the Soil conservation Service. It would not be appropriate to revise the official Soil Survey regional maps to indicate the results of the site-specific soil surveys. The site-specific soil surveys are appropriately mapped and discussed separately in each of the project DEIRs.

Response to Comment 3-54:

With the zoning text amendment recommended as a part of the draft OCMP, commercial mining in the AP zone would indeed be an allowed use.

The commentor has asked about the "nexus" for the proposed Performance Standard 4.5-9, which is part of Mitigation Measure 4.5-2a. The proposed Performance Standard is recommended to provide mitigation for impact 4.5-2, which states "Potential Impact of Permanent Loss of Agricultural Land Caused by Conversion of Agricultural Land to Other Post-Reclamation Uses." A nexus, or legal connection, must exist between the mitigation measures and conditions of approval imposed upon an applicant, and the specific environmental effects of the proposed development project. The nexus for Mitigation Measure 4.5-2 is found in the draft OCMP and the Yolo County General Plan, and the environmental analysis contained in the OCMP DEIR.

Objective 5.3-1 of the draft OCMP states the County's intent to "Encourage the preservation of prime and important farmland along Cache Creek, while giving consideration to other compatible beneficial uses, such as groundwater storage and recharge facilities, surface mining operations, riparian habitat, and public recreation." This objective in the draft OCMP is consistent with the strong agricultural conservation policies that have been adopted in the Yolo County General Plan. Goal 2.2-3 of the draft OCMP states "Prevent or minimize the adverse environmental effects of surface mining."

Much of the prime agricultural lands that are proposed for mining will be reclaimed to productive agricultural uses, thus complying with Objective 5.3-1. Other mined prime lands will be reclaimed to non-agricultural uses, such as lakes, slopes, and access roads. The California Environmental Quality Act (CEQA) Guidelines state that "A project will normally have a significant effect on the environment if it will convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land" (Appendix G, item (y) of the CEQA Guidelines). Even though policies of the draft OCMP state the intent to "give consideration" to other beneficial non-agricultural uses such as lakes and recharge basins, the loss of prime agricultural lands to lakes, slopes, and roads is a significant impact under CEQA and mitigation should be recommended.

The proposed Performance Standard 4.5-9 is an attempt to mitigate for the loss of prime lands, that are not reclaimed after mining to prime agricultural productivity. The standard requires mining operators to mitigate for the loss of only those prime lands that have been permanently converted to non-agricultural uses, not for the loss of all lands that have been mined.

Additionally, this is a typical, if not standard condition for the County and region. It was required of the recent Davis Municipal Golf Course project which was the last major land use project before the Board of Supervisors.

The commentor states that **"there** is already mitigation in the form of the open space values of the reclaimed mining sites." When existing agricultural lands are mined and then reclaimed back to agricultural use, there is no net increase in open space values, since the pre-existing open space was recreated after excavation. Furthermore, the impact to be mitigated concerns the conversion of farmland and the resulting loss in agricultural productivity, not the reduction in open space values. Measure 4.5-2a correctly seeks to ensure that farmland lost to nonagricultural uses is sufficiently mitigated.

It is true, as the commentor notes, that each of the long-term mining project applications were required to identify specific "net gains" to the County, such as the creation of riparian and wildlife habitat, or the dedication of lands for future recreation facilities. Goals and policies of the draft OCMP propose that the County require a "net gain" from any proposed mining application that is approved under the provisions of the draft OCMP. This net gain is to accrue to the County and its residents to justify the permitting of surface mining. The net gain concept is not intended to include specific mitigation measures or programs that are incorporated into the project to mitigate any potentially significant impacts upon the natural environment that are identified, such as the permanent loss of prime agricultural land.

It should be noted that **mining** is an **acceptable** use in the AP Zone only for erosion control and bank maintenance **purposes** under **the** present regulations. **Off-channel** mining would become a conditional use in the AP Zone under the OCMP. Even then, however, it would still have to meet the necessary findings contained in the **Williamson Act**.

Response to Comment 3-55:

In response to the commentor, Text Change # 43 has been added.

Response to Comment 3-56:

The statement at the bottom of page 4.5-24 is made to address potential impacts due to permanent loss of agricultural lands under project Alternatives 2 and 3. Under these alternatives, no future aggregate mining would occur in the OCMP area in **Yolo** County. The analysis in the DEIR assumes that additional mining would occur in other nearby aggregate resource zones in Yuba and Sacramento counties to supply demand within the region that would be supplied by **Yolo** County aggregate reserves. If **Yolo** County ceased all aggregate mining there would be increased demand on other mineral resource areas, and prime agricultural lands could be affected as a direct result of the **Yolo** County actions to not allow mining. To help mitigate those expected impacts on agricultural lands outside **Yolo** County, the language at the bottom of page 4.5-24 was included in the DEIR for consideration by adjacent jurisdictions. This language was included to illustrate that

implementation of Alternatives 2 and 3 may not prevent the loss of prime agricultural land, but would merely transfer the consequences and responsibilities to another jurisdiction. Special findings pursuant to Section 15091(a)(2) of the CEQA Guidelines would be required should the noted mitigation and alternative be adopted.

Response to Comment 3-57:

The commentor states that Table 4.5-4 should be amended to identify the net acreage of lands before mining (subtracting out hedgerows, access roads, utility rights-of-way, etc.) so that the comparison with the reclaimed uses is more accurate. Text Change # 44 adds a footnote to Table 4.5-4 to state: "The gross "before mining" agricultural figures include some non-agricultural uses, such as hedgerows, access roads, and utility rights-of-way." The net agricultural acreages of the proposed mining sites were not submitted with the application and thus were not available for comparative analysis.

The commentor additionally states that "proper recognition needs to be given to the habitat values created by the ponds and vegetated side slope areas." The purpose of Table 4.5-4 is to estimate how much productive agricultural land is expected to be permanently converted to non-agricultural uses due to mining activities. The right hand column of the table, "Net Loss of Agricultural Land," is calculated by adding the two columns titled "Haul Roads/Slopes" and "Acres To Be Reclaimed for Other Uses." The creation of habitat lands and values is included under the "Other Uses" column. Attempting to calculate how much habitat value is created by slopes, as opposed to habitat created separate from lakes, would not change the final assessment of "Net Loss of Agricultural Land" in the right hand column.

Response to Comment 3-58:

The suggested clarification regarding the distinction of aggregate stockpiles is appropriate. Text Change # 46 has been made in response to the comment.

Response to Comment 3-59:

In response to the comment, Text Change # 50 has been added.

Response to Comment 3-60:

The concerns of the commentor are noted for the record. Mitigation Measure 4.6-4a on page 4.6-34 of the DEIR calls for including the Department of Fish and Game and the U.S. Fish and Wildlife Service in the review of habitat restoration and mitigation plans, as suggested by the commentor.

Response to Comment 3-61:

Please refer to the Response to Comment 3-3.

Response to Comment 3-62:

As currently written, Performance Standard 2.5-6 would require continuous dust treatment at times and locations where there is little potential for dust generation. The modifications to Performance Standard 2.5-6 provided in Text Change # 60 are intended to eliminate unnecessary dust control activity:

Response to Comment 3-63:

The Yolo-Solano Air Quality Management District CEQA guidance document¹ recommends that construction equipment and vehicle idling to be kept to an absolute minimum (below 10 minutes). OCMP Performance Standard 2.5-7 has been revised, as shown in Text Change #3-63, to provide for a 10-minute limit on idling equipment and vehicles.

Response to Comment 3-64:

The impact analysis assumes the Road 85/Road 14 haul route for Cache Creek Aggregates because it is the route currently approved. This results in a worst case analysis for some facilities, (i.e., Roads 85 and 14), but not others (i.e., Road 19 and 87). The discussion of each applicable impact describes the change in status if an alternative haul route is implemented (see Impacts 4.8-7, 4.8-8, 4.8-11, 4.8-12, and 4.8-13). The EIR being prepared for Cache Creek Aggregates discloses the project-specific impacts under this haul route, as well as the two other haul routes being considered by the applicant.

Response to Comment 3-65:

Page 4.8-22 of the DEIR notes that the trip generation assumptions are conservative. While it is recognized that not all producers will be operating a maximum production, the analysis must consider cumulative impacts of all producers at their maximum permitted levels. The fact that the commentor disagrees with the assumptions is noted for the record.

None of the identified impacts would be eliminated if average production levels were assumed instead of maximum production levels. The pavement impacts are mitigated via measure 4.8-2a, which requires annual monitoring of pavement wear based on actual conditions. Impacts to existing roadway and intersection deficiencies would also be applicable under average conditions.

¹ Yolo-Solano Air Quality Management District, Draft Air Quality Handbook, August 1994.

The commentor states that the two level of **service** impacts identified under the worst case analysis would not be applicable under an analysis of average production conditions. This statement is not supported by the results of the cumulative no project analysis on Table 4.8-11, page 4.8-31, that show the two intersection deficiencies would occur in the cumulative no project condition.

The assumption of 22 tons per truck load was identified in the Transportation Overviews, November 28, 1995, submitted by each project applicant in conjunction with their long-term application. The fact that the commentor disagrees with the assumption is noted for the record.

The intersection analysis is based on procedures outlined in the Highway Capacity Manual * Special Report 209, Transportation Research Board, 1994. This methodology does not assume a single passenger car equivalency factor for all locations. It computes a passenger car equivalent factor for each approach of the intersection, and varies based on the percentage of trucks in the traffic stream.

Response to Comment 3-66:

The commentor's suggestion is noted for the record. However, given the magnitude of the potential increase in truck traffic on several of the roads, the Public Works Department considers it necessary that the pavement evaluations be performed annually. Performance Standard 2.5-5 would require that operators share the responsibility for certain pavement maintenance with the County. The need for roadway repairs should be evaluated based on standards determined by the County. Roadways should be evaluated on an individual basis using data from a geotechnical analysis.

Response to Comment 3-67:

In response to the comment, the Text Change # 63 has been added.

Response to Comment 3-68:

In response to the comment, the Text Change # 63 has been added.

Response to Comment 3-69:

The change to Community Noise Equivalent Level (CNEL) from L_{eq} does not impose an urban standard. The CNEL is based on the L_{eq} and is adopted by the State of California as the metric used to determine land use compatibility for all types of land uses (see Table 4.9-3). For agricultural uses, the commentor is correct in that the "normally acceptable" standard for agriculture is a CNEL of up to 75 dB. The CNEL 60 dB standard, however, would more appropriately apply to low-density residences as are found on agricultural lands.

Response to Comment 3-70:

See **Response** to Comment 3-69. Mining applications which ~~meet the~~ established 60 dB L_{eq} standard in the OCMP can also meet the CNEL standard as long as night-time and evening levels are controlled to approximately 50 dB L_{eq} and 55 dB L_{eq} , respectively. The change from L_{eq} to CNEL was done to include a nighttime penalty for people's increased sensitivity to nighttime noise.

Response to Comment 3-71:

Mitigation Measure **4.9-4a** is intended to account for the particularly annoying nature of backup beeper sounds. The OCMP performance standards alone may not be adequate to minimize annoyance caused by the backup beepers due to their unique acoustic characteristics.

Response to Comment 3-72:

In response to the comment, the Text Change # 65 has been added.

Response to Comment 3-73:

The goal of Mitigation Measure **4.10-1b** is to limit the actively disturbed area visible within 1,000 of a public right-of-way. In some cases, mining operations within 1,000 feet of a public right-of-way may be screened from public view by vegetative buffers or berms. In response to the comment, the Text Change # 44 has been added to account for this potential.

Response to Comment 3-74:

A word was omitted from the sentence starting just below the documentation of Action Item **6.4-11** on page **4.10-17**. Text Change # 68 has been added to correct the error.

Response to Comment 3-75:

The commentor's first sentence is correct, however, the EIR preparers disagree that the text should be omitted. The language is recommended for consideration as a condition of approval. Text Change # 69 has been added to clarify this point.

Response to Comment 3-76:

Comment noted. No response is necessary.

Response to Comment 3-77:

The commentor is correct. The original text of this proposed Action 2.4-2 was inadvertently left in-place in the DEIR. Text Change # 71 has been added to reflect that Health and Safety Code requirements be implemented for the submittal schedules for Business Plans.

Response to Comment 3-78:

In response to the comment, Text Change # 72 has been added to the DEIR.

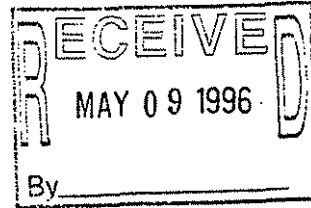
Response to Comment 3-79:

As discussed on page 3-32 of the DEIR, the Shallow Mining Alternative assumes the same total mined acreage as the OCMP, and implementation of the CCRMP. The description does acknowledge the negative aspects of the alternative (i.e., that resulting gravel extraction would be approximately one-fifth of the tonnage proposed under the OCMP over thirty years). As provided under Section 15126(d) of the CEQA Guidelines, the discussion of alternatives may include those that "would impede to some degree the attainment of the project objectives" as would the Shallow Mining Alternative. The environmental impacts of importation (Alternative 3), including those noted by the commentor, are discussed throughout the relevant sections in Chapter 4.0 of the DEIR.

Economic factors, such as the cost of aggregate, effects on jobs and tax revenue, and higher construction costs do not fall under the scope of CEQA and have not been evaluated in this EIR.



May 8, 1996



Mr. Dave **Morrison**
Resource Management Coordinator
Yolo County Community Development Agency
292 West **Beamer** Street
Woodland, CA 95695

SUBJECT: Comments on **Draft** Off-Channel Mining Plan Environmental Impact Report

Dear Dave:

At the request of L i e Noble of Teichert Aggregates, Jones & Stokes Associates has reviewed the **draft Off-Channel Mining Plan (OCMP)** environmental impact report (EIR) for lower Cache Creek We have commented **only** on measures or text we believe should be **modified** for the reasons explained below.

Biological Resources Section

Page **4.6-9**, Figure **4.6-1** Riparian **Habitat** Types.

Comment: The **remaining** natural **vegetation** at the **Yolo Flyers** Club golf course (see large purple polygon on map west of Road **94B**) could be described more accurately as remnant "Valley **Oak** Woodland", not "Riparian Forest".

4-1

Page **4.6-12**, **Wildlife**, **Riparian**.

Comment: The discussion of wildlife **use** of riparian habitat overlooks the unique importance of this habitat type to numerous resident and migrant **bird** species in **Yolo** County. Cache **Creek's** forest and scrub represent some of the largest riparian habitat patches in the lower Sacramento Valley. Although most of the creek has been affected by agriculture and mining in past years, many large existing forest groves are relatively undisturbed, and are diverse in structure and botanical composition. **Therefore, avian species richness** also **is** high, **especially** between **I-505** and Road **94B**. The narrative should be expanded to reflect this parameter.

4-2

Jones & Stokes Associates, Inc.

2600 V Street, Suite 100 • Sacramento, CA 95818-1914. Fax 916/737-3030 • 916/737-3000

Mr. Dave Morrison
May 8, 1996
Page 2

Page 4.6-19, Impact 4.6-1, Impact on Existing Vegetation Cover.

Comment: No mitigation is proposed in the draft EIR for this impact, but the text refers to Performance Standard 6.5-1 of the draft OCMP, which stipulates that "Existing vegetation and habitat to be retained shall be enclosed by temporary fencing . . .," presumably to avoid mining-related short-term impacts or unintentional impacts from **grading** activity. Fencing of habitat to be **retained seems** an unnecessary financial burden of limited value in a typical rural area of Cache Creek mining activity. Posts with flagging or other suitable markers identifying boundaries for the limit of grading should **suffice** for most project conditions.

OCMP Action Policy 6.4-5 promotes the eradication of giant **reed** and tamarisk, "especially in Zone 5 . . . described in the Technical Studies". No map is provided in the OCMP draft EIR showing the locations of the Management Activity Zones. A map in the Technical Studies report indicates that Zone 5 is between Capay Dam and Capay Bridge. **Invasive** shrubs are a problem in Zone 5, but they occur in equal or greater numbers in other reaches as well, and have the potential for a new invasion in reaches that are currently mined in-channel. Zone 2 is the only reach of the creek where reliable perennial flow, **shallow** groundwater, and mature riparian forest appear to prevent an extensive invasion of these ubiquitous species. For these reasons, we **recommend** the words "**especially in Zone 5**" be removed from **Action Policy** 6.4-5. Furthermore, I recommend the word "eradication" be replaced with the word "control" for practical reasons. Eradication, though desirable, is likely impossible for these species. Controlling incipient stands through selective removal, seedling suppression, and early **revegetation** with larger native trees after disturbance should be practicable and sufficient to promote a dominance of native riparian forest cover.

4-3

Page 4.6-28 Mitigation Measure 4.6-3a (to mitigate for impact 4.6-3 Disturbance to **Wildlife** Habitat and Disruption of Movement Comdors).

Comment: We concur with the **value** of field border **escape** cover for reptiles, **small** rodents, **and** other prey species important to **raptors** and other wildlife. However, the use of the term "fence row habitat" to **describe** a required mitigation measure may be an unintended source of **confusion** and anxiety regarding this proposed measure. Field border habitat can easily be provided without the addition of fences along the perimeters of reclaimed cropland, roadway margins, and mine setback zones. The recently approved mine and reclamation plans for Teichert's short-term applications at the **Muller, Haller, and Reiff** properties contain examples of field border habitat, or "fence row ha tat" without the fence. **Our recommendation** is to replace the term "fence row" with "field border" in Measure 4.6-3a. Under terms of the OCMP, reclamation plans should be required to include creation of new field border ha tat **plantings** only when this type of habitat is impacted by the individual mine project, and the existing habitat is considered a significant wildlife resource.

4-4

bi

Jones & Stokes Associates, Inc.

2600 V Street, Suite 100 • Sacramento, CA 95818-1914 • Fax 916/737-3030 • 916/737-3000

Mr. Dave Morrison
May 8, 1996
Page 3

Page 4.6-29, Impact on Special-Status Species, Third Paragraph

Comment: The California Department of Fish and Game's 1994 "Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California" should replace the 1993 Swainson's hawk mitigation guidelines.

4-5

Page 4.6-29, Impact on Special-Status Species, Fourth Paragraph

Comment: Because gravel extraction projects could have temporary or permanent impacts on Swainson's hawks, the mitigation also could be temporary or permanent. We suggest inserting "temporary or permanent" in front of "replacement habitat" to allow for temporary or permanent mitigation.

4-6

Geology and Soils Section

Page 4.3-30, Mitigation Measure 4.3-2a.

1

Comment: Measure 4.3-2a recommends modifying OCMP Performance Standard 2.54 by reducing allowable vertical cut slopes from 10 feet to 4 feet in height, and then only if the soil is composed of cohesive clay. This measure seems overly restrictive and inflexible for the range of site-specific conditions at various reclamation sites.

The modified measure precludes the creation of a bank swallow habitat proposed by Teichert on the south side of the reclaimed Esparto wet pit. In this design, a series of stepped benches are separated by vertical walls excavated into stratified loamy soil required to support bank swallow burrow nests in steep-faced banks near water. However, the overall slope of the benches is 2:1, and the lowest waterside bench is directly across from a breakwater barrier with a gradual-sloped shoreline and relatively shallow water. The majority of pond perimeter will be reclaimed to very gradual slopes at the shoreline of the riparian habitat areas, wide submerged terraces 4 feet deep, or 2:1 bank slopes. Furthermore, the bank swallow terraces adjoin a fenced top-of-bank comdor that will be off limits and not easily accessible to the public or trespassers. Taken as a whole, the reclaimed pond design provides adequate safety and slope stability factors. We recommend modified Performance Standard 2.5-4 be revised to allow for design variances under special circumstances that provide other important benefits such as groundwater recharge and special-status wildlife habitat.

4-7

Jones & Stokes Associates, Inc.

2600 V Street, Suite 100 • Sacramento, CA 95818-1914 • Fax 916/737-3030 • 916/737-3000

Mr. Dave Morrison
May 8, 1996
Page 4'

If you have any questions regarding these comments, please call Lillie Noble of Teichert
Aggregates at 484-3319 or me.

Sincerely,



Steven Chainey
Senior Environmental Scientist

SC:mv

cc: Heidi Tschudin - Yolo County
John Taylor, Attorney
Lillie Noble - Teichert Aggregates

Jones & Stokes Associates, Inc.

2600 V Street, Suite 100 • Sacramento, CA 95818-1914 • Fax 916/737-3030 • 916/737-3000

LETTER 4: JONES & STOKES (on behalf of Teichert Aggregates)

Response to Comment 4-1:

Thank you for your letter. Figure 4.6-1 should have been modified as shown in Figure 4.6-1 of the CCRMP DEIR. This modification addresses the point made by the commentor. Revised Figure 4.6-1 is included as Text Change # 52.

Response to Comment 4-2:

In response to the comment, the Text Change # 53 has been added.

Response to Comment 4-3:

As discussed on page 4.6-19 of the DEIR, existing vegetation to be retained would be protected through installation of temporary fencing, as required by Performance Standard 6.5-1. This would generally consist of remnant stands of riparian forest, oak woodland, individual trees, elderberry shrubs, and other important vegetation. Use of fencing is required to ensure that heavy equipment operators do not disturb the sensitive root zone of vegetation to be retained, and although it may represent an additional cost to the mining operators it provides a greater level of assurance that intentional or unintentional infringement within a designated protected area would not occur.

Action 6.4-5 was included in the OCMP to promote the eradication of invasive species within the various subreaches of Cache Creek in the planning area. Occurrences of giant reed and tamarisk are generally limited to the in-channel area of Cache Creek, outside the OCMP planning area. A more detailed description of the various subreaches of Cache Creek, the extent of giant reed and tamarisk infestations, and reference to the Management Activity Zones referred to by the commentor (included as Figures 6 and 7 of the CCRMP) is provided in the Biological Resources section of the DEIR on the CCRMP. Reference to Management Zone 5 in Action policy 6.4-5 should not be interpreted as meaning eradication of these species in other Management Zones is of any less importance to the health and opportunities for restoration of the creek corridor. While complete eradication of giant reed and tamarisk within the planning area is unlikely, as noted by the commentor, the objective should be to eliminate them from managed reaches or these species will continually re-establish and spread along the creek corridor.

Response to Comment 4-4:

As pointed out by the commentor, the possible confusion over use of the term "fence row" habitat when no fences are actually present is noted for the record. In response to the comment, Text Change # 56 has been added to clarify replacement of field margins in areas where fences are not present. As described in Mitigation Measure 4.6-3a, field margin habitat will be created to offset losses incurred through mining.

Response to Comment 4-5:

As pointed out by the commentor, the most recent information regarding the position of the Department of Fish and Game over treatment of Swainson's hawk is addressed in the 1994 "Staff report regarding mitigation for impacts to Swainson's hawk (*Buteo swainsoni*) in the Central Valley of California". This document should replace the 1993 "Draft Mitigation Guidelines for Swainson's hawk" referred to in the DEIR, but discussion pertaining to Swainson's hawk otherwise remains unchanged in the Biological Resources section of the DEIR. In response to the comment, Text Changes # 54, 55, and 72 have been added to reflect this more recent reference.

Response to Comment 4-6:

The discussion on page 4.6-29 regarding the need for mitigation simply states that the County currently considers even the temporary loss of suitable foraging habitat for Swainson's hawk to be a significant impact which requires mitigation. Details regarding temporary or permanent mitigation would be defined in consultation with the CDFG, as required in Action policy 6.4-4 and discussed on page 4.6-31 of the DEIR.

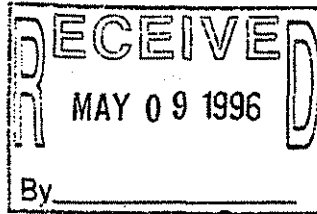
Response to Comment 4-7:

The purpose of requiring limitations on the height of vertical cutslopes is to allow for long-term stability, safety, and function of the slopes. Vertical slopes in unconsolidated alluvial materials would not be expected to remain vertical without continuing maintenance. Near vertical slopes (1:1 or steeper) are generally required for bank swallow habitat. Natural slopes favored by this species are relatively recent slopes, such as stream banks and recent excavations. With time, the slopes created at the mining sites would be subject to minor failures, resulting from deformation related to earth pressures. The formation of tension cracks and wedge or rotational failures would be expected. These type of slope processes would result in accumulation of soil at the base of the slope and eventual development of a less steep slope, more stable slope. This type of slope would not be attractive habitat for bank swallows. The habitat proposed in the comment would likely need to be maintained though periodic "freshening" of the vertical face. The text of Mitigation Measure 4.3-2a has been modified to allow more flexibility in the management of special habitat areas. Please refer to Text Change # 17.

DAVID MORRISON

5-9-96

RE: OCMF



SINCE THESE PERMITS ARE TO RUN WITH THE LAND, I BELIEVE THEY SHOULD BE TRANSFERABLE.

FOR EXAMPLE IF COMPANY "A" HAS AN APPROVED PERMIT AND WISHES TO SELL THEIR OPERATION TO COMPANY "B", THEN COMPANY "B" SHOULD BE ABLE TO USE THE PERMIT SUBJECT TO THE EXISTING CONDITIONS ON THAT PERMIT. AS LONG AS THE PERMIT CONDITIONS ARE FOLLOWED, IT SHOULDN'T MATTER WHO THE OPERATOR IS.

5-1

THANK YOU

WOODY PORTER
 826 CHERRY LAKE
 DAVIS, CA 95616

LETTER 5: WOODY PORTER

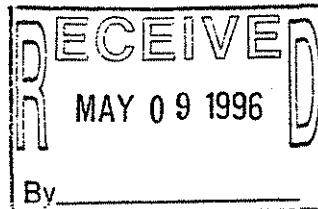
Response to Comment 5-1:

Thank you for your letter. Staff and the EIR preparers agree with the comment. The issue of transferability of mining permits is discussed in Impact 4.2-11 beginning on page 4.2-49 of the DEIR.



TEICHERT AGGREGATES

May 7, 1996



Mr. David Morrison, Resource Management Coordinator
Yolo County Community Development Agency
292 West Beamer Street
Woodland, CA 95695

RE: Draft OCMP Comment Letter

Dear David:

Teichert appreciates the opportunity to submit the following comments on the Draft **EIR** for the **Off-Channel** Mining Plan (OCMP) for Lower Cache Creek. Our comments are based on discussions with the plant manager and the consulting team which assisted Teichert with the applications.

6-1

The OCMP is silent on the use and operation of a dredge. As you are aware from Teichert's Esparto application, we propose to mine the site with a dredge. We hope that the omission of a reference to dredges in the OCMP is merely an oversight, since **our** project requires use of this mining technique to be successful.

Pages 2-2, 3-10, 3-19 and Chapter 7: Open Space and Recreation Element:

Teichert appreciates the County's goal and desire to provide a range of public recreational opportunities on reclaimed land along Cache Creek. Currently access is in private ownership. The OCMP seeks to establish the groundwork for public access. As you are aware, Teichert intends to transport aggregate via a permanent system of conveyors to the Woodland plant. This operational activity is not compatible with recreational uses, since the conveyor system will be placed in channel paralleling our **Storz**, Coors and **Muller** properties. Neither Teichert nor the County would wish to create a liability situation. OCMP goals and performance statements would **penalize** mining and its immediate view shed if recreational endeavors were provided in close proximity. While there may exist opportunities where recreational activities are appropriate, a false expectation could be created if the public believes that recreational opportunities are imminent in areas of the creek where active mining occurs.

6-2

Regarding all discussions of the Sand and Gravel Reserve (SGR):
(Page 3-26, etc.):

Market demand, permitted reserves and allotment determine the rate of mining. It is conceivable that an application to mine aggregate within the SGR could be submitted to the County before the lapse of thirty years. Again the market determines depletion of permitted reserves, not the calendar. The STEVE GRANT Zone would be a holding zone, as stated on page 4.2-19. Please add a reference to the importance of market demand to mining rate.

6-3

Table 2-1, Page 2-11, Mitigation Measure **4.3-2a** (Performance Standard 2521):

"...A drought-tolerant, weed-free mix of native and non-native grass species shall be established on slopes prior to November 1, or alternative erosion control (mulch or netting) shall be placed on exposed soil on the slopes prior to this date." We recommend that **Performance** Standard 2521 be modified to "... a drought-tolerant, weed-free mix of native and non-native grass species shall be **seeded** on slopes prior to..." This approach is consistent with the short-term **EIR's** and Industry practice.

6-4

Page 2-6, and Pages 4.2-17 to 20, Mitigation Measure **4.2.2a**:

Measure **4.2.2a discusses** amendments necessary to allow mining and accessory uses in the A-P zone. We request acknowledgment that Teichert's Woodland and Esparto plants are located within the in-channel area of the creek which is zoned A-1. Teichert intends to continue processing at these facilities; thus, their status requires **affirmation**. If the in-channel land is rezoned open space, the entitlement to process at the existing plants must be incorporated.

6-5

Page 3-15, **Floodway** and Channel Stability Element:

The synopsis paragraph, which refers to defined areas where pit capture is of greatest concern, is misleading. On page 4.3-17 the authors state, "Hydraulic analyses prepared for the proposed projects within the planning area indicate that the 100-year flood flows would be contained within the channel of Cache Creek throughout most of the planning area." On page **4.3-33** the EIR states, "...the potential for stream capture to cause or be initiated by the excavation of off-channel mining pits is remote due to the elevation of the terrace surfaces above the existing channel." Please add these pivotal statements to the project components and characteristics text.

6-6

Table 3-1, Page 3-22:

Per the entry for Woodland slopes and maintenance roads, this acreage should be **38**, not **32**. (Please see attached digitized **acreage**.) In addition, **your** total area of **283 acres** for **Woodland** is not consistent with our records of **281** total mined acres. Teichert's total for the Coors site is **89** acres, not the **92** acres stated in the OCMP. Does the difference reflect digitizing based upon recently submitted legal descriptions versus use of a planimeter calculation?

6-7

Regarding net gain (habitat acreage restored), Table 3-1 shows no entry for Esparto. Please add a footnote indicating that the **40** acres listed in the Woodland column is also applicable to Esparto.

Pages 4-2-7 & 4-2-25, Consistency with Regional Water Quality Control Board's Basin Plan:

The proposed mitigation measures presuppose that deep pit mining generates **discharges** which would impact water quality. Given existing levees, OCMP setbacks, and the statistical probability of a flood event greater than **100** years, it is extremely unlikely that the water in the pits would commingle with the creek. The discussion presented is not **sufficient** in detail to warrant a finding of significant impact. Please reevaluate this finding and clarify how the implementation of the mitigation measures is relevant to the **RWQCB's** basin plan.

6-8

Table 3-3, Page 3-26:

Per the **Lowe** property legal description submitted by Nolte and Associates, **Inc.**, the site contains **625.17** acres, not **662**.

6-9

Page 4-2-36, Draft OCMP and Implementing Ordinances:

Conveyors will be utilized to transport aggregates from extraction sites to processing plants. Please add this item to structures within the creek boundary.

6-10

Page 4-2-38, Land Disturbance During Mining:

Please define how you are using the term "phases". Figures 4-2-2 through 4-2-7 indicate a mining and reclamation order which is generally correct. Please note, however, that on Figure 4-2-4, **Reiff** should be highlighted for mining, not Mast. (See page 6 of the application.) The Esparto order on 4-2-4 and 4-2-5 is reversed.

6-11

Depending on the property, mining will occur in two to four phases (sequences) depending on the size of the property. As noted in an earlier comment, market demand, not the calendar, determines the mining and reclamation rate.

6-11

Page 4.2-52, Compatibility with Watts-Woodland Airport:

The text is **misleading**. The Coors **mining** site is 89 acres which will be reclaimed to agricultural **production**. The **Storz property** will result in a 43-acre pond. The water surface is about 37 feet below grade in a pit scheduled to be mined to a depth of 47 feet. Teichert has submitted follow-up documentation to the project level interpretation for a finding of **less** than significant. Please modify **this** section accordingly.

6-12

GEOLOGY, **SOILS** & GROUNDWATER

On page 4.3-21, first paragraph it is stated that overburden materials placed as fill in the oits below the groundwater level may be susceptible to liquefaction. The application and consequences are being applied to the wrong reclamation scenario. The area is zoned **A-1** and A-P. Reclamation is to agricultural production **and/or** habitat, with erosion measures applicable to the slopes. The analysis and text are perhaps too preoccupied with urban consequences (structures, roads, public facilities).

6-13

Page 4.3-4, 4.3-5 Regional Fault Map:

The **listing** of the Coast Range-Sierran Block as a major fault potentially affecting the OCMP area is questionable. Nolte and Associates indicate that it has not yet been placed on the State of California Geologic Map, and there are still considerations regarding the activity of this fault. The Coast Range-Sierran Block is mapped on Figure 4.3-1 as a boundary, which may over state its impacts since it is only mapped as a boundary and not an active fault. Its proximity to the planning areas has not been definitively established to date. Three 1995 mining **EIR's** found, regarding exposure to geologic hazards:

6-14

"Seismic hazards in the project area are not considered substantial because of the absence of **onsite** active faults, the distance to major regional faults, and **onsite** subsurface conditions. Moreover, the proposed project activities would not alter existing structures or place workers at risk if a seismic event occurred." This text should be modified so that references to the Coast Range-Sierran block do not overstate its significance to the OCMP area.

Page 4.3-26, Performance Standard 2.5-17:

Mitigation Measure **4.3a** proposes to modify Performance Standard 2.5-17 of the OCMP to include design and maintenance information on the drainage conveyance system in the Storm Water Pollution Prevention (SWPP) Plans. If all **storm water** runoff is contained on site, as required by the **OCMP**, then a SWPP plan is not required by the regional Water Quality Control Board.

6-15

Page 4.3-30, Impact 4.3-2a, et. **al.**, Potential Impacts Related to Slope Stability, Erosion, and Sedimentation:

The **EIR** preparers are applying an incorrect guideline (California Code of **Regulations-Construction Safety Orders**) for slope construction. The appropriate guideline for slope stability is the Mine Safety Orders, a copy of which is attached. (Please note section No. 6954, Application, on page 1129 and Article 12, Ground Control, on page 1134.) The difference between the two regulations is that one applies to construction and the other is relevant to mining activities.

Regarding slopes and steepness: Teichert's proposed wet pit slopes are **2:1** with benches that transition to **1.5:1**. As you are aware, the reclaimed uses are habitat **and/or** agricultural production. The requirement that slopes located five feet or less below the average summer low groundwater level shall not be steeper than **2:1** is arbitrary, and a rationale of public safety is offered. Is this rationale applied equally to other water bodies in the County (**e.g.**, stock and irrigation ponds)? The Performance Standard then suggests that after this **five-foot** interval, slopes can be **1:1**. Why the abrupt change?

6-16

Teichert's slopes, as proposed in conjunction with the habitat vegetation and associated benches, are not a threat to public safety. In addition, the mining areas are to be fenced and posted against trespassing. Our consultant team looked at seasonal water fluctuations in establishing slopes and bench widths; safety and survival of the habitat were factored in. As proposed, we disagree with Performance Standard **2.5-4** that slopes located five feet or less below the average summer low groundwater level shall not be steeper than **2:1**. We recommend mitigation language that allows site specifics and reclamation goals to be evaluated when establishing slopes.

Performance Standard **2.5-17:**

In regards to conveying surface runoff to interior basins, does this pertain to land reclaimed to agricultural uses?

6-17

Performance Standard 2.5-18:

Since the mining **will** occur in a rural area and pit water is below grade, if slope failure were to occur it would be contained in the **mining** site. The static and pseudo static parameters applied are too severe. Earlier, in Table 2-1, Page **2-10, 4th** paragraph, third sentence: "The minimum factor of safety for all design reclamation slopes located adjacent to levees or below existing structures shall not be less than 15 for static and 1.1 for pseudo static (seismic) conditions." The wording "**...slopes** located adjacent to levees or below existing structures..." is vague and could lead to contention. We **recommend** the **following** wording: "...slopes that would impact the stability of levees or where a **1:1** projection from the toe intercepts buildings or other essential facilities..."

6-18

Page 4.3-39, Paragraph 4:

"Analytical slope **stability** analysis in conformance with Performance Standards 2.3-16 and **2.5-18. This** slope stability analysis of slopes separating the mining area from the creek channel shall include evaluation of stability conditions during 100-year flood **flows** in the channel." Performance Standard 2.5-18 should be amended to include a minimum safety factor for conditions during 100-year flood flows in the channel. Because of **the** temporary conditions, it is recommended that no pseudo static analysis be required. The following addition is recommended: "The minimum factor of safety under static conditions during 100-year flood flows in the channel shall be 12"

6-19

As mentioned above, on page 4.3-17 the hydraulic analyses prepared for the proposed projects indicate that the 100-year flood flows would be contained within the channel of Cache Creek throughout most of the planning area.

Page 4.3-32, Impact 4.3-3:

This entire discussion is very general and does not define key elements. The terms "pit capture" and "stream capture" should be defined and contrasted.

Apparently "pit capture" is defined as a complete removal of the separator between the mining pit and the creek. This would allow flood waters to enter the mining area on a **frequent** basis. The creek bed would remain separated from the pit, and Cache Creek

6-20

would flow downstream as it currently does. Once the water level in the pit equals the water level in the creek, the creek would flow **independently** of the pit. A breach of the bank during a major flood would result in the pit filling in a very short period of time (less than ½ hour). The potential for this breach to result in a "**channel destabilization**" is remote. The maximum flows entering the pit would occur in the initial few minutes of the breach. Once the water level in the pit began to rise, the water entering the pit would slow, and the impacts to the creek would begin to diminish.

6-20

The "stream **capture**" definition includes the permanent realignment of the creek through the pit. This would normally occur by realigning the channel through a river bend, thereby shortening the river reach. This would be similar to a river channel cutting off a meander bend and shortening the flow distance. This condition will result in "channel **destabilization**" both upstream and downstream of the stream capture location.

No **distinction** is made in the document as to severity or performance standard required for "pit capture" versus "stream capture". Off-channel mining that would occur in areas where "stream capture" cannot occur should have a different setback requirement than areas where "stream capture" can occur, since the potential impacts from "stream capture" are potentially more severe than those from "pit capture".

Page 43-36, Performance standards 45-2 and 45-3:

The minimum set back requirement of 200' has not **been** explained or justified. This standard appears to be independent of the threat of lateral movement of the channel. The essence of the standard is that after a determination is made that the channel and banks are stable, then a minimum set back of 200' is required. What is the minimum set back accomplishing? The following quote is from the Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan:

6-21

"On Cache Creek, the lateral extent of bank loss has **been** observed to be 200' to 800' during severe flood events. Therefore, it is prudent to set back structures, off-channel mining pits and other valuable facilities far enough from the edge of the present channel to avoid damage and provide **sufficient** room for flood and bank erosion fighting during large events. In reaches where engineered or stabilized bank sections exist, narrow set backs could be accepted."

This statement clearly describes that the setback is for

- (1) avoiding damage due to lateral erosion **and**
- (2) providing room for emergency access.

It is significant that the statement refers to a "narrow setback". A 200' setback cannot be considered narrow. Urban levees have a minimum top width of **20'**, and 50' would be considered adequate for access and flood fighting. Therefore, the additional 150' width (200'-50') must be providing some other function. If the banks have been analyzed as geotechnically stable, and they are protected from lateral erosion, the 200' setback requirement is unreasonable. The document seems to err in that the maximum channel migrations observed during flood events along the entire Cache Creek channel (which varies significantly in gradient, width and depth of flow) are established as minimum observations. Once a location is shown to be protected from lateral erosion, the setback requirement should be reduced to the 50-foot width required for access.

6-21

Page **4.3-38** and 39, Performance Standard 4.5-3:

No justification or rationale for the 200' minimum is provided. The standards require extensive engineering studies to document historic channel positions, determination of erosion potential, and slope stability analysis. If all of these studies result in a finding that the bank is stable and not subject to lateral erosion, then why is a 200' setback still required? This is an unreasonable standard. Again, the 200 feet setback appears arbitrary from a geotechnical or hydraulic viewpoint. Portions of the channel will not require such a setback for erosion and slope stability. Protective measures could also be implemented to allow a reduction in the setback

6-22

The definition of "historic channels" also needs to be explained. Since the gravels that are being proposed for mining were deposited by Cache Creek, all of the mining sites **are** in the historic channel. If **historic** means the last **50** years, not the last 50,000 years, this should be explained.

HYDROLOGY AND WATER QUALITY

Teichert agrees with the comment submitted and discussed regarding hydrology and **water** quality (Chapter 4.4) by YCAPA. When discussing mining equipment please add use of a dredge.

6-23

AGRICULTURE

Teichert concurs with the comments in the YCAPA **correspondence**. Several clarifying remarks are, however, warranted. It appears that **Haller** acreage has been included in text and tabulations. Please make all relevant corrections so that impacts are not over estimated **and/or** stated, since the **Haller** property is not a part of the long-term application **package(e.g.,** pages **4.5-20, 21,** etc). On page **4.5-26** (Table 4.5-4) the haul **roads/slopes** acreage is 38 not 32.

6-24

"Where areas are to be reclaimed to agricultural usage, all A and B horizon soils shall be ripped to a depth of three feet after every one foot layer of soil is laid down, in order to minimize compaction."

This performance standard may be excessive. According to **Dellavalle** the first potential adverse impact **occurs** when the first foot of B horizon is laid into place. The standard requires ripping beyond **the B horizon** and two feet into the parent materials. Ripping the parent material is not required to establish the agricultural field. It is suggested that the soils be ripped to a three foot depth as each two feet of soil is placed back. This limits ripping into the **parent** materials to just one foot. In addition, ripping every two feet of depth can be as effective as ripping every foot, while reducing the equipment **traffic** on the replaced soil. We recommend that the soil be ripped to a three foot depth as each two feet of soil is laid into place.

6-25

"The Teichert Aggregates-Fongsite attempted to reclaim lands for agricultural use. According to the proposed reclamation plan prepared by the company, approximately 22 acres of mined lands near Cache Creek were to be restored as productive farmland..." Please explain what reclamation document is being referenced. Teichert reclaimed **the Coors property, which is incorrectly labeled Fong in accordance with its reclamation plan which specified slope control and flood protection per the 1980 EIR.**

Upon the conclusion of reclamation, an attempt was made to place the site into agricultural production. This initial voluntary effort was not **successful**. In the interim Teichert, with the assistance of Jones & Stokes and Dellavalle Laboratory, Inc., has restored the site to a combination of agricultural, habitat and wetland acceptable to the California Department **of Fish** and Game as a temporary Swainson's Hawk mitigation site. (For additional details please see the enclosed Dellavalle Laboratory, Inc. correspondence.)

6-26

BIOLOGICAL RESOURCES

We are in concurrence with the YCAPA comments.

6-27

AIR QUALITY

The OCMF states incorrectly that the annual throughput for Teichert Esparto would exceed existing limitations and in air pollution permits. Yolo-Solano Air Quality Management

6-28

District (YSAQMD) is updating the permits for Teichert Esparto. The permits currently allow **processing** of 1,000,000 tons of material, but load out of a lesser quantity. The load out permit is the **only** air permit that must be modified to allow **Teichert Esparto** to operate-at the projected volumes.

6-28

There are several errors in the **Air** Quality section (4.7). The threshold for **SOx** is listed as 100 **tons** per day on page 4.7-9. It should be either tons per year or pounds per day. In Table **4.7-3** under "**change** from existing" for the **OCMP**, please correct the math errors. Footnote 6 on page **4.7-11** neglected to state the number of miles assumed for 5% of the trips. Finally, while some offset was allowed for agricultural activity for particulate matter, none was given for **NOx** from the farm equipment.

6-29

TRAFFIC AND CIRCULATION

Teichert generally agrees with the comments in the YCAPA letter; a few additional remarks are **warranted**.

Page **4.8-25**, Table **4.8-9: Trip Generation** for Projects Assumed Developed with the OCMP

As you are aware, Teichert does not agree with **Yolo** County's interpretation of the expiration of the Esparto permit. Please complete Table 4.8-9 to have Esparto represented in all categories.

6-30

Page 4.8-44, Mitigation Measure 4.8-2a:

"As a condition of approval, the operator shall enter into a maintenance agreement to assume joint pavement maintenance responsibility with the County (or shared with another producer using the same roadway) for **all** County roads along a designated haul route... The operator shall agree to submit an evaluation of the structural integrity of the identified roadways... Based on the results of this annual evaluation, the Public Works Department shall identify the improvements required to maintain safe and efficient traffic operations on the road for the upcoming year."

6-31

The mitigation is reasonable; however Teichert does not assume any liability responsibility for County roads. We would like to underscore that the maximum number of daily trips that could originate from the project site reflects worst-case scenario. The **EIR** notes that accidents occurred infrequently at the primary intersections reviewed in the analysis. The majority of accidents involved single vehicles running off the road or hitting a **fixed** object, such as a telephone pole or a tree. We recommend adding a statement that industry **is** not assuming liability responsibility for County roads.

"Each operator shall pay its fair share toward improvements required to maintain LOS..." Given that payments are directly to roads primarily used by an operator (e.g., County Road 20 and County Road 96) it is our understanding that this would not trigger a bid process by the County. Please confirm.

6-32

NOISE

1

With regard to the proposed alternative noise standard Teichert strongly differs with the replacement of 60 **dB(A)** CNEL for noise level (**Leq**) of 65. The current standards are 80 and 65 dB Leq at the property line during day and nighttime hours, respectively. The **Leq** descriptor represents the average noise level during any given one-hour period. Leq-based noise standards have been shown to correlate well with public reaction to **industrial** noise sources. It is our position that descriptors based on averages (CNEL) are not appropriate for industrial operations.

6-33

The standard applied to **on-site** activities should be in terms of hourly Leq, not Ldn or CNEL. The CNEL descriptor, which was developed for California airports, is difficult to use and is not commonly applied to industrial noise sources. Different Leq standards can be developed for day, evening and nighttime periods, and should recognize the need for processing equipment to occasionally operate during evening and nighttime hours as demand dictates.

Off-site noise sources should be evaluated through use of the Ldn standard. The hourly standards should be applicable at affected noise sensitive areas such as backyards, patios, pool areas, **etc.** Property line standard may not provide a true measure of protection for either the industrial noise source or the **noise-sensitive** receptor. The noise standards must recognize that mining and reclamation activities are noise-producing by virtue of the equipment and processes involved in the mining and moving of aggregate. In addition, it should be **recognized** that mining noise impacts are relatively short-term in nature (limited by the time it takes to mine or reclaim an area in close proximity to a residence), and that as mining equipment recesses into the mine area, the pit walls typically provide an additional measure of noise attenuation. No **compelling** rationale is provided for the change. Submitted applications were appropriately based on:

6-34

From **6:00** a.m. to **6:00** p.m., noise levels shall not exceed an average noise level equivalent (**Leq**) of **80 dBA** measured at the property boundaries of the site. However, noise levels may not exceed an average noise level equivalent (Leq) of **60 dBA** for any nearby off-site residence or other **noise-sensitive** land uses.

6-35

From **6:00** p.m. to **6:00** a.m., noise levels shall not exceed an average noise level equivalent (Leq) of 65 decibels measured at the property boundaries of the site.

We respectfully remind the OCMP authors that three 1995 mining EIR's found the existing regulations appropriate for evaluating environmental impacts. Impacts were less than significant Intermittent evening or nighttime operations are covered by existing regulations. Mining occurs on land zoned agricultural and is not adjacent to residential areas. A change in standard is not justified, since no complaints have been received. In conclusion, the OCMP states "It should be noted that, in the absence of significant nighttime and evening mining operations, the descriptor would be more or less interchangeable." Let status quo prevail, delete CNEL references in Mitigation Measure 4.9-1a and Mitigation Measure 4.9-1b, and omit proposed Mitigation Measure 4.9-1c.

6-36

Pages 4.9-10, 11, Draft OCMP and Implementing Ordinances:

A dredge will be used at Esparto. Usage will occur during the second phase of mining; at that point mining activity is approximately 55 feet below grade. Although the dredge will not be used until approximately 2007 its use should be acknowledged.

6-37

AESTHETICS

The OCMP discusses setback requirements for public right-of-way, adjacent properly and recreational uses. Mitigation Measures 4.10-1a, 1b (page 4.10-15) restrict mining acreage within 1,000 feet from public-rights-of way, list landscape alternatives, and then conclude that regardless of what is done the vista and/or view still experiences a significant and unavoidable impact, even with mitigation. Teichert submits that its mining and reclamation activities are an established part of the existing view shed and are not creating a visual incompatibility to the surrounding land uses. Differences in site specifics and locations could reasonably allow mitigation language more flexible than that which is currently proposed. Page 4.10-11 states that within the planning area, these kinds of landscape changes (mining) presently occur, "...and are not readily visible from local communities, recreation areas or heavily traveled roads...".

6-38

Please add an agricultural buffer to the list of options to "minimize the visibility of mining operation". If the mining location is buffered by adjacent prime land, then the setback requirement may be less than 1,000 feet as currently proposed in Mitigation Measure 4.10-1b. The rationale is that the agricultural buffer strip has economic value. If an adjacent properly owner requests a setback less than 1,000 feet and does not want a berm which would allow a fifty foot setback, then the mitigation measure needs to be responsive to this request.

6-39

We do not understand Mitigation Measure 4.10-2a. If no impact occurs, then the "...further means of improving the appearance of the landscape after reclamation..." has no nexus. Please delete.

6-40

CULTURAL RESOURCES

Teichert agrees with the mitigation measures proposed.

6-41

HAZARDS

Impact **4.12-1, Performance** Standard 45-9: Potential Human **and/or** Environmental Impacts from the Accidental release of Petroleum Products:

6-42

The Performance Standard should be changed to allow for the fueling of a dredge or **dragline**. A release response provision could be included in either a SWPP plan, a SPCC plan, **or** a business plan (hazardous material management plan). The SPCC plan is meant to deal with the release of petroleum products and would include fueling of all equipment including draglines **and/or** dredges.

Regarding proposed Mitigation Measure **4.12-32/Performance** Standard **2.5-4, 2.5-16** and **2.5-18**:

6-43

With respect to the language, "...to require that slopes shall not be steeper than 2:1 five feet below the average summer low groundwater level...", please see our comment above. We request that this requirement be deleted.

If you should have questions regarding Teichert's comments please call (484-3319).

Sincerely,



Lillie **O'Keefe** Noble
Project Manager

cc: Heidi Tschudin
Dan **Reiff**
Randy Sater
John Taylor
Demar Hooper

WOODLAND AREA DIGITIZED ACREAGES

PROPERTY	SEEDSLOPE ACREAGE	RECL AG LAND	HAUL RD ACREAGE	RECL LAKE ACREAGE	HABITAT 5:1 SLOPES
MULLER	11.77	35.63	1.10	86.74	2.25
STORZ	8.56	0.00	0.29	43.66	1.78
COORS	7.60	79.40	3.18	0.00	1.60
TOTALS	27.93	115.03	4.57	130.40	5.63

Subchapter 17. Mine Safety Orders

INTRODUCTION

§ 6950. Title.

These Orders shall be known as the *Mine Safety Was*.

NOTE: Authority cited: Sections 6312, 6500, 6502, Labor Code.

HISTORY

1. Repealer of Subchapter 17, "Quarry and Open Pit Mine Safety Orders," (Articles 1-20, not consecutive (§§ 7200 through 7348, not consecutive)) and new "Mine Safety Orders," (Articles 1-54, not consecutive), (§§ 6950 through 7264), filed 5-8-72 as an emergency; designated effective 5-15-72 (Register 72, No. 20). Certificate of compliance included. For prior history, see Register 53, No. 4 and Register 71, No. 17.

§ 6951. Superseded Orders.

These Mine Safety Orders supersede all previous Mine Safety Orders published in California Administrative Code, Title 8, Chapter 4, Subchapter 12, and the Quarry and Open Pit Mine Safety Orders, Chapter 4, Subchapter 17.

§ 6952. Purpose.

The Mine Safety Orders are designed to promote safety at mines as it are promulgated standards for the guidance of employers and employees. They are consistent with the policy expressed in Section 21, Article XX, of the Constitution of the State of California—a policy which includes "full provision for securing safety in places of employment."

§ 6953. Excerpts from the California Labor Code.

The following provisions of Division 5, Part 1, Chapter 2, of the California Labor Code, 1969 Edition, are applicable to all employments:

"Section 6401. Every employer shall furnish and use safety devices and safeguards, and shall adopt and use practices, means, methods, operations, and processes which are reasonably adequate to render such employment and place of employment safe. Every employer shall do every other thing reasonably necessary to protect the life and safety of employees."

"Section 6406. No person shall do any of the following:

"(a) Remove, displace, damage, destroy or carry off any safety device, safeguard, notice, or warning, furnished for use in any employment or place of employment.

"(b) Interfere in any way with the use thereof by any other person.

"(c) Interfere with the use of any method or process adopted for the protection of any employee, including himself, in such employment or place of employment.

"(d) Fail or neglect to do every other thing reasonably necessary to protect the life and safety of employees."

§ 6954. Application.

(a) These orders establish minimum safety standards in places of employment at mines and premises appurtenant thereto.

NOTE: Unless otherwise designated in this subchapter, the phrase "division" refers to the current Division of Occupational Safety and Health or any of its predecessors including the former Division of Industrial Safety or the Division of Occupational Safety and Health Administration. Reference to the former Division of Industrial Safety or Division of Occupational Safety and Health Administration in these orders is meant to refer to their successor, the Division of Occupational Safety and Health, or any subsequent successor agency.

(b) At mines these Orders take precedence over any other Safety Orders of the Division with which they are inconsistent.

(c) Machines, equipment, processes, and operations not specifically covered by these Orders shall be governed by the General Industry Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 6302(d), Labor Code.

HISTORY

I. Amendment of subsection (a) filed 7-6-79 as procedural and organizational; effective upon filing (Register 79, No. 27).

§ 6955. Scope.

(a) The operations to which these Orders apply are those employed at mines in the extraction of minerals, either metallic or nonmetallic. These operations include:

(1) Prospecting, exploration, development, extraction of minerals, and other operations in connection therewith.

(2) Placer and hydraulic mining.

(3) Transportation of men, materials and equipment in areas and operations covered by these orders.

(4) Operations and maintenance of the equipment applicable to the foregoing.

§ 6956. Permits for Variations from These Orders.

(a) When the Division finds that, under such conditions as shall be specified, a variation from the terms of a Safety Order will give such freedom from danger as the employment reasonably permits, the Division upon written application, after investigation and such hearing as the Division may direct, may make and enter its order permitting such variation from the terms of the said Safety Order in a place of employment, upon such conditions as it may specify and upon the provision and use of such safety measures and appliances as shall in the judgment of the said Division secure the safety of employees. A copy of said order shall be posted conspicuously under glass at the place of employment and shall be maintained in legible condition during the time said order is in effect.

(b) An appeal from a decision of the Division concerning a permit for variation from these Orders may be made to the Industrial Safety Board.

(c) When the Division has reason to believe—or upon receipt of a complaint—that a variation does not provide such freedom from danger as the employment reasonably permits, the Division, after notice to the employer—and to the complainant where a complaint has been received—and after hearing, may continue in force, suspend, revoke, or modify the conditions specified in such order.

(d) Where death or serious personal injury at the place of employment appears in the judgment of the Division to be attributable to a variation from the terms of a Safety Order, the Division may set aside or amend said variation order after notice to the employer and such hearings as the Division may direct. Notice of such action shall be conspicuously posted at the place of employment.

(e) No declaration, act, or omission of the Division or of its representatives, other than a written order authorizing a variation as permitted under this Order, shall be deemed to exempt, either wholly or in part, expressly or impliedly, any employer or place of employment from full compliance with the terms of any Safety Order issued by the Division.

§ 6957. Responsibility of Independent Contractors.

Any employer performing work on a contractual basis at a location subject to these Orders is bound by these Orders, and shall acquaint himself with the hazards of the employment, and shall instruct his employees as to the hazards and necessary safeguards.

EDITORIAL NOTE: The Federal metal and non-metallic Mine Health and Safety Mandatory Standards numbers have been included with the Mine Safety Order numbers. These sections and standards are indicated by a number such as (3-5). The Mine Safety Order number precedes the U.S. Bureau of Mines' number—example, 6965. (3-5). Some State Safety Orders have no Federal reference number but all Federal Mandatory Standards are covered by State Safety Orders. This arrangement will help the mine operators and their employees in complying with both the Federal and State Mine Safety Orders.

The Federal Mandatory Standard "Part" numbers are not included in the Section numbers, but are listed here for your information:

Part 55—Open Pit Mining Operations

Part 56—Sand, Gravel, and Crushed Stone Operations

Part 57—Underground Mining Operations

The Mine Safety Orders are identified by headings such as: "General"—Applies to both surface and underground mining operations.

- (c) Each closet shall be provided with some disinfectant or deodorant to be sprinkled upon the contents thereof.
- (d) All men employed at any mine where closets are provided shall be required to use such closets.

II (D. Personal Protection)

GENERAL

§ 6980. Personal Protection.

- (a) Employees shall be safeguarded with personal protective equipment as required by the General Industry Safety Orders.
- (b) (15-2) All persons shall wear suitable hard hats when in or around a mine or plant where falling objects may create a hazard.
- (c) () Every person underground shall be safeguarded by an approved safety hat or safety cap.
- (d) (15-3) All persons shall wear suitable protective footwear when in or around an area of a mine or plant where a hazard exists which could cause an injury to the feet.
- (e) (15-3) Every employee underground shall be safeguarded by safety boots or safety shoes.
- (f) (15-4) All persons shall wear safety glasses, goggles, or face shields, or other suitable protective devices when in or around an area of a mine or plant where a hazard exists which could cause injury to unprotected eyes.
- (g) (14-14) Face shields or goggles, in good condition, shall be worn when operating a grinding wheel.
- (h) (15-7) Protective clothing or equipment and face shields or goggles shall be worn when welding, cutting, or working with molten metal.
- (i) (15-20) Life jackets or belts shall be worn where there is danger from falling into water.

§ 6981. (15-5). Safety Belts and Life Lines.

- (a) Safety belts and lines shall be worn when men work where there is danger of falling.
- No employee shall be permitted to enter any bin, bunker, or other storage place containing materials which may cave or run unless he is provided with and is wearing a safety belt with life line attached. He shall be attended by another workman, who shall keep the life line reasonably taut at all times.
- (b) Life lines shall be of three-fourths inch diameter Manila rope or equivalent.
- (c) Life lines subject to excessive fraying or rock damage shall be protected or shall have wire center rope. Seriously worn or damaged rope shall be promptly removed from service.
- (d) Safety belts and life lines shall be inspected by a qualified person before each use. When fiber ropes show serious abrasion, broken fibers, cuts, fraying, or other defects, such defects shall be reported to the person in charge.
- (e) When in use, the life line shall be secured so as to prevent it from being accidentally loosened or dislodged.
- (f) Safety belts shall be of a type approved by the Division.

Article 11. Materials--Storage and Handling

GENERAL

§ 6982. Materials Storage and Handling.

- (a) Materials shall be stored in conformance with the Housekeeping and Maintenance Standards of the General Industry Safety Orders.
- (b) (16-3) Hazardous materials shall be stored and handled in conformance with Hot Flammable, Poisonous, Corrosive, and Irritant Substances Standards of the General Industry Safety Orders.

(c) (16-4) Hazardous materials shall be labeled in conformance with the Labeling of Injurious Substances Standards of the General Industry Safety Orders.

(d) (4-18) (16-5) Compressed and liquid gas cylinders shall be stored and/or secured in conformance with the General Industry Safety Orders.

(e) (16-6) Valves on compressed gas cylinders shall be protected by covers when being transported or stored, and be in a safe location when the cylinders are in use.

(f) (16-9) Men shall stay clear of suspended loads.

(g) (16-14) (16-15) Cranes and hoisting equipment for materials shall be constructed, operated, and maintained in conformance with the Cranes and Other Hoisting Equipment Standards of the General Industry Safety Orders.

(h) (16-11) Men shall not ride on loads being moved by cranes or derricks, nor shall they ride the hoisting hooks unless such method eliminates a greater hazard and the man is secured by a safety belt or equivalent.

Article 12. Ground Control

SURFACE

§ 6984. (3-1). Face or Bank of Pit.

- (a) All reasonable precautions shall be taken to free the face or bank of the pit from loose materials that may be dangerous to employees.
- (b) Where practicable, the face of the pit shall be given a slope so as to minimize the danger of rock falling on employees.
- (c) (3-3) Whenever the division considers that the height and condition of the face constitutes a serious hazard to employees, it may require the installation of a bench or other suitable method of working.
- (d) When a bench or multiple-bench method of operation is required, a setback of at least one-half the height of the single face or bank for each section of the face or bank shall be required.

§ 6985. (3-1). Excavations of Sand, Gravel and Similar Material.

- (a) Excavations in sand, gravel, or other material shall be sloped to an angle at which employees will not be endangered by falling or sliding materials.
- (b) When determining the maximum permitted slope of the face, consideration shall be given to:
 - (1) Nature of the material being excavated.
 - (2) Extent to which the material is cemented or consolidated.
 - (3) Height of the face.
 - (4) Type and size of equipment used at the face and amount of protection this equipment affords the operator.
 - (5) Safety of employees who are not protected by such equipment.
- (c) Where the face is composed of loose or unstable materials, the slope of the face shall not exceed 50 degrees if the height is greater than can be reached by the dipper or bucket of the excavator or loader being used.
- (d) Where the face is composed of moderately compacted materials (that are not firmly cemented or consolidated but which experience indications will stand well in place, the slope shall not exceed 65 degrees where the height is greater than can be reached by the dipper or bucket of the excavator or loader being used.
- (e) Where the face is composed of firmly cemented or consolidated materials that experience indications do not shall or cave readily, the slope shall not exceed 80 degrees where the height is greater than can be reached by the dipper or bucket of the excavator or loader being used.

§ 6966. (3-2). Overburden.

- (a) No person shall be permitted under a fact or bank where stripping operations constitute a hazard.
- (b) Where employees are endangered by materials rolling or sliding down the slopes above a pit, such employees shall be removed from the



DELLAVALLE®
Laboratory, Inc.

Chemists and Consultants

August 11, 1995

Mr Randy Sater
Teichert Aggregates #7783
3500 American River Dr
Sacramento, CA 95851

Re: **Coors** Pit Alternative Reclamation

Dear Randy:

I am sending this letter to follow-up on our thoughts regarding the reclaimed pit at the Coors property. As we discussed during the site visit, Teichert would like to pursue a temporary 2081 conservation easement with California Department of Fish and Game utilizing the Coors property for provision of both foraging and nesting habitat. Achieving this goal will require planting a combination of vetch, bell beans and oats on a portion of the site.

I contacted Mr Frank Muller of Joe Muller and Sons to get his opinion on why their prevision attempt to return this site to agriculture was not successful. Mr Muller stated this site was not farmed prior to mining due to the highly variable and gravelly soils in areas. Thus, an attempt was made to reclaim a site to agriculture that was not previously suitable for crops. In addition, the stockpiled soils were not uniformly distributed throughout the field during the resoiling process. The field was returned to the variable soil condition that existed prior to mining. Some areas near the western edge of the pit have gravelly surface soils while the eastern 10 to 12 acres of the site contains a somewhat uniform loam soil. I was able to verify this using backhoe excavation sites to expose the soil profiles for visual observation. Mr Muller also believes that water seepage following the irrigation of the adjacent fields would affect the western edge of the field. The intermittent water seepage was preventing the drying of the western edge of the field for harvest.

We propose leaving the western area of the field in the existing habitat. This would exclude the gravelly soils and the water seepage areas from the proposed agricultural reclamation. The balance of the field, which contains the more uniform loamy soils, would then be returned to agriculture.

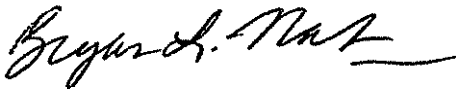
1910 W. McKinley, Suite 110 • Fresno, CA 93728-1298 (209) 233-6129

The temporary conservation easement contemplated would dovetail with **Teichert's** longer term goals to integrate agriculture and habitat at the subject site. Further evaluation will be required to **determine** the **feasibility** of a long term successful agricultural reclamation. I **am** suggesting the following steps to evaluate the situation.

1. Discontinue the deliberate applications of water into the pit.
2. Evaluate the degree of water **seepage from** the adjacent agricultural fields following irrigations.
3. If water is **periodically** seeping from the adjacent fields, then use one to two drainage ditches to route the water into the habitat area to help maintain the existing **trees** and shrubs.
4. When the soil moisture **status** is appropriate, **disc** the dry **weeds** and **prepare** the field for planting in the **fall** of 1995.
5. For the duration of the temporary **conservation** easement, a biomass building cover crop (vetch, bell **beans**, oats or other **suitable mixes**) will be planted and **irrigated as** needed. A deep **rooted** cover crop will improve the soil biomass and tilth while providing foraging for wildlife. The cover **crop** could be moved or swathed, **as** needed, **after June 1st** of each year the temporary **conservation** easement is in effect. The **minimum** height for the crop cutting will be about 12 inches above the soil surface.
6. Evaluate subsoil water **status** during the winter to establish the extent of any temporary flooding from winter rains or perched subsoil water. Monitor the spring moisture **status** to determine when the soils are **sufficiently** dry for planting a cash crop.
7. At the conclusion of the temporary conservation easement and once the field **data** is **evaluated**, then the feasibility of a crop rotation (tomatoes, **corn**, **wheat**) can be evaluated.

I will contact you to further discuss this **alternative** use for the reclaimed site. Please call if you have any questions (800) 228-9896 or (916) 927-7449.

Thank you,



Bryan L. Rahn, CPAg/SS
Agronomist/Soil Scientist

BLR:mc

teich.doc

RECEIVED

AUG 14 1995

TEICHERT-ARD

LETTER 6: TEICHERT AGGREGATES

Response to Comment 6-1:

Text Change #s 24 and 27 have amended language to acknowledge suction dredges among the equipment that may be used in mining operations. The commentor is assured that the impact analysis did consider that technique and the text changes serve to make that more explicit.

Response to Comment 6-2:

As the commentor notes, the OCMP lays down the groundwork for public access and recreation. Implementation of actions and **performance** standards identified in Chapter 7.0 - Open Space and Recreation Element of the OCMP would ensure the compatibility of recreational facilities with surrounding land uses, including mining, in order to minimize adverse impacts. These issues would be dealt with in more detail through future **open** space and recreation planning efforts by the County. It is not the **County's intent to bring** future recreation and active mining in closer proximity to one another than is prudent.

Response to Comment 6-3:

The process whereby new operators would be allowed to mine within the SGR zone is provided on page 4.2-19 of the **DEIR**. The importance of market demand to mining rate is not a CEQA issue. However, the issue is addressed in Chapter 2.0 - Aggregate Resource Element of the OCMP.

Response to Comment 6-4:

Please refer to Response to Comment 3-15.

Response to Comment 6-5:

Under the OCMP, Teichert's Woodland and Esparto plants would continue to operate under their existing permits. The application of the OS Zone to in-channel lands is discussed in Impact 4.2-2 of the CCRMP.

Response to Comment 6-6:

The commentor is confusing the **terms** "pit capture" and "stream capture." While the potential for stream capture may be remote, there is a significant potential for pit capture. A discussion of these terms, potential impacts, and recommended mitigation is provided in Impact 4.3-3 of the DEIR. The purpose of Chapter 3.0 - Description of Project and Alternatives is to thoroughly document **all** components of the project for the purpose of the impact analysis in Chapter 4.0 - Environmental Analysis.

Response to Comment **6-7:**

The data provided in Table 3-1 is based on the best available information supplied by the mining operators early in the preparation of the EIR. Corrections to the table are provided in Text Change # 5; however, calculations throughout the entire document have not been revised as they are considered reasonably accurate for a program-level analysis. In response to the comment on the net gain footnote, Text Change # 5 has been added.

Response to Comment **6-8:**

Please refer to the Response to Comment **3-7**.

Response to Comment **6-9:**

In response to the comment, corrections to Table 3-3 have been made as shown in Text Change # 6.

Response to Comment **6-10:**

Please refer to Response to Comment 3-9 and Text Change # **10** (page 4.2-36 dealing with conveyors).

Response to Comment **6-11:**

The term "phases" refers to the sequence of mining and reclamation as provided by the mining operators in the individual mining applications. In response to the comment, **Figures 4.2-4 and 4.2-5** have been corrected and included as Text Change #**11**. Staff **acknowledges** that the proposed phasing plans assume continual production-at maximum annual allocations and that actual phasing timetables may differ.

Response to Comment **6-12:**

The staff does not agree that the text is misleading. No finding of significance was made. The conclusions reached in the **DEIR** are based on information available at the time the analysis was performed and before Teichert submitted its follow-up documentation. As noted in the **DEIR** on page **4.2-52**, compatibility of Teichert's application with the airport safety zones are being addressed in the project-level EIR for that application.

Response to Comment **6-13:**

The comment indicates that the commentor does not agree with the analysis presented in the EIR related to the potential for disturbance of reclaimed areas caused by **seismically-induced** settlement. The preparers of the EIR consider the potential for settlement and disruption of drainage to be a significant impact on agricultural uses, as well as possible future development of improvements, in areas underlain by non-engineered fill. The

purpose of adding Performance Standard 2.5-25 in Mitigation Measure 4.3-1a was not to emphasize "urban consequences" but to acknowledge that improvements could be affected by the stability of non-engineering fills resulting from mine reclamation projects.

Response to Comment 6-14:

Please refer to the Response to Comment 3-11.

Response to Comment 6-15:

The preparers of the EIR do not agree with the commentor's conclusion that if storm water is contained at the site no Storm Water Pollution Prevention Plan (SWPPP) is required. The Fact Sheet for the General Permit for Storm Water Discharges Associated with Industrial Activities states that the regulations require that stormwater associated with industrial activity that discharges to surface waters must be regulated by a storm water discharge permit. All wet pit mining operations would result in the creation of a surface water body within the mining excavation. Storm water runoff entering the mining pits would constitute a discharge to surface water. Any runoff from processing areas that is not contained would also be considered storm water discharge. **Individual** operators would be required to demonstrate in a SWPPP that drainage controls at a site function as designed and are maintained.

Response to Comment 6-16:

The commentor is correct in identifying the Mine Safety Orders (California Code of Regulations Title 8 Subchapter 15) as the governing regulations for excavations during mining operations. The intent of Performance Standard 2.5-17 is to address permanent, reclaimed slopes. In order to clarify the intent of the standard to address stability of excavated vertical banks, Text Change # 17 has been made. However, the preparers of the EIR do not consider the design requirements of the Mine Safety Orders to cover the long-term stability of reclaimed slopes. The inclusion of maximum slope standards presented in the California Code of Regulations Title 8, Article 6, was made to provide engineering-based standards for excavation stability based on specific soil types. Text Change # 17 has been made to clarify that the standard applies to reclaimed slopes.

The second point made in the comment relates to the requirement in Mitigation Measure 4.3-2a (Performance Standard 2.54) regarding maximum pit slope at the margins of mining pit lakes. The County does not require specific slope angles at the margins of stock or irrigation ponds. However, the size and relative high quality of water in the **groundwater**-filled ponds may create a potential attractive nuisance, particularly for lakes created near population centers such as Esparto and Madison. Staff considers these lakes to present a great enough risk to require this additional slope requirement. The slope requirement was only applied to near-shore areas of the perimeter of the lakes to allow exit from the water bodies for persons who accidentally fall in. Slopes below this level may be steeper, so that biological clogging or sedimentation of side slopes is reduced, thus encouraging

the movement of groundwater through the wet pit. Additionally, it is important to remember the staffs recommendation that the County promote future recreation opportunities along this corridor.

Response to Comment 6-17:

The Performance Standard was intended to apply to runoff from all reclaimed lands. Please refer to the Response to Comment 3-16.

Response to Comment 6-18:

The preparers of the EIR do not agree with the commentor's conclusion that the slope stability standards presented in the EIR are "too severe". Although the commentor is correct in indicating that slope failures would likely result in movement to the interior of mining areas, such failures could compromise the stability of land separating the mining areas and Cache Creek or structure near the mining areas. The commentor's point regarding revision of the wording of Performance Standard 2.5-18 is noted. However, the specific criteria suggested in the comment regarding the distance of buildings from the mining area slopes ("where a 1:1 projection from the toe intercepts buildings or other essential structures") may not be appropriate for all situations. Therefore, the analysis of the potential threat of slope failures affecting structures should be evaluated on a site-specific basis, as required by the performance standard.

Response to Comment 6-19:

The comment requests a reduction in the minimum factor of safety for slopes during a 100-year flood event. Whereas the commentor is correct in recognizing that the occurrence of a low-frequency flood event is a temporary condition, the potential damage associated with a slope failure for a slope separating mining areas from the Cache Creek channel during a flooding event is increased over low-flow conditions. The consequences of a slope failure during a high flow event could include breaching of a separator and significant damage to the mining or reclaimed areas. Mixing of waters from the creek with water within mining areas could adversely affect water quality. Therefore, the preparers of the EIR contend that the more conservative slope factor of safety cited in the DEIR is an appropriate mitigation measure.

Response to Comment 6-20:

As indicated in the comment, the distinction between "pit capture", a condition in which the a mining area becomes hydraulically connected to the creek channel, and "stream capture" should be described. In "stream capture", the channel of the creek would be directed into and through the "captured pit. The DEIR provides a discussion of these distinct conditions on page 4.3-33. Stream capture is described as an extreme example of pit capture. Due to elevation differences between the creek channel and the terrace surfaces on which off-channel mining would occur, it is unlikely that stream capture would occur ~~within the~~ OCMP

planning area. However, it is important to point out that a continuum of conditions could link "pit capture" and "stream capture". If a "pit capture" occurs, it is possible, depending on the geomorphologic configuration of the mining area and the creek channel, that scour could occur at the margin of a "captured" pit at which the separation is not re-established. Such scour could result in development of a bedform discontinuity that could result in channel instability. Subsequent flows directed into (but not necessarily through) the mined area could cause significant bank erosion and channel morphology changes, including upstream bed lowering and potential threats to nearby structures and property. Although the channel may not be permanently directed through the mined area, the presence of "captured pit" could present channel stability problems.

Response to Comment 6-21:

The OCMP requires a setback of 700 feet for mining areas. Under certain site conditions and with specific engineering designs, the setback can be reduced to not less than 200 feet. These setback criteria were established in the Technical Studies for the CCRMP to reduce the potential for impacts to mining areas that could be caused by lateral erosion. The long-term avoidance of lateral erosion along a dynamic channel, such as Cache Creek, requires reasonable contingency planning for erosion hazards. It is important to acknowledge that the potential for erosion can be created by conditions within the channel that are outside the control of the engineering works provided for individual mining projects. Such changes could include the natural or man-made changes of channel shape that would not be expected under existing conditions.

The required setback is based on many factors, including engineering and hydraulic considerations. These include:

- Sufficient buffer for off-channel mining to protect wet pit mining areas from lateral river adjustments;
- Additional buffer against failure for unengineered levees and natural streambanks;
- Adequate area in which to maneuver heavy equipment during an emergency erosion event (including separator overtopping during low-frequency flood events);
- Access for continuing maintenance activities;
- Flexibility for future channel sculpting during implementation of the Cache Creek Improvements Program;
- Availability of space for revegetation and habitat restoration efforts along the creek;

- Potential future corridor for recreational activities: and
- Consistent and uniform treatment of channel banks throughout the OCMP planning area.

Comparison of the expected performance of an engineered levee and a separator between a mining area and the creek channel is not valid. The narrower levee width is partially a function of the engineering design. Most levees protecting valuable or vulnerable property also typically have maintenance programs which are documented and funded. The maintenance of levees are typically the responsibility of a governmental or other responsible agency. Maintenance of the separators under the OCMP are the responsibility of individual landowners and added protection against erosion is warranted.

Response to Comment 6-22:

Please refer to the Response to Comment 6-21 for portions of the comment related to the appropriateness of the setback requirement of the OCMP.

The final point of the comment requests a clarification of the meaning of the term "historic channel" as used in Performance Standard 4.5-3 of Mitigation Measure 4.3-3a. Use of the term "historic channel" in the DEIR is generally equivalent to the positions of the active channel over the period for which historic mapping and aerial photography data is available (late 1800's to 1995) as described in Section 3.5 of the Technical Studies for the CCRMP (NHC, 1995). The use of the modifier "historic" is commonly applied to documented evidence versus geologic or geomorphic data which can be interpreted by qualified professionals to provide evaluations of channel position over longer periods of time. In some settings to the commentor's referenced datum of 50,000 years could be covered by interpretation of geomorphic evidence. The Streamway Influence Boundary (shown on Figure 3.3-1 of the DEIR) encompasses areas occupied by the Cache Creek channel over the historic period. Most of the mining areas proposed under the OCMP are within this boundary.

Response to Comment 6-23:

The commentor's concurrence with the comments presented in Letter 3 regarding hydrologic issues is noted. The commentor is referred to the Response to Comment 6 4 2 for acknowledgment of dredging operations.

Response to Comment 634:

The commentor provides information which indicates that the acreage figures on several pages in the Agricultural Resources analysis should be revised. In response to information provided in the comment, Text Changes #41, 42, 44, and 45 have been made.

Response to Comment 6-25:

The preparers of the EIR concur with the suggestion made in the comment that Performance Standard 5.5-4 in the Draft OCMP be revised to require ripping of soil in reclaimed areas to a depth of three feet after every two feet, instead of every one foot, of soil is laid down. The ripping of the soil in this manner would be effective in reducing the potential for compaction of replaced soil. Text Change # 47 has been made in response to this comment.

Response to Comment 6-26:

In response to the comment, Text Change # 48 has been made to more accurately describe the reclamation activities at the Coors site. However, the information provided in the comment indicates, as described in the DEIR, that excessive soil moisture (possibly related to seasonal groundwater elevations) contributed to adverse agricultural conditions.

Response to Comment 6-27:

Please refer to the Response to Comments 3-3 and 3-60.

Response to Comment 6-28:

Comment noted. No modification to the DEIR text on page 4.7-12 appears necessary.

Response to Comment 6-29:

In response to this comment, Text Change # 59 was made (refer to Section 2.0 for description of these changes). With regard to the commentor's note regarding lack of offset for NO_x from farm equipment, the offset for removal of agricultural activity was calculated for several pollutants but was negligible for all pollutants except PM-10.

Response to Comment 6-30:

Staff has determined that the Teichert Esparto Properties plant will need to be re-permitted, and the DEIR reflects this more conservative position. The project-specific EIR being prepared for the Teichert Esparto properties long-term permit considers the impacts under both this assumption, and the assumption that the permit will not need to be re-permitted.

Response to Comment 6-31:

In response to the comment, the Text Change # 62 has been added.

Response to Comment 6-32:

In response to the comment, the Text Change # 63 has been added.

Response to Comment 6-33:

See Response to Comment 3-69. The original standards contained in the County's mining and reclamation ordinance are for noise levels at the mining boundary. The Draft OCMP includes an additional standard of an L_{eq} of 60 dB at nearby off-site residences or noise-sensitive land uses. The EIR recommends a standard of CNEL 60 dB since it accounts for people's increased sensitivity to nighttime noise. The CNEL 60 dB standard is roughly equal to an L_{eq} of 60 dB during the day, 55 dB during the evening, and 50 dB at night. CNEL is the metric that the State uses for residential land-uses in their land-use compatibility guidelines. The CNEL metric accounts for evening and nighttime mining activity.

Response to Comment 6-34:

The proposed CNEL standard in Mitigation Measure 4.9-1b does not specify that it be measured at the property line. Mitigation measure 4.9-1c does specify a property line limit for zoned residential but not for an occupied residence on agricultural zoned lands. A property line standard is appropriate for residential land uses. For agricultural land-uses, the standard should be applied at the outdoor-use space. A property line limit does allow the land owner the **ability** to develop or use all areas on the site without being exposed to excessive noise levels. In response to this comment, Text Change # 64 has been made to the DEIR.

Response to Comment 6-35:

Rationale for change to CNEL from L_{eq} is discussed in the DEIR on page 4.9-12, third paragraph and in Response to Comment 3-70. As mining does proceed lower into the pit, the noise standards will be more easily met.

Response to Comment 6-36:

See Response to Comment 6-33. The existing regulations allow for up to 65 dB L_{eq} at the mining boundary at night and 80 dB during the day. If the residences are in close proximity to the mining boundary then noise levels could be excessive (exceed CNEL or L_{eq} of 60 dB).

Response to Comment 6-37:

Comment noted. The use of noise-generating equipment associated with surface mining operations, including dredges, is acknowledged on page 4.9-4 of the DEIR.

Response to Comment 6-38:

The **commentor's opinion** that mining and reclamation are an established part of the existing landscape and do not create visual incompatibility is noted for the record. Because mining operations will be visible to some degree, from various public viewpoints, the OCMP DEIR concludes that effects on existing views or vistas during mining would be significant and unavoidable. Differences in site-specifics and locations will be assessed in the project-level EIR. Also, please refer to Response to Comment 3-72 and Text Change # 67 regarding text changes to Mitigation Measure 4.10-1b that address existing site specific conditions.

Response to Comment 6-39:

Please refer to Text Change # 67 regarding revisions to Mitigation Measure 4.10-1b. Agricultural buffers, particularly in the form of row crops or other low-growing crops, would not provide sufficient screening of mining operations.

Response to Comment 640:

Please refer to Response to Comment 3-75.

Response to Comment 6-41:

Comment noted.

Response to Comment 6-42:

Please refer to the Response to Comment 3-77.

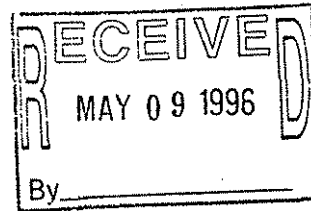
Response to Comment 643:

There are no regulatory State or local requirements for the steepness of slopes in wet pits, reservoirs, or lakes. The DEIR **preparers** have recommended **2:1 slopes** near the water's edge (i.e., **five** feet below the summer low water) to be protective of **human** health and life. No change has been made to the DEIR in response to this comment. Please **also** refer to Response to Comment 6-16.

Thank you for your letter.

RIVERS

ENTERPRISES, INC.



May 8, 1996

David Morrison
Resource ~~Managment~~ Coordinator
Yolo County Community Development Agency
292 West Beamer Street
Woodland, CA 95695

Dear Mr. Morrison:

I have been asked to review the comments made by YCAPA to the Draft EIR for the off-channel mining plan which pertain to truck traffic. I concur with the discussion listed as item 865.

Two Rivers Enterprises, Inc. is one of the major aggregate truck brokers in the Sacramento Yolo area and we co-operated with the other major brokers to help supply the needs of our customers. However, there are numerous occasions during the construction season when trucks are simply not available to fulfill the demand. The analysis of peak traffic as shown in Table 4-8-9 count not happen as that number of trucks is not available on standby.

7-1

Thank you for the opportunity to comment on the county's plan.

Sincerely,

TWO RIVERS ENTERPRISES, INC.

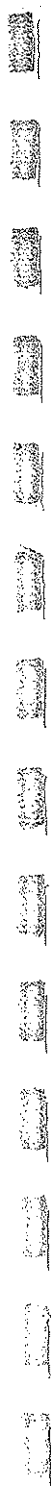
Robert L. Dunshee
President

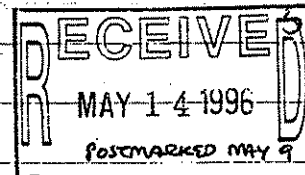
8556 Weyand Avenue -Sacramento, CA 95828 - (916)381-4648

LETTER 7: TWO RIVERS ENTERPRISES, INC.

Response to Comment 7-1:

Thank you for your letter. Please refer to Response to Comment 3-65.





To Whom it may concern,

We have already written ~~once~~ ^{BY} about our concerns but here is another letter on the same issues.

1.) Property Values - Syria's project is directly across the road from us & not even a mile from town. If they ~~dig~~ ^{deep} pit mine this area, everyone on this road & in town will be subjected to their dust, noise & pollution for a life sentence (30 to 50 years). It is a known fact that land values go down when something like this goes in. All we have is put into this property & we had hoped to hand it down to our children. It won't be worth much if the gravel companies are here. Besides, who in their right mind would want to live here? Or buy it? 8-1

2.) Noise - living in the country means peace & quiet. All this will be gone if they begin mining. Once again, we 8-2 will be submitted to listen to this constantly with no way out. People are sensitive noise receptors - not just hospitals & libraries.

3.) Water - How safe will the aquifer & the wells in this area be with the horrendous pits that are being dug? There should be more studies on mercury in the pits & how it could ruin our water supply. 8-3

4.) Air quality - With the constant digging & hauling, this puts gases, dusts & nitrogen into the air. How are we supposed to breathe? 8-4

5.) Unavoidable Mitigations - there will be a loss of over 1000 acres of farmland not to be reclaimed. That's an awful lot of damaged land. Wouldn't just farming the land be better over a longer period of time. 8-5

To sum it up -- there are people out here. We all care about our quality of life & would like to go on living here in harmony in this beautiful county. But if it becomes grey & pitted & ugly right in front of our eyes then what does it say for our county? That nobody cares - unless it's all about money. 8-6

MR + MRS Michael D. York
15940 County Road 87
Esparto, Calif. 95627

LETTER 8: MR. & MRS. YORK

Response to Comment 8-1:

As discussed on pages 1-4 and 1-5 of the DEIR, the DEIR addresses cumulative impacts of the OCMP as a whole, and no site-specific analysis regarding the York property is possible at this program level. The project-level EIR for Syar's mining application would further explore in greater detail issues raised by the York's comment, including impacts of the project on air quality, noise, and traffic within the surrounding area (effects on property values is not a CEQA issue).

Response to Comment 8-2:

Please refer to Response to Comment 8-1. The impacts of noise due to implementation of the OCMP are addressed in Section 4-9 of the DEIR, and will be evaluated in greater detail in the focused project-level EIRs. Individual residences are identified as sensitive receptors.

Response to Comment 8-3:

Section 4.4 of the DEIR (pages 4.4-22 through 4.4-67) address the hydrologic and water quality impacts of the OCMP and alternatives. The commentors are referred to this section of the DEIR, and in particular to the discussion provided under Impact 4.4-2. A study on the potential for mercury impacts related to wet pit mining was performed and is included as Appendix C of this document. On the basis of the scientific studies, the staff believes that the mitigation measures identified in the DEIR will render the aquifer safe. For additional discussion on the effects of mercury, please refer to Response to Comment 13-127.

Response to Comment 8-4:

The DEIR quantitatively addresses the impacts of the project on PM-10 emissions, emissions of ozone precursors, cumulative impacts on attainment of the state and federal standards, residences and other sensitive receptors. The project was found to have a significant impact on regional PM-10 and ozone precursor emissions, and found to have a cumulative effect on PM-10 and ozone air quality. The project was found to not have a significant impact on residences near processing plants or along public streets.

Response to Comment 8-5:

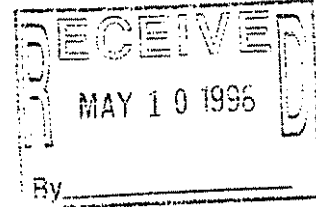
The economics of continued farming of the land versus mining is not a CEQA issue and will be addressed separately in the fiscal analysis to be prepared by the County.

Response to Comment 8-6:

The staff share the commentor's concern about the quality of life in Yolo County. The purpose of the EIR and other information that is emerging from the process is to provide as much scientific and technical data as is reasonable for the Board of Supervisors to make an informed decision. The commentors' statement is noted, and will be included as part of the project record.



May 8, 1996



David Morrison
Resources Management Coordinator
Yolo County Community Development Agency
292 West Beamer Street
Woodland, CA 95695

Dear David:

We have received the DEIR for the Off-Channel Mining Plan. In order to facilitate the response to comment effort by the County we have through the YCAPA submitted the majority of our comments and wish to incorporate the YCAPA comments by reference.

9-1

In addition, we have the following comments:

Pg. 3-22 Table 3-1 should be corrected as follows:

Total mined AC under contract
Cache Creek Aggregates = 360
Not under contract = 0

9-2

AP 48-220-16 is zoned A-1 but does have an underlying William Act Contract.

Pg. 3-20 Table 3-4 needs to be revised as to comments by YCAPA on Alternative 4, Comment #79.

9-3

Pg. 4.4-35 PS 3.5-6 Paragraph 3 should be the same as Paragraph 2 " .. within 1,000 feet of municipal water well or 500 feet for domestic well .. should be subject ..

9-4

Thank you for the opportunity to comment on the document.

Sincerely,

BEN ADAMO
Project Manager

BA:vcb

Printed on recycled paper

Cache Creek Aggregates, a subsidiary of R.C. Collet, Inc.
P.O. Box 1965, Woodland, CA 95695. 916 373.3777

LETTER 9: CACHE CREEK AGGREGATES

Response to Comment 9-1:

Comment noted. Refer to Comment Letter 3 and corresponding responses.

Response to Comment 9-2:

Please see Response to Comment 6-7 and Text Change # 5.

Response to Comment 9-3:

Please see Response to Comment 3-79.

Response to Comment 94:

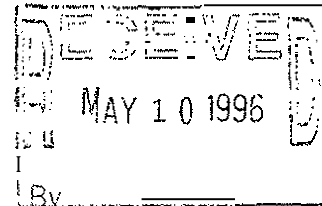
Please refer to Response to Comment 3-37.

MEMORANDUM

To: Project Coordinator
Resources Agency

Date: May 10, 1996

David Morrison
Yolo County Community Development Department
292 West Beamer Street
Woodland, CA 95695



From: Office of Governmental and Environmental Relations
Department of Conservation

Subject: Draft Environmental Impact Report for the Off-Channel Mining Plan for Cache Creek, Yolo County - SCH #95113034

The Department has reviewed the Draft Environmental Impact Report (DEIR) for the Off-Channel Mining Plan for Cache Creek (OCMP) project. We understand that the project proposes mining operations on current agricultural lands with an eventual net increase in habitat land. Our comments below relate to additional factors the Final EIR should incorporate regarding the proposed uses of land under Land Conservation (Williamson Act) contract and to the reclamation plans, as proposed.

Williamson Act and Agricultural Land Use Issues

The DEIR identifies the loss of prime agricultural land as a significant unavoidable impact of the project. Specifically, the DEIR states that "830 acres of prime farmland, most of which is currently under (Williamson Act) contract, would be converted to non-agricultural uses..." The DEIR notes that Yolo County ordinances would not currently allow thii use, but those ordinances would be changed to accommodate thii project. However, the DEIR is silent about the basis for concluding that the modified ordinance and the portions of the proposed project which lie on contracted, prime farmland would meet the compatibility provisions established in the Williamson Act in 1994 (Government Code sections 51238.1 and 51238.2).

In summary, the Williamson Act offers land owners and counties a tool to conserve farmland and open space by means of preferential taxation. Preferential taxation is based upon the landowner's commitment to only engage in land uses which are agricultural or open-space in nature or which are compatible with the use originally contracted. While the program, enacted in 1965, originally was focussed on prime agricultural farmland, it was expanded in 1969 to also allow protection of non-prime land and open space. The primary intent of the Williamson Act, though, was preserved as codified in Government Code Section 51220 which states the Act is intended to preserve agricultural land as a food growing resource. Degradation of the agricultural productivity of prime lands enrolled in the program is strictly limited by the Act. The special concern for prime agricultural lands is also reflected in the State's Open Space Subvention rate, which is five times higher per acre for prime land than for non-prime land in the program. The 1994 amendments to the Williamson Act further defined the related issue of compatibility. Under these provisions, as well as the program in toto, prime agricultural lands are protected as such and receive special protection.

This specific issue of compatibility bears upon the DEIR's proposed uses of Williamson Act-contracted land. The DEIR states that mining projects on contracted prime farmland would be found compatible pursuant to a modified County ordinance.

10-1

The DEIR recognizes that Government Code section **51238.1** states that compatible uses on prime lands may neither "compromise the long term agricultural productivity of the subject contracted parcel", nor "displace or impair current or reasonably foreseeable **agricultural** operations on the subject contracted parcel." It further recognizes that section **51238.2** would allow mineral extraction that wouldn't otherwise comply with the requirements of section **51238.1** so long as "the underlying contractual commitment to preserve prime land as defined in subdivision (c) of **51201** ... would not be **significantly** impaired." But the DEIR does not **discuss** of how either the project or the ordinance would **meet** the **compatibility** standards **established** in **Government** Code section **51238.1** and **51238.2**. **This discussion** should **include** how prime quality lands will be reclaimed **after mining** to prime quality or how non-prime lands will be reclaimed to non-prime or open-space quality. For your information, we have **attached** a **copy** of a letter sent to the Assembly Journal (dated August 31, 1994) stating the author's intent, specifically **regarding** mineral extraction on prime **agricultural land**, in **enacting** Government Code sections **51238.1** and **51238.2**.

However, based upon information provided to the Department by the **County** on **May 1, 1996**, it appears that most of the prime **agricultural** land under Williamson Act contract and proposed for mining will be, or could be, free of **contractual** obligation through non-renewal **BEFORE** the proposed starting date of mineral extraction operations. That is, the **May 1, 1996** information acknowledges that contract non-renewal has already been filed on most of the prime quality, contracted parcels proposed for mining and, on those two, single, enrolled parcels covered by the plan which have **not** been non-renewed, the start date for the proposed mining would still allow **adequate** time for complete non-renewal in the **interim**. **Thus**, most of the **Williamson** Act contracts (and attendant **compatibility** issues) will be, or could be, terminated prior to proposed **phase-in** of mining operations. The implication of this information is that, for most of the **contracted** land proposed for mining activities, the issue of compatibility **can** and will be resolved **by** termination of the contracts through non-renewal. Discussion of **this** issue in the **F i** EIR **could** help **resolve** issues which otherwise **would** compel the proposed change to the county ordinance.

Contracted, non-prime agricultural land is also proposed for **mining** activities. **The** **use** of this land could similarly be withdrawn from the **Williamson Act** prior to the proposed mining. For that non-prime land on which the mining is proposed while **still under** contract, **the DEIR should** evaluate the issue of **compatibility** under the applicable provisions in Government Code sections **51238.1 & 51238.2**; specifically, the potential to **return** the non-prime land to non-prime or open-space quality.

Given the **Williamson** Act **compatibility** issues which would be raised by proposed large scale aggregate extraction, particularly on enrolled prime lands, it would be advisable for the **DEIR** to address the contract non-renewal **factors** mentioned above as an alternative approach to **Williamson** Act consistency. However, should the **F i** EIR continue to rely on the **combination** of a proposed change to the county **ordinance combined** with proposed open space reclamation, a parcel by parcel review of the project would need to be completed in light of the requirements of Government Code section **51238.1** and **51238.2**. This review should **adequately** evaluate consistency with the **Williamson** Act for **Final** EIR purposes. In particular, there are two contracted, prime agricultural land parcels which we understand are proposed for mining prior to contract termination. Absent a change to the project proposal to change the intended phase-in date for mining on those two contracted parcels (approximately **105 acres** in parcels identified as APN **049-070-04** and **APN 049-070-13**), the guiding provisions of Government Code sections **51238.1** and **51238.2** would **still** apply. The above referenced and attached author's intent letter to the Assembly **Journal** may assist you in your considerations.

10-2

Mineral Classification

The Department notes that the DEIR accurately characterizes those mineral land classifications at the project site. The DEIR correctly finds that the Department has classified areas in the project site as Mineral Resource Zone One (MRZ-1), Two (MRZ-2), and Three (MRZ-3) (see California Division of Mines and Geology Special Report #156). The DEIR notes that the classified land is distributed as follows: MRZ-1 constitutes 5.2% of the project area; MRZ-2 constitutes 65.6 %; and MRZ-3 constitutes 29.2%. The DEIR also correctly notes that MRZ-2 classification indicates that adequate information exists to indicate significant mineral deposits on the site or a high likelihood of their presence. MRZ-1 classification means that adequate information indicates no significant minerals exist, or that there is little likelihood of their presence. MRZ-3 classification means that the significance of mineral resources cannot be determined from data available at the time of classification.

The Department offers one minor technical comment regarding Figure 3.2-3 in the DEIR. The area classified as MRZ-1 along the north side of the project area is shown stretching from approximately County Route 87 (CR 87) in the west to CR 88 in the east. Special Report #156 actually indicates that this particular MRZ-1 area stretches a few hundred yards further to the east of CR 88. In other respects, Figure 3.2-3 accurately represents the findings of SR #156.

As you know, the Department assists local planning agencies by identifying significant mineral resources statewide. Mineral classification is intended to ensure that local governments have adequate information to avoid development trends which might preclude eventual use of necessary mineral resources. For instance, permitting a residential or commercial development on a significant gravel resource would probably preclude any future gravel extraction at that site, decreasing local supply of gravel. The Department notes that Williamson Act contracts may provide a further, useful tool in mineral land protection where mineral resources and farmland or open space are coincident. Such coincident Williamson Act contracts could, depending upon their conditions, contractually prohibit those development activities which would preclude future access to the mineral resources. When access to those mineral resources is necessary or foreseeably necessary, mineral extraction could either take place under the Williamson Act compatibility provisions in current law or, where not found compatible with the previously existing Williamson Act contract, after termination of the contract.

Surface Mining Reclamation Issues

Notwithstanding the any determination of compatibility discussed above, the Department also provides comments on reclamation plans pursuant to Public Resources Code section 2774(c). Staff previously reviewed the reclamation plans for several proposed long-term off-channel mining projects that may be affected if the mitigation measures or proposed changes in the DEIR are adopted. For this reason we would hope that the reclamation plans not be finalized until the mitigation measures proposed in the DEIR are adopted or modified. This will ensure that both the County and the Department will not be performing multiple reviews of changing reclamation plans.

We also suggest that performance standards for mitigation measures incorporate the standard against which the success of actual mitigation will be measured. This level of information will be necessary to develop meaningful performance standards, as well as satisfy the requirements of the Surface Mining and Reclamation Act (SMARA; Public Resources Code Section 2710 et. seq.) and the State Mining and Geology Board regulations for surface mining reclamation practice (California Code of Regulations Title 14, Chapter 8, Article 1, Section 3500 et. seq.; Article 9, Section 3700 et. seq.).

Where appropriate, portions of the DEIR may be used to **satisfy** the requirements of **SMARA**. Information prepared for the DEIR may be included by specific reference in the reclamation plans if specifically referenced. **When** revised reclamation plans are **prepared** for the projects, Department staff will **review** the reclamation plans and offer **technical** comments, as provided in Public Resources Code **section 2774(c)**.

10-4

Thank you for the opportunity to comment on the County's **Off-Channel Mining Plan**. If the Department can be of any **further** assistance please contact me. Ken Trott **regarding Williamson Act issues (916-324-0864)**, or Dennis **O'Bryant regarding SMARA issues (916-323-9198)**.



Jason R. Marshall
Assistant Director

Attachment

cc: Ken Trott, *Office of Land Conservation*
Dennis **O'Bryant**, *Office of Mine Reclamation*

REQUEST FOR UNANIMOUS CONSENT TO PRINT IN JOURNAL
Assembly Member Sher was granted unanimous consent that the following statement of legislative intent be printed in the Journal:

Legislative Intent—Assembly Bill No. 2663

August 31, 1994

E. Dotson Wilson
Chief Clerk of the Assembly
State Capitol, Room 3196

Dear Mr. Wilson: I respectfully request that this letter be inserted in the Assembly Journal.

It is my intent, as author of AB 2663, that Section 51238.2 of the Government Code allow a responsible board or council, on a case-by-case basis and at its discretion, to approve mineral extraction if: (1) the underlying contractual commitment to preserve the prime or nonprime agricultural land has not been significantly impaired; and (2) the mining operation is in compliance with the reclamation standards adopted by the Mining and Geology Board pursuant to Section 2773 of the Public Resources Code.

To accomplish the above, the board or council may approve mineral extraction if the subject parcel or parcels of prime agricultural land will be reclaimed back to their original prime quality. This section allows the board or council to approve mineral extraction and reclamation, on a case-by-case basis, on prime agricultural land, which may result in some impairment of the original prime quality, subject to reclamation requirements insuring that the overall underlying contractual commitment to preserve prime agricultural lands, as defined in subdivision (c) of Section 51201, is not significantly compromised, the total amount of prime land will not be significantly reduced, and the overall prime quality of the remaining land will not be significantly impaired..

Also, Section 51231 of the Government Code, as amended by AB 2663, does not conform to the language pertaining to non-prime agricultural land which is contained in subdivision (c) of Section 51238.1. To correct this technical oversight, I will introduce and author legislation next year to clarify that local compatible use, rules must conform to the "provisions of," rather than the "principles set forth in" Section 51238.1.

Lastly, AB 2663 is not intended to affect any litigation pending as of January 1, 1994.

Sincerely,

BYRON D. SHER, Assembly Member
Twenty-first District

LETTER 10: DEPARTMENT OF CONSERVATION, OFFICE OF GOVERNMENTAL AND ENVIRONMENTAL REVIEW

Response to Comment 10-1:

The commentor raises several points in this comment regarding the analysis of compatibility of the OCMP with the Williamson Act. The commentor suggests that the EIR does not present a basis for the determination of compatibility of the OCMP with the Act. However, a discussion of the issue of compatibility is discussed on pages 4.5-14 through 4.5-18. Action 5.4-2 of the OCMP states that upon amendment of the Agricultural Preserve zoning, mining could occur only if conducted in accordance with the provisions of the California Land **Conservation** (Williamson) Act. For mining in areas of prime farmland under contract, it is understood that reclamation back to agricultural use would be required in order to be consistent with the Act. In non-prime areas under contract, mined lands could be reclaimed to agriculture or other open space uses. However, mining on lands within the A-P zone which are not under contract when mining commences could be reclaimed to any use approved by the County and consistent **with** SMARA. Mining that is inconsistent with provisions of the Williamson Act **would** not be approved. Staff recognizes that, although implied within Action 5.4-2, the EIR should be amended to clarify the issue of allowable mining and reclamation on contracted lands. Text Change # 40 has been added to the EIR to provide clarification.

The second point made in the comment relates the potential issues of compatibility of the OCMP to the County's proposed amendment of the A-P zone. Staff would like to point out that the purpose of the proposed zoning amendment is to eliminate an existing zoning inconsistency. Although mining is an allowable activity on contracted lands under the Williamson Act, mining within A-P zones is not allowed under the current zoning code except for the purposes of bank maintenance and erosion control within the Cache Creek channel. The amendment would prevent the need for rezoning of each mining project proposed within the A-P zone. The purpose is not, as the comment suggests, to avoid compatibility conflicts with the provisions of the Williamson Act. The amendment itself would be consistent with the Act.

Staff agrees with the commentor's conclusion that **compatibility** conflicts would be avoided if the proposed mining were to occur after current contracts expire. However, mining could occur on contracted lands if reclamation returns mined prime agricultural land to an agriculturally productive state equal to or greater than that which existed prior to mining. As the **commentor** notes, reclamation of mining areas on non-prime lands to open space uses is allowable under the Williamson Act. The performance standards of SMARA present specific requirements for the reclamation of prime and non-prime **lands**. The standards are required of all mining projects under the OCMP. Termination of contracts would not be necessary for projects meeting these standards. The intention of the OCMP is to avoid termination of contracts in cases where mining is compatible with the provisions of the Act.

Response to Comment **10-2:**

The preparers of the EIR do not consider that the DEIR needs to present the "alternative approach" for Williamson Act compatibility suggested by the commentor. Individual mining projects will be required under the OCMP to be compatible with the Williamson Act. In fact, each of the proposed projects described in the OCMP is currently under environmental review and the compatibility of all proposed mining and reclamation with the Williamson Act provisions is being evaluated. In essence, the parcel-by-parcel analysis suggested in the comment is being performed for each project. The commentor is correct in recognizing that proposed phasing for some of the long-term mining applications presents conflicts with the provisions of the Williamson Act. Under the OCMP, mining of lands under contract will not be permitted if the proposed mining is inconsistent with the provisions of the Act. The commentor is referred to the subsequent project-specific EIRs for a detailed discussion of the compatibility of individual mining and reclamation plans with the Act.

Response to Comment **10-3:**

The Department's observations that the MRZ classifications are accurately characterized and reasonably shown in the OCMP are noted for the record.

Response to Comment **10-4:**

Reclamation plans would not be finalized until the mitigation measures proposed in the DEIR are adopted or modified. Performance standards to monitor the success of mitigation measures are more appropriate and hence will be incorporated into the project level EIRs and mitigation monitoring programs. Staff and mining operators are aware that portions of the DEIR may be used to satisfy SMARA requirements if specifically referenced in the individual reclamation plans.

DEPARTMENT OF TRANSPORTATION

DISTRICT 3, SACRAMENTO AREA OFFICE • MS 41

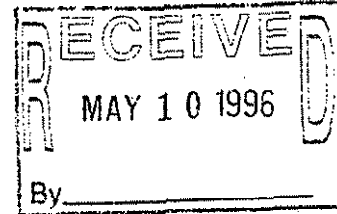
P. O. BOX 942874

SACRAMENTO, CA 94274-0001

TDD 916 741-4509

FAX no. 916 323-7669

Telephone 916 324-6642



May 7, 1996

HYOLO28
03-YOL-16 PM Var.
Off-Channel Mining
Plan for Lower Cache Creek
(OCMP)
DEIR
SCH #95113034

Mr. David Morrison
Yolo County Community Development Agency
292 West Beamer Street
Woodland, CA 95695

Dear Mr. Morrison:

Thank you for the opportunity to review and comment on the above referenced document.

COMMENTS:

* Caltrans commends the County for preparing a plan which recognizes the dynamic relationship between in-channel and off-channel mining. Our specific concerns are as follows:

1. No impacts listed on pages 2-6 through 2-42 specifically address bridges. Impact 4.3-3 on page 4.3-37, notes that "the impact for pit capture would remain significant". How will the impacts to state and local bridges proposed be mitigated? 11-1

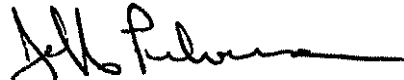
2. Action 4.4-6 has been changed from allowing "controlled pit capture" to allowing "controlled flooding" of off-channel mining pits during flood events which exceed the 100-year event. We recommend that the local agency weigh the potential benefits of this flooding of the off channel pits (e.g. potentially decreasing the flood hydrograph) against the potential detriments (e.g. unanticipated pit capture caused by overtopping levees) to assess potential impacts.

3. Please address unanticipated creek bank erosion. For example, if streambank erosion decreases the separation setback distance during a storm event (or aeries of storm events) to less than the specified minimum, what mitigation measures are proposed? 11-3

4. How will the pit separations be maintained in the long term? Please define "long term". 11-4

Please provide our office with copies of staff reports regarding this project as they are made available. If you have any questions regarding these comments, please contact Ken Champion at 324-6642.

Sincerely,



**JEFFREY PULVERMAN, Chief
Office of Transportation
Planning - Metropolitan**

**cc: Antero A. Rivasplata, State Clearinghouse
John Joyce, Yolo County Public Works**

LETTER 11: CALIFORNIA DEPARTMENT OF TRANSPORTATION

Response to **Comment 11-1:**

Impacts 4.8-9 through 4.8-12 on page 2-34 of the DEIR summarize traffic impacts on specific bridges. Please refer to pages 4.8-58 through 4.8-66 for specific discussion of each impact and relevant mitigation measure. Impact 4.3-3 describes potential impacts of permanent pit capture on channel stability, including possible erosion of bridges and other in-stream structures (page 4.3-33). The DEIR presents Performance Standards in Mitigation Measure 4.3-3a which reduce the potential for pit capture through identification of potential bank erosion, bank protection, and maintenance of bank stabilization.

The commentor's reference to the statement of significance for the impact of pit capture applies to Alternatives 4, 5a, 5b, and 6. Mitigation Measure 4.3-3a applies to the proposed project and all of these alternatives and would reduce the impact to a less-than-significant level. This measure would provide mitigation of channel stability problems related to off-channel mining for existing and future bridges.

Response to Comment 11-2:

The potential for flooding of the off-channel mining areas during low frequency (larger than a 100-year flood) was discussed on Page 4.3-36 of the DEIR. In the discussion, the distinction is made between "controlled pit-capture" and "controlled flooding" of the pits. The DEIR acknowledges that the pits could be inundated during floods more severe than the 100-year flood. The 100-year flood protection required by the OCMP reduces the risk of flooding and flood damage to a reasonable level (one percent). The concept of controlled flooding was meant to address control of floodwaters (and related erosion) which would inundate the mining areas during such events but is not meant to imply that the mining areas would be purposely flooded as a flood control measure.

Response to Comment 11-3:

The comment is not specific but suggests that "unanticipated erosion but it is inferred that such erosion could result in permanent pit capture which could cause channel instability. The maintenance of stream bank stabilization improvements during mining and reclamation is required under Performance Standard 4.5-8 of Mitigation Measure 4.3-3a. The requirements of Performance Standard 4.5-3 include the provision of professional technical evaluation of erosion potential at each proposed mining area. The required analysis would reduce the possibility of unanticipated erosion. Mitigation of the potential for erosion resulting in a decrease in the width of the required 700-foot setback would be provided by these requirements. However, Performance Standard 4.5-8 has been amended by Text Change # 18 to address the possibility of erosion of the setback zone.

In addition to the mitigation measures presented in the DEIR for the OCMP, the channel stability improvement for Cache Creek is being addressed in the Cache Creek Resource

Management Plan (CCRMP) and its EIR. Channel bank stability will be evaluated throughout the area on an annual basis by the Technical Advisory Committee provided for in the CCRMP. Channel improvement projects would be recommended for areas in which conditions may encourage the unanticipated erosion of channel banks.

Response to Comment 11-4:

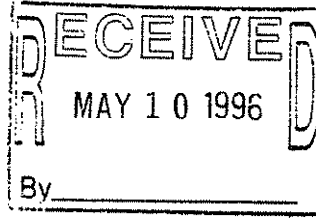
Mitigation Measure 4.3-3a addresses maintenance of bank stabilization features during the mining, reclamation, and post-reclamation periods. Under this mitigation, the term of the maintenance program is indefinite.



California Farm Bureau Federation

James C. Eller, Manager
Governmental Affairs Division
1127-11th Street, Suite 626
Sacramento, California 95814
Telephone: (916) 446-4647

May 10, 1996



VIA FACSIMILE AND MAIL [916-666-8156]

Mr. David Morrison
292 West Beamer Street
Woodland, California 95695

Dear Mr. Morrison:

RE: YOLO OFF-CHANNEL MINING PLAN PROGRAM DEIR

These comments are submitted on behalf of the California Farm Bureau Federation (Farm Bureau) relative to the ~~Draft~~ Environmental Impact Report (DEIR) for the Yolo County Off-Channel Mining Plan Program (OCMP). Farm Bureau is the state's largest general farm organization representing over 85 percent of the state's commercial agricultural producers. Our purpose is to work for the protection of agriculture in California and propose solutions to the problems of farmers and ranchers and their rural communities. As one of the original sponsors of the California Land Conservation Act (Williamson Act) of 1965, we have a long history of support for this vitally important program to California agriculture. We were also the primary sponsor and drafting consultant for the 1994 Williamson Act amendment which added Government Code sections 51238.1 and 51238.2¹ to the Act. Our intent was to clarify and narrow the range of activities that may be deemed "compatible uses" on lands subject to a Williamson Act contract.

Farm Bureau has very serious concerns regarding the DEIR conclusions related to the consistency of the OCMP with the Williamson Act. Specifically, the conclusion that merely changing the county's ordinance to allow large-scale commercial mining of prime farmland, when the expressed intent is to return the vast majority of the acreage to non-prime open-space status, will somehow magically make the proposed project plan consistent with the Williamson Act is totally without merit. The county cannot possibly meet the required standards of the above cited statutes. (These standards are quoted verbatim in the DEIR so they need not be repeated here.) It should be noted, however, that the DEIR states that the loss of prime farmland is a significant unavoidable impact of the project. Specifically, the DEIR states that "830 acres of prime farmland, most of which is currently under contract, would be converted to non-agricultural uses under the long-term mining and reclamation plans." (Emphasis added.) This is in obvious conflict with the compatible use standards contained in 51238.1 and 51238.2 because the use will compromise the long-term agricultural productivity of the subject contracted parcel and significantly impair the underlying contractual commitment to preserve prime land.

12-1

The only rational explanation for this misinterpretation of law is that the authors of the DEIR believe that the mining and conversion of enrolled prime farmland to non-agricultural uses are consistent with the Williamson Act because non-agricultural open-space land is eligible for enrollment in the program. If this is the hypothesis, it is clearly contrary to the facts of the law.

¹All statutory references are to the California Government Code unless otherwise indicated.

Mr. Steve Jenkins

May 10, 1996

Page Two

Our intent in adding §§51238.1 and 51238.2 to the Act was very clear--to provide a higher level of protection to prime farmland and the owners of enrolled prime farmland. Farmers and ranchers statewide demanded protection against incompatible uses that could limit or destroy their ability to produce within agricultural preserves. It is my understanding that the Yolo County Farm Bureau will be offering their specific comments and concerns relative to the DEIR and the proposed OCMP.

The legislature concurred with our contention that prime farmland should be afforded this special protection, in part, **because** these new sections reflect the original purpose of the Act, **i.e.** to protect prime farmland. We believe that the subsequent amendments to allow enrollment of non-prime land did nothing to diminish the legislative intent to protect the agricultural productivity of enrolled lands. For specific reference we suggest a review of §51220, which states in part:

That the preservation of a maximum amount of the limited supply of agricultural land is necessary to the conservation of the state's economic resources, and is **necessary** not only to the maintenance of the agricultural economy of the state, but also for the assurance of adequate, healthful and nutritious food for future residents of this state and nation. (§51220(a); emphasis added.)


12-2

The state's continued interest in preserving prime farmland is also demonstrated by the fact that the Open-Space Subvention Act provides a per-acre payment for enrolled prime land that is five times that of non-prime land. Thus, we believe that the requirements contained in §§51238.1 and 51238.2 relative to the degradation of the agricultural capability and productivity must be strictly interpreted. When considered within the background and framework of the existing law, the conclusions of the DEIR with regard to the plan's consistency with the Williamson Act must be viewed as totally erroneous and unsupportable.

Due to this lack of consistency with existing law, we believe that the proposed large-scale mining of prime farmland is best considered on a case-by-case basis once the lands have been removed from the Act. It is our understanding that there is little reason to change the county's longstanding policy prohibiting the mining on enrolled prime farmland because virtually all of the lands proposed for gravel extraction are either in the non-renewal process or could easily meet the non-renewal schedule prior to the proposed start of mining. Should the county feel compelled to reverse its policy on this important issue, we must implore you to abide by the requirements of §§51238.1 and 51238.2 by considering each parcel on a case-by-case basis. We believe that this is the only way to legally fulfill the findings requirements contained therein.

Thank you for your consideration of our comments and concerns.

Sincerely,


John R. Gamper
Director

Taxation and Land Use

cc: Yolo County Board of Supervisors
Yolo County Farm Bureau

LETTER 12: CALIFORNIA FARM BUREAU FEDERATION

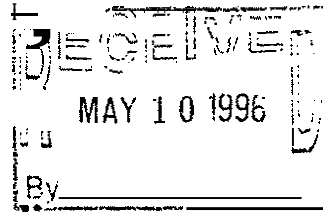
Response to **Comment 12-1:**

The commentor has grossly misinterpreted the County's intentions with respect to the proposed zoning text amendment. The **DEIR** analyzes the consistency of the draft OCMP and its implementing ordinances on pages 4.5-14 through 4.5-16. Please refer to Response to Comment 10-1 for an expanded discussion of consistency between the proposed A-P zone amendment and the Williamson Act.

It is not accurate to state that the ~~stated~~⁵ **expressed** intent of the OCMP is to "return the vast majority of the acreage to non-prime ~~open-space~~ status." As indicated in Table 3-1 in Chapter 3, Project Description, the ~~six~~⁵ **long-term** mining applications propose to mine a total of approximately 2,211 acres of prime and non-prime land, and reclaim a total of roughly 1,133 acres (51 percent) to row crops, tree crops, and pasture. The mined land that is reclaimed to agriculture is required to operate at the same or better level of productivity as before the mining.

Response to Comment **12-2:**

The commentor is referred to the Response to Comment 10-2 for a discussion of required project-specific analysis of the consistency of **long-term** mining applications with the requirements of the Williamson Act.



May 9, 1996

To: Dave Morrison & Heidi Tschudin,
Yolo County Planning Department

Subject C & Statem 1 0 n 1 - DEIR -

Off Channel Mining Plan for Lower Cache Creek SCH #95 1130

The enclosed documents consist of General and Specific Comments on the DEIR for the Off Channel **Mining** Plan which was issued on March 26, 1996.

We believe that the DEIR Consultant did not adequately address concerns raised during the **NOB**. We therefore have re-emphasized our concerns with the hope that adequate consideration will be given to these as well as the other issues.

The DEIR has not adequately presented the hazardous risk of the Open Deep Wet Pits to the major source of potable water in **Yolo** County. Some of these pits **will exist** into perpetuity acting as open, festering wounds on the **landscape, tearing** deep holes into the aquifer **holding** our most precious resource - drinking water. This would be a **terrible legacy** to leave our children!

Today, May 9th 1996, we received the Report 'Of **Channel Gravel Pit Lakes - Mercury Considerations**' Although the document was dated May 2nd it was not released to the public until May **9th**, one day before the due date of the OCMP DEIR We have not had a chance to review its data and conclusions, but **will** do so as soon as possible and forward appropriate comments. A cursory glance confirms our worst fears - the conditions are right for conversion of inorganic mercury to methyl mercury and its uptake by fish in significantly **high** levels. This is occurring under relatively high oxygen conditions since the water is continually stirred up by the ongoing mining operations. Seasonal thermostratification after the mining has ceased **will** result in an augmentation of this conversion since the oxygen level at the pit bottom will be low and the conditions ideal for **mobilization** of even greater amounts of mercury. **Yolo** County is considering a project that will result in 55 open pits, each with a potential for seriously polluting our drinking water and creating a public health problem!

Bob & Mitzi Speirs
Environmental Issues Committee
Western Yolo Grange #423

Janet Levers
Cache Creek Coalition

Lois Linford
Natural Resources Committee
League of Women Voters, Woodland

Gil Walker
Friends of Cache Creek

GENERAL COMMENTS

DEIR for OCMP

Public Review Period March 26, 1996. to May 10, 1996

1. Planning/study area expanded without public involvement.

Staff has expanded the original study area shown in Dames & Moore to now include the **MRZ-3** zone. This bisects Esparto and Madison. What **official** Planning Commission or BOS. actions have permitted this expansion? Some of the DEIR consultants are still using the original boundary! DMG does not evaluate the mineable quantities of aggregate existing in the **MRZ-3** zone because of the lack of evidence. Does Staff have evidence not available to the DMG?

13-3

2. Reliance is Made on Recharge Basins that may never Materialize.

The COAE in its latest report on Cache Creek (December 1995) expresses doubt that recharge basins **will** live up to the optimistic expectations repeatedly stated in the DEIR. It is pointed out that there has been no geologic site field research performed to indicate success. No Cost-benefit studies have been published and no official agency has made a firm commitment on such a program. In spite of **this** the DEIR uses **this** highly speculative concept as a keystone mitigation measure. Is it legal for the DEIR to use what has to be considered speculation as a main building block of the entire DEIR?

13-4

3. Reliance is Placed on using Abandoned Pits for Emergency Flood Control and is contrary to COAE Findings

The DEIR repeatedly states that abandoned pits may be used to minimize flooding by by-passing some of the high crest flows of Cache Creek into the abandoned pits. However, the COAE flatly states that such measures would have little effect because of the tremendous volume of water involved. **Since** the COAE is considered the expert on **this** matter why does Staff continue to endorse this concept **as** a mitigation measure?

13-5

4. Why does the DEIR take the Position that there will never be new Operators in the Planning or Study Area?

The whole DEIR revolves around the unlikely premise that the existing 5 **pending** permits will be the only source of gravel for the next 30 years. **This** implies that no new operators **will** be allowed to break this monopoly. It is quite likely that the County cannot grant an exclusive franchise such as this without going through a legally required bidding procedure. What basis would the County have for denying a conforming use in the proper zone?

13-6

5. Does the County's **Granting** of an Exclusive **Monopoly** for Mining Discriminate against **Minority** and Small **Business** Operators?

Except for **Schwarzgruber**, all of the operators are owned **by** a parent **company** that is in **the construction industry**. These parent companies are engaged in street and highway construction, subdivision construction, shopping mall construction and other large civil and private construction projects. Needless to say in order to be a heavy player in the **Sacramento-Fairfield** market, the construction contractor must have an exclusive source of aggregate under **his control**. This automatically eliminates contractors who do not have a source of aggregate which they **control**. The contractor can buy aggregate from his captive mining subsidiary at a paper loss but still show a profit on his contracting project. Such a situation is hardly compatible with affordable housing as contemplated in the County General Plan and those of the incorporated cities.

In the past small paving minority contractors in **Yolo** County have not **been** successful because **they** are not able to obtain aggregate at a competitive price.

6. Are Federal and State Grant **Moneys availability** being Jeopardized by the **County Granting a Gravel Monopoly**?

The Federal and State Agencies maintain a *blacklistⁿ of suppliers and contractors that unfairly discriminate against minority enterprise. These are published from time to time and no agency that is a recipient of **Federal** or State funds or grants can do business with people of the "**blacklist**" lest they have to forfeit such funds. even DMG has such a list which is published and all State Agencies are prohibited from doing business **with** firms that are in violation of **SMARA!**

For the County to grant an exclusive monopoly on aggregate to current operators will likely make the County a target for future class action lawsuits brought by **Minority** businesses and contractors.

The County is required to certify in all public contracts that the project **will** not discriminate against any class or minority. Can the County legally make this certification when it enters into the mining permit agreement which is a part of the monopoly being set up in the DEIR

The DEIR needs a thorough investigation of **this** issue by the County Counsel's office or by other experts.

13-7

7. Can the DEIR Procedure be Completed before the UCD Research on Mercury is Completed?

The presence of mercury in the wet pits or in any gravel deposit will profoundly affect mining and reclamation procedures. The USGS, RWQCB and UCD are currently investigating mercury on Cache Creek and UCD has been retained to do site specific research. How can the DEIR process proceed **until this** potentially highly adverse impact is studied and the **findings** and recommendations incorporated into the report?

13-8

8. Why is Silt Generation during active Wet Pit Mining not discussed?

In the process of digging below water level, the water is constantly roiled as various lenses of silt and clay are cleared out! In fact, the gravel that is extracted from below water level will be thoroughly washed. The silt and clay content of gravel is estimated to be 25% by the DMG 156 Study. This washed out silt and clay has no place to go except to seffle out on the sides and bottom of the pit. This should effectively seal the bottom and sides, materially reducing the natural flow of the aquifer through the wet pit, **obvious as this phenomenon is, it is not mentioned by Staff or documented in the technical studies !!** Indeed, Staff and the "experts" go to great lengths in explaining that the movement of groundwater through the wet pit will be relatively unobstructed.

13-9

The reader is **left** with the impression that he is being fed a carefully concocted diet of everything that is positive and deliberately steered clear of any negatives on the aspect of wet pit mining.

9. Silting by Erosion of Sides of Wet Pit during Active Minin not ad uatel addressed.

According to the DEIR reclamation sloping and benching takes place when excavation of aggregate is terminated in the pond in question. This may take years, but in the meanwhile the sides are subject to wind and rain erosion which will seal sides and bottom. No direction is given on how to prevent this undesirable development while excavation is in progress. The consultants conveniently dodged this one.

13-10

10. Using Sand and Pea Gravel for Backfill not Prohibited.

Solano Concrete in the past has used sand and pea gravel as **backfill** to reclaim ponds to agriculture. The sand and gravel are then lost forever. Sand and Pea Gravel are in abundance and presently do not bring the price that the larger aggregate does.

13-11

Sand and Pea Gravel are essential ingredients of PCC and have been used by **Caltrans**, Woodland and Davis for backfill of utility trenches during the last 50 years. Future generations may well come up short of this non-renewable resource. To waste these products as **backfill** is akin to using old growth Redwoods for firewood!

13-11

The claim that dumping of sand and pea gravel back into the hole when mixed with soil imparts improved permeability is entirely unsupported by any on site research. It **is** a weak excuse in an attempt to justify a wasting of a natural resource!

11. Why is the Aggregate Industry not encouraged to Create New and Innovative Uses for Sand and Pea Gravel as a Goal?

Most responsible **industries** have associations that engage in research to create new products and methods for more efficient uses of the raw material in question. **As** an example, the timber Industry now uses practically all parts of a tree. **When** is the last time that anyone ever heard of the local aggregate industry putting on a demonstration project?

13-12

12. Why have Staff and Consultants not discovered that Micro-Climates exist in the Planning Area?

The Sunset Magazine's book on gardening has a map that shows that Woodland and Davis are in different micro-climates and time of planting and tolerant species are listed accordingly. Anyone that lives in Woodland and farms in the Hungry Hollow district can attest that Hungry Hollow has many more days of low humidity and hard north wind than does Woodland, the summer time temperatures are higher.

13-13

This phenomenon **is** due to topography **with** Hungry Hollow being surrounded on **3** sides by uplands.

However, the Technical Studies consultants have used a generalized climate criteria which results in greatly understating evaporation and transpiration. This gives **inaccurate** results for anticipated water loss from ponds and wetlands and for the concentration of objectionable salts in the groundwater.

13. The Consultant's Mathematical Model to Prove that a Fuel **Spill into a take is no Threat. **is** patently absurd!**

It is quite evident that the "expert"ⁿ is relying on the **gullibility** of the reader when he chooses as **an** example the dumping of 5 gallons of gasoline into an 80 acre lake and then running it through a computer program.

13-14

The reader is much more concerned about a worst case scenario than the most benign incident that could possibly be contrived.

What happens when an off-road huge hauler tips over into a 1 acre pond and loses 80 **gallons** of diesel fuel and hydraulic fluid and Anti-freeze before it can be righted and towed out (This has happened)?

13-14

"Computer program" is the new "buzzword" and evidently the reader is expected to hold still while he is force fed absurdities.

14. Why does Staff accent **Expert Testimony from** Consultants not **qualified in the Field?**

The subject of the eutrophication of ponds and lakes as discussed by a commentor on the first draft of the DEIR apparently caused great consternation as this subject was **missing**. As a **result** a hurried report was hastily concocted by a consultant to show that it was of little concern and not likely to happen

13-15

One of the common practices of consultants is to submit resumes of all the personnel, detailing experience in a specific field, education, publications and any State required licenses needed to practice - these are generally listed with great pride to inspire confidence and hopefully to land a job. Eutrophication deals **with** the decay of ponds and lakes brought about by nutrients, excessive growths of algae and materials contributed by mature vegetation. Eutrophication **causes** stinking mats of algae, pond discoloration and imparts a disagreeable taste to the water. Local examples are Clear Lake, Lake **Berryessa** and ox-bow lakes of the Sacramento River along **Yolo** County in late August.

Reviewing the resumes accompanying the "**expert**" testimony reveals that none of the participants had degrees or experience in aquatic **biology**, **Limnology**, aquatic entomology, or public health nor did anyone have the requisite licenses required by the DHS.

The reader of an **EIR** should be able to have confidence that what is being presented is submitted by those **truly** qualified to speak on a specific subject!

15. The **Planning** Area Man is unusable

The **planning/study** area map has evidently been drawn freehand and varies as to boundary from map to map. Maps in the Technical Studies do not always correspond to the **different** variations in the DEIR. The boundaries are not dimensioned to property lines or public roads. Many parcels are split by the rough-in planning boundary.

13-16

From an **administration** standpoint, **this** will be a nightmare as Staff will not be able to respond in a precise manner to an inquiry as to where the boundary cuts across the parcel in question. Imprecise zoning lines **will** be a continuing source of confusion for the next 30 years. This will cause great **difficulties** to title insurance firms, the County Tax Assessor and persons **seeking** bank loans.

13-16

16. Serious Conflict of Interest of Consultants

An EIR must be scrupulously careful to not engage consultants who are **working** both sides of the street ! **This** is especially true when the County acts as lead agency and the project involves much public controversy. The consulting firm of **Lubdorff** and Scalmanini has served the local gravel industry for a great many years and is currently engaged on pending permit applications. It is indeed strange that Staff would presume to use **Lubdorff** and **Scalmanini** to try to explain away the most serious adverse impacts raised by the public on deep wet pit **mining**. Has this been reviewed by the County Counsel's Office?

13-17

17. DEIR Preparers are not competent to judge Pesticide Residuals in Agricultural Soils.

On page 4.12-11 Staff concludes that pesticide residuals in agricultural soil are no threat on the basis of testing only one parcel in the whole **14 1/2** mile planning area.

What Staff with its demonstrated unfamiliarity with the territory, does not realize, is that in the last **50** years many temporary **crop** dusting airstrips have been located in the planning area. Most of this occurred before there was tight regulation on handling pesticides. These temporary flight strips were located for convenience to make the loading area close to the fields to be sprayed or dusted. Products were spilled, **tanks** flushed and small **remaining** supplies were dumped. In the days of hand picked tomatoes, various arsenicals were used. Arsenic residuals persist for many years in the soil. In the only test made by Staff, Arsenic was not tested for. It is difficult to see how Staff can make such sweeping conclusions from so **little** data and so much misinformation.

13-18

18. There is no Sanitary Landfill along Cache Creek at CR 87

In several places in the DEIR we read that there is a County **Landfill** on **CR 87** near Cache Creek, implying that it may be a threat to water quality. The fact is, that this is a transfer station where garbage and other waste is placed in huge metal **bins** and then trucked to the **Yolo** County **Landfill** near Davis. As often repeated, Staff should become familiar with the territory before **making** misleading or uninformed statements.

13-19

19. Scant New Research Material Used.

At least 85% of the DEIR is based on **tired old** data, some of it generated clear back in the 1950's. Many of the ancient reports used had no stature and many have since been partially or totally discredited. However the reader is led to believe that it has been magically updated if brought in proximity of a computer.

General climatic data is used that may apply to several counties instead of using site specific data.

Air Quality data from a sampling station 15 miles away from the western part of the planning area is cited in complete disregard for the difference in micro-climates.

Engineering reports that make findings, describe conditions and make recommendations involving the public health, safety and welfare such as found in the Technical Studies and **Appendix**, must be signed by those properly licensed by the California Department of Consumer **Affairs**. This is to assure that such reports are made by those legally licensed to practice in California. The Technical Studies and the **Appendix** have not been signed as required by law. Why are these **reports accepted** by Staff?

13-20

20. Notice of approval by Yolo County Environmental Health Department

Since the draft is in the DEIR it is public health and safety it is imperative that the Draft Document be officially endorsed by the Yolo County Environmental Health Officer. A letter should be included indicating that the Department of Environmental Health has read the proposal to mine gravel within the **Yolo** County aquifer and approves of the proposal and the mitigation procedures recommended.

13-21

21. CITIZEN CAPACITY TO READ AND APPRAISE MINING PROPOSALS HAS BEEN OVERWHELMED.

No response to this DEIR would **be** complete without a protest **regarding** the unseemly haste with which the comprehensive EIR process is being conducted in **Yolo** County. Two separate draft documents are currently in circulation, each involving hundreds of pages of compacted material, and five more are due to be released **shortly** with the last responses due by **July 11th**. Due to time constraints citizens are being deprived of the opportunity to **carefully** read and respond to the draft documents and are denied the time to seek professional opinions on issues which concern them. The applications under consideration involve opening up the potable aquifer in perpetuity - thus creating the potential for pollution of a major water supply for the County. The proposed mitigation measures listed in the draft document have been hastily assembled and not carefully considered.

13-22

The actions of our elected officials in sanctioning this dash to the finish line demonstrate a total disregard for citizen concerns as well as an indifference to the long term welfare of the County. Given the global concern over the adequacy of available drinking water supplies it is **unlikely** that many counties in the State would even consider such drastic action and to compound this with denial of adequate response time demonstrates complete indifference to citizens very **real** concerns. Once mining permits have been granted for 30 or 50 years there will be no turning back if the decision makers are found to have misjudged the severity of the impacts upon our most precious resource ─ groundwater.

13-22

DEIR FOR OCMP

SPECIFIC COMMENTS AND STATEMENTS OF CONCERN

Public Review Period March 26 to May 10,1996

Page

3-1 Regional location does not agree with Fig. 3.2-2. Planning area extends upstream from Capay Dam on map but starts at Capay Dam in text. 1 13-23

3-4 Project Location

Has been extended to a different **MRZ** zone than shown on the original documents approved by the **BOS**. The public was never notified of thii change. The planning boundary has now been expanded to the **MRZ 3** boundary. **MRZ 3** mineral deposits are speculative because they **cannot** be determined from available data. See DMG 156 Study.

It is not appropriate or logical to include the **MRZ 3** when DMG cannot confirm the presence of gravel ! Thii is a case of the Planners using conjecture as a basis of planning.

13-24

Background

Fig. 3.2-4 west boundary of planning area does not agree with Figs. 3.2-2, & 3.2-3. Figures **should** be consistent. Same **comments** applies to Figure 3.31

Aggregate Resources

3-10 Goals

2.2-1 **This** goal cannot be applied automatically to lands identified as MRZ 3 zone by the **DMG** since there is no confirmation of gravel presence. However the DEIR includes **MRZ 3** within its planning boundary. Staff is not consistent !

13-25

Objectives

3-11 3.31 This paragraph uses the acronym **YCFC&WCD while** on page 22 FCWCD is used to identify the same agency. The DEIR should be consistent and settle on **YCFC&WCD** which is the standard accepted form.

13-26

3-12, 3.3-1 This goal is not stated correctly. Any creation of a pond by excavating **below** the water table automatically lowers the water table of immediately adjacent land simply because the volume of the pond is greater than the volume of water that could be stored in the gravel before excavation. This is an invitation to a lawsuit generated by the **owner** of a nearby irrigation **well**.

13-27

4.3-1 **Yolo** County has no designated flood agency nor does it budget for flood control., Cache Creek flooding is a Corps responsibility. 13-28

5.3-1 The preservation of prime agricultural land along Cache Creek is not compatible with open pit mining as the sloped areas are irreversibly lost even after reclamation. Ag land has endured for thousands of years while the economics of mining are terminated at depletion of the aggregate.

In the long term-view, the Ag land lost to sloping would out produce by many fold the short-term economics of a 3-5 year mine-out of a non-renewable resource.

This objective is poorly stated and appears to be a violation of logic. 13-29

Groundwater storage is a far less productive use of the area than is agriculture. After **all,water** requirements of a crop is only one of the costs of agricultural production and agriculture is already successful in the area where it will eventually be **displaced** by mining if the current proposals are accepted by our elected **officials**.

3-13 Biological Resources

6.2-2 Does not state that the planning area has been terminated upstream of **Yolo** and does not extend to the settling basin as first proposed. This is a critical gap in establishing a riparian corridor. 13-30

3-14 Introduction

2nd paragraph. Planning area as shown in Fig. 3.2-2 & 3.2-3 includes the **DMG MRZ 3 zone** - there has been no estimate made of aggregate by the DMG because of insufficient data. DEIR has garbled this section. 13-31

3-15 Aggregate Resources Element

Top paragraph - A **10** year period for review is too long. Biological contamination of deep pits has not been discussed by competent State licensed Personnel. The DEIR has missed the most likely contamination source in its Technical Studies which must be prepared by qualified investigators. 13-32

3-15 Water Resources Element

Top paragraph. **According** to the recent COAE report no definitive infield research has been performed to demonstrate that the use of abandoned mining pits for storage and recharge is feasible. 13-33

It is furthermore pointed out that no economic study has been publicly issued to determine if such a plan has a favorable cost-benefit ratio. Even further, no method of financing of construction or of operation has been offered. No responsible public agency has voted to adopt such plans and in fact the whole idea is

purely conjecture at this time and therefore cannot be proposed as a mitigation measure.

13-33

It is a blatant violation of CEQA policy to use pure speculation not founded on scientific research or official commitment by any responsible agency as a Key Basis of a DEIR document. The authors of the DEIR are not qualified to promise such solutions when no bonafide officially adopted plans exist. This is a lawyer's dream!

13-34

3-15 3rd Recommended Action

How can the DEIR recommend that evapotranspiration losses are acceptable as the result of exposed groundwater when none of the DEIR supporting documents have provided an **estimate** of what this loss is per acre per year when the open **water/wetlands** are at maturity?

The DEIR documents have not yet provided an economic assessment of what the evapotranspiration losses are per year at maturity compared to agricultural use for the same area.

It is pointed out on a regular basis by a host of writers that California will run out of water as population increases and that all of the cost effective **dam/reservoir** sites have **been** utilized. In spite of this the authors of the DEIR recommend the squandering of the aquifer that is already estimated by qualified experts in this field to be in overdraft.

13-35

It can be confidently predicted that the **annual** water consumption of **pond/wetlands** will exceed twofold the amount consumed by agriculture on the same site. How can the authors of the DEIR possibly justify such a sacrifice of a statewide natural resource? The lowering of the aquifer also causes an increase in **irrigation-**pumping energy which is derived from **non-renewable** fossil fuels. How does the DEIR justify such an excessive energy-consuming alternative?

3-15 4th recommended action

“Ensure that proposed off-channel wet pits do not adversely affect groundwater levels or the water quality of adjacent (within 1,000 feet) active off-site **wells.**”

This is an open admission that wet pits have the **capability** of adversely influencing water quality and water table elevation. In the event that this adverse condition occurs, how do the DEIR authors propose to remedy this adverse **condition/conditions?** How will the groundwater level be restored- " the technical studies have not addressed this? It would appear that Staff has pointed out an adverse impact for which there is no mitigation. Is the hapless neighbor whose water table has been lowered expected to pay the increased pumping costs in perpetuity while the miner moves on to a new site?

13-36

3-15 Floodway and Channel Stability Element

This paragraph fails to point out that the COAE has already stated that some of the candidate pits destined for recharge facilities are threatened by "capture".

13-37

Recommended Action # 3

Does not include the COAE which is the federal agency in charge of flood control Cache Creek

13-38

Recommended Action # 4

The COAE has not yet approved a plan for using off-channel pits for flood protection. In fact the COAE states that insufficient reservoir capacity exists to be of significant benefit " see latest COAE report (Dec. 1995)

13-39

3-16 Agriculture Resources Element

Element #2

The DEIR offers no proof that wet pit mining will minimize the amount of agriculture disturbed. The DEIR and Technical Studies have not presented any examples and calculations using DMG gravel depths at specific sites to support this contention when reclamation to agriculture is considered. The DEIR is most certainly obligated to prove its contention and the reader is most assuredly entitled to a site-specific mathematically supported example. The respondents strongly suspect that as of this writing no such proof exists or it would have been proudly presented. Unless such proof can be documented the whole concept is pure conjecture and does not fulfill CEQA requirements !

13-40

Question: How can the consultants substantiate their claim that deep wet pit mining will minimize loss of agricultural land?

3-17 & 3-18 Figures 3.4-1, 3.4-2

It is noted that the boundary of the study area has been expanded to the MRZ 3 zone (156 Report) from the former boundary which was the MRZ 2 zone. This has been done without public notice and the required hearings. Have the Planning Commission and BOS voted on this change and if so when?

13-41

It is further noted that the new boundary bisects Madison and Esparto which entirely changes the picture. The threat of water quality impairment in the municipal wells is greatly increased since the cone of depression in the water table created by these wells greatly exceeds that generated by agricultural wells. Municipal wells are in service year around as compared to 3-4 months for agricultural irrigation. It is further noted that the Technical Studies failed to address this most significant impact

What is the justification of the boundary change and how can it be supported considering that the **156** Report specifically points out that not enough evidence **exists to absolutely confirm** that commercial deposits of **aggregate exist in the MRZ 3** zone. What information does Staff have that was not available to the DMG? It is presumed that Staff personnel do not have the requisite State license necessary to make an official **finding**.

13-41

3-19 Biological Resources Element

The DEIR is not consistent in its description of the planning area. In some instances it is described as starting at Capay Bridge but here it is described as starting **well** west of the bridge. This **will** be a very **vulnerable** inconsistency in the future lawsuits which are certain to follow.

13-42

The DEIR documents further garble this subject by alternately **calling** it the "study areaⁿ" or the "**planning** area". As the reader shifts from one DEIR document to another the confusion is compounded. This **will** surely create serious problems twenty years hence when all current **personnel** are no longer around to attempt an explanation..

319 Recommendations

Action # 2 **This** is stated in reverse " - OCMP actions should not conflict with ACOE or Hawk.

1

Action # 3 This is in direct conflict with the **Geotechnical** slope requirement - generally bedrock is the only formation that can be expected to stand vertically over time.

Action #5 Represents a procedure which is in direct conflict with current agricultural recommendations. Such vegetated zones provide over-winter areas for insects and fungus that are injurious to agricultural crops. The USDA has long espoused "clean cultureⁿ" to help reduce this problem, even to the extent of sterilizing a strip along fence lines.

13-43

The USDA and the various university farm advisory services have dozens of publications on the need to eradicate undesirable insect habitat.

319 Open Space and Recreational Element

This paragraph does not explain what is considered the "upstream areaⁿ" or the "downstream area". Where is the dividing boundary? In the reach between the Capay Bridge and **Yolo** where is there sufficient water depth to **accommodate** boating except at periods of dangerous high flows.

13-44

3-21 Application for Mining

"On Sept. 27, 1995 notices were sent to all property owners within the study area" As pointed out previously the "Study/Planning Area" has been expanded in the DEIR to include land not formerly included. It is not clear at the present time if all landowners received notification. 13-45

3-21 "These five applications collectively constitute foreseeable implementation of the OCMP over the next 50 years—". This statement implies that only 5 operators will be permitted for the next 50 years and no new operators will be allowed to crack the semi-monopoly that the County will become a party to establishing. This is a dangerous statement, probably in violation of anti-trust legislation since it places the County in the position of agreeing to stifle competition. 1346

Table 3-1

Comment: This table is incomplete and misleading in that it fails to show the water lost to evapotranspiration by 771 acres of wet pits when the vegetation is at maturity. This is water mining and provides no economic benefit. The Yolo County resident is certainly entitled to know what the annual water loss will be and what the potential market value is. There should be a calculation of value to (evaporated) water from pits over the lifetime of the pits (eternity) or at least 500 years. 13-47

In one area of groundwater overdraft and with little prospect of gaining additional surface water this is a valuable natural resource lost and it will be lost in perpetuity. This loss of resource in the long-term must be evaluated against the short-term benefits of gravel mining. Table 3-1 is incomplete because we are dealing with two natural resources that are directly and inseparably bound.

3-24 Figure 3.4-3 does not agree with Fig. 3.4-2, page 3-18. Madison is bisected on Figure 3.4-2 but is missed on Figure 3.4-3. Such inattention to detail does not enhance reader confidence. 13-48

3-25 First paragraph

Comment:

By expanding the study/planning area to include the MRZ 3 wne as shown in the DMG 156 Study the DEIR has deliberately skewed to the high side the acreage available to mining. This then reduces the percentage of land to be mined in the plan. However, DMG defines the MRZ 3 wne as follows: "Areas containing mineral deposits the significance of which cannot be evaluated from available data". Simply stated, DMG is unwilling to guarantee that mineable aggregate is present because of insufficient data but the DEIR is perfectly willing to give such an assurance in the absence of any evidence. The result of this excursion into 1349

pure conjecture seriously faults statistics that have been offered, the ripple of which is reflected through the whole DEIR **excercise**.

1349

'Unwarranted **assumptions made by people not sufficiently** qualified on the subject do not fare well in the courts.

4.21 Setting

Figure **3.2-2** shows the planning area extending well west of Capay Dam and not terminating at the dam as described. Other places in the DEIR describe the western terminus of the **study/planning** area as being Capay Bridge. ??

The planning area, Figure **3.2-2** comes within **1/2** mile of Woodland, not several miles to the southeast as stated. It is suggested that Staff review project descriptions against the maps presented to give a measure of credence to the document.

13-50

4.2-7 Regional Water **Quality** Board's Basin Plan

This section is not up to date as Cache Creek has now been singled out as a significant concern in the **RWQCB's "Draft** Watershed Management Initiative Chapter-see communication as of **3/5/96**. Cache Creek has been designated as "**An Impaired Waterway**". **This deals** with the immediate concerns of the high mercury **levels** during storms with the concomitant **alarming** increase in the mercury content of **fish** in Cache Creek and in the downstream delta waterways. Added to this is the recent COAE report on Cache Creek pointing out that any adjustments in the **channel** should be preceded by sample coring of the bars in the **channel** for mercury. It therefore logically follows that the off-channel deposits programmed to be mined **will** probably contain mercury since the same geologic method of deposition exists.

The **RWQCB's** underlying assumption is that the mercury is bioavailable when it becomes part of the sediment in streams and waterways.. This assumption would also apply to wet pit **mining** and would reveal itself in the permanent wet ponds that **result**. The Regional board has a contract with UCD to evaluate mercury bioavailabiity in Cache Creek. This is a potential impact completely ignored in the Technical Studies. It would appear that the DEIR cannot be completed until the UCD studies are included, evaluated by the Regional Board and a proper course of action formulated. The Regional Board strategy in conjunction with the EPA may well drastically change the thinking on Cache Creek gravel deposit extraction, especially if permanent deep wet pits are used for recreational purposes or for **stocking** fish. The methylation of mercury and its **mobilization** in these deep wet pits was never contemplated by the Staff or their consultants. It is our understanding that the **County** has recently initiated a very limited study to

13-51

determine mercury levels in pit water as well as in adjacent areas of Cache Creek. These and the RWQCB studies need to be completed and the results closely examined before deep wet pit mining is approved in **Yolo** County. An error in judgment made without **sufficient** data could result in the worst case scenario in horrendous irreversible cumulative injury to a large number of people.

13-51

4.2-9 Town of Esparto General Plan

Why has staff revised the **planning/study** area to now bisect the town of Esparto? See Fig. **3.2-2**? Is the change noted in the recently adopted Esparto General Plan? Was there public notification of **this** modification?

13-52

4.2-11 City of Woodland General Plan

Why has Staff revised the **planning/study** area to now come within **1/2** mile of the present city limits? See Fig. **3.2-2**. Was the City of Woodland notified of this change?

13-53

4.2-12 Standards of Significance

The **list** does not include **“The** depletion of other significant resourcesⁿ. In this instance it would **be** water lost in an overdraft aquifer in perpetuity because of evapotranspiration of the pits (lakes) when vegetation is at maturity. Inasmuch **as** California is programmed to be water short in the near future (probably before the **30** year mine-out occurs) this represents sacrifice of a scarce natural resource to create wetlands where none existed historically.

13-54

4.2-15 Alternatives 7 should be added:

Does not consider limiting gravel extraction to PCC uses only. This is what the **156** Study was all about - **not** general use. **60%** of Cache Creek aggregate is presently **used** for non-PCC purposes. This represents use of a premium resource for a **non-premium** use. This is comparable to using **old** growth redwoods for firewood.

13-55

The DEIR considers **all** aggregate mining to be for PCC purposes. This unwarranted assumption flaws the entire document by failing to portray actual conditions. In terms of actual aggregate use, the DEIR is based on **60% fallacy and 40% fact**. **Truly** the reader deserves a fairer presentation !

4.3-1 Introduction

The list of issues presented does not include subsidence. **This** is an ongoing phenomenon in areas of groundwater overdraft such as the **planning/study** area. **This** condition will be accelerated by the vibration associated with operating heavy equipment and can change the status of the **100** year flood overflow.

13-56

4.3-1 Last paragraph of Introduction, last sentence

"The available geologic and **geomorphic** data were reviewed by the **Draft** EIR preparers and were found to be generally consistent with appropriate engineering methods and standards."

13-57

In order to be valid such a **finding** could only be declared by professional engineers and geologists duly Licensed by the State in accordance with the law. Do the Staff preparers have these **qualifications**?

4.3-20 Standards of Significance

Does not include the loss of significant resources which in this case is the water lost to evapotranspiration of ponds, wet pits and wetlands when vegetation reaches maturity. **This** loss would occur in an area of aquifer overdraft and would be **much** greater than the loss due to agricultural use for an equivalent area. It is further noted that the Technical Studies have greatly under-estimated evaporation **loss** because general data was used instead of data that applies to the specific micro-climate between Capay and **Madison**. **This** can be **readily** verified by long-term residents of the area.

13-58

4.3-20 Potential Damage from Seismic **Shaking**

This adequately **justified** the absurdity of recommending vertical **Banks** for cliff swallows as found elsewhere in the **DEIR** !

13-59

4.3-21 The justification of liquefaction fails to point out the great potential for **destroying** domestic and irrigation **wells**. These would be substantial economic losses.

The discussion fails to cover the potential for slumping of levees that are proposed around mining excavations and for flood control on Cache Creek such as proposed by the **Solano** Concrete application.

13-60

COMMENT:

The discussion on liquefaction is incomplete, unduly brief and does not **fully reflect** all the hazards that **may** be encountered.

4.3-22 PS 5.5-3

This section should be rewritten with the requirement that the survey should be performed by a California licensed Land Surveyor or Civil Engineer. A chart **the** should be prepared showing existing elevations and the anticipated elevations at a time of reclamation completion.

13-61

Surveying Standards such as grid distances, elevation precision and specified tolerances for regrading should be set.

9

COMMENT:

As written PS **5.5-3** is useless to a surveyor or to personnel **making** inspections. **Yolo County Public Works Department** could be of great assistance in writing a **useable** regulation.

13-61

4.3-23 Performance Standard 2.525

Fails to state that the recommendations of the **Geotechnical** investigations must **be** incorporated in the building permit. As written the issuer of the building permit has the discretion to disregard the recommendations.

13-62

4.3-23 Performance Standard 2.5-26

This is poorly written inasmuch as the landowner could logically be a person (absentee owner) who would not recognize settling. Strong seismic shaking events are so infrequent that the Staff should make such inspections and should not have to rely on individuals who might be reluctant to make **a report** in order to avoid repair expense.

13-63

As written, repairs will be made from a contingency **fund** - - are these agreements written to last forever -? This does not seem practical. Any performance bond has an expiration date.

4.3-24 Mitigation Measure 4.3-1b (A-1a, B 1b, A-2, A-3)

Why are areas outside of **Yolo** County mentioned?

13-64

4.3-25 Potential Impacts Related to Slope Stability, Erosion and Sedimentation. Ist paragraph, last sentence

This should be expanded to include the fact that sediment generated by erosion will supply nutrients to the wet pits or lakes which will cause algae growth. Algae growth will eventually cause eutrophication of the pit water which is highly detrimental to its usefulness for recreation. It can also facilitate mercury methylation and **mobilization** and incorporation of methyl mercury into the biota, and eventually into the flesh of **fish** and **fish-eating** birds.

13-65

4.3-25 Draft OCMP and Implementing Ordinances

it is noted that the DEIR fails totally to consider the silt generated **during** active mining of wet pits. The constant sloshing of a drag-line operation generates great quantities of silt. If hydraulic mining (suction dredge) takes place, the whole area becomes a giant **mudhole**. Siltation resulting from excavation will likely exceed any overland transport. How do you mitigate this?

13-66

4.3-25 PS 2.5-18

Groundwater levels in a deep wet pit will fluctuate many feet over the year. The regulation as written is meaningless and unenforceable unless elevations are specified. This must be re-thought and re-written.

13-67

4.3-27 PS 2.5-22

There should be no permanent piles of mine waste, **etc.**

13-68

4.3-30 Performance Standard 2.5-17

Does not state who makes the yearly inspection or if there is a report filed or who prepared the report.

13-69

4.3-31 Top of page

Biological clogging is most apt to be caused by attached algae and other **attaching** organisms and organic **filaments**. Attachment is made on any **slope** from vertical to **horizontal**. Mitigation is not **accomplished**.

COMMENT:

Erosion and the resulting siltation of the ponds bottom and sides which **will** impede water flow while active mining is in progress has not been addressed. Considering that it may take several years for a pond to be excavated, the resulting side slopes are left unprotected from erosion and **will** allow the transported fines to be deposited on the bottom, thereby sealing it to impede natural aquifer flow. There **will** be a progressive phenomenon of creeping siltation as excavation progresses. **This** will significantly nullify the effectiveness of bank shaping at final reclamation.

13-70

The whole concept of bank protection needs to **be** reconsidered to account for siltation during active **mining**. Once the silt has sealed the bottom, it **will** be out of reach of the excavation machinery. The Technical Studies report should have certainly covered this. It further appears that this omission critically clouds the discussion of the supposed movement of aquifer water through a pond or deep wet pit.

4.3-36 PS 4.5-3

COMMENT:

The Technical Studies did not consider the **DWR's** Safety of Dams regulations for "separators" and for "Setbacks". This is a significant **omission**.

The section should include the rules of the DWR departments' of Safety of Dams which under certain circumstances considers "separators" as water impoundment dams which therefore must be constructed to much higher standards. The COAE

13-71

pointed this out in its most recent report on Cache Creek (**Dec.** 1995). These state regulations will bear directly on what separation off-channel excavations must have from the **creek**.

It should be noted that the above cited COAE study concludes that attempting to temporarily divert high crest flows to off-channel pits for flood control will have negligible benefit because of great volume involved.

Recent analysis of mercury content in Cache Creek indicates that during high flows when flooding would occur, the mercury levels are extremely high. Since ~~this~~ mercury appears to be primarily in the sediment the question must be raised concerning whether the policy of using gravel pits for **storage** of such water is a good idea. If a load of mercury laden sediment was deposited in the pit what could be done to remove it before it polluted the underlying aquifer.

This section must be rewritten to reflect the information provided above. Both the **COAE** and DWR should provide comments on **“setbacks”** and Staff must consider the hazardous nature of mercury and some of its compounds.

13-71

4.3-38 **4.4-6**

The most recent study by the COAE states that pits along Cache Creek would provide insignificant flood control relief by diversion from the channel.

1

13-72

4.3-38 4.5-1

The COAE or **FEMA** should establish the 100 year flood elevation for the entire **planning/study** area. Providing an isolated mining site with 100 year flood protection by the erection of levees, **etc.**, may well force the overflow onto other lands. This must be an integrated plan covering all panels that could be affected and may **well** require a separate EIR

]

13-73

4.3-38 4.5-8

Does not provide for financial assurance for immediately adjacent parcels that **may** be damaged by actions **originating** within the permit boundary.

]

13-74

4.3-40 4.3-4 Top of Page

Does not explain that **“sediment”** by **definition** includes soil, silt, sand and gravel not just sand and gravel. DMG states that in Cache Creek about 06% is gravel. This distinction **should** be made for clarity.

1

13-75

4.3-40 4th & 5th paragraph

Fails to point out that there is an abundance of quarry rock in the volcanic deposits east and south of Napa and these were mined for decades by the Basalt Rock Co. and later by Kaiser. This source is closer to Fairfield than is Cache Creek and has

]

13-76

been used in hundreds of **miles** of roads. It is indeed a "**stretch**" to imply that somehow **Yolo** County is obligated to supply a fixed percentage of the **Sacramento-Fairfield** aggregate needs regardless of purpose.

There has been no valid reason advanced as to why **Yolo** County's aggregate production should continue to meet **26%** of the regional demand to year **2047**. No allowance has been demonstrated for recycling of aggregate, concrete, asphalt concrete, glass, tires and plastic, all of which are in the pioneering stage of being used in street and road construction.

There has been no attempt to **explain** how sand and pea gravel enters into the gross equation of production when it is currently being put back into the excavation by **Solano** Concrete since it is currently in surplus supply.

The further downstream one excavates the more abundant is pea gravel and sand and the more likely it will be wasted when though by the year **2047** it may be valuable. It is **readily** apparent that somewhere in the Goals it should be stated that public agencies should be encouraged to use sand and pea gravel for less demanding specifications. The cities of Davis and Woodland have long used sand and pea gravel for backfill in trenches for sewers and water lines. It is also extensively used for foundations for concrete structures. Sand and pea gravel are incompressible and **perform** superbly for backfill and foundation material.

13-76

Since the 1960's the City of Woodland has had a continuing program of sand sealing its streets on about an 8 year cycle basis. This is performed by laying down a thin layer of asphalt emulsion, covered by a **thin** layer of sand which is then rolled. This waterproofs the pavement, prevents oxidation, shields the surface from the destructive ultra violet rays of the sun and provides a **skidproof** surface. This highly successful program was developed with the research assistance of the Asphalt Institute. In the last 35 years the City of Woodland has used thousands of tons of sand for **this** purpose.

It should be noted that the local aggregate industry has done little to promote innovative uses of its products and few if any demonstration projects have ever **been** put on in **Yolo** County. In sharp contrast, the timber industry uses every part of the **tree** and has developed many products such as particle board, clipboard, **masonite**, as well as woodchips for co-generation.

The often espoused statement that the **disposing** of sand into the excavation **backfill** to reclaim to agriculture may increase the percolation **capability** is totally unsupported by any site-specific research. This is another example of pseudo-science being utilized to give an unproven idea respectability in order to disguise its obviously self serving intent.



A truly legitimate resource conservation plan cannot in good conscience **ignore the** present discarding of sand and pea gravel " as stated previously this is akin to using old growth redwoods for firewood ! 13-76

4.4-1 Introduction

The following issues should be added:

- 1 Eutrophication and its adverse impacts on ponds and deep pits **20** years after reclamation when vegetation has matured (There are many local examples) 13-77
- 2 An economic analysis of water lost to **evapo-transpiration 20** years after reclamation when vegetation is mature. 13-78
3. The impact of using surface water for irrigation in proximity to deep pits, **ponds** and lakes. 13-79
4. The statement made by the Baseline Consultant at a Citizens Group Meeting (4/25/96) that the major pit water pollution **will** occur during excavation, does not take into consideration the growth (and death) of algae during various stages of maturity long after mining has ceased. The final mature stage of algae **recycling** may not be attained until **10** or **20** years after mining has ceased. Eutrophication and all that it implies **will** continue to increase long after the mining has ceased. Heavy metals and minerals are expected to increase. Evidence should be presented to substantiate statements made in the **DEIR** and at public meetings. Material that is unsupported and based upon assumptions must not be presented as fact Please give the reader an accurate and **scientifically** supported accounting of the **conditions** to be expected in these deep wet pits during mining and for many years thereafter. The reader must be able to determine the risks involved in permitting multiple open pits deep **into** the aquifer in perpetuity. 13-80

4.4-1 & 4.4-2 Climate.

The discussion of climate suffers from over generalization. The Hungry Hollow reach has a micro-climate that is significantly different from that east of **Dunnigaff Hills**. This is a long **recognized** local phenomenon and significantly influences agriculture, evaporation and transpiration.

Hungry Hollow experiences a great many more hours of north wind than does the Woodland vicinity. North winds are high **basometric** winds originating over land area (not ocean). These winds are warmed by compression as they descend from over the north state mountains. They are drying winds of low humidity and high temperatures in the Spring, summer and fall. The National Weather forecasters **frequently** predict northerly winds along the western side of the Sacramento Valley when none is predicted for Sacramento. It is a common experience to leave Woodland in a dead calm and find north winds of **15-20** mph at the Esparto bridge. 13-81

This can readily be verified by local residents. Additionally when hard north winds are experienced in the Woodland area, the velocity at Esparto bridge is at least 10 **mph** greater. The **purpose of this discussion** is to point out that **the Technical Studies** has seriously understated the yearly evaporation with the consequent concentration of salts that will affect the deep pits in existence or proposed by Cache Creek Aggregates, Syar **Industries, Solano** Concrete, and **Teichert**. Even the **"Sunset"** magazine **lists** different micro-climates for Woodland and Davis.

13-81

The conclusion of **this** discussion is that the EVAPORATION RATES FOR THE HUNGRY HOLLOW REACH ARE WRONG in the Technical Studies unless supported by several years of site specific records. Evaporation rates at UCD do not apply !

If the Technical Studies consultants had developed their own site specific evaporation rates it would have certainly been included in their documents.

4.4-3 Description of the Cache Creek drainage does not include the Hungry Hollow drainage which enters the creek slightly upstream of Stevens Bridge.

13-82

4.45 Flooding

Fails to include **flooding** from **Goodnow** Slough in Hungry Hollow.

13-83

4.4-6 & 4.49 Evaporation and Evapotranspiration

The discussion on evaporation is significantly understated for the Hungry Hollow reach which experiences many more hours of low humidity north **winds** than does the area east of **Madison** - see comments made on Climate above. Wave action on ponds and deep pits greatly increases the water surface exposed to evaporation and spray from whitecaps will deposit on the downwind shore and not return to the lake.

13-84

Table **4.4-1** is not applicable to the microclimatic conditions for the area described above - this **can** easily be verified by long term residents of the area. This is an unfortunate result of the failure on the part of the consultant to become **fully** acquainted with the territory.

4.410 Water Quality - 3rd paragraph

The appraisal of water quality for agriculture contains an unacceptable gap in the information furnished. It fails to mention that the water of Clear Lake, Indian Valley Reservoir, and Cache creek have been identified in a study by the USGS (1984) as being **bio-stimulatory** - causes excessive algae production. Algae blooms clog sprinkler **jets**, drip irrigation systems and **filters** and cause considerably increased expense in agricultural production.

13-85

The greatest adverse impact of algae blooms will be in the ponds and deep pits resulting from mining. This will lead to the eventual eutrophication of the ponds

and pits, a situation which has long been recognized by health officials and **recreationists** as a condition to be avoided at all costs.

The EPA long ago identified phosphorus as being the essential **element** (needs only trace amounts) for algae growth. It is disconcerting to note that the Technical Studies consultants have never included phosphorus in their water analyses.

It should also be noted that eutrophication of lakes or pits would degrade the water to below **drinking** water standards (EPA) and **this** can pass into the aquifer when it is not removed by filtration. 13-85

COMMENT:

The discussions of water quality in the Technical Studies are unduly brief, over **generalized**, rely on obsolete data and do not meet the expectations of a scientific report for the specific area under study.

4.4-11 Water Quality, first paragraph

The Statement "Data suggest consistent water quality **with** no observable degradation over the last 20 to 40 years" is unwarranted! The Federal and State clean drinking water standards did not even exist during most of this time period so tests were not performed. Off-handed irresponsible statements such as this degrade the integrity of the whole DEIR

The DEIR Consultant did not include references to **his** controversial statement. However there are a number of studies and proposed studies to analyze long term degradation of Ground water Quality in **Yolo County** and nearby areas which have come to the opposite conclusion (**Clendenen and Associates (1976), Frederiksen et al (1980) Hull (USGS-1984), Papodopoulos & Associates (proposal to BOS 1988)**). The consultant should also examine the yearly report of Pesticides in Wells which is released by the State Food and Agriculture Agency. They should also examine the increase in bacterial contamination in Woodland wells which has taken **place during** the last 5 to 10 years. These studies have pointed out the existence of water quality problems including boron, mercury and selenium contamination, dissolved solids, hardness, and nitrates. The studies of water in wet pits and in the vicinity of wet pits is extremely limited and generally **non-existent** and certainly no water quality trends in the vicinity of wet pits has been reported. What this means is that the risks involved in groundwater pollution from open wet pits are completely **unknown** rather than there are no risks !

4.4-13 & Table **4.4-24.4-13** & Table 4.4-2

Table **4.4-2** shows existing conditions but does not allow for mining that apparently can occur in the **planning/study** area in the future, the boundary of which passes through Esparto, **Madison**, and within **1/2** mile of Woodland. Since it is presumed 13-87

that the DEIR deals in mining that may occur in the next 30 years, the table should be expanded to show the distance between existing wells and the area where mining **may occur.** 13-87

4.418 Groundwater - last paragraph

David Keith Todd fails to recognize that Indian Valley Dam came on line in 1975 and that **YCFC&WCD** has expanded its canal system to serve areas north of the creek never before served. Todd also fails to explain that there was a **petroleum** shortage during the oil embargo in the **1970's** and that the cost of electricity increased to the point to where it was cheaper to use surface water. This brought an increased use of surface water and decreased pumping. The result has been to raise the groundwater level. This trend continues as surface water is **still** the cheaper option. As can **readily** be seen, this has not been caused by a change in the **thalweg** of the creek. 13-88

This represents yet another example of the inadequacy of the groundwater discussions in the Technical Studies.

4.4-19 Sec. 3503(b)(2)

"Operations **shall** be conducted to **substantially** prevent siltation of groundwater recharge areas."

This regulation **poses** a serious problem in wet pit mining because the groundwater is exposed and is **directly** recharged by **rainfall**. However, excavating below the water table agitates any silt or clay lenses so that great quantities of suspended silt and clay are released. In fact the sand and gravel extracted **will** be partially, if not completely, washed as it is removed; the silt, clay and soil removed from the sand and gravel will settle out, effectively sealing the sides and bottom against water moving through the aquifer. In the event hydraulic dredging (sand pumping) is used, it will be an unmitigated **disaster !** 13-89

How does Staff propose to enforce **Sec. 3503(b)(2)** ?

If the Technical Studies were sincerely **scientific**, a comparison would have been made at **Solano** Concrete as to the sediment yield of dry pit mining vs wet pit **mining ! This** would at least give a clue as to how much washing of the aggregate is being accomplished in the wet pit. The public and the Planning Commission are most certainly entitled to this information. The miners and DMG estimate 25% of the total aggregate removed as the **loss** to waste in dry pit mining.

4.4-21 CON 35

“Yolo County shall adopt a Cache Creek Management Program to carefully manage use and conservation of Cache Creek and its sand and gravel resource, ”

13-89

COMMENT:

How does the using of sand and pea gravel for **backfill** in the reclamation to agriculture at **Solano** Concrete comply with the above? Once it is backfilled, it is lost forever !

4.4-22 Flood Damage Ordinance (Flood Ordinance) (e)

How does the **Solano** Concrete application conform to **this** requirement when it proposes to erect a levee along the creek that may well force flooding to the north side of the creek?

13-90

COMMENT:

(e) shall be expanded to state that adjacent landowners should have their properties included in any levee construction requirements to the extent that an engineering study would disclose how their lands might be impacted.

4.4-23 Standards of Significance

The following significant impacts should be added:

Significant groundwater loss by evapotranspiration occasioned by **lakes/wet** lands, wet pits when vegetation reaches maturity-long **after** the mining activity has ceased.

Significant reduction of groundwater quality when **lakes/wetlands/wet** pits experience eutrophication. **This will** impart a taste and odor to the potable aquifer. Another significant impact is the proliferation of insects (midges).

Substantial reduction of recharge by wet pit mining where the pond contents are constantly agitated by the excavating machinery (the water is muddied up by the silt, soil and clay present which ultimately settles out, **sealing** the sides and bottom and preventing movement within the aquifer).

Substantial lowering of the water quality by evaporation from lakes, wet pits and ponds thus concentrating the TDS and boron content. Note - this is a cumulative process not explained by Todd.

13-91

4.4-23 Impact 4.4-1

Fig. 4.4-8 does not depict a cross-section through a wet pit "lake" as stated. **This** Figure needs to be correctly depicted!

13-92

4.4-23 Impact 4.4-1 2nd paragraph

Fails to explain that active wet pit mining would already have sealed the sides and bottom of the pond or wet pit as explained above. The statement that groundwater continues to flow at a "somewhat reduced rate" is not descriptive of the real situation, In fact the sides and bottoms of the wet pit were already sealed as explained above even before **backfill** was started. Without any supporting **research** to prove otherwise, it would probably be **conservative** to say that very little water would move laterally or vertically through the wet pit and movement would be **very** slow at best. This would lead to stagnation and thermostratification of the pit water.

13-93

The **DEIR** should provide facts rather than mere conjecture unsupported by site specific research. **Since** the consultants do not know what would happen they have no way of assessing **risks**. This is especially serious since the potential methylation of mercury is involved, presenting a potential risk to public health.

4.4-23 Impact 4.4-1 2nd paragraph

What site **specific** research has Todd performed at the **Solano** concrete site to support this statement?

13-94

4.4-23 Impact 4.4-1 last paragraph

Why has the importation of surface water not **been** included in the control of groundwater levels. Within the **planning/study** area surface water use may exceed pumping in normal rainfall years. Economics **controls** recharge more than does **geology**.

13-95

4.4-26 4.4-1

Why does Todd fail to use surface water in his model configurations. As explained above, surface water is a big player in the **planning/study** area. It appears that the model missed the mark

13-96

4.4-27 GENERAL COMMENT

In the short-term, an applicant would have no way of demonstrating that the backfilling of wet pits would affect groundwater movement through the aquifer. This would require several years of monitoring well measurements prior to **mining** before "proof" could be demonstrated. it is strongly suspected that the sophistication required to provide the proof is not ordinarily available or **within** economic feasibility.

13-97



More importantly, what will the remedy be if the “**demonstration**” offered does not deliver as promised after pit reclamation? As a practical matter, about **all** the miner could do would be to apologize.

Can Staff point to a site specific instance in our setting where such a "demonstration" has lived up to its expectations? Has there been an estimate made of the costs of performing such an elaborate and sophisticated research?

13-97

4.4-29 Performance Standard 3.5-1

How do you minimize the area to be backfilled below groundwater? Doesn't the size and shape of the excavation depend upon the aggregate deposit encountered?

How does the applicant determine in a 6 month period if a well **within 1,000** feet will be affected if the well owner is using surface water and saving **his** well for a dry year?

The **MODFLOW** use assumes that the well in question has adequate water level measurements over a series of years at different intervals during the irrigation season to provide input data. This will seldom if ever be available. **This** route is too cumbersome and complicated to be implemented. Does Staff have the expertise to judge such an exercise?

13-98

The proposed mitigation is beyond the sophistication and available records that will **ordinarily** be available and there is no practical remedy if it does not prove out.

There is little value to elaborate complicated **mitigation** measures if they fail in practice and the remedy is impractical!

COMMENT:

It would seem that the **MODFLOW** program as recommended by the DEIR is an advanced sales pitch for future business by the consultants. Are there no other programs available? The DEIR should be more concerned with **trustworthy** results than with methods. To **specify MODFLOW** is to eliminate any equal or superior method, especially considering that newer and better programs will no doubt be available in the future.

4.4-30 Impact 4.42

The first paragraph neglects to state that the topsoil overburden provides a **filtration** medium inhabited by organisms that destroy objectionable bacteria and viruses as **well** as organic material for absorption and detoxification.

The second paragraph omits aerial drift of pesticides applied by aircraft or ground methods, **fall-out** from asphalt concrete manufacturing and the lateral subsurface migration of fertilizers and pesticides from adjacent farm lands.

13-99

4.4-31 Top paragraph

The **Luhdorff** and Scalmanini report **1996** selected the best possible condition to downplay the effects of a **gasoline** spill to favor mining. They selected an 80 acre **lake/wet** pit the size of which could **only** occur at the cessation of mining. We are however, much more concerned about the spilling of **5** gallons of gasoline when the lake is in its infancy, **1** acre perhaps. The adverse impact would be many times greater and would disappear into the yet uncovered aquifer much sooner and the chances for mitigation would be much less.

A model using diesel fuel would be much more **realistic** as this is the fuel commonly used in excavation and hauling. Diesel **fuel** evaporates many times slower than gasoline and hence would persist longer and would be much more difficult to mitigate.

COMMENT

The Ludorff and **Scalmanini** Report's example is ludicrous and obviously devised to take advantage of the gullibility of the reader. At this point the **credibility** of the Technical Studies is sorely strained. **GET REAL !**

13-110

4.4-31 Draft OCMP and Implementing Ordinances

Fails to list hydraulic dredges - **Teichert** indicated that this was one of its choices. Such a process is most apt to seal the sides and bottom with silt, thus arresting movement of groundwater through the **pond/wet** pit.

Obj. **3.3-3**

Should add that the groundwater should not be degraded by silting.

4.4-32 Action 3.4-5

This raises a philosophical question: If no well exists on the adjacent land and the owner wishes to drill a well after the miner has excavated the wet **pit/pond**, the well owner will be penalized for having an excessive lift if the pond lowers adjacent groundwater - should the adjacent landowner take this economic loss ?

What happens if the miner's demonstration does not live up to its promise after the cessation of mining? **Will** the miner have to fill the pond with gravel?

COMMENT:

Conditions should not be imposed where the mitigation is not practical should the conditions not be **fulfilled**.

13-101

PS 3.5-3

Berms that will exclude reservoir capacity from lands regularly flooded should **not** be constructed. An example would be I **505 & SR 16** because this will exacerbate the flooding on adjacent areas and on public roads. This may well be the case as **Solano** Concrete moves south and west. 13-101

4.4-32 PS 35-4

Why is the water table not monitored on all sides of the **pond/wet** pit? The groundwater contour maps in the DEIR documents only show the supposed condition at one instant in time. The groundwater is just as likely to be down gradient north and south **depending** on local extraction and application of surface water.

The Technical Studies give a childishly simplistic view of groundwater contours and the movement of groundwater. 13-102

To give perspective, on **3/1/96** in the City of Woodland the measurement of **6** wells in a West-East **alignment** (a distance of **2.5** miles) showed that there was a **44** foot variation in water elevation with the lowest level being on the West. This represents the reverse of accepted theory. On **8/1/95** there was a **29** foot variation with a centrally located well having the lowest water elevation — again being counter theory. This can **be verified** with Woodland's records.

4.4-33 PS 5-4 1st paragraph

The Water Quality Report should include the mandatory health standards established by California DHS for primary, secondary and additional constituents. Additionally, testing should be performed for phosphorus since this is the key element in fostering algae growth

Groundwater testing on a yearly basis is not often enough. By the time the contamination is discovered it may have existed so long that mitigation is difficult or impossible. 13-103

Since the size of the wet pit can be **100** acres or more, it is important to test at multiple locations in order to get a realistic appraisal for possible pollution. In addition sediment at the bottom of the pit should also be tested, especially for heavy metals (mercury), and bacteria (feces)

4.4-33 PS 3.5-8

This is controlled by RWQCB. The discharge requirements for each mine site should be so stated. 13-104

4.4-36 Figure 4.4-10 Flow Chart "Continued monitoring" 13-105

“Water Quality monitoring requirement ends **10** years after reclamation is complete.”

Eutrophication of the pit water and its attendant adverse impacts on water quality can be expected to occur some time after the maturity of the vegetation - **probably** at least **20** years in the future. It would appear that **10** years is too brief.

13-105

COMMENT:

Why has the Staff not required the services of a qualified **limnologist** or an aquatic biologist? None of the Technical Study Consultants have claimed this expertise,

4.4-37 PS 3.5-3, 3rd paragraph

How does recording restrictions on deeds aid in enforcement of performance standards? Encumbrances on deeds only are activated when ownership is changed, Has **this** idea been reviewed by a title company attorney?

PS 2.5=8

The height of the fence must be specified. 4 strands of barbed wire can **be** put on a **2** foot high fence.

13-106

Next to **last** paragraph

The wet pits **will** already **be** clogged from the agitation of the fines in the excavating process. Why has this obviously simple phenomenon been ignored?

4.4-38 PS 3.5-4

Groundwater monitoring must be done on all sides of the pit because the groundwater gradient constantly changes during the **irrigation** season, **depending** on the use of surface water and pumping in the vicinity.

It is not practical to measure groundwater **levels** to **0.01** ft. (**1/8"**) and is beyond the accuracy of practical means ordinarily available. *

0.5 ft should suffice.

COMMENT:

All of the discussions in the DEIR seem to be rooted in the idea that deep wet pit mining will only occur near the creek and on lands already owned or controlled by the existing operators. Sight seems to have been lost that the new expanded **planning/study** area allows mining in the **outskirts** of Madison, Esparto, and Capay. The **DEIR** has already acknowledged that it is possible to have **cross-gradient** flow in these vicinities. The whole scheme of monitoring **wells** needs to be reconsidered. The Technical Studies have used data taken off the shelf and are obsolete **in** this respect. The Technical Studies **consultants** should avail themselves of the copious

13-107

records of the City of Woodland dating back to the 1920's which clearly illustrate how municipal pumping changes the groundwater gradient as contrasted to the connecting of the dots from spring measurement to the **fall** measurement. See drawing presented earlier illustrating **this** phenomenon.

13-107

4.4-39 PS 3.5-4 - sampling schedule, last item

Terminating sampling after 10 years entirely misses the point when degradation of water quality by eutrophication **will** probably just be starting. - See earlier discussions.

13-108

4.4-40 1st paragraph

Why are the concerned Federal **agencies** not included, **i.e. USGS, COAE, & EPA ?**

Why is the **Yolo** County Department of Environmental Health not notified of contamination - it is the responsible agency and must report to DHS? Staff needs to become acquainted with the system !

13-109

4.4-40 Action 3.4-4, 3rd paragraph

This is impractical - the lawsuits **will** go on for years !

4.4-41 Eutrophication/Biological Degradation, 2nd paragraph

The consultants (David Keith Todd **1995**) evidently failed to explain that eutrophication seals the sides and bottoms with a biological seal - see "**The Practice of Water Pollution Biology**" published by Federal Water Pollution Control Administration (now EPA).

The City of Woodland in cooperative research projects with the Sanitary Engineering Research Laboratory of the University of California School of Public Health covering a period of more than 20 years have demonstrated that biological seals are developed in ponds that have a constant inflow and outflow. Some of this research was funded by EPA Grants.

13-110

Todd would be well advised to view the ox-bow lakes on both sides of the Sacramento River along the **Yolo** County east boundary. These lake levels fluctuate with the river level and are in advanced stages of eutrophication. These ox-bow lakes have mature vegetation and give a local perspective as to what the mining **pits/ponds** may look like 20 years hence. Biological attachment happens on vertical surfaces demonstrated by the piles on the boat **landings** on Clear Lake, Lake **Berryessa** and in the Sacramento River.

Todd is in error !



This discussion provides no information about the different species of algae. There is no discussion of the tastes and odors imparted to the drinking water or the toxins **given off** by **the blue-green** algae some of **which** are dangerous to man and animals.

Table 13. Odors, Tastes, and **Tongue** Sensations with Algae in Water on page 177 of "The Practice of Water Pollution Biology", lists 56 species of algae that impart objectionable tastes or odors to drinking water. Many of these species of algae are common in this vicinity. (see page 52)

The example of the Russian River Wet Pits is irrelevant since it is in a different geomorphic province, in a different climate (more rainfall) with different water chemistry and different rock source. There is also a difference in mercury content of soil and gravel.

One of the prime adverse impacts of eutrophication on ponds and lakes is the reduction of appeal for recreational use. This is followed by the uncontrolled proliferation of midges (gnats).

13-110

COMMENTS:

◆ Why is the testimony **being** defined as "**expert**" in the deir when it is offered by those without the **expertise**?

13-111

◆ The whole theory of the **EIR** process is based on the premise that "expert" **testimony** is obtained from specialists qualified in the particular field under discussion. This presumably should prevent experts in one field from venturing into a field **in which** they are not **qualified** to offer opinions or recommendations. Sadly this DEIR is saturated with this type of **questionable** testimony!

13-112

● It should be noted that in the **preliminary first** draft of the DEIR that was submitted for comment, the term EUTROPHICATION **was** entirely absent and was not **discussed** in the Technical Studies. Response from readers recounted the many adverse impacts of Eutrophication relative to degradation. This information was derived largely from local long-term experience and a **281** page EPA manual "**The Practice of Water Pollution Biology**" that covers more than **20** years experience recounted by a host of qualified experts in the field

13-113

◆ Staff evidently recognized this huge gap in the information in the DEIR, **Suddenly** there appeared a **new** report 'Ground-Water Quality Protection Near Planned Wet Pit **Mining** Operations" by **Luhdorff** and **Scalmanini**, Consulting Engineers and Todd Engineers, **Inc.** March **1996**. **This** report was not included in the Technical Studies performed earlier. Never-the-less this new unverified report prepared by long-time consultants to the gravel industry is being used extensively in the DEIR.

13-114

- ♦ It is patently evident that this is a hastily contrived report designed to plug a huge gap in the DEIR. A 15 page resume is included listing the field of **specialization**, professional registration, academic degrees, and professional experience of all of the participating personnel of both firms. 1
13-115
- ♦ Examination of the personnel **list** indicates that there is not one person who claims **the** requisite qualifications in Limnology, Aquatic Biology or Public Health to qualify **for** testimony on Eutrophication! 13-116
- ♦ However the **consultants** are not hesitant to venture into a foreign field and offer reassuring comments that Eutrophication poses no threat. Even more disconcerting is the fact that Staff accepts this testimony! In future lawsuits which are certain to **follow** adoption of the **EIR**, the County **Counsel's office will** be severely handicapped by **the** use of inadequate expert testimony. 13-117
- t It is noted that the public commenters have submitted a much more authoritative discussion of Eutrophication on the preliminary 1st Draft DEIR. A portion of this commentary is attached. 13-118
- ♦ It is further noted that the above cited report is not signed by any duly registered professional engineer as **is** required by the Department of Consumer Affairs, State Board of Registration for Professional Engineers and Land Surveyors. 13-119
- ♦ Such a signature **is** required on any report offered to the public that involves the health, safety and welfare of the public and which includes engineering **findings** and makes engineering recommendations. 13-120
- ♦ It should also be noted that the State Department of health Services has its own registration requirements for those presuming to be experts on public health. **NONE OF THE CONSULTANT PERSONNEL CLAIM SUCH REGISTRATION.** 1
13-121
- ♦ It is further pointed out that **NO REGISTERED PROFESSIONAL ENGINEER HAS SIGNED THE TECHNICAL STUDIES** as required by law. 13-122
- ♦ Staff would be **well** advised to seek **instruction** from the County Counsel's office on accepting and using unsigned professional engineering documents that will become locked into future **official** County actions on mining. This can become a legal nightmare for the County Counsel in future legal actions. 13-123
- ♦ **. In summary:** The DEIR process is being seriously degraded and public confidence lost by using pseudo-expert testimony that is unabashedly pro-mining. A County EIR should have no built in bias or suspected hidden agenda. 13-123

4.4-43 Flood Water Mixing

DEIR **does not report that in the past waterways in Yolo County** have been **the** target of **illegal** discharges of septage by contract haulers to avoid paying fees at designated dump sites. **Also** the discharge of highly toxic gas well condensate by contract haulers to escape the injection well disposal site fees have been a problem. Contact **Yolo** County Environmental Health Department for further information. The discharge of either of the above materials into the aquifer would have a devastating impact.

13-124

4.4-43 Infiltration of Agricultural Waters - 2nd paragraph

The choice of Atrazine in the model is questioned. Atrazine is a non-selective weed herbicide and amounts to being a soil **sterilant** which wipes out **all** growth for an extended period of time. It is used in corporation yards, storage yards, around well heads and generally where no growth is desirable. It can not be used in proximity to trees - read the label. **Planning** Staff is requested to name any agricultural crops in the **planning/study** area on which Atrazine is used. This is an obscure chemical to use in a model and is not representative of the pesticides most **likely** to be used. Why do the consultants continue to use weird data in their models and pass it on as legitimate research?

13-125

What **Ludorff** and **Scalmanini** fail to report is that the reclamation to **agriculture** will entail a greater than usual application of **fertilizers** in an effort to bring **agricultural** productivity back to the pre-mining level as required in the reclamation plan. This **will** leach into the groundwater and be a ready source of nitrogen and phosphorus for algae growth (the precursor of eutrophication) in adjacent ponds and open wet pits. Recent permit applications show both lakes and reclaimed agriculture on the mine site **because** there **will** be a shortage of **backfill**. Why is it left to the reader to point out the obvious?

13-126

4.4-44 & 4.4-51 Bioaccumulation and Monitoring of Mercury

The discussion of mercury as an environmental pollutant and its capacity to form methyl mercury is good in some paragraphs but highly misleading and incorrect in others. In addition the DEIR failed to indicate that:

- a) Mercury in any of its inorganic forms must be considered highly hazardous when it is present in an aquatic environment since transformation into methyl mercury can occur when conditions are right.
- b) Methyl mercury possesses unique biological properties that render it one of the most poisonous compounds known to man through its profound and in most cases permanent effect on vital organs. It is readily absorbed into the body via skin, gastrointestinal tract and lungs.,
- c) Methyl mercury has a subtle cumulative and irreversible effect on the nervous system, resulting in the death of nerve cells many weeks or months after exposure. This is referred to as "**silent** damage" and represents a latent period between exposure and observed neurological effect, Methyl mercury can also modify **genetic** mechanisms by affecting cell division and by inducing chromosomal breakage. It has also been reported to have an effect on the immune system.
- d) Enhanced **mobilization** of mercury occurs in newly impounded water. It is difficult to detect its presence by measuring surface water only and once in the groundwater it has a capacity to persist for long periods.

Methyl mercury is a public health issue and must be treated as such.

The monitoring methods currently being applied by the UCD research group will indicate whether mercury is present and if its conversion to methyl mercury has occurred in the **Solano** Wet pit. If mercury is found in fish flesh at a levels above a normal baseline the **finding** will be significant since about 90% of the mercury present in fish is in the form of methyl mercury. The amount of methyl mercury present reflects the amount of inorganic mercury present in the pit area and the capacity of the environment to convert mercury to its organic form. **A separate analysis must be done for each pit as it is excavated below the water table.**

- Mercury levels in the water are generally **low, even** in areas known to have high mercury pollution. If mercury levels are found to be above 12 ppb, it would be highly **significant**.
- **Levels of mercury in surface water as currently measured do not reflect the potential for mercury uatake in aauatic life.**

13-127

- Mercury level measurements in sediment are more meaningful. The values can vary greatly but anything above **25 ppm** would **be potentially significant** if the conditions are right for **mobilization**. High levels in the sediment essentially means that the potential for conversion to methyl mercury exists depending upon local conditions.
- Mercury levels in fish flesh are **highly significant**. They indicate that mercury *is* present but more importantly that mercury is being converted to methyl mercury in relatively high amounts. Eating fish containing this methyl mercury could be hazardous to the health of humans and to **fish** eating birds. It should serve to warn Staff that precautions must be taken to meticulously analyze the mercury levels in all pits on a regular, preferably monthly, basis during gravel excavation and the post mining period until pit maturity and **stabilization** has taken place. Thereafter monitoring could be carried out on a semi-annual basis and eventually annually once stabilization of mercury at low levels has occurred.
- Algae may or may not **“bloom”** during gravel excavation but it certainly **will** grow profusely during the post mining period. Since algae readily takes up methyl mercury the pits will have to be monitored frequently until the pond aquatic life reaches maturity which may take **10 to 20** years. The important aspect is that eutrophication and algae blooms **will** occur in the pit because of environmental

13-127



conditions of the area, seasonal stratification of the pit water **will** occur, **anoxic** conditions and stimulation of anaerobic bacteria, will inevitably take place in the deep wet pits. Under these conditions the sulfur reducing bacteria and some fungi which are found in sediment would convert mercury to the soluble and reactive methyl mercury form. 13-127

4.4-45 paragraph 3

This section contains a very serious error regarding mercury mobility.

The writer applied textbook statements to the mercury problem without proper analysis of the actual conditions in the wet pit. The Statement "**The** mobility of mercury would be limited by the **oxidizing** environment of the unsaturated zone—," in no way applies to deep gravel pits that penetrate into the potable aquifer. The term unsaturated zone applies only to conditions in a dry pit which is above the groundwater table. When the pit contains water, or penetrates into the aquifer the unsaturated zone ceases to exist. If the reader was not aware of the distinct differences **between** saturated and unsaturated zones, he or she could be completely misled. This error may seem of slight **significance** to a casual reader but it could lead to erroneous conclusions and serious risk to the health of any person using aquifer water taken from wells with direct continuity to the pit water.. 13-128

Who is responsible for an error in judgment based upon misleading statements of fact?

4.4-45 paragraph 4

This **paragraph** is such an example of a **misleading** statement of fact **resulting** in a **serious error of judgment**. The statement is made "Under these **existing** conditions (unsaturated zone), the **solubility** of mercury is low and adverse impact to groundwater quality **would** not be expected." The deep gravel pits do not have an oxidizing environment or an unsaturated **zone** as indicated. The conclusion is therefore incorrect. The long dissertation that follows in paragraphs **4 & 5** is irrelevant and serves to further mislead the reader. 13-129

This type of error raises serious auestions concerning, the credibility of the whole DEIR.

4.4-46 paragraph 1

It is stated that methyl mercury is "volatile and unstable" in the aquatic environment. This is also untrue. The environment at the bottom of a wet pit is anaerobic usually with adequate eutrophic conditions to encourage growth of sulfide-reducing bacteria. The **problem** with methyl mercury is that it is extremely stable with a capacity to attach to organic material. It **will** be readily passed in its poisonous form from one organism to another through predation. Since the deep gravel pits are in the saturated **zone, volatilization** of methyl mercury is also irrelevant. The consultant should, however, be aware that it is the **dimethyl** mercury formation that vaporizes **readily** and not the monomethyl form which would be formed under acid conditions at the bottom of the pit.

13-130

4.4-47 - paragraph 1

The discussion of pH is also irrelevant since the conditions within the wet pit will be subject to change depending upon the growth, maturation and death of algae which will inevitably find its way into the wet pit. In order to predict the form of mercury present in the pit water and in the sediment an analysis of eutrophication must be performed during algae cycles in order to determine pH changes at the bottom of the pit. Again it is not the surface water that is of concern but the water at the bottom of the pit.

13-131

The DEIR has completely ignored this consideration and may therefore have drawn completely incorrect conclusions.

4.4-47 paragraph 2

"The surface water sampling results from Solano's wet pit operation do not indicate conditions that **would** promote conversion of inorganic mercury to methyl mercury". This statement is deceptive and misleading! Surface water samples do not indicate the levels of **mercury** in the sediment or in the aquatic food chain and therefore can not be used to support statements about such mercury conversion levels. Moreover, methyl mercury conversion does not **normally** occur in surface waters. It is the deep wet pit water where the conditions for mercury conversion would be optimal **that** is of serious concern.

13-132

Such statements indicate a complete lack of knowledge or an attempt to deceive the reader.

4.4-51 Performance Standards

The DEIR **lists** the various **sampling** procedures to be conducted but only two criteria are listed as items of concern for verification: Total mercury in water and Mercury levels in fish samples.

Measurements of mercury in water samples require very **specialized** technics conducted by specially trained people and analyzed in laboratories with specific expertise. **This** reader has the impression that the required procedures have not been carried out in the past (Prior to 1996) and has no reason to believe it will improve in the future unless special collection and analytic procedures are stipulated in the permit process. These are the technical procedures currently being used by the Toxic Substance Monitoring Program of the RWQCB.

Mercury measurements in fish are reliable if properly carried out. The DEIR lists 5 predatory **fish** which should be collected and analyzed but gives no indication of whether the wet pits will be stocked or not. The species of **fish**, the age, the length of residence in the wet pit (if stocked), the season of year, and many other conditions (such as wet weight vs dry weight of sample) must be spelled out if the **monitoring** is to have any **credibility**. It should also be noted that it is extremely difficult or impossible with current techniques to clearly define a safe level or a no effect level of mercury in the environment. This is particularly true in areas of recent water impoundments such as that which would occur in a deep wet gravel pit.

Monitoring for a material that can cause severe public health problems should not be considered a mitigation measure - it should be an obligatory procedure

13-133

- There seems to be a misconception regarding the meaning and significance of mercury content in fish. The fact that the average mercury level in 5 fish samples can be below 0.5 ppm (**mg/Kg**) for two years does not mean the pit water is safe for aquatic life or that the water taken from the adjoining aquifer is safe to drink. Moreover taking samples from **only** one pit (the first one) can hardly be an indicator of what might be in **other** pits in other areas. Such procedures would not provide the public with health safety assurance but could instead mislead the public into **thinking** that the monitoring **will** detect a deadly poison and **will** ensure that steps are taken to prevent it from reaching **deadly** levels. ~~This is not the case.~~
- The performance standards indicate that high levels must be detected in all **fish** and that averages above 0.5 **mg/kg** must be obtained for a period of 2 years before action will be taken. An average level of 0.49 in one of the two years would not set off any corrective action under these procedures.
- **Professional help is needed to spell out an adequate monitoring program and set action standards for each deep wet pit taking into account trends as well as peak levels.**

4.4-51 bottom of page.

- The **mitigation plans for providing a feasible and reliable method for reducing methyl mercury production** is totally inadequate. Staff has suggested three possible alternatives which are impractical and demonstrate a lack of expertise in the area.
- How can permanent aeration of a wet pit 150 feet deep be accomplished so that it can be maintained in perpetuity? Who is going to pay for the energy requirements to pump air into the pit bottom in perpetuity?
- How can water chemistry be changed in such a manner that it would never revert to its natural pH?
- How can the eutrophic conditions necessary for bacterial growth be prevented? How can bacteria populations be controlled into perpetuity without seriously **degrading the water supply** by adding poisonous materials which also persist in perpetuity?

13-134

4.452 top of page

- "Implementation of mitigation measures would reduce the potential impact to less than significant levels." This statement is **easy to make** but not **necessarily possible to attain**. For example implementation of monitoring methods has been classified as mitigation but it would do nothing to reduce the **levels** of methyl mercury. It is far better to accurately record mercury levels when they are low to develop a baseline and then evaluate any **trends** that may occur.
- Once high levels of methyl mercury are found in fish, it is too late to **worry-** mercury **mobilization** has already occurred.
- **Expert opinion** must be recruited to **provide options** as to what should be done to **analyze** for trends and to **prevent** further mobilization of mercury before it is too late.
- We understand that migrant workers are catching fish in Cache Creek and families are **using** them as a main protein source for 3 or more meals each week in spite of warnings issued by the Department of Fish and Game the practice continues. If the gravel deep pits are used for stocking fish as is already the case with the **Solono** pit, what is preventing a serious public health problem if mercury **mobilization** occurs? Who is **responsible** for health **problems** which will **inevitably** ensue if this **activity** is carried out in the future?
- The monitoring is highly **superficial** and easy to **misinterpret**. For example while mercury in sediment is to be measured, it will not be used for verifying or evaluating the assessment of mercury pollution (see page 4.4-51 4th paragraph). As indicated earlier, water samples are extremely difficult to take and to analyze. The selected fish

13-135

species (large mouth bass) are not necessarily present unless the wet pit has been stocked. Even if the fish have been introduced into the pond no indication is provided as to how long the fish must reside in the pit water before measuring for mercury content. It is most important to measure mercury content in the sediment and to use that analysis in the determination of whether there is a risk of conversion to methyl mercury. A statement should be provided from the analytic lab identifying just exactly what is **"Total"** mercury being analyzed, and whether it includes cinnabar or is just absorbed mercury.

- **Since** mercury is deposited in pockets depending upon stream conditions it stands to reason that a single analysis of any one area or wet pit would not represent soil samples in **all** areas. The best procedure would be to do a core sample analysis of each area (as proposed by the Army Corps of Engineers for **instream** mining) and then do sampling of sediment and **fish** (stocked largemouth bass) at semi-annual intervals until the wet pit pond is **stabilized**. This can involve a period of **20** years or more.

13-135

Methyl mercury poisoning is a serious health problem that can only be prevented by taking adequate precautionary steps through more stringent environmental policies.

Such precautions have not been considered in the current DEIR.

4.4-50 Mitigation Measure - Eutrophication

Eutrophication is not mitigated by performance standards **2.5-18, 3.5-11** and Mitigation Measure **4.4-2a**

The **DEIR's** discussion on eutrophication is totally inadequate and there appears to be no personnel with the proper credentials in the Technical Studies or in the **Luhdorff & Scalmanini-Todd** Report (March **1996**) to give an authoritative scientific report. Eutrophication **will** likely be at its worst after vegetation has reached maturity (at least **20** years hence) and this **will** be **10** years after reclamation warranties have expired.

13-136

No competent **limnologist** or aquatic biologists have offered expert testimony nor has an aquatic entomologist commented on the potential midge problem. Staff has no scientific basis for making an assessment on this biologically complex problem and should not presume to make a judgment in such a vacuum of knowledge.

4.4-50 **Mitigation Measure** - last paragraph

"Overburden and processing fines should be used wherever possible to support reclamation activities around reclaimed wet pits." - " Processing fines are the elements most easily transported by rainfall and the most likely to create a seal on the sides and bottom of the open wet gravel pits blocking groundwater flow in the aquifer. Staff evidently has never taken a comprehensive overall view of the entire project but instead continues to offer fragmented mitigation measures that are often contradictory.

13-137

4.4-52 **Loss of Water from Aquifer Storage due to Evaporation.**

Please refer to response made earlier pointing out that Teichert Esparto, Solano Concrete, Syar and Cache Creek Aggregates exist in a micro-climate with more frequent drying north winds and hence greater **evaporation** than for Teichert Woodland.

DWR Bulletin 54-A, Table 97 lists evaporation for Davis, Ca. as being **67.424 inches** per year.

Evapotranspiration from the open wet gravel pits will be the greatest at vegetation maturity (at least **20** years).

DWR Bulletin number 50, Table 19 lists the consumptive use for the Clarksburg, Yolo County vicinity as being:

- Cattails **169-240** inches per year
- Tules** **183-314** inches per year

13-138

This is the vegetation that **will** form the perimeter growth on the open wet gravel pits and **will** cover wetlands (swamps).

The discussion of evaporation cannot be logically separated from transpiration as both are water losses to the atmosphere. Transpiration cannot be assessed adequately until vegetation has reached maturity (**20** years for willows, cottonwoods and oaks).

The **discussion** as presented by the DEIR is badly skewed to favor mining. This is unacceptable.

4.4-52 & 4.4-53 Impact 4.4-4

The evaporation and transpiration is greatly understated and does not match even remotely the permit areas **under** discussion. Wetlands and open wet gravel pits at maturity of vegetation will far exceed the data given in the DEIR! Tules, cattails, willows and cottonwoods will establish thickets on the borders of the wet pits and probably throughout the wetlands. As shown in the response above, cattails can **use**

13-139

up to 20 feet of water in **Yolo** County and tules can use up to 26 feet per year. This is not a guess but research extending over several years under scientifically controlled conditions by the DWR,

13-139

The footnote (21) at the bottom of the page is badly scrambled and mixes dry pit and wet pit data rendering it not **useable**.

4.4-53 Action 3.4-1

How can evapotranspiration losses be acceptable when **the** computation of such Losses are so excessively inaccurate and no economic evaluation of these losses over time have been made? The reader is certainly entitled to an accurate site specific estimate of water loss and the costs of this lost resource.

13-140

COMMENT:

The discussion on evapotranspiration is so wildly inaccurate and so biased in favor of mining that the professionalism and credibiity of the DEIR is placed in serious doubt.

4.4-54 PS 3.5-12

This section should be changed to read: All permanent wet pits shall be reclaimed to include valuable wildlife habitat "with adequate safeguards to prevent eutrophication and the resulting adverse impact on water quality".

13-141

4.4-56 Obj. 3.3-3

This was largely negated by the discussion on page **4.4-55**. The DEIR cannot have it both ways.

Action **3.4-2**

This **will** require a whole new EIR " one EIR cannot rely on a future EIR that has not been written! No actual agreements presently in place. District has made no commitments.

Action **3.4-6**

13-142

How can an area be designated for groundwater recharge when it is stated on page **4.4-55** that not enough data had yet been developed to verify **feasibility?**

Action **3.4-7**

This would have to be a sequential operation in which every activity was closely coordinated time-wise. Reclamation could not take place **until** Zone 3 and Zone 4 were in phase. This is an unrealistic expectation.

4-56 Action 3.4-8

The COAE already states in its recent study (December 1995) that recharge probably wont work. Why does the DEIR continually pursue **this** avenue when no completed feasibility reports exist? Staff does **not** specify **high** seasonal groundwater level and doesn't have the expertise to know if a flat floor is desirable. it may need to be graded on a slope for final drainage to allow removal of sediment.

COMMENT:

The whole discussion on recharge on page 4.456 is not relevant. The Staff has no credible site-specific technical reports on which to draw. The Technical Studies are purely speculative on this matter and the COAE Report raises doubts that it will work as envisioned.

13-143

Objectives and Performance Standards discussed are purely speculative and dependent on activities and projects not yet in existence. **Future** confusion is the only impact that can be generated by **this** excursion into fantasy.

COMMENT - Use of Terms

We **find** that a hole in the ground that always contains water may be called a wet pit, a **pond** or a lake - sometimes on the same page. When does a wet pit become a pond and when does a pond become a lake? Is it a matter of size?

13-144

A **definition** of terms should be included in the **DEIR** and it should be uniformly **followed** in the Technical Studies and any of the come-lately reports that are hastily appended without proper circulation for citizen review. Why does this have to be pointed out?

4.4-58 First paragraph

DEIR neglects to mention flooding north of Cache creek from **Goodnow** Slough which floods fields and roads in many locations. Staff should become familiar with the territory !

13-145

4.458 Draft OCMP, 2nd paragraph & 3rd paragraph

This statement is subject to challenge. According to the Technical Studies, Cache Creek is **suffering** from a sediment deficiency. This **causes** degradation of the channel and will further increase the channel capacity and hasten scour at bridge sites.

1

In general the **land** surface slopes away from the creek and most adjacent surface drainage goes to **Willow** Slough, **Goodnow** Slough, or Smith Creek. Local flooding by these sloughs reaches their peak long before the crest flow from Cache Creek arrives. It is more of a matter of time (flood routing) than it is the peak flow of

13-146

Cache Creek for local flooding. The comparison for drainage area reduction simply does not apply. As stated previously, Staff should become familiar with the territory !

13-146

4.4-58 **Action** 4.4-5

Omits **DWR** which maintains project levees constructed by the COAE.

13-147

4.4-60 **Action** 4.4-7

Who pays for the water? **YCFC&WCD** is not a philanthropic organization, it has water for sale. It has already committed to Lake County additional water to supply the Geysers Geothermal well fields for recharge and it is already committed to 10 cfs on the North Fork of Cache Creek for **instream** life. Has **YCFC&WCD** ever indicated that supply water for year around flow is possible ? Has an estimate been made on how much water is involved ?

Actions should not be espoused until and unless they have been **fully** researched !

13-148

PS 4.5-1

Excavations at streambed level or above can also cause pit capture. This is poorly stated.

PS 4.5-4

Discharge to Cache Creek through a COAE project levee requires an encroachment permit from SBR ! Staff should educate itself on such matters.

4.4-62 Mitigation Measures 4.4-6a

What tributaries enter Cache Creek east of Road 94B ?

Performance Standard 4.5-8

Does not cover the possibility that placing 100 year flood protection on one side of the creek may cause flooding on the other side of the creek.

The COAE has already stated that detention basins and flood storage basins will not work for Cache Creek because of the immense volume of flow and the speed of cresting. Cache Creek at 40,000 (less than a 100 year storm at **Yolo**) is carrying about 15,000 cfs more than the capacity of the Sacramento River at Knights **Landing** at danger stage.

13-149

COMMENT:

Staff desperately needs the services of a qualified engineer to review the DEIR before its circulation as it repeatedly ventures into areas where it is painfully evident that it does not have the expertise to handle.

Due to its lack of understanding of the physical issues Staff has no basis for stating "Implementation of these mitigation measures would reduce this impact to a less-than-significant **level** for the COMP and Alternatives **4, 5a, 5b** and **6**". This is an unacceptable assessment.

13-149

4.4-63 Impact **4.4-7** Dam Failure

Why was Clear Lake Dam not included? At the historic high levels experienced in Clear Lake the volume to be eventually drained by dam failure is far greater than Indian Valley dam.

13-150

SUMMARY COMMENT

4.4 HYDROLOGY AND WATER QUALITY

It is the readers opinion that of all the sections reviewed thus far, this one surpasses all others in sheer incompetence, **distortion** and selectivity by the "experts" to skew the thrust toward a pro-mining stance. "Experts" have given testimony on subjects that their resumes reveal they have had no experience or training. An addendum report by Luhdorff and **Scalmanini** is a badly bungled attempt to fill gaps exposed by previous public comment.

The feeble attempt to belatedly address eutrophication is ludicrous and steers clear of the many adverse impacts that eutrophication generates. Public written comments on this subject **furnished** to the Staff were **infinitely** more informative but largely **ignored**.

13-151

CONFLICT OF INTEREST

Luhdorff and **Scalmanini** have for many years **performed** consulting services to the local gravel industry and they have provided much data for the mining permit applications currently under consideration. This **firm** is now being used by the preparers of the DEIR This is a clear and unmistakable conflict of interest, contrary to CEQA policy and of doubtful legality ! Staff most certainly should obtain a legal opinion from County Counsel on this highly questionable practice.

4.5-1 AGRICULTURE Introduction

These additional issues must also be considered: A comparison of the economic **loss** of agriculture on lands lost permanently to mining over centuries to come (the agriculture land has **been** continuously farmed for thousands of years else where **in** the world) as compared to **the** short-term profits of mining which ends in just a **few** years.

13-152

The long term concentration of salt build up (boron especially) over the next centuries because of evaporation from wet pits and wetlands. **It** should be repeated

here that the assessment in the preceding section was badly bungled by the **“experts”** who used incorrect data and ignored the local site specific micro-climate.

The permanent loss of nonrenewable energy (fossil fuels) by the additional fuel needed to physically transport the agricultural crop out of agricultural land that has been lowered **10-20** feet. The additional fuel needed to make the vertical lift is probably equal to several miles of flat haul out on the highway. This will continue in perpetuity.

13-152

Note:

An appropriate method for comparing the economics of enterprises requires that the total revenue to be generated be determined by using the productive life of each enterprise. In this case it would be probably **5 - 10** years for each mining unit and centuries for agricultural use of the land.

4.5-20 GENERAL COMMENT

Staff **continually** excludes the **possibility** that some **“foreign operator”** may apply for a mining permit within the planning area and that it could be sited near the exterior boundary of the planning area. To deny such a permit would probably be a basis for legal action because it would be denying a conforming use in the **proper zone**. It also impinges on agreements in restraint of trade and the granting of a monopoly without going through the franchise requirement as is required.

13-153

Considerable case law exists in California on such situations. It would be **helpful** to the reader if the County Counsel's Office clarified this issue.

4.5-21 4th paragraph

This paragraph gives the reader the impression that **642** acres of row crops and **456** acres to **tree** crops is somehow cast in stone. In reality, successful agriculture is generally based on the freedom of the farmer to adjust his crops to take **advantage** of the best prices. For instance, Capy Valley was once predominantly orchards and vineyards but now organic and specialty farming is fast changing the scene.

13-154

How would a farmer switch from orchard to row crops if the mining reclamation plan specified orchard? It would seem more practical not to allot reclamation to agriculture by a specific type of crop. Row cropland is often alternated with **grain** production to eliminate the build up of certain noxious weeds. Alfalfa is often rotated with row crops to eliminate morning glory-a very **invasive** weed.

4.5-22 Obj. 5.3-1

How can groundwater storage and recharge be listed as beneficial uses when no evidence exists that either has been successful in the planning area? Is it logical to

13-155

place the public's trust in activities that as of yet have no proof of feasibility along Cache Creek?

13-155

4.5-23 2nd paragraph

Why is the term "marketable PCC-grade aggregate* used? If the aggregate is PCC grade as **defined** by SMARA why is the term "marketable* added? This misuse of terms allows the miners to use their own discretion to "waste" sand and pea gravel if it does not suit the miners' operation. Sand and pea gravel may well be in short supply in the future and it should not be wasted now because it is in abundant temporary supply.

13-156

4.5-25 Draft OCMP and Implementing Ordinances

Once again it is pointed out that Staff excludes the possibility that application for mining permits will ever be **filed** on lands currently under application by others. To restrict gravel production to **only** the present operators is the granting of a monopoly which is presumably a violation of Federal and State statutes.

Except for **Schwarzgruber**, all of the other operations are owned by parent firms that are in the construction business and hence sell aggregate, concrete and asphalt concrete to themselves. It therefore follows that construction firms controlling the aggregate sources have an advantage in bidding on Federal, State and **local** public works projects. This excludes minority contractors from **successfully** competing on public projects financed by the taxpayer. Staff **should** research State and Federal regulations to determine if small businesses and minorities are being unfairly discriminated against because of the actions of **Yolo** County that deny them a level playing field. It would appear that **Yolo** County is being set up as a target by minority contractors and small business operators for a class action lawsuit. This has a ripple effect that extends into affordable housing and various projects financed in full or in part by Federal funds that specify that any and all bidders have equal access to raw materials.

13-157

Locally, in the City of Woodland, small paving contractors have not been able to survive because the local aggregate producers are controlled by the parent paving contractors that are competing against the **small** contractor. Local minority contractors have failed to **survive**.

GENERAL COMMENT

Local, State and Federal agencies are barred from future Federal and State funds it is found that funds have been used on projects that are not in compliance with minority, small business and racially discriminatory projects. In fact SMARA maintains a blacklist of operators that are in violation. These are published and



State and local agencies are forbidden to do business with them if State or Federal funds are involved.

Staff is remiss in not discussing this far-reaching concern in great detail. The DEIR requires the services of qualified legal counsel.

It appears that the whole general thrust of the DEIR excluding any lands from mining that are not currently under permit or under application completely misstates all projections on aggregate that may be produced in the next 30 years and at the locations where it may occur. The whole DEIR is founded on a scenario that may be illegal at the outset as regards sequence of events.

13-157

Staff is specifically requested to address this question in detail and reference the professional legal advice obtained.

4.526 First sentence

This comparison is questioned. Tomatoes are never raised on the same land 2 years in succession because of weeds and disease.

Action 5.4-6

The DEIR has never presented any calculations on a site specific example to support the contention that wet pit mining is the most economically feasible possibility from the operator's perspective. This is an unwarranted assumption the DEIR should not base its theories on pure speculation.

13-158

4.5-31 Action 5.5-2

What are the purposes that the Community Development Director could authorize the stockpile for other than for agriculture backfill?

13-159

4.535 Relative High Groundwater

Safflower, a common crop roots down 12 feet.

The report for Solano Concrete wheat raising on reclaimed lands does not explain whether the crops were "force fed" with excessive amounts of fertilizer to demonstrate favorable yields.

13-160

4.5-37 Top paragraph

What crops has the Hutson parcel raised that are susceptible to frost? Orchard crops are the only local crops hurt by frost. Staff has drawn a conclusion from an assumption that is not carefully researched and not based on actual experience because the Hutson Property does not have an orchard. There is no basis for the conclusion and to generalize for the whole study area defies logic and honesty. The study area in the vicinity of Capay Dam is subject to cold air drainage from the

13-161

adjacent uplands and trapping it in a depressed reclaimed agricultural parcel may make orchard crops too risky.

13-161

The reader is not being candidly dealt with by misleading statements presented in the DEIR

4.5-39 Impact 4.57

It is entirely improper to state that **“An** additional 600 acres may be converted for the possible groundwater recharge and recovery program by the **YCFC&WCD”**. **No** official adoption of such a plan has ever been made by any agency and the **COAE** states that **insufficient** research has been performed to predict its feasibility. CEQA does not allow **EIR’s** to be approved in which the key elements are pure speculation. The EIR can only deal in facts not in speculative fantasy.

13-162

Can **the** County issue mining **permits** that are within the sphere of influence of Capay, Esparto and Madison? The expanded (without proper procedure) **planning/study** area now bisects Esparto and Madison and encompasses Capay!

4.539 Last paragraph

Would 1,223 acres be lost to **non-agricultural** uses if shallow mining was performed with reclamation to agriculture?

SUMMARY COMMENT:

An economic analysis of converting agricultural land to non-agricultural use **vs** mining is sorely lacking. No economic assessment of the loss of tax revenue to the county is made for **this** conversion. Mining on a particular parcel is over in a few years and the ripple effect on the local economy disappears for that parcel. Agriculture land production will continue for untold generations as **wil** as its ripple effect.

13-163

It is beyond belief that a DEIR **can** avoid such a fundamental and basic element regardless of the technical requirements of CEQA. Is this omission intentional because of the fear that mining **wil** not fare well in such an analysis? After all, **EIRs** are supposed to provide a full disclosure of truths on a proposed project.

BIOLOGICAL RESOURCES

4.6-8 2nd paragraph, last sentence

Should **Gorton** Slough be **Goodnow** Slough as per USGS quad map? This appears at several locations in the DEIR

13-164

4.6-10 Wetlands

The sewage treatment oxidation ponds of Esparto and Madison are used by migrant and resident waterfowl and resident and migrant shore birds such as gulls and grebes.

13-165

4.6-12 Developed areas

Should include crows, blue jays and magpies.

COMMENT ON ANIMALS NOT LISTED

Animals not mentioned are **kingbird** (nest here), oriole, red fox, coyote, mockingbird, pocket gopher, raccoon, kingfisher, Brewers blackbird, starling, crow, raven, curlew, blackneck stilt, avocet, plovers, Western red-tailed hawk, turkey, vulture, mountain bluebirds (in winter), **robin**, western cuckoo " - . These are but some of the animals that are present on a regular basis at various times of the year.

13-166

PUBLIC HEALTH COMMENT:

The general public has little conception as to how many waterfowl and **shorebirds** utilize the sewage oxidation ponds of Esparto, Madison, Woodland and Davis.

The Woodland Ponds and Davis ponds are used by the Audubon Society for observation.

In the study area, the ponds of Esparto and Madison **will** provide a home base for commuting to the ponds and deep wet pits to be created. **This will** pose a serious public health hazard if the ponds and wet pits are used for water contact recreation. In general the **contents** of the sewage oxidation ponds have not been **disinfected** though the discharge to a watercourse generally requires chlorination as it exits the pond.

The Study area supports large populations of resident mallard ducks who nest in local wheat fields. These are "**puddle** ducks^v and prefer small bodies of water such as creeks and ditches.

13-167

Mudhens (coots) are present in great numbers in the early spring where there are ponds. They move out into the Wheat fields at night and graze on the newly emerged grain sprouts. In the past the DFG have permitted depredation shoots to **try** to minimize crop destruction. The creation of ponds and lakes will provide new territory for proliferation of birds, additional crop destruction and more **killing** of wildlife. Coots generally feed and **fly** at night and are therefore not usually observed except in their **local** migrations.

This potential public health impact needs to be assessed by an expert in the field using SDHS regulations and policy. Ducks are notorious carriers of disease which **can be carried from the nearby sewage** ponds to **the** open deep wet pits. Fecal material would contain **giardia** and cryptosporidium cysts which could travel some distance from pit water into the aquifer and through the aquifers that consist of coarse materials.

EPA

Recent work in the field of **zoonosis** has indicated that ducks are the prime reservoir for **Influenza A** virus and that humans are but one of the many hosts. References were presented earlier to the consultants but for some reason they have chosen to ignore **them**.

This is a serious omission since Lower Cache Creek is **within** the Pacific Flyway used by 12 million ducks each year. Approximately 300,000 winter in the **Yolo Bypass** area. An open deep wet gravel pit can be an attraction to these waterfowl **and** during their visit they can deposit large amounts of feces. These bird droppings are an ideal ecological environment for viruses such as Influenza A. The evidence indicates that Ducks and other wild birds **carry** influenza around the world along their migratory routes, pass it to other animals via fecal droppings. Viruses from these droppings could leach from the bottoms of the wet gravel pits into the groundwater and once in groundwater they can travel great **distances** depending upon the particulate **nature** of the **soil**. They can survive for months.

13-167

In summary - an open wet pit can be a port of entry into the groundwater for viruses and other **infective** agents carried by ducks and other animals. It is very important to evaluate each proposed gravel site individually with regard to entry of pathogens into the pit water, and transport into the aquifer which is a source of our drinking water.

AIR QUALITY

4.7-2 Description of Local Environment 4th paragraph

Description does not include asphalt concrete plants and transit mix concrete plants.

The **Yolo Solano** Air Quality monitoring in Woodland **cannot** provide data for the Hungry Hollow ~~district~~ because the local topography causes a unique micro-climate **different** from Woodland. Many more days of North wind and lower humidity are experienced in Hungry Hollow. The **fact** that it is enclosed on three sides by uplands creates an air basin separated from Woodland. Local residents will attest to this. The use of Woodland findings is not applicable for Hungry **Hollow**.

13-168

4.7-3 An additional receptor is Esparto Grammar School

13-169

4..7-7 Note that there are two types of asphalt concrete plants:

Batch plants manufacture a given quantity per loading.

Continuous plants operate on a continuing basis and do not shut down after producing a given quantity.

COMMENT

This chapter does not address the increased exhaust emission by trucks in the vertical lift of hauling agriculture crops out of reclaimed fields that are in the range of **10-20** feet below original land surface. This requires trucks to emit a **high** concentration of contaminants. Each field is a separate basin and will trap the emissions to the detriment of those harvesting the crop.



13-170

Aesthetics

4.10-12 PS 75-2

Why is a soil stockpile more visually acceptable (500 feet clearance) than material stockpiles (1,000 feet clearance)?

PS 2.5-22

This is in conflict with PS **25-15** as regards overburden stockpiles. How would you contour a pile of overburden with flat land (existing topography)? Why should there be permanent piles of mine waste? Does this persist after reclamation?

PS 6.5-2

Does this mean that yellow star thistle, Russian thistle (tumble weed) and poison oak must be replaced?

COMMENT.

Why is it never assumed that a **“new operator”** may be granted a permit in considering the various project alternatives?



13-171

4.10-15 **Mitigation Measure** 4.10-1b

Mining within 1,000 feet of CR 89 at SR 16 could well be within the summer cone of depression of **Madison’s** Municipal wells. A similar situation might exist for Esparto on SR 16 and CR 87.

It is evident that Staff has not reviewed such restrictions since it discovered the phenomenon of the cone of depression developed by municipal **wells**. These buffers badly need to be re-evaluated and brought into the real world.



13-172

COMMENT:

The Staff's views of lakes and ponds as a visual asset is short sighted since it fails to project 20 years into the future when eutrophication may set in. This would result in stinking and unsightly rafts of algae along the shores, a prodigious production of midges (gnats) that will move into Capay, Esparto, and Madison at night to create an unsightly nuisance as they swarm around electric lights.

It is ironic that Staff steadfastly refuses to elaborate on the many adverse impacts of eutrophication when the authoritative EPA publication "The Practice of Water Pollution Biology, 281 pages points out in great detail these examples at Clear Lake. Instead Staff quotes from a local consulting firm working for the gravel industry that has no qualified aquatic biologist or limnologists on its staff according to the resumes. It also fails to list anyone with a degree in Public Health.

13-172

Why are permanent piles of mine waste not used for backfill? What is permanent mine waste - there is no bedrock ?

4.10-21 PS 2.5-21

When is a final slope considered "final"? Is it after excavation has progressed past a location and it still may be several years before the wet pit is fully excavated? If so, the slope left behind the excavator will be unprotected, not to be reclaimed until mine-out. This must be clarified in greater detail.

13-173

PS 6.5-5

This assumes little change in water surface over the year when in fact it may vary by 10 - 30 feet.

4.10-24 Impact 4.10-4

Staff is confused. Raw gravel is not hauled out of depressed pits onto County roads and State Highways, it is hauled to the processing plant and then stockpiled.

13-174

This paragraph needs to be revised !

4.10-29 Issue 4.10-6, 2nd paragraph

Does the Staffs arbitrary expanding of the planning/study area to include the MRZ-3 zone encroach on the sphere of influence of Esparto and Madison. Would the zoning change that must follow prohibit the urban expansion as contemplated in the General Plan?

13-175

HAZARDS

4.12-1 Introduction.

The following issues should be added and addressed:

Eutrophication of open wet **pits/ponds/lakes**. The public health hazards of algae decay (odor, disagreeable taste to water, toxins) when pond or lake vegetation matures in approximately **20** years. It is noted that the testimony by **Luhdorff & Scalmanini & Todd** is entirely irrelevant as their resumes indicate that there is no one on board with proper experience, education or State licenses to be qualified as experts in **this** field.

Impairment of **Drinking** water - if deep wet pits are permitted within the influence of the cone of depression of the municipal wells of Esparto and **Madison** - water may be contaminated by eutrophication. Staff does not account for any new permit that could be in the **MRZ-3** zone.

Contamination by waterfowl and shore birds that may commute between the Esparto and Madison sewage ponds to the wet pits.

13-176

Mosquito vectors if lakes are reclaimed to shallow areas, bays, **penninsulas** as called for.. Fluctuating seasonal water levels **will** foster this hazard.

Trapped air contaminants in wet **pits** and **reclaimed agriculture**.

Heavier than air fumes **will** concentrate in the depressed areas. The nearest air sampling station is in Woodland and the findings cannot be legitimately used for **the** Hungry Hollow region.

Poison Oak - Poison Oak has not been singled out for exclusion from the native plants that **will** become **established** as riparian vegetation. It grows well along Cache Creek.

Aerial Drift of Pesticides. Adjacent agricultural fields that are sprayed with pesticides by aircraft have a quarantine period before workers **can** enter the field.

Clandestine and Illegal Dumping of Toxics. This includes **drug** lab chemicals, pesticides, herbicides, septage, used petroleum products, paint containers, **etc**.

Note: None of the **preparers** of the Technical Studies appear to be qualified to comment on this.

4.124 Mosquito Generation

It is noted that the SYMVC recommends minimum vegetation along the shores **of** lakes. The DEIR has contradictory goals on this by **encouraging** native vegetation **in** wetlands. **Tules** and cattails will flourish in this fluctuating water level zone, but will live in water up to 3 feet **in** depth. This provides a sheltered area for rafts of

13-177

mosquito **eggs**. Along barren shores wave action breaks up the rafts. The reclamation plans shown **in** the Technical Studies are not compatible with the **elimination** of mosquito habitat in view of **widely** seasonal fluctuation of water **levels**. 13-177
It is sensed that Staff does not fully understand what it is writing about.

4.12-7 PS 2.5-2

On site hazardous events must be immediately reported. Written reports are provided only on request,

This is not a satisfactory procedure.

Written records must be kept of **all** spills of hazardous material. A single spill may be **insignificant**, but repeated spills in the same area can be extremely dangerous **if** the material passes down into the groundwater. This can only be discovered if written records are kept and summarized on a yearly basis. 13-178

4.12-8 PS 3.5-4

Does not specify which seasonal groundwater level, high or low.

Groundwater quality does not seem to be adequately monitored. 13-179

4.12-10 PS 4.59 2nd paragraph

This is not practical. Teichert has proposed **using** a floating suction dredger.

Objective 3.3-3

Does not recognize that the wet pit will become silted by the agitation of dredging. 13-180

4.12-11

It is absurd to state that the soil **sampling** for residual pesticides on one parcel is representative of the whole planning area. The Woodland-Watts airport was a base for cropduster aircraft beginning in the 1930's where pesticides were loaded and planes washed down after changing products. The **washdown** was discharged to an unlined low spot

There are and have been other flight strips for cropdusters in the planning area where fertilizer and pesticides have been loaded and the paper sacks and cartons burned on site. 13-181

Staff has not done its research and is not familiar with the planning area! Staff should become aware that there are many temporary **flight** strips scattered throughout the farming area so that the aircraft can be loaded near the application site. It is huge gaps in **knowledge** such as **this** that seriously weakens the **credibility** of the **DEIR** report.

4.12-12 PS 2.5-4

13-182
-43

How does providing benches with **10** feet vertical distance apart prevent drowning if there is **10** feet of water between the upper and lower bench?

13-182

4.12-12 PS 25-8

Four stands of barbed wire is specified but no height stipulated. Four strands **could** be placed on a **2** foot post.

13-183

4.13-5 PS 7.5-4

Is the **150** foot buffer measured from the **house, the** house yard. or the property **line?**

13-184

CEQA C **ti**

5. & -52 **Assumptions**

Assumes that no new operators will be allowed. What would be the basis for denying a permit to a new operator **in** the Study Area?

To not allow a new operator is to grant existing operators a monopoly that has not been subjected to the necessary franchise procedure that is required by governmental subdivisions.

13-185

53 Top paragraph, last sentence

The use of **600** acres by **YCFC&WCD** for groundwater recharge and recovery program is pure speculation and not based on any officially adopted plans. Such plans would require a separate EIR **This** cannot be considered a legitimate argument.

13-186

Groundwater Quality Protection near Planned Wet Pit Mining Operations

The credibility of the "Groundwater Quality Protection near Planned Wet Pit Mining Operations"ⁿ is seriously questioned.

The bias of this report toward mining is not even thinly **disguised !** Reports **appear** to have been selectively screened so that any adverse impacts have been either **ignored** or else downgraded. Reports of long standing stature and credibility such as "The Practice of Water Pollution Biology issued by the Federal Government"ⁿ have been studiously avoided. Computer modeling has **been** carefully selected to show the most benign condition whereas the worst possible scenario (which can be much more informative) has not even been mentioned.

The "expert"ⁿ consultants presume to give advice and reassurance on subjects that are entirely out of their field of **expertise** if judged by the resumes of these "experts"ⁿ.

The subject of midges generated by standing water has not even **been** mentioned although it **is** potentially a serious problem. **Millions** of dollars have been spent at Clear Lake on **control** procedures, **with little** or no success. **The** advice of a qualified **aquatic** entomologist **is** entirely absent. Is this caused by the "experts"ⁿ being uninformed or by carefully skirting a troublesome impact by the consultants?

In summary, a semi-informed reader is left with the impression that he has been "propagandized"ⁿ. The report should have been more subtle in its presentation

13-187

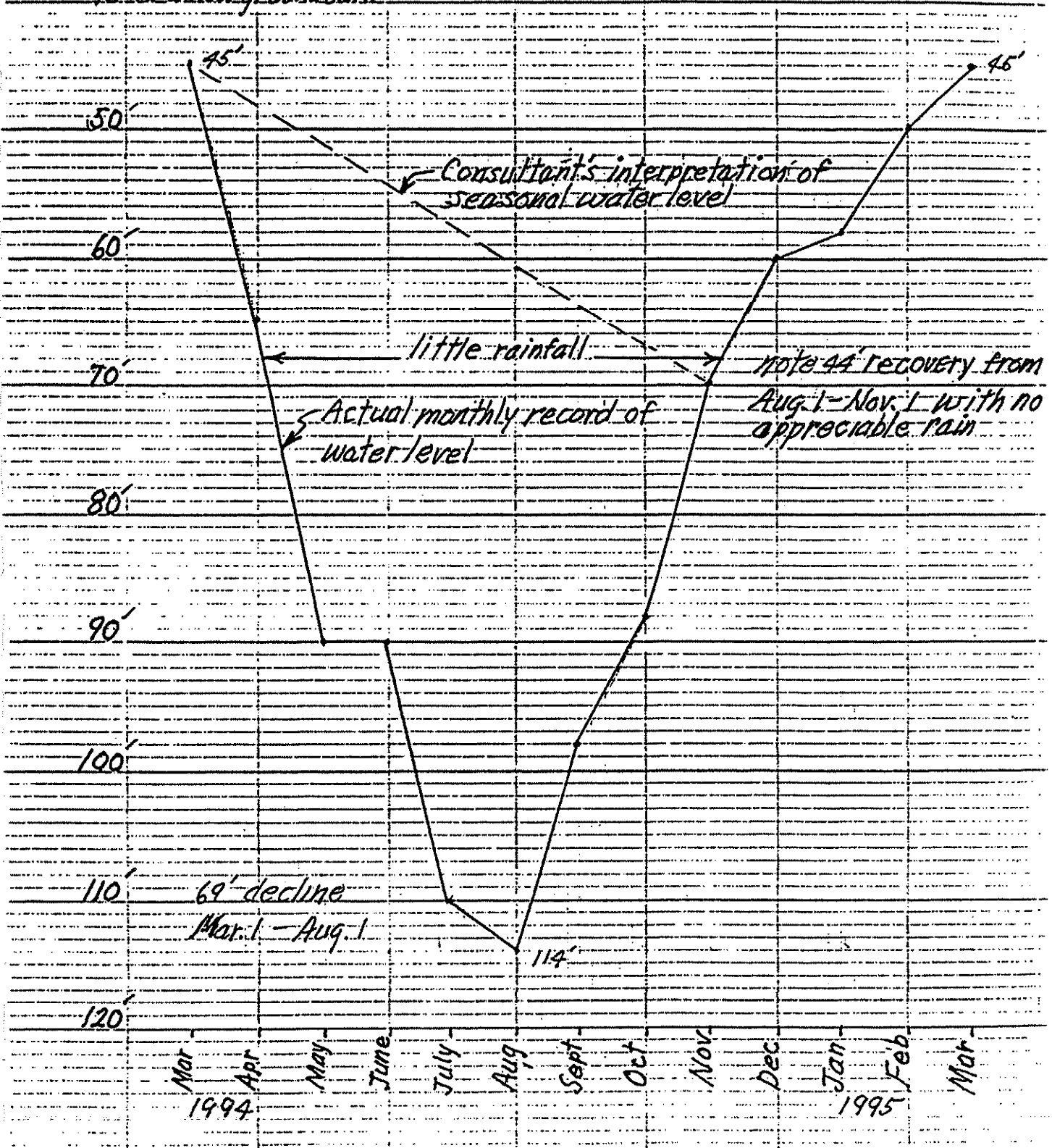
4.4-38

STATIC WATER LEVEL WELL #1 1994-95

CITY OF WOODLAND

5th St. & Lincoln Ave.

40 ft. below ground surf.



591

52

4.4 - 41

Table 13. Odors, tastes, and tongue sensations associated with algae in water

Algal genus	Odor when algae are-		Taste	Tongue sensation
	Moderate	Abundant		
Actinastrum		Grassy, musty		
Anabaena	Grassy, nasturtium.	Septic.		
Anabaenopsis.	musty.	Grassy.		
Anacystis	Grassy,	Septic.	Sweet...	
Aphanizomenon	Grassy, nasturtium.	Septic.	Sweet...	Dry.
	musty.			
Asterionella	Geranium. spicy.	Fishy.		
Ceratium	Fishy.	Septic.	Bitter.	
Chara	Skunk. garlic.	Spoiled, garlic.		
Chlamydomonas	Musty, grassy.	Fishy, septic.	Sweet...	Slick.
Chlorella		Musty.		
Chryso-sphaerella		Fishy.		
Cladophora		septic.		
(Clathrocystis)				
Closterium		Grassy		
(Coelosphaerium)				
Cosmarium		Grassy.		
Cryptomonas	Violet.	Violet.	Sweet...	
Cyclotella	Geranium.	Fishy.		
Cylindrospermum	Grassy.	Septic		
Diatoma		Aromatic.		
Dictyosphaerium	Grassy, nasturtium.	Fishy.		
Oinobryon	Violet.	Fishy.		Slick.
Eudorina		Fishy.		
Euglena		Fishy.	Sweet...	
Fragilaria	Geranium.	Musty.		
Glenodinium		Fishy.		Slick.
(Gloeocapsa)				
Gloeocystis		Septic.		
Goetrichia		Grassy.		
Gomphosphaeria	Grassy.	Grassy.	Sweet...	
Gonium		Fishy.		
Hydrodictyon		Septic.		
Mallomonas	Violet.	Fishy.		
Melosira	Geranium.	Musty		Slick.
Meridian		Spicy.		
(Microcystis)				
Nitella	Grassy.	Grassy. septic.	Bitter...	
Nostoc	Musty.	Septic.		
Oscillatoria	Grassy.	Musty. spicy.		
Pandorfina		Fishy.		
Pediastrum		Grassy.		
Peridinium	Cucumber.	Fishy.		
Pleurosigma		Fishy.		
Rivularia	Grassy.	Musty.		
Scenedesmus		Grassy.		
Spirogyra		Grassy.		
Staurastrum		Grassy.		
Stephanodiscus	Geranium.	Fishy.		Slick.
Synedra	Grassy.	Musty.		Slick.
Synura	Cucumber. muskmelon.	Fishy.	Bitter.	Dry.
	spicy.			metallic, stick.
Tabellaria	Geranium.	Fishy.		
Tribonema		Fishy.		
(Uroglena)				
Uroglenopsis	Cucumber.	Fishy.		Slick
Ulothrix		Grassy		
Volvox	Fishy.	Fishy.		

Copied from: "The Practice of Water Pollution Biology" published by Federal Water Pollution control Administration (EPA) 1969

53

LETTER 13: ENVIRONMENTAL ISSUES COMMITTEE, WESTERN YOLO GRANGE #423; CACHE CREEK COALITION; NATURAL RESOURCES COMMITTEE, LEAGUE OF WOMEN VOTERS, WOODLAND; AND FRIENDS OF CACHE CREEK

Response to Comments 13-1:

The comment is general in nature, and more specific comments on the topic follow. Please refer to responses to Comments 13-85, 13-86, 13-91, 13-99, 13-100 and 13-107. The record does not support the commentor's opinions regarding the adequacy of the EIR. The EIR meets both the spirit and intent of CEQA and the staff will recommend to the Board of Supervisors that it be certified as fully meeting those obligations.

Response to Comment 13-2:

The commentor's remarks regarding the release of the referenced document is noted for the record. The referenced document presents the results of a detailed investigation of the levels of mercury in water, sediment, and biota in the open-water bodies in formerly mined areas of the Solano Concrete Company property and is presented as Appendix C of this document. The study was prepared as required in Mitigation Measure 4.4-3b of the DEIR. Although the document was dated May 2, 1996, the final study was not provided to County staff until May 9, 1996, and was immediately provided to all interested members of the public (including the commentor) and the preparers of the EIR.

The commentor is correct in indicating that the study identified the presence of mercury in fish at significant levels. However, comparison of the results to levels of mercury found in fish from Cache Creek show the levels of mercury in fish from the formerly mined areas to be similar to those identified in fish from lower Cache Creek in October 1995. The presence of mercury throughout the aquatic environment of the region, including the creek and the lakes in mining areas, support the conclusion that the condition is systemic.

The development of thermostratification is possible in the lakes investigated in the study. The oxygen levels measured in the lakes suggest an oxygenated environment throughout the water column. However, the lakes are not within active mining areas, as suggested by the commentor; the most recent mining at the lakes studied occurred in October 1995. Significant thermostratification during summer months could result in low oxygen levels in the lower portions of the lakes. A low-oxygen environment could promote the development of anaerobic bacteria which are capable of converting mercury to methyl mercury.

The maximum number of pits that would be open at one time would be 27, and that would be in the year 2008, when roughly half of the 54 total proposed pits would be in various stages of mining and reclamation. The average number of pits that would be open at any one time between 1997 and the year 2032 would be 16. Eleven pits are proposed to remain open lakes following reclamation.

Response to Comment 13-3:

Staff has not expanded the study area boundaries. The study area boundaries shown on Figure 3.2-2 in the DEIR are consistent with the policies of the State Board of Mining and Geology. Discussion with John Parrish, Executive Officer of the SMGB, indicated that lead agencies are required to develop policies and measures for all areas classified by the State, including the MR2-1, MR2-2, and MR2-3 zones. These acreages have been clarified over time and were based on early approximations, and then recalculated using the County's Geographic Information System (GIS). Mining would largely occur within the MR-2 zone and pursuant to Mitigation Measure 4.2-10a on page 4.2-49 of the DEIR. would only occur on the 2,887 acres shown on Figure 3.4-3 on page 3-24 of the DEIR.

Response to Comment 13-4:

Since a formal groundwater recharge program has not been established by the Yolo County Flood Control District, the DEIR specifically discusses consideration of the existing pit lakes at groundwater recharge features in the discussion under Impact 4.2-5, page 4.2-5 of the DEIR. As a result, a number of measures regarding groundwater recharge were recommended for implementation as discussed in the DEIR. Comment 3-48.

Response to Comment 13-5:

Please refer to Response to Comment 11-2.

Response to Comment 13-6:

The EIR does not make the assumption that there will never be new operators in the OCMP study area. The EIR defined a reasonably foreseeable analysis under CEQA, which included five mining and reclamation applications, and the existing Schwarzgruber operation, as described on page 3-21 of the EIR. As discussed, notices were sent to all property owners within the study area for acceptance of applications for off-channel surface mining consistent with the OCMP. In addition, prior to the planning process, other operators were contacted to solicit interest, including Central Valley Rock and Sand and Gravel Association, and the Aggregate Producers Association. The potential for additional mining above that which is currently known is discussed under Impact 4.2-10 beginning on page 4.2-47 of the EIR. Should additional mining be proposed, it would require a General Plan Amendment, rezoning, a mining permit and reclamation plan, and appropriate project-level environmental review. The process whereby mining could occur on proposed SGR-zoned property is provided on page 4.2-19 of the DEIR.

Response to Comment 13-7:

The comments do not address issues relevant to the CEQA analysis. It is noted for the record and will be considered by the decision makers in their deliberations.

Response to Comment 13-8:

The commentor makes reference to unspecified studies of mercury in the environment being conducted in the Cache Creek basin. The commentor's mention of "site specific research" by UCD is assumed to refer to the study conducted by Drs. **Darell Slotton** and John Rueter which investigates the levels of mercury in water, sediment, and biota at two lakes within formerly mined areas at the **Solano Concrete Company, Inc.** property northeast of Madison, California. A report of the completed study is presented in Appendix C of this document. Staff would like to point out that the study was conducted by the County in response to the requirements of Mitigation Measure 4.4-3a of the DEIR. The results of the study provide data necessary to make determinations required in Mitigation Measure 4.4-3a regarding the appropriateness of permitting reclamation of wet pit mining areas to permanent lakes. The mitigation measure presented in the **DEIR** specifically addressed recommended actions that were to be based on the results of the study of mercury levels in an existing mining pit lake prior to the permitting of reclamation of mined areas to permanent lakes as proposed under the OCMP.

Response to Comment 13-9:

The preparers of the DEIR agree that turbidity of the water will be increased during mining activities, and that some sediment fines will settle on the pit bottom during mining. However, a thick accumulation of fines is not likely to occur. Because mining proceeds, and the pit is deepened, the fines that **settled** out as a result of previous mining would be excavated or remobilized into the water. In addition, the steep slopes of the pit below groundwater will discourage the accumulation of fine sediment along the sides. With regard to the statement that "gravel that is extracted from below water level will be thoroughly washed," this is not supported by the fact that the aggregate requires washing at the processing plants, where 10 to 15 percent of the total volume of aggregate typically consists of waste fines. The commentor's last sentence is very disturbing. The County staff and the team of consultants have gone to great lengths to issue a fair and objective analysis of all potential impacts. The commentor's impressions are unfortunate and untrue.

Response to Comment 13-10:

The control of erosion on excavated slopes while mining is occurring is already covered under existing state regulations and was not elaborated upon in the EIR. Besides the Mine Safety Orders referred to in **Response** to Comment 6-16, the State Mining and **Geology Board Reclamation** regulations, **Section 3706.(d)** requires the provision of **erosion control measures** during surface mining activities to protect land and water resources.

Response to Comment 13-11:

Please refer to the Response to Comment 13-76.

Response to Comment 13-12:

Please refer to the Response to Comment 13-76. The commentor's recommendations are a part of the record and will be considered by the decision makers.

Response to Comment 13-13:

Although the commentor provides references for Woodland and Davis, no meteorological data specific to Hungry Hollow is referenced. Estimates of evaporation were based on the best available information. For further discussion, please refer to Response to Comment 13-138.

Response to Comment 13-14:

Please refer to Response to Comment 13-100.

Response to Comment 13-15:

With regard to mitigation of eutrophication, please refer to Response 13-110. With regard to the qualifications and credentials of the preparers of the technical studies and the DEIR, please refer to Response 13-176.

Response to Comment 13-16:

The EIR preparers have verified that all maps showing the study area boundary in the EIR are accurate and have been transferred electronically directly from the County's Geographic Information System (GIS) maps. The fact that the study area boundary cuts across parcels, property lines, or public roads is irrelevant. As discussed in the Response to Comment 3-13, the County is required to develop policies and measures for all classified lands, regardless of their relationships to parcel lines or public roads. No zoning changes are proposed except for proposed mining changes. These boundaries are provided in the individual mining applications.

Response to Comment 13-17:

The information to which the commentor refers was prepared by **Luhdorff** and Scalmanini in concert with Todd Engineering (the County's consultant from the Technical Studies). Todd Engineering has not performed any work for local gravel mining companies, nor are they working on any of the pending applications. Under CEQA, the lead agency may require or request any person, including the applicant, to supply information to assist in the preparation of an EIR. The County in this case accepted the data included in Appendix

7.4, and subjected the report to a separate review and analysis by the EIR preparers. The DEIR reflects the independent judgement of the County, who is solely responsible for the DEIR's adequacy and objectivity. Where appropriate, the information provided in Appendix 7.4 was included in the DEIR. The commentor's concerns are noted and have been passed to County Counsel. The test is the adequacy of the data and not who prepared it.

Response to Comment 13-18:

As the commentor correctly notes, pesticide testing is known to have occurred on one parcel within the OCMP planning area. The 113-acre sampled parcel, on lands owned by Solano Concrete, has had historic crop rotations similar to other parcels in the OCMP area. Other activities that the commentor suggests occurred randomly in the planning area could have occurred on the Solano Concrete parcel as well as any other parcels in the planning area. It is the opinion of the DEIR preparers that the randomly collected samples from the Solano Concrete parcel do in fact constitute representative samples of the planning area. The analytical results indicated that the only pesticide/herbicide identified above the level of detection was DDE, a derivative of DDT. These insecticides do not contain arsenic. Additionally, arsenic has consistently not been found in groundwater samples collected from Solano Concrete, Cache Creek Aggregates, and Teichert (Esparto and Woodland). The absence of arsenic in the groundwater samples suggests that soluble arsenic is not present in the soils. According to information obtained from the California Department of Pesticide Registration (Mr. Dwane Schnabel), inorganic insecticides, including arsenic-based, were used in agriculture in the 1930s and 1940s; the food crops on which the insecticides were used could have included tomatoes; there are no records available identifying the crops on which specific insecticides were used during that period. The data from the 1930s and 1940s only provide information on the companies manufacturing products and the quality of the products manufactured; the records do not include information on how much arsenic-based pesticides were sold and what crop they were used on. The State is currently surveying about 6,000 drinking water wells in the State to determine potential effects of organic and inorganic pesticides; generally, the surveyed wells do not include DDT, DDE, chlordane or inorganics, such as arsenic-based insecticides used in the 1930s and 1940s were illegally dumped, used illegally, or an area had a high background concentration of arsenic, it would not be expected that there would be residual levels of arsenic in soil and groundwater in areas where these products may have been used in the 1930s and 1940s. No changes to the DEIR have been made in response to this comment.

The commentor is also referred to Mitigation Measure 4.4-3a on page 4.4-50 of the OCMP DEIR, which requires further testing of agricultural soils for pesticides before they are placed within the drainage area of a wet pit.

Response to Comment 13-19:

Staff disagrees that this is a misleading or uninformed statement. Although the site is presently being used by the County as a transfer station, discussions with Public Works staff indicate that this site was previously used as a landfill. The materials dumped on the site were never removed and continue to underlie the transfer station. Moreover, the transfer station is not part of the project, although rezoning for future mining is **proposed** on adjoining land. The commentor's opinion of staffs knowledge of the area is noted for the record.

Response to Comment 13-20:

The Bibliography in Chapter 62 indicates that over three fourths of the references cited date from 1985 onward (including historical records used for the Cultural Resources section). Data is useful, regardless of its date of publication, if it still has relevance. The EIR is based on information that has been supported by data that has been substantiated over the years. Section 15149 of the CEQA Guidelines states that an EIR is not a technical document that can be prepared only by a registered professional, although registered professionals were involved in the preparation of the OCMP DEIR. It is not required to be signed under CEQA. In its intended usage, an EIR serves as a public disclosure document explaining the effects of the proposed project on the environment, alternatives to the project, and ways to minimize adverse effects.

Response to Comment 13-21:

There is no requirement under CEQA that an EIR needs to be officially endorsed by any particular County agency or department. OCMP and the **DEIR** are the County's documents and have involved the participation of all its agencies. The County's Environmental Health Officer has been included in every step of the analysis leading up to preparation of the document. His comments on the EIR appear in Letters 19 and 20.

Response to Comment 13-22:

The County staff appreciate the commentor's concerns about the number of documents being circulated which is why many extra meetings and hearings have been held, and late comments on both program level **DEIRs** were accepted. The review times all **conform** with the state 45-day requirement which the legislature has established by definition, as providing an adequate and reasonable period for all reviewers. The documents were also specifically formatted to facilitate public review. All of the **EIRs** follow the same format, issues are discussed in the same order, and the project level documents reprint the impact summary tables from both the OCMP and CCRMP **DEIRs**. The staff disagrees strongly with the commentor that citizens have ben "deprived of the opportunity to carefully read and respond" to the documents.

The commentor also indicates an inability to "seek professional opinions" due to the schedule. This is in fact one of the main purposes of the **EIRs**—to provide an objective, fact-based analysis for the public, local officials, and state agencies to consider.

The comment regarding "opening up the potable aquifers" is misleading. The aquifer is in fact "open" in many places throughout the County, including the creek itself, the **Solano** operations where wet pit mining has occurred since 1980. Contrary to the comment the mitigation measures in the **DEIR** were identified only after considerable thought and analysis and are offered for minimizing or eliminate risk associated with the project, to an acceptable level. Over 20 years and \$5.0 million dollars have been spent analyzing the issues addressed in the EIR.

Also contrary to the comment, the jurisdictions of **Sonoma** and Alameda Counties are examples of areas with programs for conjunctive use of deep wet pits, similar to the proposals before the County.

The mitigation measures recommended conditions of approval in the EIR allow for the opportunity to "turn **back**" if information is found later to be in error and modifications to approvals are merited.

Response to Comment **13-23**:

The Technical Studies specifically analyzed the reach of the creek between the Capay Dam and the town of **Yolo**. The MRZ area, as plotted from the County's **GIS** system extends further west than the Capay Dam and stops short of 1-5 on the east. These are not inconsistencies so much as they are simply differences. What is relevant is where mining is proposed and may ultimately be approved. No mining is proposed west of CR 85 or east of CR 96.

Response to Comment **13-24**:

Figure 3.2-4 refers to the CCRMP boundary, which is included within the OCMP planning area shown in Figures 3.3-2 and 3.2-3. Figure 3.3-1 refers to the historical extent of Cache Creek, as discussed in the 1995 Technical Studies. It should not be expected that this boundary would necessarily coincide with the OCMP planning area. For further discussions of the MR2 zones, the commentor is referred to Response to Comment 13-3.

Response to Comment **13-25**:

Goal 2.2-1 seems appropriately worded, and responsive to the commentor's concern without modification. No change is recommended.

Response to Comment **13-26**:

The acronym is ~~used~~ in the OCMP and was therefore carried over to this ~~document~~. In response to the comment, the Text Change # 4 has been noted.

Response to Comment **13-27**:

The commentor is referred to Response to Comment 3-32. Objective 3.3-1 is an objective of the OCMP and not the EIR. The impacts of implementing this objective are discussed in Impact 4.4-1, beginning on page 4.4-23 of the OCMP DEIR.

Response to Comment **13-28**:

The Director of the **Yolo** County Community Development Agency is currently the designated Floodplain Administrator and is responsible for ensuring that land use activities do not significantly increase flood levels in surrounding areas. Although the Corps is studying flooding problems, that agency is under no mandate to reduce flooding on Cache Creek.

Response to Comment **13-29**:

While it is true that sloped areas are irreversibly lost after reclamation it does not mean that farmland preservation is incompatible with mining. The grassland habitat proposed for the slopes would be similar to unseen areas of agricultural operations such as field-margin habitat. Agricultural land has not endured for thousands of years in **Yolo** County, but rather this use displaced the original wildlife habitat that preceded it roughly 150 years ago. The comment does not acknowledge beneficial uses that would occur after mining ceases including habitat and recreation. Mining would only partially displace agricultural production, the economic implications of which raise policy issues and questions of balance between the two land uses. The economic analysis under preparation by the County will address non-CEQA considerations, such as comparative revenues from mining and agriculture.

Response to Comment **13-30**:

The planning area is defined by the **Yolo** County Mineral Resource Zone Area, which ends just west of the Town of **Yolo**. At no time has the area been proposed to extend further east to the settling basin. As described on page 3-1 of the DEIR, the in-channel area of the Cache Creek corridor is addressed in the companion CCRMP. A detailed description of the various subreaches of the Cache Creek corridor is provided in the Biological Resources section of the **DEIR** on the CCRMP, and the commentor is referred to this document for additional information on the conditions of Cache Creek. The commentor is correct that restoration of Cache Creek between **Yolo** and the settling basin would contribute to the continuity and overall value of the corridor, but this **subreach** is outside the planning area.

Response to Comment 13-31:

The planning area, as shown in Figures 3.2-2 and 3.2-3 is correct. No modification or correction is necessary.

Response to Comment 13-32:

Staff acknowledges the commentor's opinion. The 10-year review period was considered by staff to be an appropriate length of time in which to allow discernible trends to develop, so that County policies and regulations would be based on statistically valid data. Meanwhile the monitoring program would allow the County to respond to short-term concerns. The 10-year review period does not prevent the County from amending the OCMP whenever the necessity arises. The EIR preparers are not aware of any contamination source missed in the DEIR. The Technical Studies were prepared by a highly qualified team selected by a County review panel that included one of the commentors. The qualifications of the EIR preparers is discussed in Response to Comment 3-176.

Response to Comment 13-33:

The paragraph outlines actions described in the OCMP. The impacts of implementing these actions are discussed in Chapter 4.4 Hydrology and Water Quality. The commentor is also referred to Response to Comment 134. The economic implications of implementing these actions is not a CEQA issue.

Response to Comment 13-34:

The commentor is confusing the OCMP with the EIR. The recommended actions are contained in the OCMP and not the EIR. Chapter 3.0 provides a summary of the OCMP, which is why it is entitled "Project Description." The impacts of implementing the OCMP are evaluated in the EIR. The DEIR will not include any economic assessment since this is not a CEQA issue. An economic analysis will be provided in the staff report, however.

Response to Comment 13-35:

The DEIR addresses the potential for impact, including hydrologic impacts, from implementation of the proposed OCMP. The projected water losses associated with the reclaimed uses at maturity and water quality are addressed in Impacts 4.4-1, 4.4-2 and 4.4-3. In no place do the OCMP or OCMP DEIR recommend or even suggest a "squandering" of the aquifer. It is understood that the aquifer is indeed in overdraft in some areas due to agricultural demands. Consumption of water from restored native habitat is considered by the staff to be a beneficial use, as **opposed** to a "sacrifice." The commentor is correct in implying that the appropriate balance between agricultural uses, aggregate mining, and habitat restoration deserves careful consideration by the **County**. The commentor's concern regarding impacts of change in **groundwater** level are addressed in **Mitigation**

Measure 4.4-1a (Performance Standard 3.5-17). Change in groundwater levels of less than two feet would not result in a significant increase in pumping costs.

Response to Comment 13-36:

The issue to which the commentor refers is addressed and fully mitigated in Impact 4.4-1 of the OCMP DEIR.

Response to Comment 13-37:

The potential for pit capture to occur is addressed in Impact 4.3-3 and further clarified in Response to Comment 6-20.

Response to Comment 13-38:

As discussed in the Response to Comment 13-28, although the Corps is studying flooding problems, the agency is not responsible for flood control along Cache Creek.

Response to Comment 13-39:

Please refer to Response to Comment 11-2.

Response to Comment 13-40:

Staff assumed that the shallow and deep mining areas would be required to provide a similar supply of aggregate resources. For demonstration purposes the following comparison is made for mining of a site having an area of **100** acres, a square shape, **2:1** excavated sideslopes, an overburden thickness of 10 feet, and an average groundwater level of 25 feet below the ground surface. If the site were mined to a depth of 50 feet, the amount of aggregate would be approximately 5.5 million cubic yards. If the site were mined to 30 feet and reclaimed to five feet above the groundwater level, approximately 2.9 million cubic yards would be excavated. The area of the shallow square-shaped mining area would have to be approximately 200 acres to provide an equivalent amount of aggregate to that produced from the deeper mining scenario assumed to occur on 100 acres. While the entire 100 acres would be lost to agriculture, only about 15 acres of the shallow mining areas would be taken out of agricultural production (consisting of sideslopes). Thus, although deep pit mining minimizes the amount of farmland disturbed, it results in a greater loss of agricultural lands.

Response to Comment 13-41:

The commentor is referred to Response to Comment **13-3**. There is no new boundary and mining would only occur within the areas shown on Figure 3.2-2. It is important to note that the Technical Studies do not constitute a CEQA impact analysis. The impacts of water

quality impairment including potential impacts on municipal wells are discussed in Chapter 4.4 Hydrology and Water Quality of the DEIR.

Response to Comment 1342:

The commentor is referred to Response to Comment 13-23. There should be no confusion between the "study area" or the "planning area." The terms are used interchangeably.

Response to Comment 1343:

The commentor is confusing the OCMP with the EIR. Chapter 3.0 contains a summary of the recommendations contained within the OCMP, which are the subject of the analysis provided in the DEIR. Action 2 is a paraphrasing of Performance Standard 6.5-7, which was modified in the DEIR to limit referrals of proposed habitat restoration plans to agencies of jurisdiction, so that a consistent regulatory approach would be assured. For further discussions of vertical slopes and bank swallow habitat, please see Text Change # 17. The removal of fence row habitat and similar adjoining vegetated zones adjoining farmland without mitigation would be contrary to Department of Fish and Game requirements and the policies of the RCD.

Response to Comment 13-44:

The OCMP anticipated the possibility of boating on the reclaimed lakes and not within the stream channel. This activity would be further evaluated as part of future recreation planning. "Upstream" in this particular context generally refers to reclaimed areas west of Interstate 505 and "downstream" generally refers to reclaimed areas east of I-505.

Response to Comment 1345:

All landowners within the Yolo County MRZ Area were notified based on property ownership provided by a title company for the area shown on Figure 3.2-3 of the DEIR.

Response to Comment 1346:

The commentor is referred to Response to Comment 13-6.

Response to Comment 1347:

Table 3-1 is included in the project description to provide an understanding of the effects of the OCMP. The impacts due to water losses from evapotranspiration by the 771 acres of wet pits are adequately described in Impact 4.4-4 beginning on page 4.4-52 of the DEIR. Economic benefits are not CEQA issues and are not discussed.

Response to Comment 13-48:

The planning area boundaries are consistent between both figures. The denotation for Madison appears to be slightly different in the two figures. Modification is not warranted.

Response to Comment 1349:

Please refer to the Response to Comment 13-3. The DEIR clearly identifies MRZ acreage by zone on page 3-5. The DEIR clearly identifies acreage of land to be mined and reclamation to various uses by acreage as well on pages 3-22 and 3-23. The EIR team, which the staff views as very qualified and very experienced, was chosen by a selection panel that included one of the commentors.

Response to Comment 13-50:

The commentor is referred to Response to Comments 13-3 and 13-23. In response to the second point in the comment, Text Change # 7 is recommended.

Response to Comment 13-51:

Staff does not agree with the commentor's opinion that the discussion of the Regional Water Quality Control Board's (RWQCB) Basin Plan is out-of-date. The commentor is referred to pages 4.4-10 and 4.4-11 for additional discussion of the "Impaired Waterway" status of Cache Creek. The current investigation of mercury levels in Cache Creek being conducted by RWQCB is also discussed on 4.445. Although these investigations are being conducted to better understand the significance of mercury within the waterway, the RWQCB has not required or requested any sampling of mercury in sediments at active in-channel mining operations or has it been a requirement of past off-channel wet pit mining. As a responsible agency in the CEQA process, the RWQCB has not requested investigation of the levels of mercury in areas proposed for mining under the OCMP. As discussed on page 4.4-45 of the DEIR, the preparers of the EIR agree with the comment's suggestion that the alluvial sediments in the proposed off-channel mining areas would likely contain mercury. However, water quality data does not indicate that the levels of mercury in the sediments are currently adversely affecting groundwater **quality** (see pages 4.4-45 and 4.4-46) in the off-channel areas. The DEIR has addressed the **potential** for mercury accumulation in proposed mining pits by requiring testing of mercury levels in water, sediment, and biota in an existing mining pit lake (see Mitigation Measure 4.4-3a).

The **commentor's** conclusion that the EIR cannot be completed until the investigation of mercury in Cache Creek is completed is not shared by staff. Investigation of mercury in the environment of Clear Lake and the Cache Creek watershed has been on-going for many years and will likely continue for many more. The DEIR requires continued evaluation of mercury in surface and groundwater in the areas of proposed mining. In addition, the DEIR requires testing of fish for methylmercury. These data would supplement the investigations conducted by other agencies. The results of the monitoring

would provide triggers for corrective actions that would reduce the potential for development of adverse conditions. Staff does not agree with the commentor's assertion that the evaluations of mercury required by Mitigation Measure 4.4-3a are "very limited." The mitigation measure sets performance standards and requires corrective action if those standards are exceeded. The DEIR requires that the evaluation of the existing lake(s) are completed prior to permitting of wet pit mining, as suggested in the comment.

As indicated above, the evaluations of mercury in the Cache Creek system are expected to be on-going for many years and are likely to focus on the evaluation of water quality in the surface water system. However, the mitigation measures presented in the DEIR direct specific attention to the potential impacts of off-channel mining on surface water and groundwater. These specific mitigation measures present an appropriate and complete approach to controlling and monitoring the impacts of mercury on human and environmental health. The mitigation measure will provide supplemental data throughout the mining and reclamation periods and requires corrective action for adverse conditions, including termination of mining. The final statement in the comment regarding "potential errors in judgement" and "cumulative injury to a large number of people" is made without regard to the data, analysis, and mitigation measures presented in the EIR. Staff and the EIR preparers strongly disagree with this position.

Response to Comment 13-52:

Please refer to the Response to Comment 13-3 for further discussions of the planning area boundaries. The Esparto General Plan has not yet been adopted, although it is expected to be considered later this year. Potential conflicts between the draft Esparto General Plan and proposed mining operations will be evaluated in the project-level EIRs.

Response to Comment 13-53:

Please refer to the Response to Comments 13-52 and 13-3. Staff have met with representatives of the City of Woodland on several occasions to discuss planning area boundaries.

Response to Comment 13-54:

The impacts due to water losses from evapotranspiration are discussed in Impact 4.4-4 beginning on page 4.4-52 of the DEIR, under the section on hydrology. The standards of significance referred to by the commentor relate to land use planning, not water resources. It should also be noted that all lands within the streamway influence boundaries were wetlands historically. The staff does not agree that the use of water to support restoration of native vegetation and the creation of habitat is a "sacrifice." Such use is considered beneficial and appropriate.

Response to Comment 13-55:

An alternative which would limit gravel extraction to PCC uses only would not address any CEQA issues. Several alternatives which are analyzed in the DEIR, including the Shallow Mining Alternative (Alternative 4) would substantially limit gravel extraction compared to the OCMP. The commentor assumes that all of the aggregate evaluated in the Department of Conservation classification study is of PCC grade. As noted in the study, "Rarely, even from the highest-grade deposits is in-place aggregate raw material physically or chemically suited for ever type of aggregate use. The use of lesser grades of aggregate for non-PCC purposes is appropriate."

Response to Comment 13-56:

The issue of subsidence in the region of the project site is described in the description of the geologic setting on page 4.3-3 of the DEIR. The OCMP policies, objectives, actions, and performance standards would not, in the opinion of the preparers of the EIR, contribute significantly to regional subsidence identified in the area. The causes of regional subsidence are generally attributed to removal of subsurface fluids, including groundwater, oil, and natural gas in quantities that result in significant depletion of these fluids and subsequent collapse of the sediment within the subsurface reservoirs of those fluids. The processing of aggregate resulting from mining considered under the OCMP would result in pumping and use of groundwater. However, most of the water used in processing would be returned to the aquifer through discharge to mining pits or settling basins. The commentor's conclusion that operation of mining equipment would contribute to subsidence is not shared by the preparers of the EIR. The mining equipment would be operated above the seasonally fluctuating groundwater level. The sediments affected by vibration of the equipment (or by agricultural equipment) have experienced seasonal dewatering prior to mining and have, therefore, been subject to conditions which cause regional subsidence.

The potential for conditions promoting subsidence in the near surface at proposed mining areas is remote. Continued regional subsidence, caused by overdrafting of the regional aquifer could continue or be increased in the future. The potential for subsidence that could significantly affect 100-year flood protection is mitigated through the requirement of three feet of freeboard above the 100-year flood elevation.

Response to Comment 13-57:

Review of the geologic and engineering data referenced in the comment and preparation of the Geology and Soils section of the DEIR was performed by a California Registered Geologist and Certified Engineering Geologist.

Response to Comment 13-58:

The standards of significance referred to by the commentor relate to geological impacts, not water resources. Please refer to the Hydrology and Water Quality section of the DEIR for discussion of evaporation and Responses to Comments 13-13 and 13-54.

Response to Comment 13-59:

The EIR does not recommend the construction of vertical slopes as suggested in the comment. The commentor is referred to Mitigation Measure 4.3-2a which requires static and pseudo-static slope stability analysis for proposed reclaimed slopes. Please also see Text Change # 17, which provides specific requirements for proposed bank swallow habitat.

Response to Comment 13-60:

The commentor is correct in recognizing that liquefaction could result in damage to wells. However, neither the OCMP nor the DEIR promote the construction of wells in sediments that are susceptible to liquefaction. The decision to construct wells within the OCMP planning area is the responsibility of individual landowners.

The commentor is referred to the discussion of slope stability in Impact 4.3-2 and the requirements of Mitigation Measure **4.3-2a** for recognition of required static and **pseudo-static** (seismic) conditions in slope stability evaluations.

Staff disagrees with the final conclusion of the comment which suggests that the impacts discussion of liquefaction is incomplete. The potential impacts related to liquefaction, including slope failure and seismically induced settlement are fully identified and discussed in the DEIR under Impacts **4.3-1** and **4.3-2**.

Response to Comment 13-61:

The preparers of the EIR agree with the commentor's suggestion that the level surveying required by Performance Standard 5.5-3 should be clarified to require that surveying of reclaimed lands should be performed by a licensed professional. The standards of practice or surveying are set by the profession and all **surveying** should be conducted in compliance with standards for agricultural grading. Text Change #15 has been added in response to the comment. Existing and reclaimed elevations for individual proposed mining operations will be discussed in the project-level **EIRs**.

Response to Comment 13-62:

Geotechnical reports are submitted for many types of projects requiring building permits. The permits are issued in compliance with established procedures and would require compliance with findings of the Geotechnical Report and all applicable regulations of the

Universal Building Code. The issuance of building permits for any project within the OCMP planning boundaries would be governed by these same procedures. Please refer to Text Change # 16.

Response to Comment 13-63:

The preparers of the EIR agree with the suggestion made in the comment regarding inspection of reclaimed lands following strong regional groundshaking. Text Change # 9B has been added to address the comment.

The performance standard requires that repair of damage would be the responsibility of the landowner. Contingency funding is not specified. The expected type of ground failure associated with liquefaction would be minor settlement which could be corrected by re-leveling, a common agricultural practice or grading to correct potential erosion associated with slumping of the shoreline of lakes. The potential for large slope failure, including on separator slopes, is adequately mitigated by OCMP requirements for pseudo-static analysis for each long-term mining permit application.

Response to Comment 13-64:

Please refer to Response to Comment 3-56.

Response to Comment 13-65:

In the discussion of erosion (page 4.3-25), the DEIR acknowledges that sediment generated by erosion could adversely affect water quality by raising turbidity. The effects of turbidity include the supply of nutrients as mentioned by the commentor. The potential impacts on water quality related to the mining operations proposed under the OCMP, including eutrophication and methylation of mercury are described in Impacts 4.4-2 and 4.4-3 of the DEIR. Accumulation of sediment is expected for all closed water bodies and is generally important in the development of the substrate for benthic communities. The amount of sediment delivered to the water bodies within mining areas would be reduced through the application of erosion control measures presented in Performance Standard 2.5-21 of Mitigation Measure 4.3-2a. The amount of sediment is also reduced by the OCMP requirements to divert surface water away from the pits. For further discussion of eutrophication, please see Response to Comment 13-110. Mercury impacts are discussed in Response to Comments 13-127 through 13-135.

Response to Comment 13-66:

The preparers of the DEIR agree that turbidity of the water will be increased during mining activities, and that some sediment fines will settle on the pit bottom during mining. However, a thick accumulation of fines is not likely to occur. As mining proceeds, and the pit is deepened, the fines that settle out as a result of previous mining would be excavated or remobilized into the water. The commentor does not provide adequate support for the

assertion that hydraulic dredges would cause more siltation of the pond sidewalls and bottom than the use of **dragline** cranes. Since dredges would use suction to draw sediments into a pipeline **leading** to the surface, the material would receive less flushing, relative to **dragline** operations; resulting in reduced mobilization of silts and clays in the wet pit.

Response to Comment 13-67:

As modified, Performance Standards 2.5-4 and 2.5-18 (starting on page 4.3-30 of the DEIR) address the need for additional specificity regarding groundwater level fluctuation. It is specified in these performance standards that the **2:1** slopes shall extend at least five feet below average summer low groundwater levels.

Response to Comment 13-68:

The commentor is correct in that Mitigation Measure 4.4-3a of the DEIR requires all overburden and processing fines to be used in reclamation. Please refer to Text Change **#66**.

Response to Comment 13-69:

In response to the comment, Text Change # 17 has been amended to the DEIR to address the responsibility for inspection of drainage facilities. The performance standard already presents the requirements for the documentation and frequency of inspection.

Response to Comment 13-70:

With regard to biological clogging and eutrophication, please refer to Responses 13-85 and 13-110. The control of erosion during mining activities is discussed in Response to Comment 3-11, while the turbidity of actively mined wet pits is addressed in Response to Comment 13-66. Although the EIR preparers agree that the bottom of a wet pit would likely seal due to biological clogging, steep side slopes would reduce the potential for sedimentation and clogging, and the natural aquifer flow would be unimpeded.

Response to Comment 13-71:

The staff did request consideration of the Division of Safety of Dams regulations to which the comment refers. This information was inadvertently omitted from the document. Please refer to Text Change # 14 and Response to Comment **11-2**. The use of off-channel wet pits for flood control is not proposed in the OCMP. Please see Response to Comment 11-2. Both staff and the EIR preparers have carefully considered the hazardous nature of mercury and its potential environmental effects, and have made their recommendations accordingly. Both the Army Corps of Engineers and the State Department of Water Resources have been provided opportunities to comment on the DEIR.

Response to Comment 13-72:

Please refer to Response 11-2.

Response to Comment 13-73:

The 100-year floodplain determination used in establishing the planning area boundary was completed by the U.S. Army Corps of Engineers in 1994 and included in the study (*Westside Tributary Study*) of "westside" tributaries to the Sacramento River. FEMA is in the process of updating the **FIRMs** for the entire study area. It is anticipated that these maps will be released in the next two to three years. Copies of the 100-year base flood calculations submitted with individual mining applications have been sent to FEMA for use in their update. The commentor is referred to Mitigation Measure 4.4-6a on page 4.4-62 of the DEIR, which describes the requirements for flood impacts on adjoining properties. This issue is also addressed in the County's Floodplain Development Ordinance.

Response to Comment 13-74:

The comment is not specific regarding the type of "actions" contemplated. If the commentor is indicating that the design and implementation of bank protection at a project site may affect adjacent lands, the potential impact of these actions would be reviewed under the Floodplain Development Permit process, and mitigated to a less-than-significant level through Mitigation Measure 4.4-6a.

Response to Comment 13-75:

The commentor is apparently referencing the estimated annual tonnage (210,000 tons per year) on the referenced page. The sentence (beginning on page 4.3-40) specifies that cited tonnage is sand and gravel only and does not include suspended fine-grained sediments. The commentor is referred to page 4.3-17 of the DEIR for a discussion of total sediment load and **bedload**.

Response to Comment 13-76:

Text Change # 19 is added to the EIR to acknowledge the commentor's point regarding other aggregate resources in the area. The second point made in the comment is that the DEIR assumes that Yolo County is obligated to supply a fixed percentage of the regional demand. Neither the OCMP nor the DEIR make such an assumption but use historic data to provide a reasonable basis for developing projected quantities of aggregate that may be produced in the Yolo County. The commentor is correct in suggesting that use of recycled and alternative material in aggregate products could result in a decreased demand for natural deposits of PCC-grade aggregate. However, as the commentor notes, these programs are in the early stages of development and it would be speculative to rely on such assumptions for future projections. Within the context of the impact of the

decreased availability of aggregate resources, the DEIR takes a conservative approach by assuming aggregate production in the region at historic rates.

The commentor's suggestion that the use of sand and gravel as backfill for mining areas is inappropriate is noted. The limited demand for these products influences an operator's decisions in the management of these materials. These materials are generated as the consequence of the production of PCC-grade products. The materials are available for use as products described by the commentor. According to the **Solano Concrete Company, Inc.** representative (Russo, 1996) the difference in the natural distribution of grain sizes in the Cache Creek sediments and the specific grain size distribution required for PCC results in a surplus of sand of certain grain sizes (generally fine) and pea gravel. The company markets the surplus sand as "fill sand" and "plaster sand." The company has recently incorporated a special crusher at their plant to produce more useful grain size material from excess pea gravel. The company also markets pea gravel as a substitute for drainage rock in landfills. The commercial use of these products cannot be realistically controlled by County policy.

The use of sand and gravel as backfill does not present significant environmental impacts. Therefore, the EIR does not identify this use as a significant impact. The commentor's opinion that the use of these materials would not significantly increase the "percolation capability" is understandable. If this function were being proposed by the County or recommended in the DEIR, additional analysis may be required. However, neither the OCMP nor the DEIR recommend such use of these materials; the use of the materials is the decision of the individual operators. Certainly, the placement of these materials does not preclude their future recovery and use.

The portions of the comment related to the performance of the aggregate industry in promoting innovative uses of its products and development and implementation of demonstration projects is noted for the record.

Response to Comment 13-77:

The commentor is referred to the discussion of eutrophication included on pages 4.4-40 through 4.4-42 of the DEIR, and Response to Comment 13-85.

Response to Comment 13-78:

Analysis of potential economic issues is not required under CEQA. The DEIR acknowledges that evaporative losses would occur at the wet pit lakes, but that these losses are acceptable (as a matter of Regional Water Quality Control Board policy) to support biological habitat diversity. An economic analysis of evapotranspiration water loss was not conducted since, as a matter of policy, no impact was identified. Although an economic analysis is not required, one is being prepared by the County, and will be presented to the Board of Supervisors upon its completion.

Response to Comment 13-79:

The commentor is referred to the discussion of infiltration of agricultural water included on pages 4.4-43 through 4.4-44 of the DEIR.

Response to Comment 13-80:

The commentor is referred to the discussion of eutrophication included on pages 4.4-40 through 4.4-42 of the DEIR, and Response to Comment 13-85.

Response to Comment 13-81:

The summary of climatic data presented on pages 4.4-1 and 4.4-2 was prepared based on Federal meteorological publications. The preparers of the DEIR believe that the summary provides adequate detail to support the subsequent hydrology and water quality analysis. The commentor does not cite site-specific records to support his statements, but relies on anecdotal evidence to draw his conclusions. The staff is recommending no change to the DEIR.

Response to Comment 13-82:

The discussion of surface water drainages presented on pages 4.4-3 through 4.4-5 was not intended to be a comprehensive discussion of all drainage features in the region. The purpose of the discussion was to summarize the primary drainage features in the vicinity to provide the reader with context. The staff is recommending no change to the DEIR.

Response to Comment 13-83:

In response to the comment, the Text Change # 29 has been added.

Response to Comment 13-84:

Please refer to Response to Comment 13-81. The DEIR acknowledges that evaporative losses would occur at the wet pit lakes. However, these losses are acceptable (and consistent with Regional Water Quality Control Board policy) to support biological habitat diversity.

Response to Comment 13-85:

The commentor is referred to the discussion of eutrophication included on pages 4.4-40 through 4.4-42 of the DEIR. Several mitigation measures (including physical site controls to keep surface water runoff and agricultural tailwaters out of the wet pits) and monitoring requirements have been incorporated into performance standards designed to minimize eutrophication. The water bodies mentioned in the comment have a much larger catchment area and no such controls. The monitoring program will include analysis of

surface and groundwater samples for phosphorous. The DEIR concludes that there is not a significant potential for eutrophication in the wet pits. Groundwater flowing through the wet pits will continue to be filtered as it move laterally through the gravel layer. Setbacks have been imposed to provide sufficient distance between wet pits and nearby wells to allow filtration to occur. The commentor does not provide any data to support the assertion that the project will result in degradation of drinking water quality below EPA standards. The dissatisfaction of the commentor with the performance of the water quality analysis is noted for the record.

Response to Comment 13-86:

The statement regarding lack of degradation of water quality over the past 20 to 40 years was based on a 1992 report prepared by **Luhdorff** and Scalmanini (Ground-Water Resources in the Vicinity of Cache Creek, **Yolo** County, California). The statement does not assert that all current drinking water standards-related testing has been conducted for the past 40 years, rather the tests that were performed (including EC, nitrate, TDS, and general mineral) did not show a clear trend toward degradation. Potential water quality impacts associated with the proposed project should be evaluated relative to the existing condition, as specified by CEQA. For this reason, the monitoring program required under Mitigation Measure **4.4-2a** specifies that baseline quality data must be collected prior to mining so that subsequent data can be compared to the pre-mining condition.

Response to Comment 13-87:

The table referred to by the commentor (Table 4.4-2 on page 4.4-15 of the DEIR) does include proposed mining areas over the next 30 years. Should mining be proposed in areas outside of the sites presently being evaluated, additional environmental analysis shall be performed. To presuppose where these may or may not occur is speculative and cannot be supported in an EIR.

Response to Comment 13-88:

The Technical Studies did not say that the rise in groundwater elevations were attributed to a change in the thalweg, merely that significant aquifer storage capacity had not been lost. Staff agrees with the commentor that the primary influence on groundwater levels is overdrafting. The general dissatisfaction of the commentor with the Technical Studies is noted for the record.

Response to Comment 13-89:

The section referred to in the SMARA regulation is intended to protect identified groundwater recharge areas from a significant reduction in infiltration capacity. The recharge capacity of wet or dry pit mining areas from direct precipitation will be enhanced from the proposed project. Essentially no runoff will leave the mining areas since they would be internally drained. Under the existing condition, approximately 2.5 inches of the

total precipitation runs off into surface water conveyances. The clogging of wet pit sidewalls and bottoms with silt may reduce the rate at which water in the pits pass into the groundwater system, but will not reduce the net recharge from precipitation.

Estimates by the Department of Conservation in the 1988 mineral classification study for Cache Creek ranged from 20 to 25% waste. This was a general approximation. Actual reported figures by the mining operations range from 7 to 17% waste. According to information provided by **Solano Concrete**, the waste factor for their operation is at the higher end of this range (17%). The higher percentage of fine-grained sediments may be a function of the position of the operation relative to the depositional zones of the Cache Creek channel. In general, deposition of coarser material is recurring further upstream. However, the relatively high waste factor for **Solano Concrete** may also be related to the fact that this off-channel mining operation is removing deeper, older deposits. With time, weathering of the aggregate deposits would result in increased fines content.

Typical alluvial deposits reflect a "fining upward" sequence of sediments. Coarse-grained channel deposits are mantled with finer-grained **overbank** deposits. Considering this general condition, the amount of waste as a percentage of the total amount of aggregate mined would be expected to be higher for a dry pit mining operation. That is, the potentially higher fines content in the upper sediments would influence the total fines content (waste) of the mined aggregate. However, as noted above, deeper sediments may have relatively high fines content as the result of weathering. Considering these counterbalancing influences on fines content of aggregate deposits, the difference between the waste factors for drag and wet pit mining would not be significant. However, the data available from the **Solano Concrete** site does not indicate, as implied by the comment, that wet pit mining operation results in a significant loss of fines prior to processing.

The second part of the comment regards the use of sand and gravel as backfill for reclamation to agriculture. The common-sized excess coarse-grained materials may be used under reclaimed agricultural surfaces to enhance drainage and thereby increase the potential for successful reclamation to agriculture. Reclamation to agriculture is a primary objective of the County. Furthermore, the coarse-grained material would not be destroyed or degrade at an accelerated pace, and would not be "lost forever." If, at some time in the future, it becomes necessary to mine the material, it would be easily accessible.

Response to Comment 13-90:

The levee upgrades proposed at **Solano Concrete** would not raise the base flood (100-year) elevation. The current levees (existing condition) are constructed to prevent the site from being inundated during the 100-year event, however they do not have adequate freeboard to minimize the risk of erosional failure and overtopping. Based on engineering calculations completed for the site, the proposed upgrades will not adversely impact nearby or downstream areas during the 100-year flood or lesser events.

Response to Comment 13-91:

The commentor suggests that four impacts be addressed in the EIR. The following is a response to each of these:

- Water loss associated with evapotranspiration is discussed in the DEIR, and the reader is referred to Impact 4.4-4.
- Impacts to water quality associated with eutrophication and the potential for proliferation of insets are addressed in the DEIR. The reader is referred to Impacts 4.4-3 and 4.12-4, respectively.
- "Substantial changes in absorption rates, drainage patterns, or rate and amount of surface runoff" is one of the significance criteria included in the DEIR, and Impact 4.4-1 specifically addresses the commentor's point.
- Refer to Response to Comment 13-152.

Response to Comment 13-92:

Please refer to Text Change # 26.

Response to Comment 13-93:

The Lower Cache Creek Groundwater Study (1995) conducted by David Keith Todd, Consulting Engineers, upon which the OCMP is based, concludes that considerable flow would be maintained between the groundwater system and the wet pit lakes. Analysis of groundwater level data collected at the existing mining pit lakes at the **Solano** Concrete Company, Inc. property generally support this conclusion (Baseline, 1995). The fact that the commentor disagrees with this study and the conclusions presented in the DEIR is noted for the record.

Response to Comment 13-94:

Based on the DEIR preparer's review of the analysis, it does not appear that site-specific research was conducted at **Solano** Concrete. The paragraph referred to is a general description of expected groundwater flow impacts resulting from the replacement of gravel with fine sediments due to reclamation. The analysis completed by David Keith Todd, Consulting Engineers included construction of a mathematical model describing groundwater flow conditions in the vicinity of a theoretical **backfilled** pit. Aquifer parameters were based on available site specific data and, where data was unavailable, estimated based on literature values.

Response to Comment 13-95:

The potential recharge associated with surface water application for agriculture is not particularly relevant when evaluating potential impacts to groundwater flow conditions resulting from backfilled wet pits. The impact would potentially occur in the saturated zone (below the water table). The mechanism by which the water table is recharged is not important to this particular analysis. It is not important because the simulation begins from an existing condition (which includes all sources of discharge and boundary conditions) for the groundwater level. Pumping would represent the only new stress on the aquifer, and this particular stress is what would be evaluated.

Response to Comment 13-96:

Please refer to Response to Comment 13-95.

Response to Comment 13-97:

The DEIR requires preparation of mathematical simulations to evaluate potential impacts of proposed wet pits on nearby wells prior to commencement of excavation below the average high groundwater level (Mitigation Measure 4.4-1a). Use of mathematical models is the only practical way to evaluate the proposed changes to the groundwater flow regime prior to mining. This mitigation measure is designed to prevent impacts from occurring rather than attempting to repair damage after it occurs. Although groundwater level data would be continued to be collected and analyzed as part of the required monitoring programs to provide site specific information during and after mining. It would be extremely difficult to directly connect change in performance of a well to mining activities. Other factors, including seasonal fluctuations and wet/dry cycles, have a greater effect on groundwater levels. Staff and the preparers of the DEIR believe that the proposed measures are adequate to mitigate this potential impact. Groundwater modeling and well hydraulic analyzer are routinely applied to similar hydrogeologic environments. The cost associated with the modeling analysis will be borne by the aggregate producers.

Response to Comment 13-98:

Minimizing the area to be backfilled below the groundwater table is a general objective. To a certain extent, the location and distribution of the aggregate resources dictates the shape of the excavation. However, mining operations are selective; not all sand and gravel is removed. The purpose of the general objective is to provide the aggregate producers additional criteria during the mining plan preparation process.

With regard to determination of impacts to wells within 1,000 feet of proposed wet pit mining and the modeling methodology required, please refer to Response to Comment 13-97. With regard to surface water and agricultural water influence on the modeling, refer to Response to Comment 13-95. The County staff or retained consultant would be responsible for review of the hydrogeologic analyses submitted by the applicants. Third-

party review of mathematical models is not complicated or expensive for qualified professionals.

With regard to the use of the **MODFLOW** model in particular, please refer to Text Change # 27.

Response to Comment 13-99:

With regard to the characteristics of fine-grained surface soils, please refer to Text Change # 28.

Aerial drift of pesticides, fallout from industry, and migration of agricultural contaminants were not specifically discussed in the DEIR. However, these contaminants are similar in nature to those **identified** and discussed. Mitigation Measure 4.4-2 includes a monitoring program that would require regular sampling and analysis of the surface water in the wet pits and the groundwater in the vicinity. If impacts to water quality are detected, the mitigation measure requires additional monitoring, determination of the source of the contaminant and mitigation of the problem. If, for example, it was determined that pesticide drift was causing concentrations of pesticides in the wet pits to exceed the Maximum Contaminant Levels, application practices may be adjusted to reduce or eliminate the impact.

Response to Comment 13-100:

The **purpose** of the simulation discussed by the commentor was to evaluate the **potential** impacts associated with a release caused by illegal dumping (sabotage). Since **vehicular** access to the site would be controlled, it was assumed that a reasonable amount of liquid that someone could carry to a wet **pit** was five gallons. Gasoline was chosen as the chemical of concern because it is readily available and contains significant quantities of a known or suspected cancer-causing chemicals, including benzene. Diesel fuel may be more persistent in the environment, but poses a far lesser health risk to humans than the components contained in gasoline. The preparers of the **DEIR** disagree that the scenario presented by **Luhdorff** and **Scalmanini** is "ludicrous" for the reasons stated above.

With regard to the omission of dredges from the list of equipment operated in and near the mining areas, please refer to Response 3-36. The commentor does not substantiate the assertion that hydraulic dredges would cause more siltation of the pond sidewalls and bottom than the use of **dragline** cranes. Since dredges would use suction to draw sediments into a pipeline leading to the surface, the material would receive less flushing, relative to **dragline** operations; resulting in reduced mobilization of silts and clays in the wet **pit**. The commentor's recommendation that Objective 3.3-3 be changed to include "the groundwater should not be degraded by **silting**" is unsupported and **not** necessary. The objective already includes statements designed to protect water quality and groundwater levels.

Response to Comment 13-101:

Action 3.4-5 requires demonstration that only active wells be evaluated because this is the only potential source of significant impact. Only existing wells that are barely operational could be impacted by the relatively small groundwater level changes expected to result from the project. New wells would presumably be installed deep enough so that an adequate overlying water column would be assured. The potential slight increase in lift required to overcome the two to seven foot change in groundwater levels estimated by the mathematical modeling is considered insignificant with modern pump efficiency. The preparers of the DEIR consider further mitigation unnecessary.

With regard to exacerbation of downstream flooding from activities associated with mining, the commentor is referred to Mitigation Measure 4.4-6a on page 4.4-62 of the DEIR.

Response to Comment 13-102:

The monitoring program detailed under Mitigation Measure 4.4-2a (starting on page 4.4-35 of the DEIR) requires that wells be placed both upgradient and downgradient of the wet pits. Regular groundwater level measurements are also required to verify these relative up- and downgradient positions. The Technical Studies provided regional groundwater flow patterns. Although general in nature, the Technical Studies were based on historic data.

Response to Comment 13-103:

The preparers of the DEIR agree with the commentor. Performance Standard 3.54 requires that the wet pit be analyzed semi-annually while mining and reclamation activities are conducted. Monitoring wells shall also be analyzed semi-annually for the first two years of mining in order to establish an adequate baseline of data. Phosphorous is included in the required monitoring program (page 4.4-36 under "After Active Reclamation"). Mitigation Measure 4.4-2a (under "Monitoring" bottom of the second paragraph) requires that water samples collected from the wet pits be representative. This would require multiple sampling locations.

Response to Comment 13-104:

The OCMP DEIR is a program DEIR which presents policies for the entire study area. The point of the performance standard is to set a standard precluding direct discharge. The inclusion of waste discharge requirements for each proposed mining site in the program-level DEIR is inappropriate. This performance standard is not appropriate. Information on site-specific NPDES or SWPPP permits are available from Rich McViegh at the RWQCB (916) 255-3055.

Response to Comment 13-105:

The preparers of the DEIR disagree with the commentor. Several monitoring scenarios and schedules were considered, and the program thought to be most conservative (protective of the environment) and reasonable (feasible to implement) was presented in modified Performance Standard 3.5-4. Eutrophication is not expected to play a significant role in the water quality of permanent wet pits, as discussed in Response to Comment 13-110. The comment offers no support for the assertion that 20 years is more reasonable a monitoring period after reclamation than the ten years required in the DEIR.

The subject of the comment period is the DEIR, not the Technical Studies on which the OCMP was based. Please refer to Response to Comment 16-3.

Response to Comment 13-106:

The purpose of the deed restriction is to ensure disclosure to future property owners of all responsibilities incumbent on the land.

With regard to height of fencing, please refer to Response to Comment 13-183 and Text Change # 32.

With regard to mobilization of fine sediment during excavation, refer to Response to Comment 13-9.

Response to Comment 13-107:

With regard to location of required monitoring wells, please refer to Response to Comment 13-102.

With regard to precision of measurement of depth to groundwater, please refer to Response to Comment 3-39.

Please refer to Response to Comment 16-2.

The final part of the comment appears to be focusing on the possibility that mining within the OCMP study area beyond that proposed in the next 30 years could adversely impact water quality because of crossgradient groundwater flow and an inadequate monitoring well network. The DEIR monitoring program (starting on page 4.4-38 of the DEIR) requires upgradient and downgradient wells and regular groundwater level measurements. Project level DEIRs would be required for future proposed mining projects that would include the evaluation of hydrogeologic impacts.

Response to Comment 13-108:

Please refer to Responses to Comment 13-105 and 13-110.

Response to Comment 13-109:

Please refer to Text Change # 33.

Response to Comment 13-110:

With regard to eutrophication, the preparers of the DEIR have reviewed the 1969 Federal Water Pollution Control Administration publication referenced by the commentor. As is explained in this reference (and many others), eutrophication is dependent on available nutrients, primarily phosphorous and nitrogen. Lakes and reservoirs which receive excess nutrient have the potential to become eutrophic. As described in Table 3 (page 39 of the 1969 publication), major sources of phosphorous include sewage effluent, industrial discharge, phosphate rock, agricultural drainage, benthic (sea floor) sediment releases. As discussed in the DEIR none of these nutrient sources would be available to the wet pits. Table 3 further lists minor contributors, including domestic ducks, sawdust, rainwater (where pollution is present in atmosphere), wild ducks, tree leaves, and dead organisms. Of the minor contributors, it is anticipated that only wild ducks, tree leaves, and dead organisms would be introduced into the wet pits. This discussion demonstrates that only minor amounts of nutrients would be introduced, minimizing the potential for significant eutrophication to occur.

Response to Comment 13-111:

With regard to the qualifications of the DEIR preparers, please refer to Response to Comment 13-176

Response to Comment 13-112:

CEQA does not require specialists. In fact, it strongly encourages interdisciplinary work in order to provide a comprehensive and integrated approach to environmental analysis. Nor is the DEIR considered testimony, although it will become a part of the record should legal action be taken against the OCMP. With regard to the qualifications of the DEIR preparers, please refer to responses to Comment 13-176.

Response to Comment 13-113:

Only one draft of the EIR has been circulated and it does address eutrophication beginning on page 4.4-40.

Response to Comment 13-114:

Analyses included in the **Luhdorff** and **Scalmanini** report were referenced in the DEIR. However, the DEIR analyses of impacts and conclusions were not substantively altered by the analysis presented in the report. Please see Response to Comments 13-17 and 13-151.

Response to Comment 13-115:

The comment is not accurate regarding the degree to which the DEIR relied on the Scalmanini and Todd report. Please refer to Response to Comments 13-114 and 13-151.

Response to Comment 13-116:

A DEIR and its supporting technical reports are not considered testimony. No court action has been brought against the OCMP at the present time. Please refer to Response to Comment 13-176.

Response to Comment 13-117:

The commentor's concerns about the qualifications of the consultants and the judgement of the staff are noted for the record. A copy of the commentors letter has been provided to County Counsel for their review.

Response to Comment 13-118:

Please refer to Response to Comment 13-110.

Response to Comment 13-119:

Neither the Technical Studies, nor the DEIR are considered to be engineered design projects which would require the signature of a Registered Professional Engineer. Please refer to Response to Comment 13-136.

Response to Comment 13-120:

Please refer to Response to Comment 13-119.

Response to Comment 13-121:

A copy of the DEIR was provided to the State Department of Toxic Substance Control. In addition, the document has been reviewed by the Yolo County Environmental Health Department. Please see comment letter 19 and 20.

Response to Comment 13-122:

Please refer to Response to Comment 13-119.

Response to Comment 13-123:

A copy of the commentor's letter has been provided to County Counsel for their review.

Response to Comment 13-124:

Dumping of the types of waste described by the comment ~~would~~ likely require transportation by truck. The wet pits would not be accessible to unauthorized vehicles. It is far more likely that these types of discharges would occur in unrestricted areas (e.g. turnouts on little-used roads and bridges over creeks). Staff is recommending no change to the DEIR.

Response to Comment 13-125:

Based on information available on EXTOKNET, a database of the Agricultural Pesticide Impact Assessment Program, the commentor is incorrect in the assertion that atrazine is a "non-selective weed herbicide." In fact, atrazine is a selective triazine herbicide used to control broadleaf and grassy weeds in corn, sorghum, sugarcane, and other crops. In addition, one of atrazine's most common uses is conifer reforestation plantings (used in proximity of trees). The preparers of the EIR considered the selection of atrazine in the modeling analysis appropriate because it is locally used (and has recently been detected in groundwater in Yolo County) and is expected to have a high potential for groundwater contamination (it is highly mobile in soils with **low clay** or organic content because it does not readily adsorb to soil particles). Thus, it provides a conservative, worst-case approach towards assessing the impact of pesticides applied to future reclaimed agricultural land.

Response to Comment 13-126:

Luhdorff and Scalmanini were not the preparers of the DEIR. The report by Luhdorff and Scalmanini included in Appendix 7.4 of the DEIR was a technical study. The commentor does not support the **claim that** more agricultural chemical would be required during or after reclamation and there is no evidence to substantiate it. In fact, the proposed tree crops around the wet pit lakes would require little or no pesticide **application**, thus **potentially** resulting in an overall reduction in the quantity of agricultural chemical used at the sites.

Response to Comment 13-127:

The comment raises several issues regarding the toxicity of mercury. The preparers of the EIR consider that the discussion of mercury and its presence in the environment on pages 4.4-44 through 4.4-7 of the DEIR adequately characterize mercury and mercury compounds as significant environmental contaminants and health hazards. While the commentor's additional information is instructive, this information is not critical to the recognition of the presence and potential uptake of mercury as a significant impact. As noted in the comment, the pathways of exposure to mercury can include absorption through the skin but as identified in the EIR the most significant pathway for exposure, relative to the conditions in lower Cache Creek Basin, is ingestion of contaminated food.

The comment addresses the difficulty of accurately measuring the presence of mercury in the environment. The proper sampling and testing of mercury is important for

characterization of low levels of mercury in the environment. The commentor indicates that detection of mercury (above an undefined baseline level) would be significant and that "about 90 percent of mercury in fish is in the form of methyl mercury". The ratio of total mercury to methyl mercury in fish flesh is highly variable; however, the preparers of the EIR agree that, as a bioaccumulating compound, methyl mercury would be an expected dominant mercury compound in fish flesh. The commentor's conclusion that individual pits should be analyzed for mercury is consistent with the mitigation measures in the EIR.

The commentor indicates that mercury levels in water in excess of 12 parts per billion (ppb) would be highly "significant". The preparers of the EIR consider this concentration (which is also the USEPA national ambient water quality criteria for the protection of freshwater aquatic life) to be a conservative and appropriate water quality threshold for mercury in the mining pits and have, therefore, included this level in Mitigation Measure 4.4-3a.

The commentor's conclusion that surface water "as currently measured" does not reflect the potential for mercury uptake in aquatic life as assumed by the preparers of the EIR to relate to previously collected surface water samples. The results of previous water sampling and mercury testing at the Solano Concrete mining pit and in wells is discussed on page 4.4-46 and 4.4-47 of the DEIR. The samples were analyzed by a state certified laboratory using standard test methods for drinking water. The preparers of the EIR consider the results of the testing a valid indication of the levels of mercury in surface water in the sampled mining pits. However, the DEIR points out that the detection level (0.0002 mg/L) for the previously conducted testing (applicable for drinking water standards) is higher than USEPA national ambient water quality criteria for the protection of freshwater aquatic life. In order to measure the presence of mercury at these lower, more sophisticated collection, sampling, and analysis have to be performed.

More recent sampling and testing of the surface water in two pits on the Solano Concrete Company property and adjacent areas of the Cache Creek channel were performed by a team of researchers from the University of Davis, headed by Drs. Darell Slotton and John Reuter. This team was contracted by the County on the basis of their expertise in evaluation of mercury in the environment and their extensive experience in sampling and testing of water, biota, and sediments within the region. The sampling was conducted using two-person, clean collecting protocols. The water analysis was performed at Frontier Geosciences Laboratory, a reputable mercury analysis facility. The results of the testing indicate that total mercury levels in four sampling locations from four separate dates ranged from 2.25 to 3.45 ng/L (0.00000225 to 0.00000345 mg/L) in unfiltered samples. These data indicate that mercury levels in surface water samples at the Solano Concrete mining pits is below the USEPA thresholds. The mercury concentration in water, particularly when measured using very low detection limits, could vary significantly seasonally and over time. The concentration of mercury could also vary in different positions (horizontal and vertical) within the lake. The results of the four sampling events in April 1996 consistently indicated a similar concentration of mercury. The consistent results may reflect the fact that the samples were all collected from near the surface at the central portion of the lake. However, profiling (i.e., sampling at variable depths) of the

indicator parameters pH, temperature, dissolved oxygen, total suspended sediments, and chlorophyll indicate that the lake water is relatively uniform. The profiles indicate an expected slight decrease in temperature and dissolved oxygen with depth.

These results indicate that the levels of mercury in the water within the formerly mined areas are three orders of magnitude (1,000 times) lower than the drinking water standard. These results confirm previously conducted water quality analyses which indicate that the mercury levels are significantly lower than drinking water standards in the Solano pits and groundwater in the vicinity of the pits.

During the April 1996 investigation, water samples were also collected from Cache Creek, north of the Solano pits. The results of mercury analyses indicate that the mercury levels in four samples collected on separate dates ranged from 3.81 to 52.50 ng/L. The highest level was measured in the sample taken on the earliest date (9 April) when flows were highest in the creek. The mercury levels were higher in all of creek water samples than the highest mercury level in samples collected from the Solano Concrete pits. However, the levels of mercury in filtered samples from the creek and mining pits were comparable. These results support the general observation that mercury measured in water samples are dependent on sediment content of water, reflecting the chemical affinity between mercury and soil particles.

The commentor also presents opinions on thresholds of significance for mercury levels in sediment that may present conditions favorable for the mobilization of mercury aquatic environments. The commentor suggests that a threshold of 25 mg/kg would be significant. Mercury levels measured in seven sediment samples collected from the existing Solano Concrete Company pits (Appendix C) ranged from 0.15 to 1.00 mg/kg. Although these levels are significantly lower than the threshold suggested by the commentor, the levels should be considered similar to levels detected in Cache Creek basin sediments and elevated relative to typical background sediment concentrations.

The preparers of the EIR assume that the commentor's remarks concerning mercury levels in fish are addressing the results of fish sampling and fish flesh mercury level analyses performed at the Solano Concrete pits in April 1996. The total mercury levels in the 24 fish samples from the Solano Concrete pits (which represent a range of species, including predatory species) ranged from 0.16 to 0.92 mg/kg. None of the samples exceeded the U.S. Food and Drug Administration threshold of 1.0 mg/kg of mercury in edible fish. However, five samples ranging from 0.67 to 0.90 mg/kg exceeded the health guideline of 0.5 mg/kg set by the California Department of Health Services. A comparison of the Solano Concrete mining pit fish sample result to 16 fish samples collected from the lower Cache Creek basin in October 1995 (Appendix C) indicates that the mercury levels in fish from the pits are comparable to those in the creek. The commentor's conclusion that reclaimed lakes within mining areas should be monitored semi-annually is not supported in the comment. Given the fact that the mercury available in the pits would be accumulated through time, providing a continual record, the staff does not consider the recommended increase in monitoring frequency to be necessary.

The commentor's opinion that algal "blooms" may occur in the pits during mining and would certainly occur during the post-mining period is noted. The preparers of the EIR do not consider the assumption that the lakes in mining pits would become eutrophic and acidic to be unequivocal or supported by any evidence. ~~Algae will grow in the lakes, as in most reservoirs of water that are not covered or treated to prevent algal growth.~~ The lakes in mining pits would have limited input of nutrients and organic matter relative to most water bodies. The nutrients would be supplied by limited runoff from the perimeter of the pit only and by groundwater flowing into the pits. Some of the pits would receive discharges of processing water which may also contain limited nutrient loads. These nutrient inputs would not be similar to those supplied to most lakes that experience algal blooms.

The commentor's opinion that ~~anoxic condition~~ would inevitably take place is also not supported. However, the preparers of the EIR consider that anoxic conditions could occur in the lakes, particularly during summer months. The EIR discusses the potential implications of anaerobic conditions as related to methylation of mercury on page 4.4-47.

Response to Comment 13-128:

The preparers of the EIR would like to point out to the commentor that the discussion of mercury mobility in the unsaturated zone specifically relates to existing conditions. The areas proposed for mining are currently occupied by alluvial terrace deposits and soil. Discussion of mobility of mercury in the unsaturated zone is, therefore, relevant and important in a discussion of the change in environment that would occur under the proposed mining projects. The discussion in the EIR also includes a discussion of data regarding the wet pit operation at the Solano Concrete property to afford the reader information on the conditions within a mining pit similar to those being considered under the OCMP. A discussion of the conditions in unmined and actively mined areas is considered important to the reader's understanding of the potential impacts related to mercury in the environment. Therefore, the staff and preparers of the EIR feel that this comment and Comment 13-129, particularly the assertion that the analysis represents an error in judgement or an attempt to mislead the readers of the EIR, is incorrect and inappropriate.

Response to Comment 13-129:

Please refer to the Response to Comment 13-128.

Response to Comment 13-4 30:

The comment presents the opinion that the statement in the EIR regarding the volatility and instability of methyl mercury in the aquatic environment is untrue. The preparers of the EIR had meant to communicate that the compound is unstable in water. The commentor agrees later in the comment that some forms of methyl mercury are volatile but then contends that this property is irrelevant. However, a volatile compound would be emitted to the atmosphere if not stabilized through reaction or assimilation into an organism. This

information seems relevant to the reader concerned with the mobility of the compound in the environment. The discussion in the comment on the potential for assimilation of methyl mercury into organisms is also present in the same sentence of the EIR on which the comment is made. However, preparers of the EIR agree with the commentor's point that, of the species of methylmercury, dimethylmercury is the volatile compound. Monomethyl mercury, the more prevalent species generated in the expected methylation process, is not volatile under ambient conditions.

The commentor's conclusion that the bottoms of wet pits are usually anaerobic is not supported by evidence present in the comment. The commentor makes the assumption that wet pits would be eutrophic and that the environment at the bottom of the pits would be acidic. However, the monitoring of lakes within the Solano Concrete mining pits indicate that the lake water is oxygenated (dissolved oxygen at approximately 8 mg/l) and basic (pH 8.4). Although these conditions could change over time with accumulation of organic matter and under thermal stratification, the existing data support the assumption that groundwater flow into the pits would tend to inhibit eutrophic conditions. Assuming that the water at the base of the pits would be anoxic and acidic would be speculative.

Response to Comment **13-131**:

The discussion of pH of the water in the pit is considered relevant by the preparers of the EIR. Although we agree with the commentor's opinion that changes in water quality could occur over time, the commentor does not acknowledge that groundwater flow through the pits would tend to promote a relatively constant water chemistry, particularly in comparison with a moderate or severely eutrophic lake. Water flow into and out of the margins of the pits would occur throughout the water column, promoting mixing.

Response to Comment **13-132**:

The statement in the EIR, referenced in the comment, regarding the potential for conditions in the Solano Concrete mining pit lakes to promote methylation of mercury is based on the preceding discussion of measured conditions. Subsequent to the preparation of the EIR more extensive testing (Appendix C) of the water quality and mercury concentrations in sediment, invertebrates, and fish have been conducted at those lakes. ~~The results of the testing support the conclusion in the EIR that the wet pit mining operation has not resulted in increased potential for methyl mercury production.~~ The water in the lakes is oxygenated and basic throughout the water column. Mercury levels in the water are lower than or comparable to levels measured in Cache Creek. The comparison of the levels of mercury in fish in the lake and in the creek indicate comparable results. Therefore, the preparers of the EIR consider the statement regarding conditions at the mining area to be appropriate and justified by the results of recent testing. The comment that the statement is "deceptive and misleading" or indicative of "a complete lack of knowledge" is without support and incorrect.

The commentor's point regarding the representativeness of surface water sampling in determination of the potential for methylation of mercury is noted. The commentor is referred to the Response to Comments 13-127 and 13-131 for discussion of the variability of water chemistry in the mining pits. Surface water sampling can be a useful indication of general water chemistry. In the case of monitoring a lake for mercury, the water chemistry data should be supplemented by testing of mercury levels in biota. This approach was required in Mitigation Measure 4.4-3a of the DEIR.

Response to Comment 13-133:

The comment correctly acknowledges the specialized requirements for appropriate collection and handling of water samples for mercury testing at low detection limits. The commentor is referred to Appendix C for a description of the sampling and testing techniques and protocols used during the sampling events conducted in April 1996 by **Slotton** and others in the evaluation of mercury levels in water at the **Solano** Concrete pit. The methods used for the evaluation represent state-of-the-art technology for mercury analysis. Quality control procedures used in the evaluation support the validity of the sampling and testing methods. The preparers of the EIR consider the method used for the April 1996 sampling and testing event to be consistent with the requirements of Mitigation Measure 4.4-3a. Sampling and testing methods for groundwater and surface water samples collected prior to 1996 were conducted under standard water quality testing procedures.

The commentor is correct in indicating that the Mitigation Measure 4.4-3a of the **DEIR** does not indicate whether lakes in mining areas under the OCMP would or would not be stocked. The commentor is also correct in noting that the **Solano** Concrete mining pit has been stocked. The decision to stock lakes in reclaimed pits would be the decision of the land owner. The sampling requirements of mitigation monitoring requirements should be made more flexible to provide for sampling of lakes which are not supporting a predatory fish population. Text Change # 34 has been added to address the comment.

The point is raised by the commentor that sampling of the first reclaimed pit in a mining area may not be representative of all lakes created within the mining area. The lakes proposed for the mining areas will be variable in their size, shape, and depth. These differences could result in more or less favorable conditions for methylation of mercury. These differences could, as implied in the comment, be significant. Staff agrees that sampling of each lake would provide more detailed and comprehensive data. Therefore, the test of Mitigation Measure 4.4-3a has been amended by Text Change # 34 to include monitoring of each mining area reclaimed to a permanent lake.

The preparers of the EIR disagree with the commentor's conclusion that high levels "must be detected in all fish" for the proposed sampling program. All measured levels, including levels above and below the action level and non-detectable levels, would be relevant for the calculation of the average mercury levels in fish. The remaining points of the comment regarding the measurement of levels below the action level are noted for the record.

Response to Comment 13-134:

The commentor does not acknowledge that the Mitigation Measure 4.4-3a presents the option, in the event of documentation of a mercury problem in reclaimed lakes, for the **owner/operator** to either fill the reclaimed lake or present a feasible and reliable method for reducing methylmercury production. The mitigation measure requires the **owner/operator** to acquire approval by responsible agencies for proposed mitigation. **With** regards to the feasibility of possible options presented in the DEIR for potential mitigation of methylmercury production, the preparers of the EIR do not agree that permanent aeration of the lakes is impossible. Current research is being conducted to explore options for aeration technologies for Davis Creek Reservoir. Aeration could potentially be performed through mixing equipment run on solar or wind power. The pH of the water, if necessary, could be controlled through placement of non-toxic buffering agents. The control of anaerobic bacteria populations could potentially be achieved through promotion of bacteriologic populations which could replace species known or suspected to methylate mercury. Staff acknowledges that some of these methodologies would be state-of-the-art technologies. If the technologies presented are not considered feasible or reliable, the mitigation plan could be rejected. The option of filling the mining pits would be a feasible and reliable mitigation.

Response to Comment 13-135:

Staff believes that the DEIR presents feasible mitigation measures that would result in the reduction of methylmercury levels, should monitoring indicate that unacceptable levels of methyl mercury have developed. The intention of monitoring proposed in the DEIR is not to reduce the methyl mercury production. Monitoring provides the basis for the identification of possible remediation. The reduction of the impact of methylmercury production to a less than significant level would be provided by implementation of the mitigation measure. Implementation of the measure could result in filling of the reclaimed lake.

The commentor's point regarding the choice of people to catch and eat fish (in this case by trespassing onto private land) that may be affected by mercury, despite advisories by state agencies, is noted for the record. The proposed mitigation measures in the DEIR to control access to proposed reclaimed lakes, perform monitoring on mercury **levels** in the lakes, and require mitigation in the event of elevated methylmercury levels are considered by staff to be reasonable and responsible measures to protect public safety.

Staff points out that the EIR and these responses have relied on existing data for mercury levels in the planning area before preparation of the DEIR and have provided extensive new data on the current levels of mercury in existing lakes within formerly mined areas within the planning area. These data have been used to derive informed and reasonable opinions **regarding** the availability of mercury and potential lake chemistry and groundwater quality conditions. The production of methylmercury within the Cache Creek watershed

is a consequence of the naturally occurring transportation of mercury within the system. Staff considers the mitigation measures in the DEIR to monitor mercury and methylmercury levels in the water and fish to be more appropriate than sampling of sediment. The availability of mercury contained in sediment cannot be reliably used to predict the amount of methylmercury that could accumulate in water or biota that could be consumed by humans or other animals. Staff agrees with the commentor's concern regarding potential health impacts related to mercury in the environment and consider that adequate precautions against such impacts have been included in the mitigation measures presented in the EIR.

Response to Comment 13-136:

With regard to mitigation of eutrophication, please refer to Response 13-110. With regard to the qualifications and credentials of the preparers of the technical studies and the DEIR, please refer to Response 13-176.

Response to Comment 13-137:

Some sort of fine-grained material is required as a substrate for reclamation plantings. The commentor does not suggest an alternative material to use, instead of processing fines and overburden, for this purpose. Erosion and sedimentation associated with the placement of these materials would be minimized by implementation of Mitigation Measure 4.3-2a (pages 4.3-30 to 4.3-31) of the DEIR as well as the requirements of the Mine Safety orders and SMARA. The commentor's claim that staff "continues to offer fragmented mitigation measures" is not supported.

Response to Comment 13-138:

For reasons not understood, the commentor criticizes the EIR for not using data based on micro-climates representative of Hungry Hollow, and then proceeds to offer information regarding Davis and Clarksburg, the later being located in the San Joaquin/Sacramento Delta region. The DEIR acknowledges that evaporative losses would occur at the wet pit lakes. There may be variation between microclimates within the area. In addition, certain wetland plants growing around the perimeter of some of the reclaimed lakes may transpire in excess of shallow pan evaporation rates. However, these types of plants would represent a relatively small percentage of the total acreage of a reclaimed mining site and would not significantly alter the overall evaporative losses. Furthermore, losses of water to evaporation and transpiration (as a matter of Regional Water Quality Control Board policy) to support biological habitat diversity is a beneficial use as specified in the Central Valley Regional Water Quality Plan Basin Plan. The staff strongly disagrees with the commentor that the DEIR is skewed to favor mining. The analysis does not support this conclusion.

Response to Comment **13-139:**

The evapotranspiration calculations have been revised to include a wetland perimeter area around each wet pit (estimated at 10% of total wet pit area) which is estimated to transpire 20 Wyear. Please refer to Response to Comment 347.

Please refer to Response to Comment **13-138**. As noted in the DEIR, the evaporation rates cited are also from DWR (Bulletin 113-3), as are the commentors. Staff has reviewed the footnote and finds it to be clear. It merely states that rainfall normally flows off-site as surface runoff will instead be recharged into the wet pits, thereby partially offsetting evaporation. The staff is recommending no change to the DEIR.

Response to Comment **13-140:**

Please refer to Response to Comment 13-78. The discussion of evapotranspiration is neither "wildly unaccurate" nor "biased toward mining." The mere fact that the commentor disagrees with the conclusion does not invalidate the analysis or the EIR. However, his concerns about credibility and accuracy of the DEIR are noted for the record.

Response to Comment **13-141:**

Policies and mitigation measures regarding water quality (specifically potential water quality associated with eutrophication) are presented under Impacts 4.4-2 and 4.4-3, starting on page 4.4-30 of the DEIR. It is unnecessary to restate a previously expressed policy. The staff is recommending no change to the DEIR.

Response to Comment **13-142:**

It appears that the commentor did not understand the analysis presented in the DEIR. The policies (objectives and actions) presented under the heading "OCMP and Implementing Ordinances" starting on page 4.4-55 of the DEIR summarize statements made in the OCMP. The DEIR on the OCMP reviewed these policies and found them to be inappropriate since a formalized groundwater management plan has not yet been released by the Yolo County Flood Control and Water Conservation District. Mitigation Measure 4.4-5a eliminates the policies, thereby reducing the potential confusion that may be associated with attempts to mitigate impacts associated with another project.

Response to Comment **13-143:**

Please refer to Response to Comment 13-142.

Response to Comment 13-144:

The terms "wet pit," "lake," and "pond" have been used interchangeably in the DEIR to reduce repetitiveness and to aid in readability. Use of a single term would be extremely redundant. It should be noted that the varied use of these terms in no way affects the impact analyses and mitigation measures provided.

Response to Comment 13-145:

Please refer to Response to Comment 13-83 and Text Change # 21. The text referenced by the commentor states ". . . overflows from smaller tributaries, including Lamb Valley Slough and Willow Slough." The fact that staff did not list every tributary does not invalidate the analysis.

Response to Comment 13-146:

The commentor implies that if in-channel mining were to be discontinued, then the Cache Creek channel bed elevation would decrease. This is incorrect. The fact that the aggregate industry excavated over two million tons of material from in-channel bars down to the theoretical thalweg each year for the past 16 year provides a strong indication that a significant amount of sand and gravel is imported to the Lower Cache Creek basin each year. The annual total sediment load for the portion of Cache Creek within the planning area was estimated at 927,600 tons by the Technical Studies. Under current conditions which allow in-channel commercial mining, certain reaches within the creek are sediment starved, causing scour in some areas.

The commentor's statement that the land surface slopes away from Cache Creek is not true for land adjacent to creek banks. The drainage divide between Cache Creek and adjacent drainages is clearly visible on topographic maps and is up to 1,000 feet from the bank of the creek. The simple analysis of reduction in drainage area demonstrated that the lowered surfaces would not provide significant flood relief. The commentor appears to be in agreement with this conclusion.

Response to Comment 13-147:

While it is true that, based on the location and agreement between agencies, the California Department of Water Resources may be responsible for maintenance of U.S. Army Corps of Engineers levees, the project does not propose construction, maintenance, or alteration of Corps levees. The staff is recommending no change to the DEIR.

Response to Comment 13-148:

Staff has had numerous discussions with James Eagan, of the YCFC & WCD. The District is currently applying for an additional allotment of Cache Creek water from the State Department of Water Resources. Mr. Eagan has indicated that should the application be

granted, an increment of the additional water may be available for future in-stream habitat, when annual rainfall is sufficient. No estimates have been made on how much water would be available for such a purpose. Approval of this policy by the Board of Supervisors would direct staff to continue working with the District in achieving this action. A separate environmental analysis is being prepared by the District for their allocation application.

The commentor is correct in noting that pit capture can occur for pits that have a floor above the stream bed elevation. Please see Text Change #18 regarding modifications to Performance Standard 4.5-1.

With regard to U.S. Army Corps levees, the commentor appears to be mistaken about the location of levees. The only Corps levees located within the OCMP study area are within the extreme downstream reach (approximately one mile upstream of the town of Yolo). Gravel mining has not been proposed in this area. Discharge through a Corps project levee would not occur. However, the commentor's point regarding permitting is noted for the record.

Response to Comment 13-149:

With regard to the tributaries east of Road 94B, please refer to Text Change # 38. Staff and the EIR preparers did consider the possibility of off-site floods due to flood protection improvements. Such activities are prohibited in Mitigation Measure 4.4-6a. The detention basin and floodplain storage are suggested flood management design systems. With regard to the qualifications of the preparers of the DEIR, please refer to Response to Comment 13-176.

Response to Comment 13-150:

Indian Valley Dam was selected for discussion because of proximity to the proposed mining areas. Flooding of the study area would occur much sooner after failure of the Indian Valley Dam relative to water released from Clear Lake. Additional discussion of Clear Lake would not alter the level of significance of this potential impact, since it was determined that adequate time was available to evacuate the area in the event of an Indian Valley Dam failure.

Response to Comment 13-151:

Please refer to Response to Comment 13-110 for a discussion on eutrophication. With regard to the use of this report by Luhdorff and Scalmanini and Todd Engineering in preparation of the DEIR, such practice is legitimate, appropriate and contemplated by CEQA. An applicant will typically provide a wide assortment of technical data and reports from retained consultants when submitting an application for review by the County. In fact, in some jurisdictions the applicant actually submits the Administrative Draft EIR. This practice is also consistent with CEQA. The referenced report is only one technical report submitted by the aggregate producers for consideration. It was independently reviewed

by the staff and DEIR preparers appropriately. A copy of the commentor's letter has been passed on to County Counsel.

Response to Comment 13-152:

CEQA requires that the potential effects of a development project on the physical environment be evaluated. CEQA does not require an analysis of a project's economic impacts. Section 15131(a) of the CEQA Guidelines states:

Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain cause and effect. The focus of the analysis shall be on the physical changes.

Staff points out that although analysis of economic impacts of the project is not required under CEQA, the County is preparing an economic analysis of the OCMP. The analysis will be presented to the Planning Commission and Board of Supervisors.

With regard to salt-loading of the wet pits, it has been estimated that an increase in salt content (as measured by TDS) would stabilize at approximately five percent above concentration in newly created wet pit lakes (Technical Studies for DEIR). This increase is not considered significant because the affects of increased TDS would decrease in the groundwater system with distance from the wet pits.

The issue of permanent loss of nonrenewable energy (fossil fuels) due to the need to physically transport agricultural crops out of a lowered reclaimed agricultural field has not been estimated in the DEIR. Roads into lowered reclamation areas would be constructed as relatively short segments of locally steepened slopes. The increased slope would not cause a significant increase in fuel usage for vehicles trucking agricultural products out of the area to the nearest public road. The DEIR notes that "The OCMP would result in the irretrievable commitment of energy resources (primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline for automobiles, trucks and construction equipment) to fuel mining, processing, and subsequent reclamation activities" (page 5-7).

The commentor's opinion of how to compare total revenues for mining and agriculture are noted for the record. See the first part of this response above.

Response to Comment 13-153:

Please refer to the Response to Comment 3-6.

Response to Comment **13-154:**

The distinction between row crops and tree crops is for information purposes. For the purposes of SMARA and Williamson Act accounting, both are "agriculture." Future farmers would not be precluded from making independent choices about appropriate agricultural crops.

Response to Comment **13-155:**

The issue of groundwater storage and recharge is addressed in the Hydrology and Water Quality section of the DEIR on pages 4.4-55 to 4.4-57. Also see Response to Comment 13-4.

Response to Comment **13-156:**

The term "marketable PCC-grade aggregate" is used to describe PCC-grade aggregate that can be sold for use in most construction activities. No misuse of terms is intended. Please see Response to Comment 13-55. The commentor's opinion regarding the potential waste of pea gravel and sand is noted for the record.

Response to Comment **13-157:**

Please refer to Response to Comment 13-6. Other companies are not prevented from applying for surface mining operations within the planning area. They would be subject to all applicable regulatory requirements and environmental analysis. Please see Response to Comment 13-6. However, a copy of the commentor's letter has been passed on to County Counsel.

Response to Comment **13-158:**

The commentor is correct that tomatoes are not usually grown in consecutive seasons, but are rotated with other crops. The purpose of the analysis contained on the bottom of page 4.5-25 and top of page 4.5-26 is to estimate the worst-case (i.e., greatest) loss due to the temporary displacement of agricultural operations during mining and reclamation.

Action 5.4-6 of the draft OCMP states "Encourage off-channel excavation operations to access additional aggregate reserves through the use of wet pits, in order to minimize the amount of agricultural land disturbed by mining." The action does not state anything regarding the economic feasibility of wet pit mining. The encouragement of wet pit mining is a policy decision that will be considered by the Yolo County Board of Supervisors. The DEIR has not assessed the economic **feasibility** of wet pit mining versus some other forms of mining. Please also refer to Response to Comment 13-152, regarding economic analyses in **EIRs**.

Response to Comment **13-159**:

Under Action 5.5-2, it is conceivable that the Community Development Director could approve the placement of a stockpile for other construction-related activities, or to stockpile soils for sale to off-site customers. Such approval could only occur if topsoil was generated in volumes in excess of those required to complete approved reclamation plans. This requirement is in accordance with Section 3711.(2) of the State Mining and Geology Board Reclamation Regulations.

Response to Comment **13-160**:

The commentator is correct, the **Solano** Concrete report did not state whether the wheat raised on reclaimed lands was "force fed" with excessive amounts of fertilizer. According to a representative from **Solano** Concrete (Russo, 1996), the reclaimed land at the **Hutson** parcel of their property does not require different or additional farming techniques, irrigation, or agricultural chemical use than those used in farming of unmined lands.

Response to Comment **13-161**:

The text to which the commentator refers analyses risk of cold injury due to lowered crop surfaces. The DEIR concludes this is a less-than-significant impact. Please refer to Text Change # 49 for additional clarification on this subject.

Response to Comment **13-162**:

Refer to Response to Comment **13-142**. Any mining permits issued within the spheres of influence of Capay, Madison and Esparto would have to conform with applicable General Plan requirements, as well as the OCMP and SMARA.

Response to Comment **13-163**:

If shallow mining were performed with a requirement that all mined land was to be reclaimed to agriculture, it is possible that less than 1,223 acres would be converted to non-agricultural uses such as haul roads and agricultural slopes. However, if shallow mining were used to excavate the same amount of aggregate as with wet pits, a much larger area would need to be mined, as discussed in the analysis of Alternative 4 in Section 5 of the DEIR.

The commentator's opinion regarding the need for the DEIR to include an economic analysis is noted in the record. See Response to Comment **13-152**, above.

Response to Comment **13-164:**

Yes, it appears that "Gorton Slough" should be labeled "Goodnow Slough." See Text Change # 51.

Response to Comment **13-165:**

As discussed on page 4.6-11 of the DEIR, the planning area supports a diverse assemblage of resident and migrant wildlife species. As noted by the commentor, the oxidation ponds at the sewer treatment plant for Esparto and Madison are used by waterfowl and shorebirds. Use of the ponds would not be affected as a result of implementing the OCMP. Please see Response to Comment 13-110 and pages 4.4-41 to 4.4-42 of the DEIR.

Response to Comment **13-166:**

The wildlife species identified on page 4.6-11 of the DEIR are intended to characterize common wildlife species in the planning area, not provide an exhaustive list of all species known or suspected to occur in the area. It should be noted that many of the species the commentor believes are not mentioned in the DEIR are in fact included on page 4.6-11, such as Bottae pocket gopher, coyote, raccoon, red-tailed hawk, northern mockingbird, and American robin. Suitable habitat for western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), a State-listed endangered species, is generally absent from the planning area. The CNDDDB has no occurrence records for yellow-billed cuckoo from the project vicinity, and combined with the lack of suitable habitat, this species was therefore not included in the discussion of special-status animal species on page 4.6-13.

Response to Comment **13-167:**

Please refer to Response to Comment 13-110, as well as the discussion on biological contamination in the DEIR, on pages 4.4-41 to 4.4-42. Staff agrees that the ponds will provide additional habitat for birds. Depredation shoots and the killing of wildlife is under the control of the Department of Fish and Game, and is not within the County's authority to regulate.

Response to Comment **13-168:**

In response to this comment, Text Change # 57 was made to the DEIR which included a citation for concrete and asphaltic concrete plants (refer to Section 2.0 for a detailed description of this change). It should be noted that the Woodland monitoring station is very close to the project site and would be the best source of air quality data to characterize conditions in the planning area. There are only a limited number of monitoring sites within Yolo County, so having an air monitoring site nearby is fortuitous.

The Woodland monitoring site measures **PM-10** and ozone, two "regional" pollutants. Being regional in nature means that because the pollutant sources are so spread out geographically that concentrations of **PM-10** and ozone do not show great variation over distances of a few miles. Localized pollutants such as carbon monoxide could, however, show strong variations over short distances, but carbon monoxide is not a problem pollutant in **Yolo** County in general or the planning area in specific.

The impact analysis utilized standards of significance recommended by the **Yolo-Solano** Air Quality Management District. These incremental impact criteria are quite stringent, and are set well below those emission levels that could be associated with a measurable change in regional air quality. These standards are daily and yearly emissions totals that, regardless of current air quality, have been determined to have a significant impact. These thresholds are used throughout the District regardless of ambient air quality at that location. Thus, air quality data from Woodland, although cited in the setting section as characterizing past and current air quality in the planning area, played no part in the determination of project impacts.

Response to Comment 13-169:

In response to this comment, Text Change # 58 was made to the **DEIR**.

Response to Comment 13-170:

Comment regarding the types of asphalt concrete plants is noted. Any increase in truck emissions related to the vertical lift from reclaimed agricultural lands would be offset by reduced emissions from these same vehicles going down into the reclaimed lands. Vehicles hauling agricultural crops from reclaimed land would be a very minor and intermittent source of pollutants. Even with somewhat reduced mixing and dilution of pollutants within below-grade fields, pollutant levels would be quite low due to the very low density of emissions. Please see Response to Comment 13-176.

Response to Comment 13-171:

Soil is stockpiled for later use in reclamation. Soil stockpiles are therefore temporary features and are generally smaller in size than material stockpiles.

The commentor is correct that all overburden and fine sediments shall be used in reclamation around wet pits, where possible. Please see Text Change # 66.

The reference to riparian vegetation in PS. 6.5-2 is not intended to apply to nuisance or undesirable weed species. This standard merely requires that an area and quality of habitat, equal to that disturbed, shall be replaced.

Regarding "new operators," CEQA requires the County to define the "reasonably foreseeable" future. Staff used an extensive and deliberate noticing and application

process to do that. All known future operations are described in the OCMP DEIR and used as the basis for analysis.

Response to Comment 13-172:

The final OCMP boundaries limit the area available to mining, as described in Mitigation Measure 4.2-10a (on page 4.2-49 of the DEIR). Mining could not be conducted closer to existing municipal wells than described in Table 4.4-2 (on page 4.4-15 of the DEIR) without additional environmental review. Based on the analysis presented in the Technical Studies, the proposed mining areas are at a great enough distance from the municipal wells to present negligible water quality impacts.

Please refer to Response to Comment 13-110 regarding the potential for eutrophication. The commentor is correct that all overburden and fine sediments shall be used in reclamation around wet pits, where possible.

Response to Comment 13-173:

Slopes are considered final when they will no longer be modified by mining activities and are ready for reclamation. As described on **page 4.10-11** of the Draft OCMP, reclamation would **be** initiated as soon as mining has been completed for erosion control **requirements** during mining activities, please see Response to Comment 13-10.

Performance Standard 6.5-5 prescribes shoreline treatment of permanent water bodies that will add variety and visual interest. While a stable water surface level would be optimal for maintaining scenic quality, Performance Standard 6.5-5 would be effective under fluctuating surface level conditions. The commentor is also referred to Performance Standard 6.5-9, which requires that the design of any wet pit being reclaimed for habitat purposes shall account for fluctuations in the groundwater table.

Response to Comment 13-174:

The discussion of Impact 4.10-4 on page 4.10-24 of the DEIR does not claim that raw gravel is hauled to processing plants via County roads and State Highways. Rather, it identifies night lighting of mining facilities and headlights of equipment traveling in and out of pits as potentially affecting nearby sensitive receptors. These could include private residences in outlying areas and persons traveling on County roads in close proximity to processing plants or where night time operations are taking place.

Response to Comment 13-175:

Please refer to Response to Comment 13-3. The zoning change anticipated for the in-channel area under the CCRMP, and required for the mining areas **would** not prohibit any "urban expansion" contemplated in the General Plan. Action **2.4-4** of the OCMP states that A-I or A-P zoning would be maintained within the planning area, except where **it serves**

as a holding area within community spheres of influence (such as Esparto and Madison). No rezonings are included in the required actions listed on page 3-27 of the DEIR. The draft Esparto General Plan will have to conform with the applicable SMARA requirements, if any.

Response to Comment 13-176:

Regarding eutrophication, please refer to Response 13-110 . The commentor's opinion regarding the qualifications of the staff at Luhdorff & Scalmanini and David Keith Todd Associates is noted for the record.

Regarding effects of eutrophication of Madison and Esparto water supply wells, please refer to Response to Comment 13-107. Regarding the potential for new operators, please refer to Response to Comment 13-6.

Regarding effects of waterfowl and shorebirds frequenting wet pits, please refer to Response to Comment 13-110.

Mosquitoes. The commentor appears to indicate that mosquito habitat would be created by reclaiming mined areas to shallow water areas, bays, and peninsulas. The DEIR authors agree with the commentor. These types of habitat are common within the Sacramento-Yolo Vector and Mosquito Abatement District jurisdiction. District staff routinely plants mosquitofish in these types of habitat to prevent generation of additional mosquitoes. Interview with the District staff by the DEIR authors indicated that the District staff would perform these duties for habitat generated within the OCMP Plan area, as necessary. Please see Response to Comment 13-177.

Trapped air. During mining activities, heavy equipment would be used to extract and transport the aggregate from wet pits. Heavy equipment use would result in emissions; typical heavy equipment use would be tractors, scraper, and bulldozer; none of these pieces of equipment would be working eight hours per day within a pit. Emissions from such equipment use would consist primarily of CO, NO, SO, and PM. Total emissions from these three pieces of equipment, assuming an 8-hour working day would be about 17.70 lbs. per hour of CO, NO, SO, and PM. To evaluate whether Permissible Exposure Levels (PELs) would be exceeded, the preparers of the EIR conservatively assumed the following conditions: operation of equipment 8 hours per day, all emissions would stay within a pit in a ten-foot thick layer, the emissions would replace all air, there would be no air exchange (i.e. no air would enter the pit), and the pit would be no more than seven acres in size (most proposed pits within the planning area are proposed to be around 50 acres in size during any given five-year period). With these assumptions, the emissions would be about 0.1 mgm³ per hour, or 2.8 mgm³ for an 8-hour day. The PEL for NO, is 9 mgm³, SO, is 13 mgm³, and carbon monoxide is 55 mgm³. This issue was not considered in the DEIR as it would not constitute a significant impact. The PELs would not be exceeded under worst-case conditions. The EIR preparers are of the opinion that

air sampling data from Woodland or any other station on this issue would not be pertinent, since this issue is not an impact associated with OCMP implementation.

Poison oak. The commentor is correct that poison oak has not been singled out as a plant to be excluded in the riparian habitat from a public health perspective. Poison oak may establish itself in the OCMP area.

Aerial drift. The commentor is correct. California Code of Regulations include provisions for the protection of farmworkers entering sprayed agricultural fields. We are uncertain as to the purpose of this comment. All reclaimed agricultural operations would have to comply with applicable State and Federal regulations regarding worker safety and pesticide application. The Code of Regulations also bans aerial spraying in close proximity to exposed water bodies, such as Cache Creek or the proposed wet pits.

Illegal dumping. Potential, illegal dumping of chemicals into the wet pits is discussed in the Hydrology and Water Quality section of the DEIR on page 4.443 and mitigation measures are provided in Mitigation Measure 4.4-2a.

Qualifications of EIR preparers. The commentor repeatedly makes references to the authors of the Technical Studies; the commentor should be advised that the authors of the Technical Studies are not the preparers of the DEIR. The DEIR preparers are listed in Chapter 6 of the DEIR. It should be pointed out that the EIR team was selected by the County after an open, competitive process in which one of the authors of the subject comment letter (#13) participated. The team reflects the first choice of the selection committee. CEQA Guidelines Section 15142 indicates: "The EIR shall be prepared using an interdisciplinary approach which will ensure the integrated use of the natural and social sciences and the consideration of qualitative as well as quantitative factors. The interdisciplinary analysis shall be conducted by competent individuals, but no single discipline shall be designated or required to undertake this analysis." As noted in Chapter 6.0 of the DEIR, the EIR preparers include several registered and/or certified professionals, many of whom have had extensive experience in preparing environmental documents. In addition, a bibliography was included, listing reference documents and interviews of those consultants during the EIR process. The commentor's opinion regarding the qualifications of the EIR preparers is noted for the record.

Response to Comment 13-177:

The OCMP does not propose to eliminate mosquito habitat. Rather the OCMP proposes to minimize creation of mosquito-generating habitat and to provide for mosquito abatement in those areas where mosquito habitat is generated. The provisions included in the policies of the OCMP conform to the requirements of the Sacramento-Yolo Mosquito and Vector Control District. Discussions with the District indicate that in similar situations, channels have been designed into the wetland habitat to allow mosquitofish entry and to prevent the sheltering of mosquito eggs. Alternatively, in areas of dense vegetation, the area may be

sprayed with BTI, a bacteria that kills mosquitos but is harmless to other species. The commentor's opinion of staffs knowledge is noted for the record.

Response to Comment 13-178:

Title 40 of the Code of Federal Regulations and Title 22 of the California Code of Regulations provide for definitions of reportable quantities of hazardous substances, and the California Health and Safety Code provides for businesses that store hazardous materials to report releases of reportable quantities. At a minimum, Yolo County must comply with these hazardous materials statutes and regulations. For petroleum, the most used hazardous substance in the region, the reportable quantity is 42 gallons within a 24-hour period. For releases less than reportable quantities, the Health and Safety Code requires that each facility develop and implement procedures for spill cleanups. The DEIR preparers are of the opinion that adherence to State and Federal requirements for the safe handling of hazardous materials (including release reporting requirements) would mitigate potential significant impacts associated with releases of hazardous materials.

Response to Comment 13-179:

The reference to the groundwater level in PS 3.5-4 is the de facto groundwater level. It is irrelevant whether it is high or low groundwater level. Mining cannot be commenced below the groundwater at any level until six months after monitoring data have been collected.

The commentor is referred to Mitigation Measure 4.4-2a (as referenced in Mitigation Measure 4.12-1a) regarding groundwater monitoring. The commentor's disagreement with the adequacy of the monitoring program is noted for the record.

Response to Comment 13-180:

The commentor is correct regarding the proposed use of a floating suction dredger. Please see Text Change # 72.

The EIR preparers do recognize that fine-grained materials would become suspended during aggregate removal below the groundwater table. Removal of aggregate below the groundwater table would not be possible without causing suspension of the fine-grained materials. However, this is not considered to be an environmental impact that would require mitigation. Please refer to Response to Comments 13-65, 13-66, 13-70, and 13-89.

Response to Comment 13-181:

The commentor contends that using soil quality data from one portion of the planning area and generalizing it to the entire area is inappropriate. The DEIR preparers disagree with the commentor. The samples collected by Kleinfelder Associates on the Farnham West parcel were selected randomly from the 113-acre parcel. The historic crop rotations on

that parcel were similar to those that were generally implemented within the planning area. Collection of randomly selected samples indicates that any portion of the sampled site would have an equal chance of being sampled. The DEIR preparers had, as part of the preparation of this DEIR, furthermore conducted a database search for any known releases of hazardous materials and also contacted the County Agricultural Commissioner to ascertain known historic land uses that could have resulted in releases of hazardous materials. Neither the database search nor the interview with the Agricultural Commissioner's office revealed any information of known point sources of hazardous materials in the planning area. See also Mitigation Measure 4.4-3a, which requires the testing of topsoil for the presence of pesticides, prior to its use in reclamation for areas that drain into the wet pits.

Response to Comment 13-182:

The objective of providing ten-foot benches is not to prevent people from drowning. It regulates an alternative method of excavation to ensure that adequate slope stability is provided. Performance Standard 2.5-4 is included in the Hazard section discussion because it references slope angles. The commentor is referred to the subsequent discussion in Mitigation Measure 4.12-3a regarding recommendations on slope angles to minimize the potential for drowning hazard.

Response to Comment 13-183:

In response to this comment, Text Change # 32 has been added to include a minimum height requirement of 42 inches for the four-strand barbed wire fence around the wet pits.

Response to Comment 13-184:

The 150 foot buffer would be measured from "...private dwellings..." or the house itself.

Response to Comment 13-185:

The analysis is based on what was determined to be reasonably foreseeable based on planned development and land uses. See Response to Comment 13-171. As discussed in Response to Comment 13-6, a new operator would require a General Plan Amendment, rezoning, a mining permit, and appropriate project-level environmental review.

Response to Comment 13-186:

The use of 600 acres for groundwater recharge and recovery is based on a conversation with Jim Eagan, Manager of the YCFC&WCD and is not included in the list of specific projects or production assumptions on pages 5-1 and 5-2 of the cumulative analysis. The acreage is mentioned in the agricultural section only because the agricultural conversion can be reasonably expected. This is consistent with the general "rule of reason" for EIR contents. The commentor is correct in that any new facilities associated with the

groundwater management plan proposed by the District would require separate environmental review.

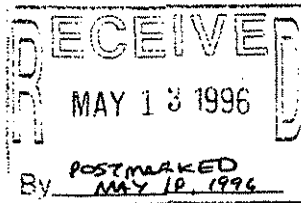
Response to Comment 13-187

Please refer to Response to Comment 13-17.



FOSTER WHEELER ENVIRONMENTAL CORPORATION

May 10, 1996
FW-YCAPA - 008



Mr. Dave Morrison
Resource Management Coordinator
Yolo County Community Development Agency
292 West Beamer Street
Woodland, California 95695

SUBJECT COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT
(EIR) FOR OFF-CHANNEL MINING PLAN FOR LOWER CACHE CREEK,
DATED MARCH 26, 1996

Dear Mr. Morrison:

On behalf of the Yolo County Aggregate Producers Association (YCAPA), Foster Wheeler Environmental Corporation (Foster Wheeler Environmental) has reviewed the subject EIR as it pertains to mercury and offers the following comments enclosed with this letter.

In the detailed comments attached to this letter, we raise a number of key issues. These issues are summarized below with reference to the pertinent comment number(s).

- The EIR proposes a 0.5 mg/kg criterion that is not based on current federal or state standards designed to protect human health and the environment from mercury. The process proposed in the EIR to disapprove wet-pit alternatives or require mitigation or filling of wet pits initiates a new regulatory process that is inconsistent with existing federal and state processes. (Comments 1 and 2). 14-1
- Data from the Slotton et al. (1996) survey of the Solano Concrete wet pits indicate that, although fish tissue concentrations of mercury exceed 0.5 mg/kg, water concentrations are well within the USEPA ambient water quality criteria for protection of aquatic life and human health. (Comment 3). 14-2
- Available fish tissue data indicate mercury concentrations observed in fish species sampled from Solano Concrete's wet pits, are common in fish in Cache Creek, elsewhere in Yolo and Solano counties, and throughout the world. The prevalence of elevated mercury levels in fish, and the similarity of levels measured in the initial project survey to background levels, was not discussed in the EIR. Given the prevalence of mercury in excess of the proposed 0.5 mg/kg criteria in fish in Cache Creek and elsewhere in the Yolo County, the EIR should discuss what measures the County may need to take for these existing water bodies in order to be consistent. (Comment 4). 14-3

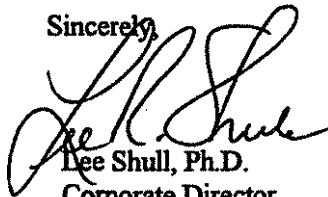
2525 NATOMAS PARK DRIVE, SUITE 250, SACRAMENTO, CA 95833-2900
TEL: 916-921-2525 FAX: 916-921-5124


Mr. Dave Morrison
March 10, 1996
Page Two

- Groundwater data **from** the gravel mining area indicates mercury is **well** below the **drinking** water standard for mercury. (Comments 5). } 14-4
- The EIR should recognize there should be no incremental increase in human health risk **from** consuming fish from the reclaimed wet pits. (Comment 7). } 14-5

Thank you for the **opportunity** to **comment** on the EIR. Please **call** us at **921-2525** should you wish to discuss the above comments.

Sincerely,


Lee Shull, Ph.D.
Corporate Director
Toxicology and Risk Assessment


Richard M. Sitts, Ph.D.
Supervising Scientist

Attachment: *Comments on the Draft Environmental Impact Report for Gravel Mining in Lower Cache Creek, Dated March 26, 1996*

c:
A. Russo
D. Augustine
R. Sitts
M. Jones
M. Bowland
J. Scalmanini



FOSTER WHEELER ENVIRONMENTAL CORPORATION

**COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT
REPORT (EIR) FOR OFF-CHANNEL MINING PLAN FOR
LOWER CACHE CREEK, DATED MARCH 26,1996**

Prepared for

Yolo County Aggregate Producers Association

Prepared by

**Foster Wheeler Environmental Corporation
2525 Natomas Park Drive, Suite 250
Sacramento, California 95833**

May 10,1996

COMMENT 1. THE 0.5 MG/KG MERCURY THRESHOLD LEVEL PROPOSED IN THE EIR IS NOT CONSISTENT WITH THE CURRENT FDA CRITERION OF 1.0 MG/KG FOR MERCURY.

On page 4.4-47, paragraph 5, the EIR states:

"The Food and Drug Administration set the threshold level of methylmercury [sic] in fish consumed by humans at 1.0 mg/kg. However, the National Academy of Sciences recommends a level of 0.5 mg/kg."

The EIR should reference the specific documents on which these statements are based. We assume the National Academy of Sciences (NAS) recommendation is from its 1973 report, *Water Quality Criteria 1972*. If this is the case, then the NAS recommendation referenced in the EIR is based on the Food and Drug Administration (FDA) threshold of 0.5 mg/kg that existed at the time the 1973 NAS report was published. Enforcement of that threshold in the 1970s ended in litigation over a case involving consumption of swordfish. The courts determined that the studies on which the 0.5 mg/kg threshold was based were atypical and that the exposure and dose/response assumptions used to develop the 0.5 mg/kg fish advisory criterion were overly conservative. A new fish advisory criterion of 1.0 mg/kg was promulgated by the FDA, based on newer exposure and dose/response data from a number of studies (Bolger, personal communication, 1996).

In general, the FDA fish advisory criterion applies only to interstate commerce. Individual states and local agencies are responsible for promulgating fish advisory criteria within their own borders and may choose to adopt the FDA criterion or develop alternative criteria. The State of California has adopted an alternative process that involves risk assessment to identify the need for fish consumption advisories (see Comment 2).

Given the discussion above, the EIR should recognize the current FDA 1.0 mg/kg level, and acknowledge that it applies to human consumption and interstate commerce. Further, since a state process to protect human health is in place, the EIR should switch to the state approach for mercury.

COMMENT 2. THE 0.5 MG/KG MERCURY THRESHOLD LEVEL PROPOSED IN THE EIR IS NOT CONSISTENT WITH CURRENT STATE OF CALIFORNIA PRACTICE AND WOULD CREATE A NEW REGULATORY PROCESS.

On page 4.4-51, the EIR discusses the 0.5 **mg/kg criteria**.

The **EIR** should rely on the existing state process for identifying potential health risks related to mercury, instead of **creating** a new process independent of the state process. The need for **Yolo County** (County) to adopt its own standard (0.5 **mg/kg**) for mercury in fish tissue is not apparent, particularly when the proposed standard does not have any basis in current federal or state guidance for mercury. The **EIR** does not provide a rationale for adopting an alternative standard. If an alternative standard is deemed necessary, the rationale for adopting such a standard should be given.

The State of California has a process in place that is designed to protect human health and the environment from mercury impacts. The Office of Environmental Health Hazard Assessment (OEHHA), California EPA, **first** determines if fish muscle tissue contains mercury concentrations at levels of potential **concern**. (A concentration of 0.5 **mg/kg** has been used as a "red flag" in the past, but as new data on mercury is currently being made **available** at a rapid rate, this is no longer a "magic number." Rather, conditions of a specific site, including potential exposure scenarios, determine the mercury concentration that is of potential concern at the site.) Where mercury levels are a potential **concern**, **OEHHA**, California EPA, will conduct a risk assessment to determine the need for fish consumption advisories.

If necessary, OEHHA issues advisories that are site- and **species-specific** and are based on mercury levels (total mercury assumed to be 100 percent methyl mercury, as measured in fish tissue samples **from** a specific water body) and on doses that could cause health effects. Once issued, the State Department of Fish and Game (**DFG**) is required by legislation to publish advisories in DFG regulations that are available at license vending locations and at all DFG stations. Advisories are also posted in local newspapers and the local health **department(s)** is notified of their existence. State fish consumption advisories are generally informational and are not enforced at the point of consumption. **Staff** at OEHHA were not aware of any instances in which a fish consumption advisory led to the fencing of a fishing area or the banning of fishing in an area (G. **Pollock**, personal communication, 1996; D. Crane, personal communication, 1996).

Specific examples of the use of fish advisories regarding mercury concurrent with sport fishing regulations that allow limited or unlimited fishing include Clear Lake and the San Francisco Bay Delta. Fish consumption advisories and fishing limits are both published in California Sport Fishing Regulations (California Department of Fish and Game [**DFG**], 1996). In the Clear Lake case, from 0.28 to 0.66 **mg/kg** mercury has been measured in channel catfish (California Department of Health **Services** [**DHS**], 1987). The **California** Sport Fishing Regulations (**DFG**, 1996) advise pregnant women and children under six

years of age to not eat catfish from Clear Lake. They advise adults to eat no more than three pounds per month of catfish shorter than 24 inches. **Regarding** catching catfish, the regulations specify that there is no limit on the number or size of catfish that an angler can catch per day in Clear Lake. Clear Lake **largemouth** bass have had **from 0.31 to 0.97 mg/kg** of mercury (**DHS, 1987**). The advisory to pregnant women and children under six is to not eat largemouth bass from Clear Lake, and for adults to eat no more than two pounds per month. **Regarding** the **limit**, up to five largemouth bass all **12** inches or longer can be legally harvested per day from Clear Lake. DFG also published a mercury advisory for San Francisco **Bay/Delta** striped bass, which have had from **0.15 to 0.44 mg/kg** mercury (California State Water Resources Control Board, **1995**). The advisory is that no one eat striped bass longer than **35** inches. For striped bass less than **27** inches, pregnant women and children **15** years or younger should not eat more than six ounces per month, others should not eat more than **12** ounces per **month**. The harvest limit is two striped bass per day 18 inches or longer.

COMMENT 3. MERCURY CONCENTRATIONS IN WATER FROM AN EXISTING WET PIT ARE BELOW USEPA AMBIENT WATER QUALITY CRITERIA TO PROTECT AQUATIC LIFE AND HUMAN HEALTH.

On page 4.4-51, paragraph 1, the EIR states:

"The following performance standards shall be added to the OCMP to mitigate for potential for significant adverse impacts associated with the conversion of mercury occurring within the Cache Creek alluvial deposits to methylmercury [sic]:

Prior to approval of reclamation of aggregate mining areas to permanent lakes, the County shall commission a sampling and analysis program,.... If the initial sampling indicates either of the following conditions, the County shall perform verification sampling:

- *Average concentrations of total mercury in excess of 0.000012 mg/L in the water;*
- *Mercury levels in fish samples in excess of 0.5 mg/kg.*

If verification sampling indicates exceedance of these mercury standards, the County shall not approve reclamation of mining areas to permanent lakes."

The 0.000012 mg/L is the U.S. Environmental Protection Agency (USEPA) freshwater chronic ambient water quality criteria for the protection of aquatic life. The 0.5 mg/kg is stated as being based on a NAS recommendation, which was in part based on a now obsolete FDA fish advisory criterion. This issue was already raised in Comments 1 and 2, regarding the appropriateness of a 0.5 mg/kg threshold level for mercury in fish tissue. Further questions regarding this threshold are raised below.

Protection of Aquatic Life. The USEPA has established ambient water quality criteria for mercury and other toxic pollutants that may be considered estimates of "the highest concentration of a substance in water which does not present a significant risk to the aquatic organisms in the water and their uses." On page 4.4-45, the EIR discusses the USEPA ambient water quality criteria to protect aquatic life. The USEPA has established 1-hour acute and 4-day freshwater chronic criteria of 2,400 and 12 nanograms per liter (ng/L), respectively, to protect aquatic life (USEPA 1984). That is, a potentially unacceptable impact to freshwater aquatic organisms may be expected if a 4-day average concentration of 12 ng/L is exceeded more than once in any 3-year period (USEPA, 1986). The 4-day freshwater chronic criterion is essentially a final residue value that was derived from a methyl mercury bioconcentration factor (BCF) of 81,700 for fathead

minnows. **BCFs** are used to relate pollutant residues in aquatic organisms to the **pollutant** concentration in ambient waters.

Water quality data for the **Solano** Concrete wet pits indicate that mercury concentrations in water are below the **USEPA** ambient water quality criteria for protection of aquatic life. Specifically, data from Slonon et al. (1996) include four observations made from April 4 through April 15, 1996 in the **Solano** Concrete wet pits. During this period, unfiltered total mercury concentrations ranged from 2 to 3 ng/L, all well below the **USEPA** criterion of 12 ng/L. Methyl mercury values ranged from 0.01 to 0.04 ng/L, or about 1 percent of the total mercury values.

Protection of **Human** Health. The **EIR** does not appear to discuss the **USEPA** ambient water quality criteria to protect human health from mercury in consumed fish. These criteria are 144 ng/L for consumption of water and fish, and 146 ng/L for consumption of fish only (**USEPA, 1992**). These criteria attempt to minimize or specify the potential risk of adverse human effects due to mercury in ambient water.

Water quality data for the **Solano** Concrete wet pit that indicate concentrations of mercury in water are below the **USEPA** ambient water quality criteria for protection of human health. Specifically, data from Slonon et al. (1996) include four observations made from April 4 through April 15, 1996 in the **Solano** Concrete wet pits. During this period, total mercury concentrations ranged from 2 to 3 ng/L, all well below the **USEPA** criteria of 144 to 146 ng/L.

COMMENT 4. **MERCURY CONCENTRATIONS EXCEEDING 0.5 MG/KG IN FISH TISSUE ARE COMMON.**

On page 4.4-51, the **EIR** discusses the fish tissue criterion of **0.5 mg/kg** mercury, but does not provide any contextual information regarding typical background concentrations in fish populations. In fact, this concentration has been shown to be common in the muscle of a wide range of fish species.

Table 4-1 is a list of ranges of measured concentrations of mercury found in a number of fish species for a number of regions. This table includes **Solano** Concrete's wet pits data, and state, **national**, and international data. Comparisons of these data follow.

Mercury Concentrations in Nearby Water Bodies

Mercury concentrations in fish collected from the **Solano** Concrete wet pits (**Slotton et al., 1996**) are representative of concentrations commonly observed elsewhere. The wet pit data range from **0.13** to **0.92 mg/kg** fresh weight. Mercury concentrations reported for freshwater fish sampled nationally range from **0.02** to **9.5** mg/kg. Reported mercury concentrations in California **freshwater** fish range from **0.16** to **1.8 mg/kg** flesh weight. Measured concentrations in fish from the **Solano** Concrete ponds are at the low end of these reported ranges.

Mercury concentrations reported in the literature are similar to those measured at the **Solano** Concrete ponds for similar fish species:

- Mercury concentrations measured in **sunfish** at the **Solano** Concrete ponds ranged from **0.16** to **0.3** mg/kg. These concentrations are similar to those measured in lower Cache Creek sunfish and elsewhere in California (**0.06** to **0.26 mg/kg**).
- Concentrations of mercury in smallmouth bass collected from the **Solano** Concrete wet pit ranged from **0.19** to **0.9 mg/kg** fresh weight. These concentrations are at the lower end of the national range (**0.03** to **9.5** mg/kg) and California range (**0.1** to **1.8 mg/kg**) for largemouth and **smallmouth** bass.
- Mercury concentrations in **catfish** collected from the **Solano** Concrete wet pit (**0.13** to **0.92 mg/kg**) are in the lower end of the national range (**0.02** to **2.5** mg/kg), but exceed the range for lower Cache Creek (**0.28** to **0.57 mg/kg**) and elsewhere in California (**0.02** to **0.34** mg/kg).

Fish have also been collected from other surface water bodies within the Cache Creek watershed (Table 5-1). Two of these water bodies, Davis Creek **Reservoir** and Clear Lake, are impacted by mercury. Fish advisories have been issued for Clear Lake (see Comment 2); no fish advisories have been issued for Davis Creek Reservoir, which is on private property, nor has this water body been studied by **OEHHIA (OEHHIA, 1987; Pollock, personal communication, 1996)**. Comparisons of data for **similar** species of fish

from these water bodies to those collected at the **Solano** Concrete wet pit are presented below:

- The maximum detected total mercury concentrations in sunfish from the **Solano** Concrete wet pit (0.3 mg/kg) and lower Cache Creek (0.29 mg/kg) are less than the 95 percent confidence interval of mean concentrations detected in Davis Creek Reservoir sunfish.
- Mercury concentrations of **catfish** collected at the **Solano** Concrete ponds and lower Cache Creek are similar to the 95 percent confidence interval of mean concentrations detected in Clear Lake.
- Mercury concentrations in **smallmouth** bass collected from the **Solano** Concrete ponds are similar to the 95 percent confidence interval of mean concentrations detected in **Clear** Lake. Concentrations in the **Solano** Concrete pond **smallmouth** bass are less than those for largemouth bass from Davis Creek Reservoir.

The presence of mercury in fish in uncontaminated environments has also been reported in the literature, and can be attributed to "background" sources such as deposition of mercury from the atmosphere, and erosion of natural mercury deposits in soil. For example, fish tissue concentrations in excess of 1.0 mg/kg were common in a survey of more than 10,000 Swedish lakes. In 95 of these lakes, the average mercury concentration in tissue of predatory fish (*e.g.*, pike) was 1.2 mg/kg. These lakes had no known sources of mercury, other than atmospheric sources within their catchments (Anderson and Håkanson, 1992).

Based on this information, it is expected that the creation of permanent lakes from gravel mining activities will not provide conditions resulting in fish mercury concentrations substantially different than mercury concentrations measured in fish from other water bodies in California, the U.S., and other countries. The EIR should acknowledge that these concentrations are commonly observed in support of the County utilizing the advisory process.

Mercury Concentrations in the U.S. Commercial Fish Market

The **FDA**, in addition to other governmental agencies (*e.g.*, U.S. Department of Commerce [**USDC**]), conducts surveillance **sampling** for mercury in fish and seafood available on the commercial market. Data from three of these surveys are presented in Table 5-2. Although the **FDA** data are more recent (1992-1994), the sample size for each species analyzed is relatively small (reported as "at least five samples") compared to the **USDC** (1978) data presented by **DHS** (1987). In addition, the **FDA** survey did not report **all** of the species sampled by **USDC**. The results of these surveys are summarized below and in Table 5-2.

Average mercury concentrations reported in commercially available fish and seafood range from **0.05** mg/kg in shrimp to **1.6** in **tilefish** (Table 5-2). For catfish, concentrations range from **0.05** to **0.74 mg/kg**. Mercury concentrations in fish collected from the **Solano** Concrete ponds range from **0.13** to **0.92** mg/kg fresh weight. Measured concentrations in **fish from the Solano** Concrete ponds are within the reported range of commercial fish mercury concentrations.

For the commercially-available species sampled in these surveys, **USEPA (1995)** reports that the ten highest species-specific mean consumption rates are, in order from highest to lowest, tuna, shrimp, flounder, salmon, cod, trout, catfish, pollock, bass, and crab. The reported mercury concentrations in these commercially available species range from an average of **0.05 mg/kg** for salmon to a **maximum of 2.0 mg/kg** for striped bass. Again, measured concentrations in fish from the **Solano** Concrete ponds fall within this reported range of commercial fish mercury concentrations.

Based on this information, it is not expected that the creation of permanent **lakes** from gravel mining activities will provide conditions resulting in fish mercury concentrations substantially different than mercury concentrations measured in fish available on the commercial market.

TABLE 4-1
MERCURY CONCENTRATIONS IN AQUATIC LIFE

Compartment	Region	Mercury (mg/kg fresh weight)	References*
Bass, fresh water	National	0.19	Tollefson and Cordle, 1986
Largemouth bass	National	0.03-7.3	Jenkins, 1980; DWR, 1987; SWRCB, 1995
Largemouth bass	California	0.1-1.8	DWR, 1987; SWRCB 1995
Largemouth bass	Davis Creek Reservoir, CA	2.79-4.5	Slotton et al., 1996
Largemouth bass	Davis Creek Reservoir, CA	0.79-1.87	Slotton et al., 1996
Largemouth bass	Clear Lake, CA	0.31-0.97 ^b	DHS, 1987
Smallmouth bass	Lake Erie	0.51	Tollefson and Cordle, 1986
Smallmouth bass	Solano Concrete Pond, CA	0.19-0.9	Slotton et al., 1996
Bluegill sunfish	California	0.06-0.26	DWR, 1987; SWRCB, 1995
Bluegill sunfish	Davis Creek Reservoir, CA	2.22-2.81	Slotton et al., 1996
Bluegill sunfish	Davis Creek Reservoir, CA	0.67-1.51	Slotton et al., 1996
Bluegill sunfish	Lower Cache Creek, CA	0.28-0.29	Slotton et al., 1996
Green sunfish	Solano Concrete Pond, CA	0.16-0.3	Slotton et al., 1996
Brown bullhead	Santa Ana River, California	0.13	SWRCB, 1995
Brown bullhead	Lower Cache Creek, CA	0.22-0.31	Slotton et al., 1996
Brown bullhead	Solano Concrete Pond, CA	0.72-0.92	Slotton et al., 1996
Catfish	National	0.02-2.5	Tollefson and Cordle, 1986; Jenkins, 1980; DWR, 1987; SWRCB, 1995a; FDA, 1994
Channel catfish	California	0.02-0.34	DWR, 1987; SWRCB, 1995b
Channel catfish	Clear Lake, CA	0.28-0.66 ^a	DHS, 1987
Channel catfish	Lower Cache Creek, CA	0.28-0.57	Slotton et al., 1996
Channel catfish	Solano Concrete Pond, CA	0.13-0.67	Slotton et al., 1996
White catfish	Clear Lake, CA	0.47-0.61	DHS, 1987
Northern pike	Canada	0.1-10.6	Jenkins, 1980
	Lake St. Clair	2.0 - 3.0	Jenkins, 1980
	Norway	0.1	Jenkins, 1980
	Sweden	0.2 - 9.8	Jenkins, 1980
	Wisconsin	0.9 - 1.4	Jenkins, 1980

**TABLE 4-1
MERCURY CONCENTRATIONS IN AQUATIC LIFE**

Compartment	Region	Mercury (mg/kg fresh weight)	References^a
Perch	Lake Erie, Lake St. Clair	0.24-0.88	Tollefson and Cordle, 1986
Trout, fresh water	National	0.13-0.6	Tollefson and Cordle, 1986; SWRCB, 1995; Jenkins, 1980
Brown trout	Lake Ontario	0.24-0.26	Gutenmann and Lisk, 1991
	California	0.05-0.34	SWRCB, 1995a
Lake trout	Canada	0.12-10.5	Borgmann and Whittle, 1991; Jenkins, 1980
	New York	0.3 - 0.6	Jenkins, 1980
Striped Bass	National	0.14-9.5	Cooper, 1983; DWR, 1987
Striped Bass	California	0.14-0.44	DWR, 1987; RWQCB, 1995
Tuna	National	0.24- 6.3	Schreiber, 1983; USEPA, 1996a
American lobster	Chesapeake Bay	0.03 - 0.6	Jenkins, 1980
	NW Atlantic	0.25 - 1.6	
	Nova Scotia	0.15 - 1.5	
Spiny lobster	Tyrrhenian Sea	2.9	Schreiber, 1983
Walleye	Lake Erie	0.58	Tollefson and Cordle, 1986

- ^a DHS: California Department of Health Services
DWR: California Department of Water Resources
RWQCB: San Francisco Regional Water Quality Control Board
SWRCB: California State Water Resources Control Board

- ^b The full range of detected concentrations was not reported. Values presented here are the upper and lower confidence intervals on the mean and do not represent the true range of concentrations observed in fish from this water body.

TABLE 4-2
MERCURY CONCENTRATIONS IN COMMERCIALY AVAILABLE FISH
AND SEAFOOD

Species	Average Mercury Concentration (mg/kg)	Maximum Mercury Concentration (mg/kg)	References
Domestic			
Bass, freshwater	0.19	0.62	Tollefson and Cordle, 1986
Bass, sea	0.07-0.16	0.25-0.58	DHS, 1987; Tollefson and Cordle, 1986
Bass, striped	0.75	2.0	DHS, 1987
Bluefish	0.19-0.38	0.81-1.23	DHS, 1987; Tollefson and Cordle, 1986
Catfish	<0.10-0.10	0.16-0.74	FDA, 1994; Tollefson and Cordle, 1986
Catfish	--	0.05	This study
Catfish, freshwater	0.15	0.38	DHS, 1987
Catfish, marine	0.48	1.2	DHS, 1987
Cod	0.13-0.15	0.17-0.83	FDA, 1994; Tollefson and Cordle, 1986
Crab	0.13	0.27	FDA, 1994
Crappie	0.2	1.39	DHS, 1987
Flounder	<0.1-0.10	<0.1-0.88	DHS, 1987; FDA, 1994
Grouper	0.6	2.45	DHS, 1987
Hake	<0.1	<0.1	FDA, 1994
Halibut	0.24-0.53	0.51-1.43	DHS, 1987; FDA; 1994, Tollefson and Cordle, 1986
Lobster, Northern	0.51	2.31	DHS, 1987
Perch, freshwater	0.13	0.30	Tollefson and Cordle, 1986
Perch, saltwater	0.17	0.44	Tollefson and Cordle, 1986
Pollock	0.05	<0.1-0.14	FDA, 1994; Tollefson and Cordle, 1986
Salmon	0.05	0.21	DHS 1987
Shark	0.84-1.24	3.52-4.53	DHS 1987; FDA, 1994; Tollefson and Cordle, 1986
Shrimp	0.05	0.33	DHS, 1987
Snapper, red	0.45	2.17	DHS, 1987
Swordfish	0.83-1.27	1.68-2.72	DHS 1987, FDA 1994; Tollefson and Cordle, 1986

TABLE 4-2
MERCURY CONCENTRATIONS IN COMMERCIALY AVAILABLE FISH
AND SEAFOOD

Species	Average Mercury Concentration (mg/kg)	Maximum Mercury Concentration (mg/kg)	References
Tilefish	1.61	3.73	DHS, 1987
Trout, freshwater	0.13-0.42	1.01-1.22	DHS, 1987, Tollefson and Cordle, 1986
Trout, marine	0.09-0.24	0.24-1.19	DHS, 1987; Tollefson and Cordle, 1986
Tuna, canned	0.20	0.34	FDA, 1994
Tuna, fresh or frozen	0.38	0.76	FDA, 1994
Tuna, light skipjack	0.14	0.39	DHS, 1987
Tuna, light yellowfin	0.27	0.87	DHS, 1987
Tuna, white	0.35	0.90	DHS, 1987
Imported			
Pollock	0.16	0.78	FDA, 1994
Shark	0.36	0.70	FDA, 1994
Swordfish	0.86	1.61	FDA, 1994
Tuna, Canned	0.14	0.39	FDA, 1994
Tuna, fresh or frozen	0.27	0.75	FDA, 1994

COMMENT 5. GROUNDWATER MERCURY CONCENTRATIONS AT THE **SOLANO** CONCRETE WET **PITS ARE** LESS THAN THE DRINKING WATER MAXIMUM CONTAMINANT LEVEL FOR MERCURY.

In evaluating potential effects on drinking water, the EIR should acknowledge data on mercury concentrations in groundwater in the proposed off-channel gravel mining area. **Specifically**, concentrations of filtered total mercury and methyl mercury in shallow ground water were determined at existing and planned wet-pit areas within the lower Cache Creek Basin. This groundwater, along with atmospheric deposition, is the source of water for the proposed wet pits. From April 15 through April 17, 1996, groundwater samples were collected **from** four monitoring wells located at the **Solano** Concrete site and five wells at the Cache Creek Aggregates site. In conjunction with the groundwater samples collected for mercury analyses, selected samples were also analyzed for general mineral constituents and nitrate. The latter samples were collected to assess water quality correlations between shallow groundwater and Cache Creek and also to assess current environmental conditions related to the speciation of mercury. Details on well location criteria, and sampling procedures and results are provided below.

Criteria for well locations. Groundwater monitoring wells at the two sites were selected **using** the following criteria:

- *Location of the monitoring well relative to the Creek.* Wells were selected both near to and away from the Creek.
- *Location of monitoring well relative to an existing or planned wet pit mining area.* Wells were selected upgradient and downgradient of mining areas.
- *Completion of the monitoring well near the water table and/or relatively deeper alluvial materials.* One relatively deeper well was sampled at each site.

The monitoring wells selected for sampling included shallow wells **OW2s, OW3s, OW8s** and deep well **OW8d** at the **Solano** Concrete site, and wells **MW1, MW3, MW4A** (deeper), **MW4B** (shallower) and **MWS** at the Cache Creek Aggregates site. The monitoring well locations are shown on their respective site maps (Figures 5-1 and 5-2). In addition to the groundwater samples, a **surface** water sample was collected from Cache Creek near the Cache Creek Aggregates site, at the location shown on Figure 5-2.

Sampling Apparatus and Procedures. A portable stainless steel submersible pump was used for groundwater purging and sampling. Separate **tubings** are attached to the pump for purging and sampling activities. Due to the extremely low detection limits for the mercury analyses, special precautions were employed to ensure ultra-clean sample tubing and related equipment. Teflon-lined polyethylene tubing was pre-cleaned by Frontier Geosciences Laboratory, Seattle, Washington, **using** an acid cleaning procedure. The tubing was soaked in 4N hydrochloric acid at 70°F. This soaking was followed by

copious **rinsing** with deionized water known to be low in metals of interest (mercury in particular). Groundwater **samples** were **collected** following in-line filtration **with high** capacity (600 **cm²**) 0.45-micrometer (**µm**) disposable filters having an inherently **hydrophilic** polysulfane membrane and an outer **polycarbonate** shell. The filters were also acid-cleaned using the above procedure. Individual tubing-in-line filter units were assembled for each sampling location. Also, quality control samples were collected from two **tubing/filter** units to assess the concentration of total mercury present as background. The quality control samples showed background concentrations of 0.15 and 0.21 **ng/L** total mercury.

Each sampling event included extensive purging. A minimum of 40 casing volumes was purged to ensure the collection of representative groundwater samples. During purging, indicator parameters, including specific conductance, pH, temperature and turbidity, were monitored to assess water quality **stabilization**. Field parameter measurements, and other purging **data**, are provided in Tables 5-1 and 5-2.

Sample Collection and Analyses. Samples were collected with the assistance of **Luhdorff and Scalmanini Consulting Engineers**, Woodland, California. Following purging operations, pump flow rates were reduced for sample collection. Groundwater samples for mercury analyses were collected in pre-cleaned Teflon containers using rigorous ultra-clean sampling protocol. Sample collection **was** conducted by two persons wearing fresh clean-room gloves. The containers are double bagged, and one person was responsible for handing the sample container while still in the outer bag. The other person retrieved the container from the inner bag and collected the sample. The bottle was then re-bagged. Samples for general mineral and nitrate analyses were collected using standard sampling techniques.

Samples were collected for total mercury analyses at **all** nine monitoring locations. Samples for methyl mercury were collected from three monitoring wells at **Solano Concrete** (near to and away from Cache Creek), from two monitoring **wells** at Cache Creek Aggregates (near to and away from Cache Creek), and **directly** from the Cache Creek. Three field blanks were collected for quality control purposes for total mercury concentrations in particular.

Samples for total and methyl mercury analyses were shipped to Frontier Geoscience Laboratories. Total mercury **was** analyzed using acid digestion, **SnCl₂** reduction, dual amalgamation and cold vapor atomic fluorescence (CVAFS) detection. Methyl mercury was determined **after** distillation using aqueous phase **ethylation**, gas chromatography separation of the ethyl derivatives, and CVAFS detection. Analytical detection limits for mercury in water were **<0.012 ng/L**.

Samples for general mineral and nitrate analyses were collected from four **wells** at **Solano Concrete**, two wells at Cache Creek Aggregates, and the Creek. Samples for these analyses were delivered to Sequoia Analytical Laboratories in Sacramento.

Groundwater samples were cooled in an ice chest following collection. Samples for mercury analyses were shipped that day or within 24 hours to Frontier Geosciences. The samples were packed with ice packs and dry ice and shipped overnight to the laboratory. General mineral and nitrate samples were picked up and/or delivered to Sequoia Analytical Laboratories within 24 hours of collection. All samples were transported and/or shipped under chain-of-custody protocol. Between sampling locations, the portable submersible pump was decontaminated using an Alconox rinse, followed by deionized water.

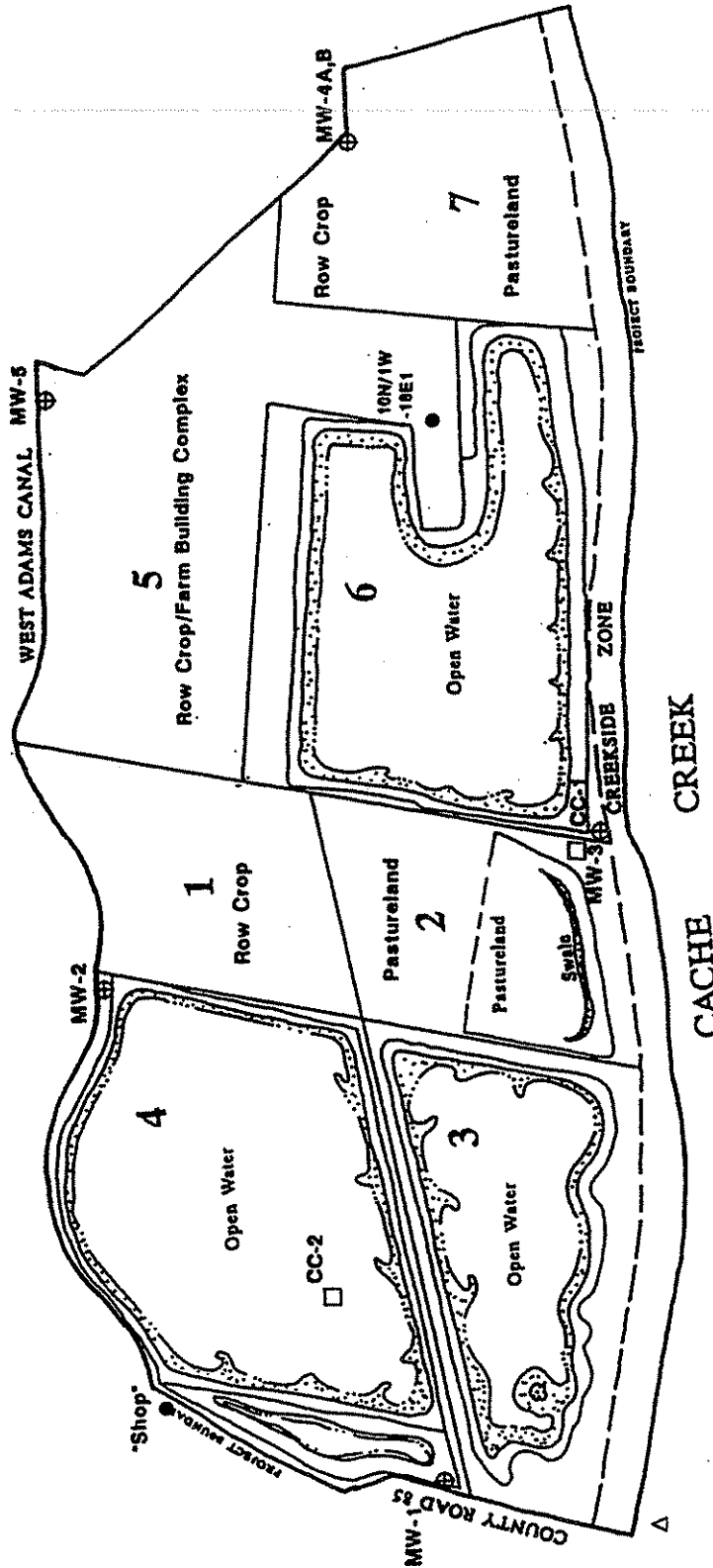
Sampling Results. The results of the total mercury and methyl mercury analyses are summarized in Table 5-3. General mineral and nitrate analytical results are summarized in Table 5-4. The laboratory analytical data sheets are included in **Appendix A**.

The filtered total mercury values, adjusted for field blank concentrations, among samples at both sites, range from 1 to 3 **ng/L**, or up to 0.000003 **mg/L**. Values for filtered methyl mercury **ranged** from 0.00 to 0.01 **ng/L**, or up to 0.00000001 **mg/L**.

The State of **California** has set a Maximum Contaminant Level (**MCL**) of 0.002 **mg/L** for total **mercury**. **MCLs** are developed to ensure that contaminant levels in **potential drinking water sources** do not exceed **levels** that may pose a health risk to **humans**. **Although** Cache Creek has been shown to contain mercury in excess of 0.002 **mg/L** (EIR, page 4.4-10), the groundwater samples around both proposed mining areas were less than or equal to 0.000003 **mg/L**, and therefore well below the **MCL**. These data suggest that water levels in the proposed wet pits would be similar to the groundwater because groundwater is the only known source of incoming **mercury** besides atmospheric deposition.



Not to Scale



- BEND**
- Water Supply Well
 - ⊕ Non-ring Well
 - Boring
 - △ Surface-Offter Sampling Point

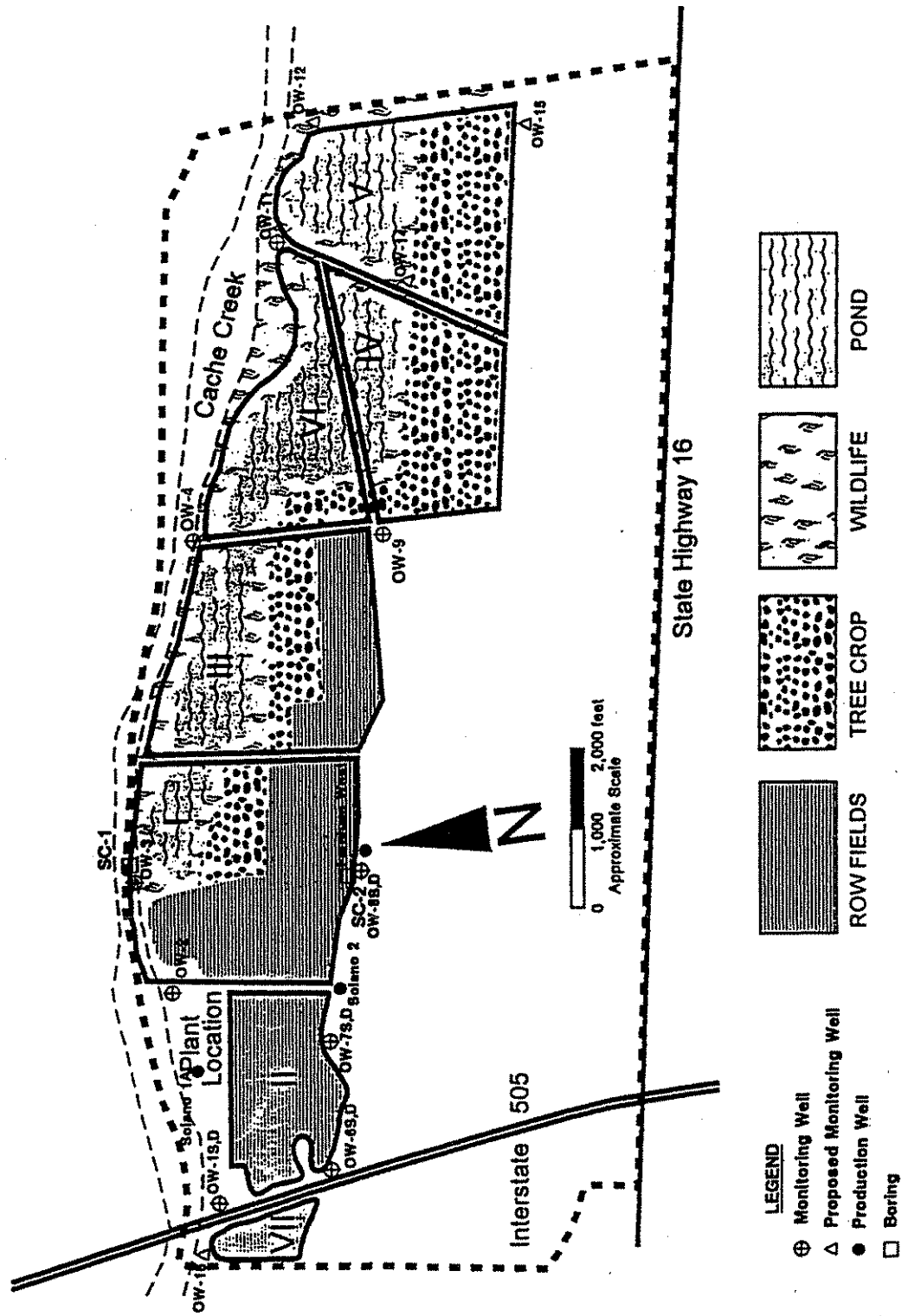
Adapted From Zenlner and Zentner, 1995



Luhdorff & Scalmanini Consulting Engineers

CACHE CREEK AGGREGATES
SITE MAP WITH PROPOSED RECLAMATION

FIGURE
5-1



- LEGEND**
- ⊕ Monitoring Well
 - △ Proposed Monitoring Well
 - Production Well
 - Boring
 - ▨ ROW FIELDS
 - ▤ TREE CROP
 - ▦ WILDLIFE
 - ▧ POND

**SOLANO CONCRETE
SITE MAP WITH PROPOSED RECLAMATION**

**FIGURE
5-2**

LS
**Luhdorff & Scalmanini
Consulting Engineers**

TABLE 5-1

**SUMMARY OF MONITORING PARAMETERS AND RESULTS FOR
GROUNDWATER WELLS AT SOLANO CONCRETE, YOLO COUNTY, CA**

	Well Identification/Sample Date			
	OW2	OW3	OW8 Shallow	OW8 Deep
Parameters Analyzed	4-16-96	4-16-96	4-15-96	4-15-96
Static Water Level (depth, ft.)	29.91	22.13	24.31	24.26
EC (µmhos/cm), Beginning of Purging	853	655	1,172	1,048
EC (µmhos/cm), End of Purging	853	653	1,198	1,030
pH (pH units), Beginning of Purging	7.12	7.81	7.08	7.30
pH (pH units), End of Purging	7.24	7.61	6.95	7.25
Temperature (°F), Beginning of Purging	65.0	58.3	64.9	63.9
Temperature (°F), End of Purging	65.7	57.7	65.6	64.1
Turbidity (NTU), Beginning of Purging	27.0	37.0	100+	1.0
Turbidity (NTU), End of Purging	0.31	0.20	0.30	0.12
Total Well Depth (ft.)	71.30	71.00	36.75	86.90
Casing Volume(gal.)	6.75	7.97	2.03	10.21
Capacity (gpm)	3.0	3.39	1.0	3.52
Time Purged (min.)	90	90	90	135
Casing Volume Purged	40.28	40.03	44.33	40.80

TABLE 5-2
SUMMARY OF MONITORING PARAMETERS AND RESULTS, CACHE CREEK
AGGREGATES, YOLO COUNTY, CALIFORNIA

Parameters Analyzed	Well Identification/Sample Date				
	MW1	MW3	MW4A	MW4B	MW5
	4-16-96	4-16-96	4-17-96	4-17-96	4-17-96
Static Water Level (depth, ft.)	19.81	31.58	32.00	126.98	129.51
EC (μ hos/cm), Beginning of Purging	554	483	694	520	595
EC (μ hos/cm), End of Purging	566	535	662	527	606
pH (pH units), Beginning of Purging	7.50	7.63	7.49	7.20	7.36
pH (pH units), End of Purging	7.41	7.49	7.47	7.62	7.26
Temperature ($^{\circ}$ F), Beginning of Purging	66.3	66.2	65.7	66.3	66.7
Temperature ($^{\circ}$ F), End of Purging	67.2	65.9	66.1	66.9	67.0
Turbidity (NTU), Beginning of Purging	100+	53.0	100+	100+	100+
Turbidity (NTU), End of Purging	2.0	2.0	4.1	2.0	6.4
Total Well Depth (ft.)	53.10	73.30	102.87	53.13	82.75
Casing Volume (gal.)	5.43	6.80	11.55	4.26	8.68
Capacity (gpm)	1.92	3.65	3.0	3.0	3.52
Time Purged (min.)	135	90	165	60	105
Casing Volume Purged	44.63	41.18	40.50	4.26	8.68

TABLE 5-3

**MERCURY SPECIATION IN FILTERED WELL WATERS FROM SOLANO
CONCRETE AND CACHE CREEK AGGREGATES, YOLO COUNTY, CALIFORNIA,
APRIL 1117,1996.**

Sample Location	Sample Date	net [Hg], ng/L	
		Total	Methyl
Solano Concrete OW8-D	4-15-96	0.85	0.023 0.019
Solano Concrete OW8-S	4-15-96	rep 1: 1.33 rep 2: 1.39	0.030
Field Blank	4-15-96	0.34	0.017
Solano Concrete OW-2	4-16-96	3.81	--
Solano Concrete OW-3	4-16-96	1.18	0.020 0.016
Cache Creek Aggregates MW-3	4-16-96	0.65	<0.012
Cache Creek Aggregates MW-1	4-16-96	rep 1: 1.51 rep 2: 1.46	--
Cache Creek -unfiltered	4-16-96	4.53	0.295
Cache Creek -filtered	4-16-96	1.99	0.072
Field Blank	4-16-96	0.34	0.023
Cache Creek Aggregates MW-5	4-17-96	3.03	<0.012
Cache Creek Aggregates MW-4A	4-17-96	rep 1: 1.25 rep 2: 1.02	--
Cache Creek Aggregates MW-4B	4-17-96	1.49	--
Field Blank	4-17-96	0.21	--

TABLE 5-4

GROUNDWATER MONITORING WELLS GENERAL MINERALS AND NITRATE, SOLANO CONCRETE AND CACHE CREEK AGGREGATES, YOLO COUNTY, CALIFORNIA, APRIL 15-17, 1996

Parameter	Solano Concrete OW2	Solano Concrete OW3	Solano Concrete OW8 Shallow	Solano Concrete OW8 Deep	Cache Creek Aggregate MW3	Cache Creek Aggregate MW5	Cache Creek
Bicarbonate	310	210	430	400	220	240	240
Calcium	59	32	82	76	40	42	35
Carbonate Alkalinity	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	68	36	89	80	59	39	48
Copper	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hardness	340	180	530	430	230	240	240
Hydroxide Alkalinity	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Iron	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.24
Magnesium	46	25	79	59	32	34	37
Manganese	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
pH (pH units)	7.4	7.6	7.1	7.4	7.7	7.4	8.4
Potassium	1.9	1.6	1.4	2.4	1.4	1.7	2.0
Sodium	54	43	69	72	50	32	42

TABLE 5-4

GROUNDWATER MONITORING WELLS GENERAL MINERALS AND NITRATE, SOLANO CONCRETE AND CACHE CREEK AGGREGATES, YOLO COUNTY, CALIFORNIA, APRIL 15-17, 1996

Parameter	Solano Concrete OW2	Solano Concrete OW3	Solano Concrete OW8 Shallow	Solano Concrete OW8 Deep	Cache Creek Aggregate MW3	Cache Creek Aggregate MW5	Cache Creek
Specific Conductance (µmhos/cm)	800	550	1,200	1,000	700	600	650
Sulfate	37	24	68	54	35	38	20
Surfactants	0.051	<0.050	<0.050	0.055	0.051	0.12	<0.050
Total dissolved solids (TDS)	480	280	720	620	360	330	340
Zinc	<0.01	<0.01	<0.01	0.01	0.076	<0.01	<0.01
Nitrate	31	18	85	54	7.1	8.3	9.4
Concentration Units = mg/l unless otherwise noted							

COMMENT 7. INCREMENTAL INCREASE IN **MERCURY** EXPOSURE.

On page 4.4-51, the **EIR** refers to a **0.5 mg/kg** value without regard to whether it would prevent an incremental increase in the exposure of people to mercury.

In order to relate the **0.5 mg/kg** value in terms of potential risks to human health, the **following** discussion outlines the typical methods used to estimate potential risks to human health from consumption of fish containing elevated levels of mercury. Several regulatory agencies have previously evaluated potential risks to human health from the consumption of mercury-contaminated fish. These include both state (**e.g.**, California **OEHHA**) and federal (**e.g.**, **FDA**) agencies. In general, the methods used to establish whether a certain level of mercury poses a potential threat to human health **follow** the basic procedures outlined in the **USEPA's Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (USEPA, 1989)**. There are two integral components to the risk assessment procedure developed by **USEPA**. These are the exposure assessment step and toxicity assessment step.

The exposure assessment step in a risk assessment combines information about the concentration of mercury in fish with assumptions about how much fish a typical individual consumes. The result is an estimation of a person's rate of intake, or dose, of mercury. This estimation is dependent on a number of **different** parameters, referred to as exposure parameters. Exposure parameters refer to **all** of the values used to calculate the daily human dose or intake level variables (**e.g.**, ingestion rate, exposure frequency, and body weight). The average daily dose (ADD) of a non-carcinogenic chemical, such as mercury, is averaged over the estimated period of exposure, referred to as the averaging time. The ADD is expressed in units of milligrams per kilogram per day (**mg/kg/d**). Equations used for calculating **ADDs** have been developed by **USEPA**.

Toxicity values for many chemicals, including mercury, are published by the **USEPA** in the on-line Integrated Risk Information System (IRIS; **USEPA, 1996b**). Reference doses (**RfDs**) for non-carcinogens, such as mercury, are experimentally derived "no-effect" values used to quantify the extent of non-carcinogenic toxic effects **from** exposure to a chemical. A lower **RfD** value implies a more potent toxicant.

This concept of risk assessment, relying on both exposure and toxicity **information**, has been used in the fish consumption advisories previously developed by the State of California. California fish consumption advisories are not based on whether levels of mercury in fish tissue exceeded the FDA action level of **1.0 mg/kg**. Fish consumption advisories developed by the state used standard **USEPA** values for the amount of fish **typically** consumed and adult body weights. Recommendations in the advisories specified how much fish could be ingested safely, based on the levels of mercury measured in fish tissue.

The present **USEPA** screening level for mercury is 0.6 mg/kg, based on a modified RfD of 0.06 $\mu\text{g}/\text{kg}/\text{d}$ (**USEPA** 1993). As defined by **USEPA** (1993), screening levels are "concentrations or target analytes (e.g., mercury) in fish or shellfish tissue that are of potential public health concern." They are useful as standards against which levels of contamination in similar tissue collected from the ambient environment can be compared. Screening levels are recommended guidance levels only; they are not regulatory levels and **USEPA** recognizes that there are many other acceptable approaches and models currently in use. In 1995, **USEPA** revised the RfD for mercury from the 0.06 $\mu\text{g}/\text{kg}/\text{d}$. The revised RfD is based on developmental effects in infants (**USEPA**, 1996b). However, **USEPA** has not revised the screening level for mercury, which with the revised RfD (0.1 $\mu\text{g}/\text{kg}/\text{d}$), would increase the **USEPA** screening level for mercury from 0.6 mg/kg to 1.0 mg/kg. Interestingly, this is equal to the FDA action level of 1.0 mg/kg. However, because California has based previous fish consumption advisories on the older RfD, the level of mercury in fish tissue that triggers a fish consumption advisory would be lowered by a factor of 3. The levels of mercury in fish tissue that would trigger a fish consumption advisory will likely be in the neighborhood of 0.2 to 0.3 mg/kg. However, state policy is currently in flux regarding a trigger level for mercury contamination in fish. To date, the state has not formally adopted the use of the new RfD in its development of fish consumption advisories. Based on the discussions above, if this level is adopted by California, virtually all fish consumed, whether store bought or caught, fresh water or marine, would constitute an unacceptable risk to human health.

In the absence of any fish advisories applied to the proposed lakes, there are two conditions in which creation of the permanent lakes would pose an incremental risk to human health above typical risks posed by the consumption of fish. The first condition is if the levels of mercury in fish tissue consumed are significantly above those levels typically found in fish in the typical American diet. The second condition is if people fishing in the lakes increase their consumption of fish because the proposed lakes are constructed. This would only apply to an individual who, through the creation of these lakes, would consume more fish in their diet than before the lakes were created. This does not apply to an individual who may already consume more fish than normal, and may use the lakes as an additional or replacement source. That is, unless fish tissue concentrations of mercury in the lakes are significantly above typical levels or an individual consumes more fish in their diet because of the creation of these lakes, the lakes should not pose an incremental increase in the potential risks to human health. This is not to say that there is not a potential human health risk associated with the consumption of fish from the lakes; however, unless the conditions as presented above are met, there should not be an incremental increase in the risks associated with the consumption of fish from the lakes.

REFERENCES

- Anderson, T., and L. **Håkanson**. 1992. Mercury content in lake **sediments** and suspended matter-temporal variation and relation to water chemistry. *Hydrobiologia*, **235/236**: 685-696.
- Bolger, M. 1996. Personal communication to Jennifer **Nachmanoff**, Foster Wheeler Environmental Corporation from Dr. **Mike Bolger**, Mercury Specialist, FDA Seafood **Hotline** re: revision of FDA advisory criteria from 0.5 **mg/kg** to 1.0 **mg/kg**. May.
- Borgmann**, U., and D. Whittle. 1991. Contaminant concentration trends in Lake Ontario **lake** trout. *Journal of Great Lakes Research* **17(3)**:368-381.
- California Department of Fish and Game (DFG). 1996. California Sport Fishing Regulations. Sacramento.
- California Department of Health **Services** (DHS). 1987. *Methylmercury in Northern Coastal Mountain Lakes: Guidelines for Sport Fish Consumption for Clear Lake (Lake County), Lake Berryessa (Napa County), and Lake Herman (Solano County)*. Hazard Evaluation Section. April.
- California Department of Water Resources (**DWR**). 1987. *Evaluation of Toxic Substances in Fish, Benthic Organisms, and Sediment in the State Water Project*. Division of Operations and Maintenance. December.
- California** State Water Resources Control Board (SWRCB). 1995. Toxic Substances **Monitoring** Program (TSMP). Fresh Water Bioaccumulation **Monitoring** Program. September.
- Crane, D. 1996. Personal communication to Jennifer **Nachmanoff**, Foster Wheeler Environmental Corporation with Dave Crane, Lab **Supervisor**, DFG Water Pollution Control **Laboratory** re: background levels of mercury in fish tissue, process for issuing fish advisories. May.
- Cooper, J. 1983. Total mercury in fishes and selected biota in **Lahontan** Reservoir, Nevada: 1981. *Bull. Env. Contam. Toxicol.* **31**:9-17.
- Gutenmann, W., and D. Lisk. 1991. Higher average mercury concentrations in fish **fillets** after skinning and fat removal. *Journal of Food Safety* **11(2)**: 99-103.

- Jenkins, D. 1980. Biological monitoring of toxic trace metals. Volume 2. *Toxic trace metals in plants and animals of the world. Part II. Mercury*. U.S. Environmental Protection Agency Rep. 600/3-80-091:779-982. Cited in Eisler, R. 1987. Mercury Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. April.
- National Academy of Sciences (NAS). 1972. Water Quality Criteria 1972. Committee on Water Quality Criteria. Environmental Studies Board. Prepared for USEPA. Washington, D.C.
- Pollock, G. 1996. Personal communication to Jennifer Nachmanoff, Foster Wheeler Environmental Corporation from Dr. Gerald Pollock, OEHHA re: state process for identifying areas of potential mercury concern and issuing fish advisories. May.
- Schreiber, W. 1983. Mercury content of fishery products: data from the last decade. *Sci. Tot. Environ.* 31:283-300.
- Slotton, D., S. Ayers, and J. Reuter. 1996. *Off-Channel Gravel Pit Lakes—Mercury Considerations, Lower Cache Creek Yolo County, California, Preliminary Study*. Davis, California. May.
- Tollefson, L., and F. Cordle. 1986. Methylmercury in fish: a review of residue levels, fish consumption and regulatory action in the United States. *Environ. Health Persp.* 68:203-208.
- U.S. Environmental Protection Agency (USEPA). 1984. *Ambient Water Quality Criteria for Mercury - 1984*. Office of Water Regulations and Standards, Criteria and Standards Division.. EPA 440/5/84-026. January.
- U.S. Environmental Protection Agency. 1989. *Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish: A Guidance Manual*. Office of Marine and Estuarine Protection/Office of Water Regulations and Standards. September.
- U.S. Environmental Protection Agency (USEPA). 1992. *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance. Federal Register*. Vol. 57, No. 246. December 22, 1992.
- U.S. Environmental Protection Agency (USEPA). 1995. *Exposure Factors Handbook*. Review Draft. Office of Research and Development, Washington DC. EPA/600/P-95/002A. June.
- U.S. Environmental Protection Agency (USEPA). 1996a. *Hazardous Substances Database (HSDB)*. On-line database. Mercury. May.

U.S. Environmental Protection Agency (USEPA). 1996b. *Integrated Risk Information system (IRIS)*. On-line database. May.

U.S. Fish and Wildlife Service (USFWS). 1987. *Mercury Hazards to Fish, Wildlife, and Invertebrates: A Synoptic View*. Biological Report 85 (1.10). April.

U.S. Food and Drug Administration (FDA). 1994. *Mercury in Fish: Cause for Concern? FDA Consumer*. September.

Washington Administrative Code (WAC) 173-204-320. *Sediment Management Standards*.

APPENDIX A
LABORATORY DATA FOR WELL WATER ANALYSES



Rick Sitts
Foster Wheeler Environmental
2525 Natomas Park Drive, #250
Sacramento, CA 95833-2900

April 24, 1996

Dear Mr. Sitts,

Enclosed please find our results for mercury speciation in water, core borings, and fish from your Cache Creek Aggregates project. Samples were handled using ultra-clean protocols—with special attention being paid to the extraction of soils from the core borings only from the center of the sample (material not in contact with the brass core tube walls). In several cases (those indicated in the tables as "gravel/sand/mud," and "muddy sand") the samples were slushy and wet, **making** it impossible to obtain a sample that had not been in contact with the core barrel. These samples may contain some degree of contamination due to the brass core barrel, although the degree of this is unassessable.

All total Hg were analyzed according to published FGS protocols, using acid digestion, SnCl_2 reduction, dual amalgamation and cold vapor atomic fluorescence (CVAFS) detection. Methyl Hg were determined after distillation using aqueous phase ethylation, GC separation of the ethyl derivatives, and CVAFS detection. The dry fraction was determined gravimetrically, after drying at 105°C overnight. No analytical difficulties were encountered, and all raw data has been archived for a year, in case future access is needed. I will note that the fish sample gave unusual results, in that only a small fraction (20%) of the measured total was found to be methyl Hg. Normally, we have found 95-100% of fish muscle Hg in the methylated form. However, most of the fish we have measured have been upper level pecivors, as opposed to your catfish, which feeds on detritus (largely inorganic Hg).

In addition to the chemical data, the following information was obtained on the three sieved samples:

sample ID	percent of mass < 2 mm
CC-1-25	86.0
CC-1-40	58.6
CC-2-16	67.0

In addition to **this** report, we have, at your request, included copies of the **NRCC** standard reference materials certificates. The samples will be disposed of in two weeks unless other instructions are given. Please feel free to call if you have any questions or additional analytical needs.

Best Wishes,



Nicolas S Bloom

[Faint, illegible handwritten text]

Mercury Speciation in Filtered Well Waters (Foster Wheeler Corp.)

April 22, 1996

Frontier Geosciences Inc.
414 Pontius North, Suite B
Seattle, WA 98109

bottle	location	net [Hg], ng/L	
		total	methyl
CENT-891	Solono Concrete OW8-D	0.85	0.023 0.019
CENT-769	Solono Concrete OW8-S	rep 1: 1.33 rep 2: 1.39	0.030
CENT-2	field blank	0.34	0.017
CENT-838	Solono Concrete OW-2	3.81	---
CENT-827	Solono Concrete OW-3	1.18	0.020 0.016
CENT-828	Cache Creek Ag. MW-3	0.65	<0.012
CENT-548	Cache Creek Ag. MW-1	rep 1: 1.51 rep 2: 1.46	---
CENT-530	Cache Creek-unfiltered	4.53	0.295
CENT-530 F	Cache Creek-filtered	1.99	0.072
CENT-757	field blank	0.34	0.023
CENT-833	Cache Creek Ag. MW-5	3.03	< 0.012
CENT-537	Cache Creek Ag. MW-4A	rep 1: 1.25 rep 2: 1.02	---
CENT-868	Cache Creek Ag. MW-4B	1.49	---
CENT-754	field blank	0.21	---

Mercury Speciation in Filtered Well Waters --QC Data

parameter	[Hg], ng/L	
	total	methyl
Milli-Q water (sent out for field blanks)	0.23	---
test tubing + filter #1	0.15	---
test tubing + filter #2	0.21	---
blank 1	0.14	0.015
blank 2	0.08	0.022
blank 3	0.14	0.026
blank 4	0.12	0.018
blank 5	0.17	0.019
blank 6	0.07	0.016
mean	0.12	0.019
SD	0.04	0.004
estimated MDL	0.12	0.012
CENT-2 + 1.00 ng/L Hg	1.93 (159%)	---
CENT-868 + 5.00 ng/L Hg	6.52 (101%)	---
CENT-828 + 1.00 ng/L Hg	1.75 (110%)	---
NRCC DORM-2 ^a (ng/g)	rep 1: 4,660 rep 2: 4,686	rep 1: 4,872 rep 2: 4,993
certified	4,640 ± 260	4,470 ± 370
CENT-827 + 1.25 ng/L MMHg	---	1.739 (137%)

Mercury Speciation in Fish (Foster Wheeler Corp.)

April 22, 1996

Frontier Geosciences Inc.
414 Pontius North, Suite B
Seattle, WA 98109

sample	[Hg], ng/g (ppb) wet weight basis	
	total	methyl
cat fish muscle (dry fraction = 0.1961)	rep 1: 50.5 rep 2: 30.4	rep 1: 9.3 rep 2: 5.1
blank 1	0.07	0.4
blank 2	0.06	---
blank 3	0.07	---
NRCC DORM-2 ^a	4,427	4,892
certified value	4,640 ± 260	4,470 ± 370

Mercury Speciation in Core Borings (Foster Wheeler Corp.)

April 22, 1996

Frontier Geosciences Inc.
414 Pontius North, Suite B
Seattle, WA 98109

sample	soil description	dry fraction	[Hg], ng/g (ppb)	
			wet basis	dry basis
SC-1-2.5	sandy soil	0.8590	766.3	892.1
SC-1-2.5 methyl	sandy soil	0.8590	0.081	0.094
SC-1-16	gravely sand	0.9710	39.8	41.0
SC-1-45	sandy gravel	0.8655	33.4	38.6
SC-1-45 methyl	sandy gravel	0.8655	<0.001	<0.001
SC-1-50	sand	0.8214	40.7	49.5
SC-2-2.5	silty soil	0.8179	86.2	105.4
SC-2-16	sand	0.9676	32.1	33.2
SC-2-35	muddy sand	0.7855	245.5	323.5
SC-2-45	muddy sand	0.7947	153.3	192.9
CC-1-3	gravely sand	0.9731	15.8	16.2
CC-1-25	gravely sand	0.9345	68.4	73.2
CC-1-25	(> 2 mm only)	0.9576	6.1	6.4
CC-1-40	gravel/sand/mud	0.8735	38.2	43.7
CC-1-40	(> 2 mm only)	0.8975	6.9	7.7
CC-1-50	coarse sand	0.8881	36.9	41.5
CC-2-3	silty soil	0.9118	43.5 67.7	61.0
CC-2-16	gravely sand	0.9622	21.2	22.0
CC-2-16	(> 2 mm only)	0.9242	3.9	4.2
CC-2-40	gravel/sand/mud	0.8660	40.4	46.7
CC-2-50	coarse sand	0.8472	35.3	41.7

Mercury Speciation in Core Borings–QC Data

parameter	[Hg], ng/g	
	wet basis	dry basis
blank-1 ^c	0.37	---
blank 2 ^c	0.02	---
blank-3 ^c	0.53	---
blank-4 ^c	0.15	---
blank-5 ^c	0.03	---
blank-6 ^a	0.02	---
blank-7 ^a	0.03	---
blank-8 ^a	0.03	---
mean	0.15	---
SD	0.20	---
estimated MDL	0.6	---
DORM-2 ^a	---	rep 1: 4,635 rep 2: 4,655 rep 3: 4,427
certified range	---	4,640 ± 260
PACSI ^b	---	rep 1: 4,709 rep 2: 4,483
certified range	---	4,540 ± 160

*NRCC certified fish tissue

for typical 3 gram sample aliquot

^bNRCC certified marine sediment



National Research Council
Canada

Conseil national de recherches
Canada

Institute for Environmental
and Technology

Institut de technologie et de
recherche environnementales

Measurement Science

Science des mesures

Ottawa, Canada
K1A 0R6

(613) 993-2359
FAX (613) 993.2451

NRC-CNRC

January, 1981
Revised 1987, 1990, 1993

BCSS-1, MESS-2, PACS-1

Marine Sediment Reference Materials for Trace Elements and Other Constituents

The following tables show those constituents for which certified values have been **established**. Certified values are based on the results of determinations by at least two independent methods of analysis. The uncertainties **represent** 95% **confidence limits** for an individual subsample. That is, 95% of samples from any bottle would **be** expected to have concentrations **within** the specified range 95% of the time.

Trace Metals - Milligrams per Kilogram

	MESS-2		BCSS-1		PACS-1	
Antimony (g,h,i,n,q,x)	1.09	± 0.13	0.59	± 0.06	171	± 14
Arsenic (b,g,h,i,n,p,x)	20.7	± 0.8	11.1	± 1.4	211	± 11-
Beryllium (g,i,q)	2.32	± 0.12	1.3	± 0.3	---	---
Cadmium (g,i,m,q)	0.24	± 0.01	0.25	± 0.04	2.38	± 0.20 -
Chromium (f,g,m,n,p,q,x)	106	± 8	123	± 14	113	± 8 -
Cobalt (b,f,g,i,m,n,p,x)	13.8	± 1.4	11.4	± 2.1	17.5	± 1.1-
Copper (f,g,i,m,n,q,x)	39.3	± 2.0	18.5	± 2.7	452	± 16-
Lead (f,g,i,m,p,q,x)	21.9	± 1.2	22.7	± 3.4	404	± 20-
Lithium (g,q)	73.9	± 0.7	---	---	---	---
Manganese (b,f,i,n,p,x)	365	± 21	229	± 15	470	± 12
Mercury (c,q)	0.092	± 0.009	---	---	4.57	± 0.16
Molybdenum (g,i,q)	2.85	± 0.12	(1.9)*	---	12.9	± 0.9
Nickel (g,i,m,n,q,x)	49.3	± 1.8	55.3	± 3.6	44.1	± 2.0 -
Selenium (g,h,l,m)	0.72	± 0.09	0.43	± 0.06	1.09	± 0.11
silver (g,q)	0.18	± 0.02	---	---	---	---
Strontium (f,i,g,q)	125	± 10	(96.)*	---	277	± 11
Thallium	(0.98)*	---	(0.6)*	---	---	---
Tin (g,h,i,q)	2.27	± 0.42	1.85	± 0.20	41.1	± 3.1
Vanadium (b,f,i,m,n)	252	± 10	93.4	± 4.9	127	± 5
Zinc (f,i,m,n,q,x)	172	± 16	119	± 12	824	± 22-
Tributyltin	---	---	---	---	1.27	± 0.22 (as Sn)
Dibutyltin	---	---	---	---	1.16	± 0.18 *
Monobutyltin	---	---	---	---	0.28	± 0.17 *

A standard of excellence for more than fifty years

Un modèle d'excellence depuis plus de cinquante ans

county of Yolo
June 14, 1996

4-272

Canada
OCMP-ETK Response to Comments
Response to Comments

Matrix and **Minor** Constituents - Percent

	MESS-2		BCSS-1		PACS-1	
Al ₂ O ₃ (f,i,n,x)	16.2	± 0.49	11.83	± 0.41	12.23	± 0.22
C (e,r)	2.14	± 0.03	2.19	± 0.09	3.69	± 0.11
CaO (f,i,n,p,x)	---	---	0.760	± 0.074	2.92	± 0.13
Cl (n,v,x)	---	---	1.12	± 0.05	2.39	± 0.09
Fe ₂ O ₃ (f,i,n,p,x)	6.22	± 0.31	4.70	± 0.14	6.96	± 0.12
K ₂ O (f,n,x)	---	---	2.17	± 0.04	1.50	± 0.09
MgO (f,i,p)	---	---	2.44	± 0.23	2.41	± 0.09
Na ₂ O (f,i,n,p)	---	---	2.72	± 0.21	4.40	± 0.11
P ₂ O ₅ (i,x)	0.28	± 0.03	0.154	± 0.016	0.233	± 0.018
S (i,x,x)	0.18	± 0.04	0.36	± 0.05	1.32	± 0.08
SiO ₂ (f,x)	59.4	± 2.3	66.1	± 1.0	55.7	± 0.5
TiO ₂ (f,i,n,p,x)	---	---	0.734	± 0.024	0.703	± 0.011

* Information value only.

Coding

- | | |
|--|---|
| a - Atomic fluorescence spectrometry | I - Liquid chromatography |
| b - Inductively coupled plasma mass spectrometry | m- Isotope dilution solid source mass spectrometry |
| c - Cold vapour atomic absorption spectrometry | n - Instrumental neutron activation analysis |
| e - Coulometry | p - Instrumental photonuclear activation analysis |
| f - Flame atomic absorption spectrometry | q - Isotope dilution inductively coupled plasma mass spectrometry |
| g - Graphite furnace atomic absorption spectrometry | r - Infrared spectrometry |
| h - Hydride generation atomic absorption spectrometry | v - Volumetric analysis |
| i - inductively coupled plasma atomic emission spectrometry | x - X-ray fluorescence spectrometry |

Not all the methods listed above were applied to all three **certified** reference materials.

These reference materials are primarily for **use** in the **calibration** of procedures and the development of methods used for the analysis of marine **sediments** and materials with similar matrices.

Note: With the release of MESS-2 which is certified for mercury, BEST-I which was certified only for mercury has been withdrawn from distribution.

Preparation of material

BCSS-1 was collected **from** the Baie des **Chaleurs** in the Gulf of St. Lawrence . MESS-2 is from the Beaufon Sea. PACS-I was collected in the harbour of **Esquimalt**, B.C. They were all freeze dried, screened to pass a No. 120 (**125 μm**) **screen**, blended and bottled by Institute staff using **the** facilities of the Canada Centre for Mineral and Energy Technology in Ottawa. After bottling, **the samples** were radiation **sterilized** with a minimum dose of **2.5** Mrad by the Canadian Irradiation Centre to minimize any effects from biological activity.

Instructions for drying

Although **initially** free from **moisture** following the freeze drying, the materials, which contain sea salt, have picked up **moisture** during subsequent operations. They should be dried to a **constant** weight before use. Drying for several **hours** at **105°C** has proved to be a relatively simple method to achieve a dry weight for most purposes. They should be kept well sealed and in a cool place.

Homogeneity

Randomly selected bottles were used for the analytical determinations. Results from different bottles showed no significant **differences** compared to **results** from sub-samples **within** bottles. Nor was there any correlation **between** values obtained **and bottle sequence**. Thus, it is **assumed** that all **bottles of each** of these materials have essentially the same composition. PACS-1 was **also** extensively tested for homogeneity at the Department of Chemistry, University of Alberta, Edmonton, Alberta.

Information values

The following values are considered less reliable than those quoted above because they are not based on the results of at least two independent methods or there were insufficient analyses performed. These numbers are given for information only and **care** should be excised not to attribute more reliability to these numbers than they warrant. Values are in **mg/kg**.

	MESS-2	BCSS-1	PACS-I
Cs (n,p)	---	(4)	---
Ge (m)	---	(1.5)	---
Mo (m)	certified	(1.9)	certified
Sr (f)	certified	(96)	certified
Tl (m,q)	(0.98)	(0.6)	---

It is anticipated that as more data become available the established values may be updated and certified numbers assigned to more elements. These updates will be sent to all users of these reference materials.

Feedback: and comments from users will be welcomed.

Acknowledgements

These materials were prepared following the advice of the NRC Committee on Marine **Analytical** Chemistry (M. **Bewers**, Chairman). The guidance of the members is much appreciated.

The following staff of the Environmental Measurement Science program, Institute for Environmental Research and Technology, National Research Council of Canada, participated in the analysis of at least one of these sediment certified reference materials: **S. Berman**, D. **Beauchemin**, V.J. **Boyko**, V.P. Clancy, **A. Desautniers**, R. **Guevremont**, J. Lam, **H.B. MacPherson**, H. Marshall, J.W. **McLaren**, B. Methven, M. **Miedema**, A. Mykytiuk, D.S. Russell, P. Semcniuk, H. Tao*, **K.W.M. Siu**, R. Sturgeon and **S. Willie**.

* **Visiting** scientist

The **cooperation** of the following during the **certification** of one or more of these sediments is gratefully acknowledged:

- D. Boomer, Laboratory Services and Applied Research Branch. **Ministry** of the Environment. **Toronto**, Ontario.
- D. **Buckley** and R. **Fitzgerald**, Atlantic **Geoscience** Centre. Energy, Mines and Resources Canada, **Bedford** Institute of Oceanography, Dartmouth. N.S.
- Y.K. Chau. Canada Centre for inland Waters. Environment Canada. **Burlington**, Ontario.
- M. Chaudhry. W. Johnson and P. Ralph. Ministry of Energy. Mines and Petroleum Resources. Victoria. B.C.
- C. Chiu, Air Pollution Technology Centre. Environment Canada. Ottawa. Ontario.
- R.C. Clark, Nonhwest Fisheries Science Center. Seattle. Washington.
- E. **Crececius**, C.W. Apts, O.A. Cotter and R.W. Sanders. Battelle Nonhwest, Sequim. **Washington**.
- R. **Deverill**, H. McDonald. F. Chen and D. Randhawa. Analytical Service Laboratories. Vancouver. B.C.
- M. **Epstein**, National Institute of Standards and Technology, Gaithersburg. Maryland.
- G. Hall. Geological Survey of Canada. Ottawa. Ontario.
- R. **Hancock**, SLOWPOKE Reactor. University of Toronto, Toronto. Ontario.
- B. Kratochvil. Depanment of Chemistry. University of Alberta. Edmonton, **Alberta**.
- S. Landsberger**, **Department** of Nuclear Engineering. University of Illinois, Urbana, Illinois.
- D. **Loring** and R. Rantala. Chemical Oceanography Division. Fisheries and Oceans Canada. **Bedford** Institute of Oceanography. Dartmouth. N.S.
- S. **MacKnight**, **MacLaren Plansearch** Ltd.. Dartmouth. N.S.
- R. Presley and T. Wade. Texas A & M University. College Station. Texas.
- P.F. **Seligman**, S. Cola and J. Testa. US Depanment of the Navy. San **Diego**, California.
- C. Smith, H. **Steger**, P. Westra and D. **McIntosh**, Canada Centre for Mineral and Energy Technology. Energy, Mines and Resources Canada, Ottawa. Ontario,
- A. **Uhler**, Battelle Ocean Sciences. Duxbury. Massachusetts.
- J. Van Loon** and A. Paudyn, Department of Geology, University of Toronto. Toronto. Ontario.
- M. Yunker. **Institute** of Ocean Sciences, Fisheries and Oceans Canada. Sidney, B.C.
- V.S.** Zdanowicz, S.L. **Cunneff** and T.W. **Finneran**, Nonheast Fisheries Center. Highlands. New Jersey.

Comments, information and inquiries should be addressed to:

Dr. Shier **Berman**
Environmental Measurement Science
Institute for Environmental Research and Technology
National Research Council
Montreal Road
Ottawa. Canada KIA OR6



National Research Council
Canada

Conseil national de recherches
Canada

Institute for Environmental
Research and Technology

Institut de technologie et de
recherche environnementales

Measurement Science

Science des mesures

Ottawa, Canada
K1A 0R6

(613) 993.2359
FAX (613) 993.2451

NRC-CMRC

March 1994

DORM-2

DOLT-2

DOGFISH MUSCLE AND LIVER CERTIFIED REFERENCE MATERIALS FOR TRACE METALS

The following table shows those elements for which certified values have been established for the two dogfish (*Squalus acanthias*) reference materials. Certified **values** are based on results of **determinations** by at least two independent methods of analysis. The uncertainties represent **95** percent tolerance limits for an individual sub-sample of **250** mg or greater.

Trace Elements * **mg/kg**

	DORM-2		DOLT-2	
Aluminum (d,g,i)*	10.9	± 1.7	25.2	± 2.4
Arsenic (d,g,h,x)	18.0	± 1.1	16.6	± 1.1
Cadmium (g,p)	0.043	± 0.008	20.8	± 0.5
Cobalt (d,g)	0.182	± 0.031	0.24	± 0.05
Chromium (g,i,p)	34.7	± 5.5	0.37	± 0.08
Copper (g,i,p,x)	2.34	± 0.16	25.8	± 1.1
Iron (g,i,p,x)	142	± 10	1103	± 47
Lead (g,p)	0.065	± 0.007	0.22	± 0.02
Manganese (d,g,i)	3.66	± 0.34	6.88	± 0.56
Mercury (c,p)	4.64	± 0.26	1.99	± 0.10
Nickel (g,i,p)	19.4	± 3.1	0.20	± 0.02
Selenium (g,p)	1.40	± 0.09	6.06	± 0.49
Silver (g,p)	0.041	± 0.013	0.608	± 0.032
Thallium (p)	(0.004)*		--	
Tin (p)	(0.023)*		(0.13)*	
Zinc (f,g,i,p)	25.6	± 2.3	85.8	± 2.5
Methylmercury (as Hg)	4.47	± 0.32	0.693	± 0.053

* - See next page for key to coding.

* - Not certified; information value only.

A standard of *excellence* for more *than* fifty years
Un modèle d'*excellence* depuis plus de cinquante ans

Canada

Coding

The **coding** refers only to the ultimate method of analyte determination and not all methods were always applied to both **certified** reference materials, DORM-2 and DOLT-2, which were certified more than a year apart. No mention is made here **regarding** the various methods of sample preparation, decomposition and possible analyte separation prior to determination within each coded method.

- c - Cold vapour atomic absorption spectrometry.
- d - Inductively coupled plasma mass spectrometry.
- f - Flame atomic absorption spectrometry.
- g - Graphite furnace atomic absorption spectrometry.
- h - Hydride generation atomic absorption spectrometry.
- i - Inductively coupled plasma atomic emission spectrometry.
- p - Isotope **dilution** inductively coupled plasma mass **spectrometry**.
- x - Xray fluorescence spectrometry

~~These~~ reference materials are primarily intended for **use** in ~~the~~ calibration of procedures and the development of **methods used** for the analysis of marine animals and materials with a similar matrix.

There appear to be **elevated** concentrations of iron, chromium and nickel in **DORM-2** indicating the possible contamination of this material by stainless steel during its preparation. The mercury concentration of this certified reference material (**CRM**) is also relatively high but it is almost all organomercury and was probably in the dogfish muscle to **start** with.

The materials should be kept tightly closed in the original bottles and should be stored in a cool location, away from any intense radiation sources such as ultraviolet lamps and sunlight.

The **bottles** should be well mixed by rotation and shaking prior to use, and tightly closed immediately thereafter. **A** cleaned teflon ball is included with **each** sample. It should be **inserted** into the bottle the first time it is opened. This aids in mixing the material which may tend to cake on prolonged standing.

Homogeneity

The materials were tested for homogeneity at the National Research Council (NRC) in Ottawa. Also, randomly selected bottles were used for the analytical determinations by the NRC laboratory and the collaborating laboratories.

Results from different bottles indicated no significant differences compared to results from sub-samples within bottles. It is assumed, then, that all bottles of these materials have essentially the same composition. The homogeneity is warranted by NRC for samples of 250 **mg** weight and above for the elements listed on the first page. There is other evidence which supports homogeneity for some of the **analytes** down to the level of 25 mg samples.

Instructions for Drying

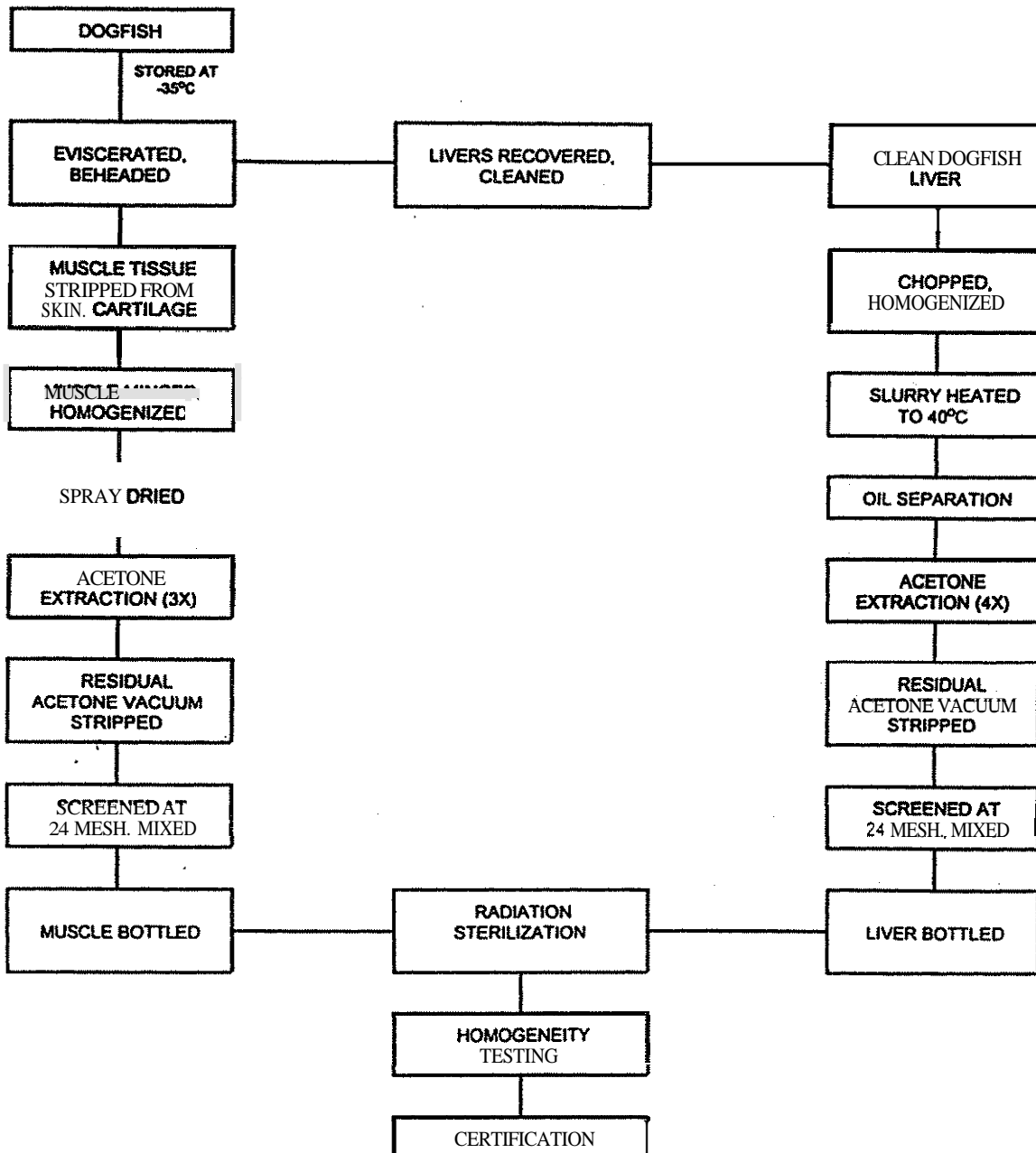
DORM-2 and DOLT-2 can be dried to constant weight by:

- (1) drying at reduced pressure (**e.g.** 50 mm **Hg**) at room temperature in a vacuum desiccator over magnesium perchlorate for 24 hours.
- (2) vacuum drying (about 0.5 mm **Hg**) at room **temperature** for 24 hours.

Both of these methods were used to obtain a conversion factor to produce the "dry weight" results listed on the first page.

Preparation of Materials

These reference materials were processed at the Canadian Institute for Fisheries Technology, Technical University of Nova Scotia, Halifax. The preparation scheme is described below in the schematic drawing. The procedure does not result in totally defatted materials. The dogfish muscle (**DORM-2**) and liver (**DOLT-2**) materials respectively contain about 5 and 24 percent fat.



Stability

The predecessor **CRMs**, DORM-1 and DOLT-I, have been periodically analyzed for more than eight years and have been both physically and chemically stable over that time. We expect similar behaviour from DORM-2 and DOLT-2.

Acknowledgements

This material was prepared following the advice of the NRC Committee on **Marine Analytical** Chemistry (M. Bewers, Chairman). The guidance of the members of the Committee is much appreciated.

These members of staff of Environmental Measurement Science, Institute for Environmental Research and Technology, National Research Council of Canada, participated in the analyses: S. **Berman**, V.J. Boyko, V.P. Clancy, J. Lam. P. Maxwell, J.W. **McLaren**, B. Methven. K.W.M. Siu and S. Willie.

The cooperation of the following in the preparation and analysis of these materials is gratefully acknowledged:

E.G. Bligh, I. Britt and C.H. **Hotton**, Canadian Institute of Fisheries Technology, Technical University of Nova Scotia, Halifax, Nova Scotia.

E. Crecelius, B. **Lasorsa** and R.W. Sanders. Marine Science Laboratories. **Battelle** Pacific Northwest, **Sequim, Washington**.

B. **Presley** and P. **Boothe**, Department of Oceanography, Texas **A&M** University, College Station. Texas.

it is anticipated that as more data become available the established values may be updated and reliable values assigned to more elements. Updates will be sent to all users of this reference material.

Feedback and comments from users are encouraged.

Comments and inquiries should be addressed to:

Dr. **Shier Berman**

Director, Environmental Measurement Science
Institute for Environmental Research and Technology
National **Research** Council
Ottawa, Ontario, Canada KIA OR6



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 911-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water, 1, Solano MW3 Analysis for: General Minerals Lab Number: 604-0635	Sampled: Apr 16, 1996 Received: Apr 17, 1996 Reported: Apr 24, 1996
---	--	---

GENERAL MINERAL ANALYSIS

Analyte	Date Analyzed	Lab ELAP #	Reporting Limit	Sample Result
Bicarbonate Alkalinity, mg/L.....	04/18/96	1624	10	220
Calcium, mg/L.....	04/18/96	1624	0.10	40
Carbonate Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Chloride, mg/L.....	04/18/96	1624	1.0	59
Copper, mg/L.....	04/18/96	1624	0.010	ND.
Hardness, mg/L.....	04/18/96	1624	1.0	230
Hydroxide Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Iron, mg/L.....	04/18/96	1624	0.020	ND.
Magnesium, mg/L.....	04/18/96	1624	0.10	32
Manganese, mg/L.....	04/18/96	1624	0.010	N.D.
pH, pH units.....	04/17/96	1624	N/A	7.7
Potassium, mg/L.....	04/18/96	1624	1.0	14
Sodium, mg/L.....	04/18/96	1624	0.50	50
Specific Conductance, µmhos/c	04/17/96	1624	10	700
Sulfate, mg/L.....	04/22/96	1624	2.0	35
Surfactants, mg/L.....	04/18/96	1624	0.050	0.051
Total Dissolved Solids, mg/L.....	04/22/96	1624	5.0	360
Zinc, mg/L.....	04/18/96	1624	0.010	0.076

Analytes reported as ND. were not detected at or above the reporting limit
Please note that the sample for metals was field filtered, thus results are dissolved metals.

SEQUOIA ANALYTICAL
Linda C. Schneider
Linda C. Schneider
Project



680 Chesapeake Drive
404 N. Walnut Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(310) 921-9600
(916) 921-9600

FAX (415) 364-9333
FAX (310) 921-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water, 3, Cache Creek Analysis for: General Minerals Lab Number: 604-0637	Sampled: Apr 16, 1996 Received: Apr 17, 1996 Reported: Apr 24, 1996
---	---	---

GENERAL MINERAL ANALYSIS

Analyte	Date Analyzed	Lab ELAP #	Reporting Limit	Sample Result
Bicarbonate Alkalinity, mg/L.....	04/18/96	1624	10	240
Calcium, mg/L.....	04/18/96	1624	0.050	35
Carbonate Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Chloride, mg/L.....	04/18/96	1624	1.0	48
Copper, mg/L.....	04/18/96	1624	0.0050	ND.
Hardness, mg/L.....	04/18/96	1624	0.50	240
Hydroxide Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Iron, mg/L.....	04/18/96	1624	0.010	0.24
Magnesium, mg/L.....	04/18/96	1624	0.10	37
Manganese, mg/L.....	04/18/96	1624	0.0050	0.011
pH, pH units.....	04/17/96	1624	N/A	8.4
Potassium, mg/L.....	04/18/96	1624	0.50	2.0
Sodium, mg/L.....	04/19/96	1624	0.25	42
Specific Conductance, μ mhos/c	04/17/96	1624	10	650
Sulfate, mg/L.....	04/22/96	1624	2.0	20
Surfactants, mg/L.....	04/18/96	1624	0.050	ND.
Total Dissolved Solids, mg/L.....	04/22/96	1624	5.0	340
Zinc, mg/L.....	04/18/96	1624	0.050	ND.

Analytes reported as ND. were not detected at or above the reporting limit.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040635.LUH <3>



680 Chesapeake Drive
404 N. Winter Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water Analysis for: Nitrate as NO3 First Sample #: 604-0635	Sampled: Apr 16, 1996 Received: Apr 17, 1996 Analyzed: Apr 18, 1996 Reported: Apr 24, 1996
---	---	---

LABORATORY ANALYSIS FOR: Nitrate as NO3

Sample Number	Sample Description	Reporting Limit mg/L	Sample Result mg/L
604-0635	1, Solano MW3	1.0	18
604-0636	2, Cache Cr. MW3	1.0	7.1
604-0637	3, Cache Creek	1.0	9.4

Analytes reported as N.D. were not detected at or above the reporting limit.

SEQUOIA ANALYTICAL, ELAP #1210

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040635.LUH <4>



Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Matrix: Water QC Sample Group: 6040635-37	Reported: Apr 24, 1996
---	---	------------------------

QUALITY CONTROL DATA REPORT

ANALYTE	Calcium	Magnesium	Copper	Iron	Sodium	Surfactants
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA425.1
Analyst:	K. Barta	K. Barta	K. Barta	K. Barta	K. Barta	L. Martin
Concentration Spiked:	5.0 mg/L	5.0 mg/L	5.0 mg/L	5.0 mg/L	5.0 mg/L	0.50 mg/L
LCS Batch#:	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896E
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	UV Spec 1
LCS % Recovery:	102	103	98	103	102	96
Control Limits:	90-110	90-110	90-110	90-110	90-110	80-120

MS/MSD	Batch #:	6040636	6040636	6040636	6040636	6040636	BS041796
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/17/96
Date Analyzed:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/17/96
Instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	VV Spec 1
Matrix Spike % Recovery:	30	47	96	100	10	104	
Matrix Spike Duplicate % Recovery:	28	45	96	100	10	98	
Relative % Difference:	68	43	0.0	0.0	0.0	5.9	

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the OC limit for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040635.LUH <5>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 918-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini
500 First St.

Woodland, CA 95695

Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Matrix: Water

QC Sample Group: 6040635-37

Reported: Apr 24, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Calcium	Magnesium	Copper	Iron	Sodium
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
Analyst:	K. Barta	K. Barta	K. Barta	K. Barta	K. Barta
Concentration Spiked:	12.5 mg/L	12.5 mg/L	0.50 mg/L	5.0 mg/L	12.5 mg/L
LCS Batch#:	LCS041896	LCS041896	LCS041896	LCS041896	LCS041896
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/19/96	04/19/96	04/19/96	04/19/96	04/19/96
instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1
LCS % Recovery:	94	97	91	96	90
Control Limits:	80-120	80-120	80-120	80-120	80-120

MS/MSD	Batch #	6040637	6040637	6040637	6040637	6040637
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/19/96	04/19/96	04/19/96	04/19/96	04/19/96	04/19/96
instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1
Matrix Spike % Recovery:	72	76	88	90	68	
Matrix Spike Duplicate % Recovery:	94	90	91	94	82	
Relative % Difference:	26	16	3.4	43	18	

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040635.LUH <6>

Luhdorff & Scalmanini
 500 First St.
 Woodland, CA 95695
 Attention: Vicki Kretsinger

 Client Project ID: 96-7-030 / YCAPA
 Matrix: Water

QC Sample Group: 6040635-37

Reported: Apr 24, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Alkalinity	Chloride	EC	Sulfate	TDS	Nitrate
Method:	EPA 310.1	EPA 325.3	EPA 120.1	EPA 375.4	EPA 160.1	EPA 300.0
Analyst:	L. Martin	S. Phillips	L. Martin	S. Phillips	SP/LM	S. Lee
Concentration Spiked:	27 mg/L	50 mg/L	1000 µmhos/cm	20 mg/L	500 mg/L	10 mg/L
LCS Batch#:	LCS041896	LCS041896	LCS041796	LCS042296	LCS042296	LCS041896
Date Prepared:	04/18/96	04/18/96	04/17/96	04/22/96	04/22/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/17/96	04/22/96	04/22/96	04/18/96
Instrument I.D.#:	pH-1	Titration	EC-1	T-1	BAL 4	INIC-1
LCS % Recovery:	94	104	110	100	98	100
Control Limits:	80-120	80-120	80-120	80-120	80-120	90-110

MS/MSD Batch #:	6040583	6040662	6040635	6040662	6040662	9604C25-01
Date Prepared:	04/18/96	04/18/96	04/17/96	04/22/96	04/22/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/17/96	04/22/96	04/22/96	04/18/96
Instrument I.D.#:	pH-1	Titration	EC-1	T-1	BAL 4	INIC-1
Matrix Spike % Recovery:	90	92	90	104	101	97
Matrix Spike Duplicate % Recovery:	90	94	90	102	98	97
Relative % Difference:	0.0	2.2	0.0	1.9	3.0	0.0

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

 Linda C. Schneider
 Project Manager/Sacramento Laboratory

6040635.LUH <7>



680 Chesapeake Drive
404 N. Walnut Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9605
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Matrix: Water

QC Sample Group: 6040635-37

Reported: Apr 24, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	
	pH

Method: EPA 150.1
Analyst: L. Martin
Date: 04/17/96

Sample #: 6040635

Sample Concentration: 7.7

Sample Duplicate Concentration: 7.7

% RPD: 0.0

Control Limits: 0-20

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040635.LUH <8>

SEQUOIA

CHAIN OF CUSTODY RECORD

Send Lab. Results To: LSCE (address below)

Client name YCAPA		LSCE Project No. 96-7-030		Special handling required		
Project name G.W. MONITORING		Analyses required		Special handling required		
Project manager VICKI KRETSINGER		Sampler(s) GARY WUEST		Remarks		
Sample number	Time sampled	Type Composite Grab Matrix	Date sampled	Sample description (Location Details)	Number of containers	Remarks
①	1200	H ₂ O GARB	4-16-96	SOLANO MW 3	3	NORMAL TAT METALS FIELD FILTERED .454
②	1600	H ₂ O GARB	4-16-96	CACHE CREEK MW 3	3	METALS FIELD FILTERED .454
③	1955	H ₂ O GARB	4-16-96	CACHE CREEK	3	NON FILTERED
						5 DAY TAT

*Sample Container Description		Date	Time
1. Polyethylene, no preservatives	4. Polyethylene - sterile	4-17-96	0840
2. Polyethylene, presulfidified	6. 40 ml Glass Vial, duplicate	4-17-96	0840
3. Glass, screw cap	6.	4-17-96	1132
Relinquished by <i>Gary Wuest</i>	LSCE	4/17/96	1132
Received by <i>Paula White</i>	LSCE	4/17/96	1132
Relinquished by <i>John Howell</i>	SEQUOIA	4/17/96	1200
Received by <i>John Howell</i>	SEQUOIA	4/17/96	1200
Relinquished by <i>Paula White</i>	SEQUOIA	4/17/96	1200
Received by <i>Paula White</i>	SEQUOIA	4/17/96	1200

Sequoia

Luhdorff and Scalmanini, Consulting Engineers
500 First Street, Woodland, Ca. 95696





Sequoia Analytical

680 Chesapeake Drive
404 N. Walnut Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 911-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 981-9613
FAX (916) 921-0100

Luhdorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Sample Descript: Water, 1, Cache Cr MW5
Analysis for: General Minerals
Lab Number: 604-0662

Sampled: Apr 17, 1996
Received: Apr 18, 1996
Reported: Apr 25, 1996

GENERAL MINERAL ANALYSIS

Analyte	Date Analyzed	Lab ELAP #	Reporting Umit	Sample Result
Bicarbonate Alkalinity, mg/L.....	04/18/96	1624	10	240
Calcium, mg/L.....	04/18/96	1624	0.10	42
Carbonate Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Chloride, mg/L.....	04/18/96	1624	1.0	39
Copper, mg/L.....	04/18/86	1624	0.010	ND.
Hardness, mg/L.....	04/18/96	1624	1.0	240
Hydroxide Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Iron, mg/L.....	04/18/96	1624	0.020	ND.
Magnesium, mg/L.....	04/18/96	1624	0.10	34
Manganese, mg/L.....	04/18/96	1624	0.010	ND.
pH, pH units.....	04/18/96	1624	N/A	74
Potassium, mg/L.....	04/18/96	1624	1.0	17
Sodium, mg/L.....	04/18/96	1624	0.50	32
Specific Conductance, μ mhos/c	04/18/96	1624	10	600
Sulfate, mg/L.....	04/22/96	1624	2.0	38
Surfactants, mg/L.....	04/18/96	1624	0.050	0.12
Total Dissolved Solids, mg/L.....	04/22/96	1624	5.0	330
Zinc, mg/L.....	04/18/96	1624	0.010	ND.

Analytes reported as N.D. were not detected at or above the reporting limit.
Please note that the sample for metals was field filtered, thus results are dissolved metals.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040662.LUH <1>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Winter Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water Analysis for: Nitrate as NO3 First Sample #: 604-0662	Sampled: Apr 17, 1996 Received: Apr 18, 1996 Analyzed: Apr 18, 1996 Reported: Apr 25, 1996
---	---	---

LABORATORY ANALYSIS FOR: Nitrate as NO3

Sample Number	Sample Description	Reporting Limit mg/L	Sample Result mg/L
604-0662	1, Cache Cr MWS	1.0	8.3

Analytes reported as N.D. were not detected at or above the reporting limit.

SEQUOIA ANALYTICAL, ELAP #1210

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040662.LUH <2>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Matrix: Water

QC Sample Group: 604-0662

Reported: Apr 25, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Calcium	Magnesium	Copper	Sodium	Zinc	Surfactants	Alkalinity
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 425.1	EPA 310.1
Analyst:	K. Barta	K. Barta	K. Barta	K. Barta	K. Barta	L. Martin	L. Martin
Concentration Spiked:	5.0 mg/L	5.0 mg/L	5.0 mg/L	5.0 mg/L	5.0 mg/L	0.50 mg/L	27 mg/L
LCS Batch#:	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896	LCS041896
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	UV Spec 1	pH-1
LCS % Recovery:	102	103	98	102	100	96	94
Control Limits:	90-110	90-110	90-110	90-110	90-110	80-120	80-120

MS/MSD	Batch #:	6040636	6040636	6040636	6040636	6040636	BS041796	6040583
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	UV Spec 1	pH-1
Matrix Spike % Recovery:	30	47	96	10	100	104	90	90
Matrix Spike Duplicate % Recovery:	28	45	96	10	100	98	90	90
Relative % Difference:	6.8	4.3	0.0	0.0	0.0	5.9	0.0	0.0

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040662.LUH <3>



Sequoia Analytical

680 Chesapeake Drive

404 N. Waret Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063

Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600

(510) 988-9600
(916) 921-9600

FAX (415) 364-9233

FAX (510) 91119673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Matrix: Water QC Sample Group: 604-0662	Reported: Apr 25, 1996
---	---	------------------------

QUA UN CONTROL DATA REPORT

ANALYTE	Chloride	EC	Sulfate	TDS	Nitrate
Method:	EPA 325.3	EPA 120.1	EPA 375.4	EPA 160.1	EPA 300.0
Analyst:	L. Martin	S. Phillips	L. Martin	S. Phillips	S. Lee
Concentration Spiked:	50 mg/L	1000 µmhos/cm	20 mg/L	500 mg/L	10 mg/L
LCS Batch#:	LCS041896	LCS041896	LCS042296	LCS042296	LCS041896
Date Prepared:	04/18/96	04/18/96	04/22/96	04/22/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/22/96	04/22/96	04/18/96
Instrument I.D.#:	Titration	EC-1	T-1	BAL 4	INIC-1
LCS % Recovery:	104	110	100	98	100
Control Limits:	80-120	80-120	80-120	80-120	90-110

MS/MSD	Chloride	EC	Sulfate	TDS	Nitrate
Batch #:	6040662	6040662	6040662	6040662	9604C25-01
Date Prepared:	04/18/96	04/18/96	04/22/96	04/22/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/22/96	04/22/96	04/18/96
Instrument I.D.#:	Titration	EC-1	T-1	BAL 4	INIC-1
Matrix Spike % Recovery:	92	111	104	101	97
Matrix Spike Duplicate % Recovery:	94	100	102	98	97
Relative % Difference:	22	0.0	1.9	3.0	0.0

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for verification of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040662.LUH <4>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9133
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Matrix: Water	QC Sample Group: 604-0662	Reported: Apr 25, 1996
---	--	---------------------------	------------------------

QUALITY CONTROL DATA REPORT

ANALYTE	pH
----------------	----

Method: EPA 150.1
Analyst: L. Martin
Date: 04/18/96

Sample #: 6040662

Sample Concentration: 7.4

Sample Duplicate Concentration: 7.4

% RPD: 0.0

Control Limits: 0-20

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040662.LUH <5>



Sequoia Analytical

680 Chesapeake Drive
404 N. Winter Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9603
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water, 1, Solano MW 8 Deep Analysis for: General Minerals Lab Number: 604-0583	Sampled: Apr 15, 1996 Received: Apr 16, 1996 Reported: Apr 25, 1996
---	--	---

GENERAL MINERAL ANALYSIS

Analyte	Date Analyzed	Lab ELAP #	Reporting Limit	Sample Result
Bicarbonate Alkalinity, mg/L.....	04/18/96	1624	10	400
Calcium, mg/L.....	04/18/96	1624	0.10	76
Carbonate Alkalinity, mg/L.....	04/18/96	1624	1.0	N.D.
Chloride, mg/L.....	04/18/96	1624	10	80
Copper, mg/L.....	04/18/96	1624	0.010	N.D.
Hardness, mg/L.....	04/18/96	1624	1.0	430
Hydroxide Alkalinity, mg/L.....	04/18/96	1624	1.0	N.D.
Iron, mg/L.....	04/18/96	1624	0.020	N.D.
Magnesium, mg/L.....	04/18/96	1624	0.10	59
Manganese, mg/L.....	04/18/96	1624	0.010	N.D.
pH, pH units.....	04/16/96	1624	N/A	7.4
Potassium, mg/L.....	04/18/96	1624	1.0	2.4
Sodium, mg/L.....	04/18/96	1624	0.50	72
Specific Conductance, μ mhos/c	04/16/96	1624	10	1,000
Sulfate, mg/L.....	04/18/96	1624	4.0	54
Surfactants, mg/L.....	04/17/96	1624	0.050	0.055
Total Dissolved Solids, mg/L.....	04/22/96	1624	5.0	620
Zinc, mg/L.....	04/18/96	1624	0.010	N.D.

Analytes reported as N.D. were not detected at or above the reporting limit
Please note that sample for metals was field filtered, thus results are dissolved metals.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <1>



Sequoia Analytical

680 Chappaque Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 2

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Lundorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Sample Descript: Water, 2, Solano MW 8 Shallow
Analysis for: General Minerals
Lab Number: 604-0584

Sampled: Apr 15, 1996
Received: Apr 16, 1996
Reported: Apr 25, 1996

GENERAL MINERAL ANALYSIS

Analyte	Date Analyzed	Lab ELAP #	Reporting Limit	Sample Result
Bicarbonate Alkalinity, mg/L.....	04/18/96	1624	10	430
Calcium mg/L.....	04/18/96	1624	0.10	82
Carbonate Alkalinity, mg/L.....	04/18/96	1624	1.0	N.D.
Chloride, mg/L.....	04/18/96	1624	1.0	89
Copper, mg/L.....	04/18/96	1624	0.010	N.D.
Hardness, mg/L.....	04/18/96	1624	1.0	530
Hydroxide Alkalinity, mg/L.....	04/18/96	1624	1.0	N.D.
Iron, mg/L.....	04/18/96	1624	0.020	N.D.
Magnesium, mg/L.....	04/18/96	1624	0.10	79
Manganese, mg/L.....	04/18/96	1624	0.010	N.D.
pH, pH units.....	04/16/96	1624	N/A	71
Potassium, mg/L.....	04/18/96	1624	1.0	14
Sodium, mg/L.....	04/18/96	1624	0.50	69
Specific Conductance, µmhos/c	04/16/96	1624	10	1,200
Sulfate, mg/L.....	04/18/96	1624	4.0	68
Surfactants, mg/L.....	04/17/96	1624	0.050	N.D.
Total Dissolved Solids, mg/L.....	04/22/96	1624	5.0	720
Zinc, mg/L.....	04/18/96	1624	0.010	N.D.

Analytes reported as ND were not detected at or above the reporting limit.
Please note that sample for metals was field filtered, thus results are dissolved metals

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <2>



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 911-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Sample Descript: Water, 3, Solano MW 2
Analysis for: General Minerals
Lab Number: 604-0585

Sampled: Apr 16, 1996
Received: Apr 16, 1996
Reported: Apr 25, 1996

GENERAL MINERAL ANALYSIS

Analyte	Date Analyzed	Lab ELAP #	Reporting Limit	Sample Result
Bicarbonate Alkalinity, mg/L.....	04/18/96	1624	10	310
Calcium, mg/L.....	04/18/96	1624	0.10	59
Carbonate Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Chloride, mg/L.....	04/18/96	1624	1.0	68
Copper, mg/L.....	04/18/96	1624	0.010	ND.
Hardness, mg/L.....	04/18/96	1624	1.0	340
Hydroxide Alkalinity, mg/L.....	04/18/96	1624	1.0	ND.
Iron, mg/L.....	04/18/96	1624	0.020	ND.
Magnesium, mg/L.....	04/18/96	1624	0.10	46
Manganese, mg/L.....	04/18/96	1624	0.010	N.D.
pH, pH units.....	04/16/96	1624	N/A	7.4
Potassium, mg/L.....	04/18/96	1624	1.0	1.9
Sodium, mg/L.....	04/18/96	1624	0.50	54
Specific Conductance, μ mhos/c	04/16/96	1624	10	800
Sulfate, mg/L.....	04/18/96	1624	4.0	37
Surfactants, mg/L.....	04/17/96	1624	0.050	0.051
Total Dissolved Solids, mg/L.....	04/22/96	1624	5.0	480
Zinc, mg/L.....	04/18/96	1624	0.010	ND.

Analytes reported as NO. were not detected at or above the reporting limit.
Please note that sample for metals was field filtered, thus results are dissolved metals.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <3>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiger Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorf & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water Analysis for: Nitrate as NO3 First Sample #: 604-0583	Sampled: Apr 15, 1996 Received: Apr 16, 1996 Analyzed: Apr 17, 1996 Reported: Apr 25, 1996
--	---	---

LABORATORY ANALYSIS FOR: Nitrate as NO3

Sample Number	Sample Description	Reporting Umlt mg/L	Sample Result mg/L
604-0583	1, Solano MW 8 Deep	1.0	54
604-0584	2, Solano MW 8 Shallow	1.0	85

Analytes reported as ND. were not detected at or above the reporting limit.

SEQUOIA ANALYTICAL, ELAP #1210

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <4>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Sample Descript: Water Analysis for: Nitrate as NO3 First Sample #: 604-0585	Sampled: Apr 16, 1996 Received: Apr 16, 1996 Analyzed: Apr 17, 1996 Reported: Apr 25, 1996
---	---	---

LABORATORY ANALYSIS FOR: Nitrate as NO3

Sample Number	Sample Description	Reporting Limit mg/L	Sample Result mg/L
604-0585	3, Solano MW 2	1.0	31

Analytes reported as N.O. were not detected at or above the reporting limit.

SEQUOIA ANALYTICAL ELAP #1210

Linda C. Schneir
Linda C. Schneir
Project Manager/Sacramento Laboratory

6040583.LUH <5>



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wizard Lane
819 Striker Avenue, Suite 8

Redwood City, CA. 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini 500 First St. Woodland, CA 95695 Attention: Vicki Kretsinger	Client Project ID: 96-7-030 / YCAPA Matrix: Water QC Sample Group: 604-0583	Reported: Apr 25, 1996
---	---	------------------------

QUALITY CONTROL DATA REPORT

ANALYTE	Calcium	Magnesium	Iron	Sodium	Potassium	Surfactants	Alkalinity
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 425.1	EPA310.1
Analyst:	K. Barta	K. Barta	K. Barta	K. Barta	K. Barta	L. Martin	L. Martin
Concentration Spiked:	5.0 mg/L	5.0 mg/L	5.0 mg/L	5.0 mg/L	5.0 mg/L	0.50 mg/L	27 mg/L
LCS Batch#:	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896E	LCS041896E
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	UV Spec I	pH-1
LCS % Recovery:	102	103	103	102	98	96	94
Control Limits:	90-110	90-110	90-110	90-110	90-110	80-120	80-120

MS/MSD	Batch #	6040636	6040616	6040636	6040616	6040616	BS041796	6040583
Date Prepared:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Date Analyzed:	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96	04/18/96
Instrument I.D.#:	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	ICP-1	UV Spec 1	pH-1
Matrix Spike % Recovery:	30	47	100	10	100	104	90	90
Matrix Spike Duplicate % Recovery:	28	45	100	10	100	98	90	90
Relative % Difference:	68	43	0.0	0.0	0.0	5.9	0.0	0.0

Please Note:
The LCS is a control sample of 1 L, in, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

A AI ICI/L
Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <6>



Sequoia Analytical

680 Chesapeake Drive
404 N. Walnut Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-9763

Lundorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Matrix: Water

QC Sample Group: 604-0583

Reported: Apr 25, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Chloride	EC	Sulfate	TDS	Nitrate
Method:	EPA 325.3	EPA 120.1	EPA 375.4	EPA 160.1	EPA 300.0
Analyst:	L. Martin	L. Martin	L. Martin	S. Phillips	S. Lee
Concentration Spiked:	50 mg/L	1000 µmhos/cm	20 mg/L	500 mg/L	10 mg/L
LCS Batch#:	LCS041896	LCS041696	LCS041896	LCS042296	LCS041796
Date Prepared:	04/18/96	04/16/96	04/18/96	04/22/96	04/17/96
Date Analyzed:	04/18/96	04/16/96	04/18/96	04/22/96	04/17/96
Instrument I.D.#:	Titration	EGI	T-1	BAL. 4	INIC-1
LCS % Recovery:	104	110	102	98	100
Control Limits:	80-120	80-120	80-120	80-120	90-110

MS/MSD Batch #:	6040662	6040569	6040585	6040662	9604A89-01
Date Prepared:	04/18/96	04/16/96	04/18/96	04/22/96	04/17/96
Date Analyzed:	04/18/96	04/16/96	04/18/96	04/22/96	04/17/96
Instrument I.D.#:	Titration	EC-1	T-1	BAL. 4	INIC-1
Matrix Spike % Recovery:	92	80	100	101	98
Matrix Spike Duplicate % Recovery:	94	80	101	98	88
Relative % Difference:	22	0.0	1.0	3.0	11

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <7>



680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9333
FAX (510) 988-9673
FAX (916) 921-0100

Luhdorff & Scalmanini
500 First St.
Woodland, CA 95695
Attention: Vicki Kretsinger

Client Project ID: 96-7-030 / YCAPA
Matrix: Water

QC Sample Group: 604-0583

Reported: Apr 25, 1996

QUALITY CONTROL DATA REPORT

ANALYTE

pH

Method: EPA 150.1
Analyst: L. Martin
Date: 04/16/96

Sample #: 6040570

Sample
Concentration: 10.2

Sample
Duplicate
Concentration: 10.2

% RPD: 0.0

Control Limits: 0-20

SEQUOIA ANALYTICAL

Linda C. Schneider
Linda C. Schneider
Project Manager/Sacramento Laboratory

6040583.LUH <8>

CHAIN OF CUSTODY RECORD

Send Lab. Results To: LSCE (address below)

Send Invoice To:

Client name YCAPA
 Project name G.W. MONITORING
 Project manager VICKI KRETSINGER
 Sampler(s) GARY WUEST

Sample number	Time sampled	Type Composite Grab Matrix	Date sampled	Sample description (Location Details)	Number of containers
① 1245	H2O Grab	4-15-96	SOLANO MW 8 DEEP	3	X X X
② 1515	H2O Grab	4-15-96	SOLANO MW 8 SHALLOW	3	X X X
③ 0945	H2O Grab	4-16-96	SOLANO MW 2	3	X X X

ANALYSES REQUIRED:
 NORMAL TAT
 METALS FIELD FILTERED 45L
 METALS FIELD FILTERED 45L
 METALS FIELD FILTERED 45L

7 DAY TAT

*Sample Container Description					
1.	Polyethylene, no preservatives				
2.	Polyethylene, preacidified				
3.	Glass, screw cap				
4.	Polyethylene - sterile				
5.	40 ml Glass Vial, duplicate				
6.					

Received by	Signature	Company	Date	Time
Retinquished by	<i>[Signature]</i>	LSCE	4-16-96	11:25
Received by	<i>[Signature]</i>	LSCE	4-16-96	11:26
Retinquished by	<i>[Signature]</i>	LSCE	4/16/96	1:36
Received by	<i>[Signature]</i>	Securid	4/16/96	1336
Retinquished by	<i>[Signature]</i>	Securid	4/16/96	1405
Received by	<i>[Signature]</i>	Securid	4/16/96	1405

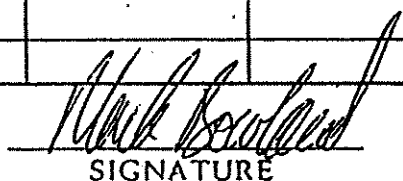
LSCE Project No. 96-7-030

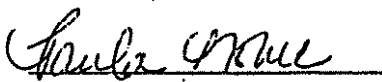
Chain-of-Custody (COC)

To: Frontier Geosciences Inc.
 414 Pontius Avenue North
 Seattle, WA 98109
 (206) 622-6960

From: MARK BOWLAND / RICK SITS
FOSTER Wheeler Environmental Corporation
2525 NADINAS PARK DRIVE SUITE 250
SACRAMENTO, CA 95833-2900

bottle #	sample location	depth	date/time	collected by	preservation	analyses needed
CENT-891	Solano Concrete OWS-D	GRAB	4/15 12:47	M. BOWLAND	None	Total mercury, Filtered Methyl mercury, Filtered
CENT-769	Solano Concrete OWS-S	grab	4/15 3:10	M. BOWLAND	None	Total mercury, Filtered Methyl mercury, Filtered
CENT-2	Solano Concrete FLOW 8cm	GRAB	4/15 2:55	M. BOWLAND	None	Total mercury, Filtered Methyl mercury, Filtered

Relinquished by: MARK BOWLAND  4/15/96 3:12 pm
 NAME SIGNATURE DATE TIME

Received By: Paula Noble  4/15/96 3:12 pm
 NAME SIGNATURE DATE TIME

Comments: _____

QA Level Desired: Normal Research EPA CLP Style (high level, 30% additional cost)

County of Yolo
June 14, 1996

4-303

OCMP EIR Response to Comments
Response to Comments

Chain-of-Custody (COC)

To: Frontier Geosciences Inc.
 414 Pontius Avenue North
 Seattle, WA 98109
 (206) 622-6960

From: MARK BOWLAND
 2057c Wheeler Environmental Corporation
 2525 Natomas Park Drive, Suite 250
 Sacramento CA 95833-2900

bottle #	sample location	depth	date/time	collected by	preservation	analyses needed
Cent-838 DW-2	Solano Concrete	GRAB	4/16 9:37am	M. Bowland	None - Ice	Total Mercury - Filtered Methyl Mercury - Filtered
Cent-827 DW-3	Solano Concrete	GRAB	4/16 12:25p	M. Bowland	None - Ice	Total Mercury - Filtered Methyl Mercury - Filtered
Cent-828 MW-3	Cache Creek Aggregates	GRAB	4/16 3:57p	M. Bowland	None - Ice	Total Mercury - Filtered Methyl Mercury - Filtered
Cent-548 MW-1	Cache Creek Highway	GRAB	4/16 7:15p	M. Bowland	None - Ice	Total Mercury - Filtered
Cent-520 Cache Creek	Cache Creek	GRAB	4/16 7:55p	M. Bowland	None - Ice	Unfiltered Total Mercury Filtered Methyl Mercury Filtered Total Mercury
Cent-757 Cache Creek	Cache Creek Blank	GRAB	4/16 7:57p	M. Bowland	None - Ice	Filtered Methyl Mercury Filtered Total Mercury Filtered Methyl Mercury

Relinquished by: MARK BOWLAND NAME Mark Bowland SIGNATURE [Signature] DATE 4/16/96 TIME 20:15

Received By: [Signature] NAME Gray West SIGNATURE [Signature] DATE 4-16-96 TIME 2015

Comments: Cent-530 (Cache Creek) - Filtered Analyses (Total Hg and Methyl Hg) to be filtered at the lab.

QA Level Desired: () Normal Research () EPA CLP Style (high level, 30% additional cost)

Chain-of-Custody (COC)

From: Mark Ruvand
Foster Wheeler Environmental
2525 Adams Park Blvd Suite 250
Skamania (A 95877) - 2900

To: Frontier Geosciences Inc.
 414 Pontius Avenue North
 Seattle, WA 98109
 (206) 622-6960

sample location	depth	date/time	collected by	preservation	analyses needed
(Acute Lead) <u>MW-1</u>	gms	4/17 18:40	M. Ruvand	None - Ice	John Murray, Filtration
(Acute Lead) <u>MW-4</u>	gms	4/17 4:12	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-5</u>	gms	4/17 4:12	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-6</u>	gms	4/17 4:12	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-7</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-8</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-9</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-10</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-11</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-12</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-13</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-14</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-15</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-16</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-17</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-18</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-19</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration
(Acute Lead) <u>MW-20</u>	gms	4/17 4:15	M. Ruvand	None - Ice	Total Mercury - Filtration

Relinquished by: Mark Ruvand
 NAME: Mark Ruvand
 SIGNATURE: [Signature]
 DATE: 4/17/96
 TIME: 18:25

Received By: [Signature]
 NAME: Greg [Signature]
 SIGNATURE: [Signature]
 DATE: 4-17-96
 TIME: 18:25

Comments: All samples are from CACite Creek Aggregates

QA Level Desired: Normal Research EPA CLP Style (high level, 30% additional cost)

CHAIN OF CUSTODY RECORD

FOSTER WHEELER

Send Lab. Results To: LSCE (address below)

Client name: VCAPA		LSCE Project No.: 967030		Analyses required <i>As low level Hg</i> <i>C12 Hg</i> Hazardous Sample Special handling required									
Project name: Mercury Investigation													
Project manager: Rick Sitts <i>As a co-contractor of Vicki Krutziger</i>		Sampler(s): Liese Schadt											
Sample number	Time sampled	Type Composite Grab Matrix	Date sampled	Sample description (Location Details)	Number of containers						Remarks		
SC-1-2 1/2		Grab	4/15/96	Solano Concrete Boring 1	1	✓							
SC-1-6			4/15/96	"	1	✓	✓						
SC-1-16			4/15/96	"	1	✓							
SC-1-45			4/15/96	"	1	✓	✓						
SC-1-50			4/15/96	"	1	✓							
SC-2-2 1/2			4/15/96	Solano Concrete Boring 2	1	✓	✓	(L.B.)					
SC-2-6			4/15/96	"	1	✓							
SC-2-16			4/15/96	"	1	✓							
SC-2-35			4/15/96	"	1	✓							
SC-2-45			4/15/96	"	1	✓	✓						

*Sample Container Description

- | | |
|-----------------------------------|--------------------------------|
| 1. Polyethylene, no preservatives | 4. Polyethylene - sterile |
| 2. Polyethylene, preacidified | 5. 40 ml Glass Vial, duplicate |
| 3. Glass, screw cap | 6. Brass Tubes |

Signature	Company	Date	Time
Relinquished by: <i>Vicki Krutziger</i>	<i>Luhderff & Scalmanini, Cons. Engrs.</i>	<i>4/16/96</i>	<i>4:55 pm</i>
Received by:			
Relinquished by:			
Received by:			
Relinquished by:			
Received by:			



Luhderff and Scalmanini, Consulting Engineers
500 First Street. Woodland, Ca. 95695

Contact Person: *Vicki Krutziger / Rick Sitts*

County of Yolo
June 14, 1996

4-306

OCMP EIR Response to Comments
Response to Comments

Forster Wheeler

CHAIN OF CUSTODY RECORD

Client name: YCAPA Project name: Mercury Investigation

Project manager: Rick Sitts (Lizki Kretzberg) LSCE Project No.: 967030 Sampler(s): Liese Schacht

Sample number	Time sampled	Type Composite Grab Matrix	Date sampled	Sample description (Location Details)	Number of containers	Special handling required	Remarks
CC-1-3		Grab	4/16/96	Catch Creek Ag. Boring 1	1	✓	
CC-1-6				"	1	✓	
CC-1-25				"	1	✓	
CC-1-40				"	1	✓	
CC-1-50				"	1	✓	
CC-2-3				Catch Creek Ag Boring 2	1	✓	
CC-2-16				"	1	✓	
CC-2-40				"	1	✓	
CC-2-50				"	1	✓	

Send Lab. Results To: LSCE (address below)

Analyses required: Low/MLR

Special handling required: None

Company: Ludloff & Soalmanini, Cons. Engrs.

Signature: Liese Schacht Date: 4/16/96 Time: 4:05 pm

Relinquished by: Liese Schacht

Received by:

Relinquished by:

Received by:

Relinquished by:

Received by:

LS

Ludloff and Soalmanini, Consulting Engineers
 4500 First Street, Woodland, Ca. 95696
 Phone: (916) 861-0100

Contact Person: Liese Schacht

APPENDIX B

**MERCURY CONCENTRATIONS IN SEDIMENTS FROM THE
GRAVEL MINING AREA**

APPENDIX B

MERCURY CONCENTRATIONS IN SEDIMENTS OF THE GRAVEL MINING AREA.

Data on mercury collected in **sediments** in the gravel mining area is described below. This data was collected by **Luhdorff** and **Scalmanini** Consulting Engineers, Woodland California, and their **drilling** contractor.

Sample Location Criteria. The concentrations of total mercury and methyl mercury in soils were determined at existing and planned wet-pit areas adjacent to lower Cache Creek. On April 15 and **April 16**, 1996, soil samples were collected from two borings installed at each of the **Solano** Concrete and Cache Creek Aggregates project sites. The boring locations and sample selections were based on the following criteria:

- **Location of the boring relative to the Creek.** Borings at each site were selected both near to and away from Cache Creek, and the two sites are located near to (Cache Creek Aggregates) and away from (**Solano** Concrete) the head of the lower Cache Creek basin.
- **Location of the boring relative to an existing or planned wet-pit mining area.** Borings were located near an existing wet pit (**Solano** Concrete) and planned wet pits (Cache Creek Aggregates).
- **Sample depth relative to the water table.** Several samples were collected both above and below the water table in each boring.
- **Sample gradation.** Samples were collected in both fine- and coarse-grained soils.

The borings were designated SC-1 and SC-2 at **Solano** Concrete and CC-1 and CC-2 at Cache Creek Aggregates, and are located on their respective site maps (Figures 5-1 and 5-2).

Sample Collection. A hollow-stem auger rig was used to install the borings to a depth of 50 feet. Soil samples were collected as the drilling proceeded using a California sampler (lined with 2-inch brass and stainless steel sleeves), driven ahead of the auger bit into undisturbed soil at **2-1/2** to 10-foot **intervals**. Soil samples were numbered by boring location and depth (e.g. a sample from **Solano** Concrete's boring **#1** from a depth of 16 feet was denoted as "SC-1-16"). The sampler and sleeves were cleaned with **Alconox** and then rinsed with deionized water prior to collecting **all** soil samples. **All** sample sleeves were capped, taped, sealed in **Ziploc** bags, and stored on ice for transport to Frontier Geosciences in Seattle, Washington, with appropriate chain-of-custody procedures.

An attempt was made during sample collection to provide a "full" soil sample in each sleeve; however, the coarse nature of the gravel deposits, which often contained cobbles larger than 2 inches, resulted in some partially-filled sleeves. Also, due to the sleeve size and sample collection method, the samples comprise soils with gravel sizes limited to a 2-inch size or less. Thus, samples from the coarsest deposits of gravel and cobbles beneath the sites are not truly representative of these deposits. The position of the water table was estimated from the degree of sample saturation noted during **drilling** and from the position of water rising up into the augers **after drilling** ceased.

Soil samples collected on April 15, 1996, were frozen overnight at **Luhdorff** and **Scalmanini** Consulting Engineers office in Woodland, California. Following sampling activities on April 16, 1996, soil samples for total mercury and methyl mercury analyses were shipped **overnight** to Frontier Geosciences. The samples were packed with ice packs and dry ice.

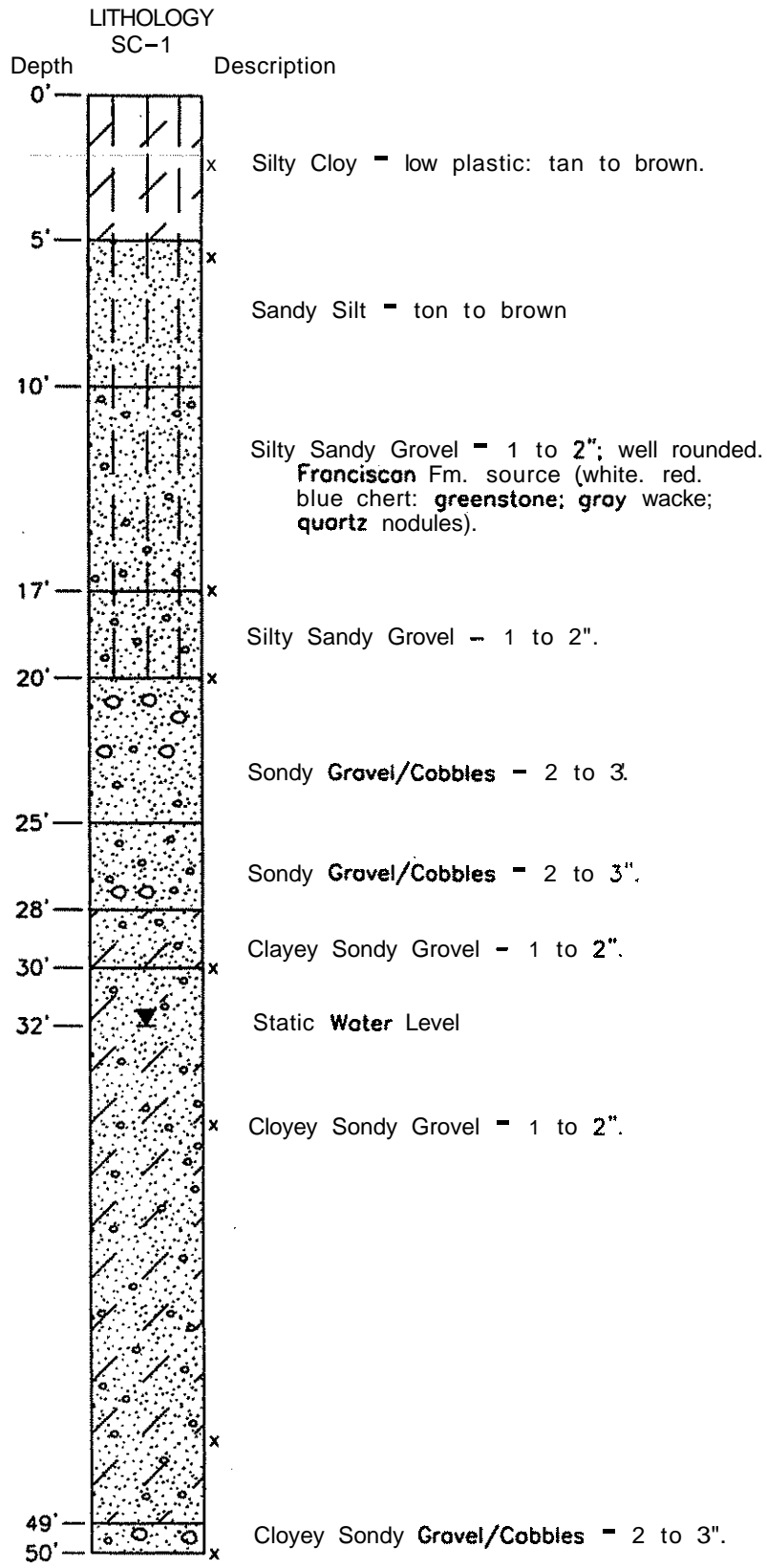
Soil Sample Analyses. Soil samples were collected for total mercury analyses at the four boring locations. Two samples from boring **SC-1** at **Solano** Concrete were analyzed for methyl mercury. These samples included SC-1-2.5 (near surface soil collected at a depth of 2.5 feet) and SC-1-45 (saturated soil collected below the water table at a depth of 45 feet). Soil samples were handled at the laboratory using ultra-clean protocols. Soil for analysis was extracted from the center of the cores so as to analyze material not in contact with the **wall** of the sleeve. As mentioned above, in several cases (particularly samples collected below the water table), incomplete sample retrieval (**i.e.** loose soil, partially **filling** the sleeve) made it **difficult** to obtain soil that had not been in contact with the sleeve.

When trying to extract the center of a sample, away **from** the core, gravel material was removed and discarded. It is assumed that Frontier Geosciences, **Inc.**, removed material only from the gravelly samples. Thus, concentration of mercury in gravelly samples are considered overestimates.

Sample Results. The materials encountered during drilling at each site were similar and comprised a thin upper layer of clayey silty overburden, underlain by a **fairly** continuous deposit of coarse sand and well-rounded gravels and cobbles. A description of the soil materials, as well as sample and water table locations, is provided in **lithologic** logs for each site (Figures **B-1** through **B-4**). The results of the total mercury and methyl mercury analyses are summarized in Table **B-1**. The laboratory analytical data sheets are included in Appendix A materials.

An analysis of two sieved samples containing gravelly sand or **gravel/sand/mud**, indicated that smaller material contains most of the mercury. Sieved material 2 mm in diameter or **smaller** contained 81 or 91 percent of the total mercury in both size groups. On a dry weight basis, mercury in the cores from the **Solano** Concrete site were at 0.1 and 0.9 **mg/kg** (parts per **million** [ppm]) in the top 3 feet of sandy soil, and 0.3 and 0.2 **mg/kg** in muddy sand at 35 and 45 feet, respectively. **Otherwise**, mercury was less than 0.05

mg/kg. None of the samples from the Cache Creek Aggregates sites exceeded 0.07 mg/kg in total mercury. The two methyl mercury samples from sandy soil or gravely sand at the Solano Concrete site were measured at <0.000001 and 0.00009 mg/kg.



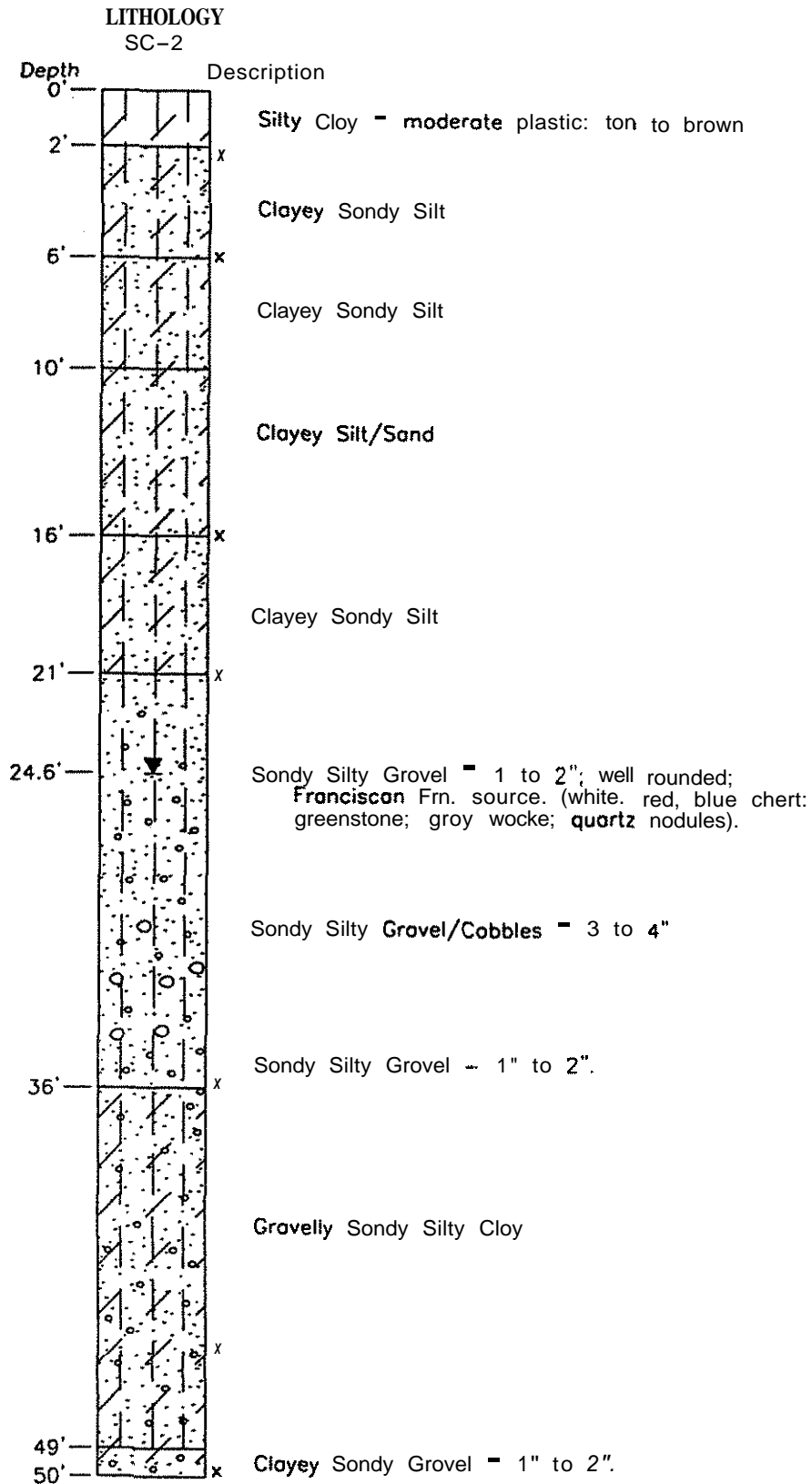
x - Denotes Soil Sample Collected

99-7-800/TCAPASCL.DWG



Figure B-1. Boring SC-1, Solano concrete lithologic profile.

B-4



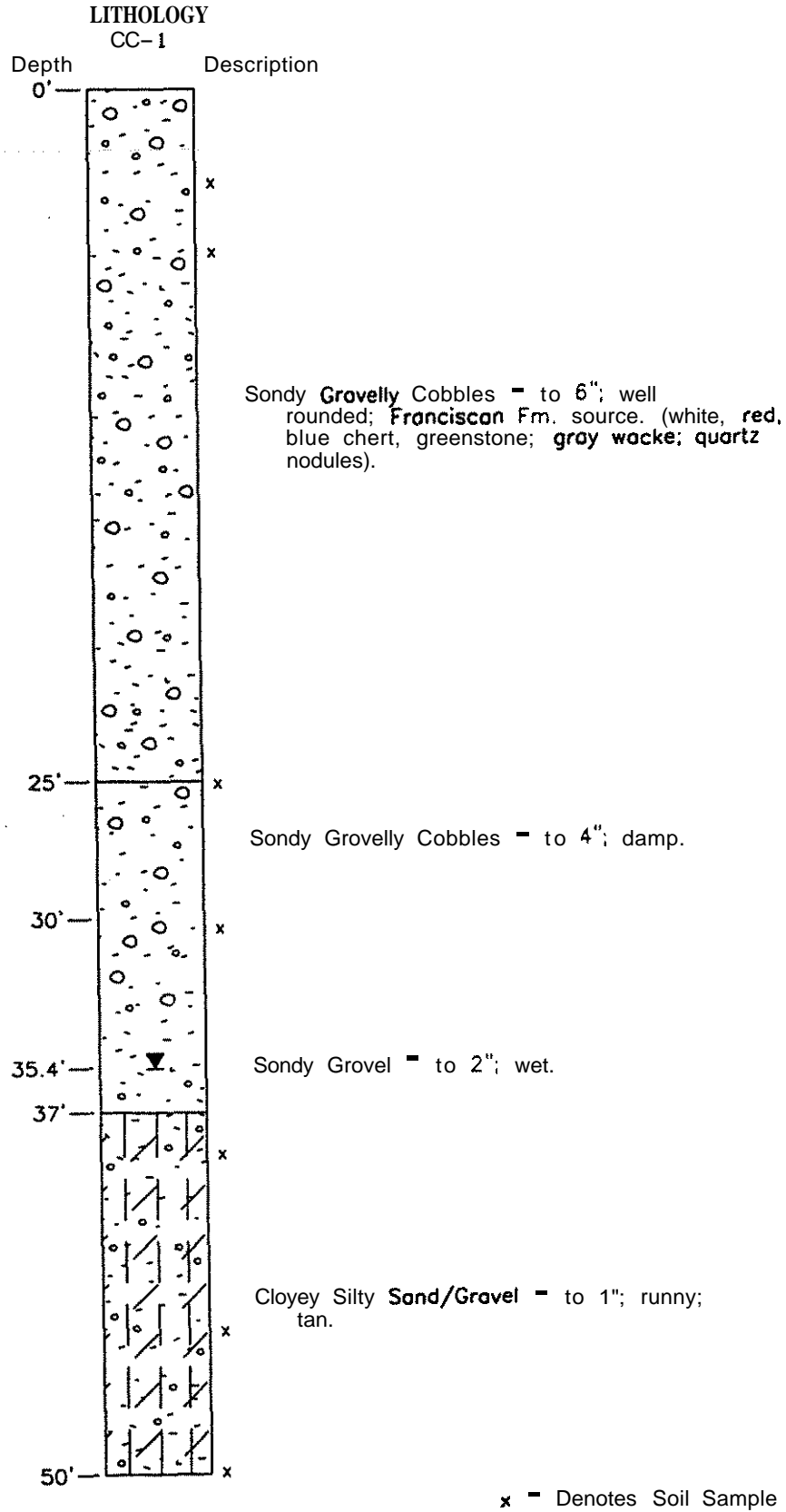
x - Denotes Soil Sample Collected

96-7-000/TCAP/ASC2.DWG



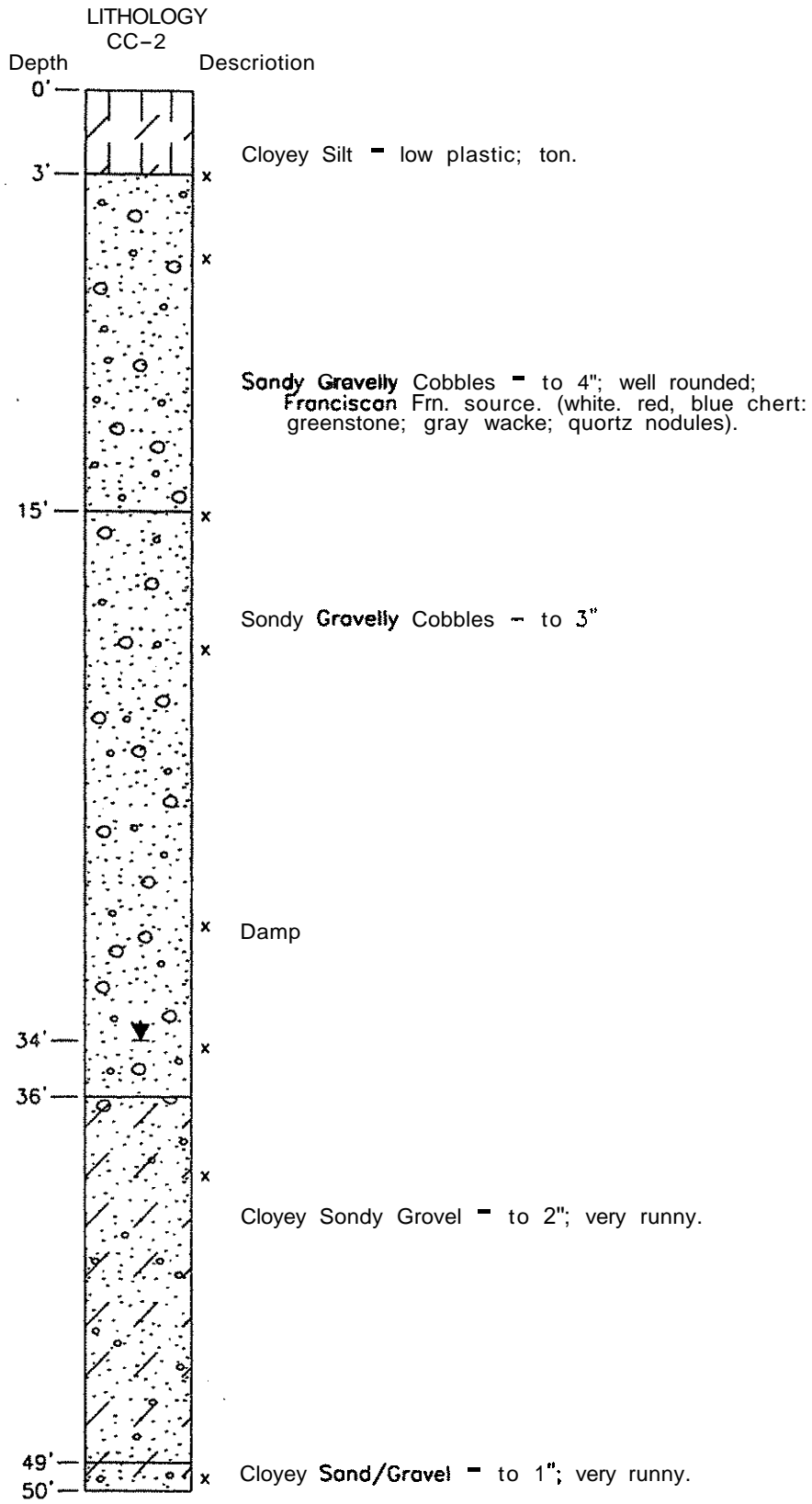
Figure B-2. Boring SC-2, Solano concrete lithologic profile.

B-5



98-7-030/TCAPACE1.DWG

Figure B-3. Boring CC-1, Cache Creek aggregates lithologic profile.



98-7-830/TEAPACC2.DWG



Figure B 4. Boring CC-2, Cache Creek aggregates lithologic profile.

B-7

TABLE B-1

MERCURY SPECIATION IN CORE BORINGS AT SOLANO CONCRETE AND CACHE CREEK AGGREGATES SITES, YOLO COUNTY, CALIFORNIA, APRIL 15/16, 1996.

Sample	Sample Date	Soil Description	Dry Fraction	[Hg], ng/g (ppb)	
				Wet Basis	Dry Basis
SC-1-2.5	4-15-96	Silty Clay	0.8590	766.3	892.1
SC-1-2.5 methyl	4-15-96	Silty Clay	0.8590	0.081	0.094
SC-1-16	4-15-96	Silty Sandy Gravel	0.9710	39.8	41.0
SC-1-45	4-15-96	Clayey Sandy Gravel	0.8655	33.4	38.6
SC-1-45 methyl	4-15-96	Clayey Sandy Gravel	0.8655	4.001	4.001
SC-1-50	4-15-96	Clayey Sandy Gravel/Cobbles	0.8214	40.7	49.5
SC-2-2.5	4-15-96	Clayey Sandy Silt	0.8179	86.2	105.4
SC-2-16	4-15-96	Clayey Silt/Sand	0.9676	32.1	33.2
SC-2-35	4-15-96	Sandy Silty Gravel	0.7855	245.5	323.5
SC-2-45	4-15-96	Gravelly Sandy Silty Clay	0.7947	153.3	192.9
CC-1-3	4-16-96	Sandy Gravelly Cobbles	0.9731	15.8	16.2
CC-1-25	4-16-96	Sandy Gravelly Cobbles	0.9345	68.4	73.2
CC-1-25	4-16-96	Sandy Gravelly Cobbles (>2mm)	0.9576	6.1	6.4
CC-1-40	4-16-96	Clayey Silty Sand/Gravel	0.8735	38.2	43.7
CC-1-40	4-16-96	Clayey Silty Sand/Gravel (>2mm)	0.8975	6.9	7.7
CC-1-50	4-16-96	Clayey Silty Sand/Gravel	0.8881	36.9	41.5
CC-2-3	4-16-96	Clayey Silt	0.9118	43.5 67.7	61.0
CC-2-16	4-16-96	Sandy Gravelly Cobbles	0.9622	21.2	22.0
CC-2-16	4-16-96	Sandy Gravelly Cobbles (>2mm)	0.9242	3.9	4.2
CC-2-40	4-16-96	Clayey Sandy Gravel	0.8660	40.4	46.7
CC-2-50	4-16-96	Clayey Sand/Gravel	0.8472	35.3	41.7

LETTER 14: FOSTER WHEELER ENVIRONMENTAL CORPORATION

Response to Comment 14-1:

The commentor presents two general points regarding the appropriateness in the DEIR of a mercury level of 0.5 mg/kg in fish tissue as an action level presented in Mitigation Measure 4.4-3. Staff agrees with the commentor that the level is conservative relative to the FDA fish advisory criterion which applies to interstate commerce and human consumption. Staff would like to point out that the mining proposed under the OCMP results in the creation of habitat not currently found in the Cache Creek region (with the exception of the Solano Concrete unreclaimed lakes). The potential for methylation of mercury could be enhanced if conditions favorable for anaerobic bacteria growth is created in the bottoms of the pits. Within this environment, many species could be affected by the potential conversion of mercury to methylmercury in the lakes. The EIR does not, as suggested by the commentor, initiate a "new regulatory process that is inconsistent with existing federal or state processes". The mitigation measures in the DEIR are recommended to reduce the potential for adverse environmental impacts. A conservative approach was warranted for the evaluation of the mercury levels in the existing mining pit lakes.

In the second portion of the comment, the commentor acknowledges that the California EPA Office of Environmental Health Hazard Assessment (OEHHA) has used the 0.5 mg/kg as a "red flag" for potential human health problems related to consumption of fish population affected by mercury. The commentor also points out that health advisories have been set in areas of the state where fish contain similar levels of mercury. The purpose of applying this standard to the required testing of existing mining pit lakes was to provide a "red flag" to be considered in the approval process.

The comments regarding the function of fish advisories and typical application of the advisories provides prospective for the potential of high mercury levels in fish in lakes that would be created under the projects of OCMP. However, the purpose of the performance standards presented in Mitigation Measure 4.4-3a is also to avoid creation or maintenance of environments which present an unacceptable risk of exposure of other species to methylmercury in the environment.

At the time of preparation of the DEIR information regarding mercury levels in fish in the mining pits and Cache Creek within lower Cache Creek basin were not available. The results of the Slotton and Rueter study of the Solano Concrete mining pit lakes provide important information supporting the analyses of potential impacts of environmental mercury presented in the DEIR. In addition, the report on the study presents significant information regarding ambient levels of mercury in Cache Creek within the OCMP planning area. The results of the study indicate that fish within the Solano Concrete mining pit lakes contain mercury at levels of concern for the protection of human health for individuals consuming fish from the lakes. The levels of mercury in fish collected from the lakes ranged from 0.16 to 0.30 mg/kg for smaller non-predatory species (i.e. green sunfish) to

0.30 to 0.92 mg/kg for larger predatory fish (i.e. smallmouth bass and brown bullhead) and catfish. Although none of the fish contained mercury levels above the FDA threshold of 1.0 mg/kg, five of the 17 larger fish specimens contained mercury levels above the NAS threshold level of 0.5 mg/kg.

The Slotton and Rueter study also presented previously unpublished data on mercury levels in fish collected from the lower Cache Creek in October 1995. The comparison of mercury levels in fish collected within the creek were compared to the mercury levels in fish collected from the Solano Concrete mining pit lakes. The mercury levels in smaller, non-predatory fish and small to medium-sized predatory fish (smallmouth bass and crappie) and large catfish were similar in both sampling populations. The results for brown bullhead specimens indicated that the levels of mercury in fish collected from the Solano Concrete lakes were slightly elevated relative to similar specimens collected from the creek.

The results of the sampling and mercury testing of fish in the Solano Concrete lakes and the lower Cache Creek channel provoke re-examination of the requirements presented in Mitigation Measure 4.4-3a. Although the data set is not complete enough to establish the ambient levels of fish in the lower Cache Creek environment, the data suggest that mercury accumulation in fish from both the creek and the mining pit lake environment are similar. The similarity of the measured mercury levels raises an important question. If the levels of mercury in the mining pit lakes are similar to the levels within fish in the creek, does the proposed creation of permanent lakes in portions of the proposed present an unacceptable increased risk to human or environmental health? Under these conditions, the risk of exposure is an existing condition. Therefore, staff and the preparers of the EIR do not consider exposure of humans or other predators to mercury within the mining pit lakes to be an unacceptable risk.

Creation of aquatic habitat, resulting from reclamation of a mining area to permanent lake, provides an increase in the amount of habitat available within a region which, through the combined effects of conversion of riparian and wetland environments to agricultural and urban uses, has experienced the loss of comparable environments. Although the proposed lakes present a relatively deep-water environment compared to the floodplain and active channel environment of an unaltered Cache Creek streamway, the presence of shoreline and open-water habitat provide ecologic opportunities for indigenous and migratory species. Development of riparian and wetland habitat within the lower Cache Creek basin is supported by the goals and objectives of the OCMP. However, under existing conditions and conditions resulting from implementation of the mining and reclamation activities proposed under the OCMP, species taking advantage of the available ecologic opportunities would be exposed to the presence of mercury (and more specifically methylmercury) in the environment. This exposure and associated health risks increase for longer-lived species, particularly for predatory species which are close to the top of the food-chain. This group includes human hunters and, more specifically for the environment of concern, fishermen. If these "predators" are opportunistic, then they would take advantage of both the lake and creek environments. Similar levels of mercury in fish collected from the two environments indicate an equivalent health hazard associated with

consumption of prey from the mining pit lakes or creek channel environment. The levels of mercury in the fish are also comparable to levels found in other areas of northern California which are affected by significant sources of mercury in the environment, including Clear Lake, Lake Berryessa, Lake Herman, and the American River (Slotton et al., 1996).

Staff and the preparers of EIR consider the similarity of mercury levels in fish collected from the Solano Concrete mining pit lakes to levels in fish from Cache Creek and the aquatic environments within the region to be a significant consideration which was not incorporated into the mitigation measures presented in the DEIR. It is clear that the presence of relatively high levels of mercury within the environment results in accumulation of mercury in biota of the region at levels that approach or exceed the NAS standard of 0.5 mg/kg. On-going research within the region on the availability of mercury in the environment and exposure of humans and other species to health impacts related to mercury will provide refinement of the definition of "ambient" or regional conditions.

In acknowledgement of the relatively high levels of mercury that have been measured in the Cache Creek watershed, it is reasonable and appropriate to use ambient (background) mercury levels as the standard against which the results of long-term monitoring of mercury levels of fish in mining pit lakes should be compared. Considering that available data indicate that mercury levels in predatory fish within the Cache Creek watershed currently approach or exceed the threshold of 0.5 mg/kg recommended in the DEIR, staff concludes that an alternative threshold for fish flesh which reflects ambient conditions should be included in the mitigation measure. When sufficient data is made available through additional sampling of fish in the lower Cache Creek basin, a statistically verified ambient level of mercury in fish within the lower Cache Creek basin would provide a more meaningful standard for comparison. This rationale for revision of the standard was developed with the support of the preparers of the EIR and Dr. Darell Slotton of the University of California at Davis. Text Change # 34 has been made to the EIR to present a more appropriate strategy for mercury monitoring and associated corrective action. Although this change was not made in direct response to the points raised by the comment, the change is relevant to a discussion of the development appropriate standards for the determination of the significance of mercury occurring in the environment.

Response to Comment 14-2:

Staff agrees with the commentor's recognition that the recent water quality testing performed at the lakes in mined areas on the Solano Concrete Company property (Appendix C) does not indicate that mercury in water in the lakes (0.00000225 to 0.00000345 mg/L) exceed USEPA national ambient water quality standards for protection of freshwater aquatic life (0.000012 mg/L). In addition, the water quality results do not exceed the California Maximum Contaminant Level for mercury in drinking water. The commentor's point that the levels of mercury are also well below the USEPA recommended ambient water quality standards to protect human health from mercury consumed in fish (0.000146 mg/L) is noted for the record

Response to Comment 14-3:

The commentor suggests that comparisons of the results of testing of mercury levels in fish collected at the Solano Concrete Company lakes within formerly mined areas (Appendix C) are comparable to the ranges of mercury concentrations found in fish nationwide and throughout California. The preparers of the EIR contend that the comparison of the results to national and statewide ranges is not particularly informative. The data presented in the comment for ranges does not describe the "central tendency" for the data set. There is no indication in the comment as to whether the national or statewide results are statistically representative of background levels or whether the results are skewed by sampling of fish collected in areas with known mercury problems. A more appropriate measure of similarity of results is provided by a comparison of mean values for a more localized area to compare the results to a more meaningful discussion of "background". The comment presents a comparison of the Solano Concrete lake fish results to the results obtained for Davis Creek reservoir. The preparers of the EIR acknowledge that the results of testing indicate that mercury levels collected in fish from the Solano Concrete Company pits are similar to mercury levels in fish collected in lower Cache Creek basin and lower than those in Davis Creek Reservoir, as described in Appendix C and in the comment.

The preparers of the EIR do not see the relevance of the comparison of mercury levels in fish within the lower Cache Creek basin to fish collected in Swedish lakes. The processes for methylmercury production in Swedish lakes are affected by significantly different environmental conditions. In particular, "acid rain" problems common in Sweden would promote the conversion of available mercury to methylmercury. Therefore, smaller amounts of environmental mercury could create similar or greater methylmercury production in that county.

The commentor's discussion of mercury levels in commercial fish is noted. Although the levels of mercury in fish collected from the Solano Concrete lakes, Cache Creek, Clear Lake, and Davis Creek Reservoir fall within the range of mercury levels cited in the comment, the creation of environments which can potentially promote methylation of mercury and accumulation of methylmercury is a significant impact.

Response to Comment 14-4:

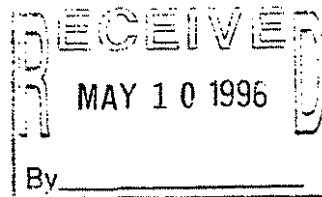
The commentor provides relevant results of groundwater and surface water sampling and analysis within the OCMP area that were not available during the preparation of the DEIR. Specifically, the analysis of water collected from nine monitoring wells (including four wells at the Solano Concrete and five wells at Cache Creek Aggregates) and one sample from Cache Creek were sampled using "ultra-clean" sampling techniques. The samples were analyzed at Frontier Geosciences Laboratories for analysis of total mercury at detection level of 0.000000012 mg/L. The level of total mercury in the filtered groundwater samples ranged from 0.00000085 to 0.00000381 mg/L. Methylmercury levels in the groundwater samples ranged from nondetectable (<0.0000000012 mg/L) to 0.0000000030 mg/L. The results of the testing support the commentor's conclusion that the levels of mercury in the

groundwater samples is well below the California Maximum Contaminant Levels for mercury in groundwater. These new data provide further support for the conclusion in the DEIR (page 4.4-45), based on previously available data, that levels of mercury in groundwater in the OCMP area are significantly below drinking water standards.

Response to Comment 14-5:

The information presented in the comment regarding a health risk assessment approach to determination of potential environmental impacts is noted for the record. The preparers of the DEIR agree that the USEPA screening levels and reference dose (RfD) for mercury are not currently consistent, reflecting the difficulties in setting a health standard for mercury. The current screening level is not substantially different from the threshold of 0.5 mg/kg presented in the DEIR for fish flesh mercury concentrations. The preparers of the DEIR consider the approach of choosing a more conservative threshold appropriate for evaluation of potential adverse conditions in the existing mining pit lakes. Mercury concentrations in fish above this threshold would indicate elevated levels relative to a conservative human health threshold. The commentor's point that application of the RfD would result in identification of consumption of "virtually all fish" as an unacceptable health risk is noted for the record. If the consumption of fish affected by mercury is a potential health hazard, exposure of species using aquatic and riparian habitat to the expected conditions of methylmercury production in mining area lakes is considered to be a significant impact, as described in the DEIR.

The commentor develops the argument that an incremental increase in mercury exposure would occur only if the levels of mercury in fish from the mining area lakes, which are eaten, were higher than levels in fish which are currently consumed. Alternatively, the commentor suggests that an incremental increase would occur if fishing in the lakes would result in increased consumption of affected fish. The DEIR preparers concur that it would be a significant human health impact if fish from the lake that contained high levels of mercury were consumed. Whether the mercury levels in the fish from the lake would necessarily have to be higher than the mercury levels in fish currently consumed by the fish-eating population does not appear supportable. The argument developed by the commentor assumes "the absence of fish advisories applied to the proposed lakes". Staff does not consider this assumption to be necessary. It is possible that, given the relatively high levels of mercury in the Cache Creek watershed, issuance of future fish advisories is possible. In recognition of the potential for mercury levels in fish within the Cache Creek basin (including in mining pit lakes) to present human health hazards, Mitigation Measure 4.34-3a has been amended by Text Change # 34 to address the potential for issuance of fish advisories.



David Morrison, Resource Management Coordinator.
YoloCounty Community Development Agency
292 West Beamer Street
Woodland, CA 95695

Re: Comments on Yolo County Off-Channel Mining Plan DEIR

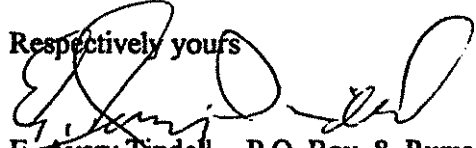
A more specific public comments are forthcoming by others (Dr Robert Speirs Ph.D. etal) about which I give my full support. There are some additional comments I submit as follows:

- 1. Letter of May 7,1993 (ref:333:JAL:266.0) attached by SWRCB - Div. of Water Rights recognizes "The potential exists for impacts to the aquifers underlying Cache Creek due to aggregate mining" staff will review and comment on this document. . . The writer refreshed the Div. of Water Rights in mid-March 1996 of the forthcoming DEIR, appraised them of all new players, public concerns, mercury contamination problems etc. In following up this week as of this date I'm advised they didn't comment. Are not the people of Woodland and those using this aquifer entitled to a better protection etc. No written comment is noted from the County Health I Environmental Officer. He should have a professional opinion and are not the taxpayers paying his salary for his professional expertise? 15-1
- 2. Attached excerpt from an Alameda County Clean Water Program "Did you know that dumping one quart of motor oil down a storm drain contaminates 250,000 gallons of water" - This is not smoke and minors. ~~What~~ would it do to an aquifer supplying Woodland's potable water and is without benefit of an expensive treatment plant. Note also the attached editorial on" Much Contaminated Ground Water Can't Be Cleaned Up" by John Bredehoeft. 15-2
- 3. The construction and operation of wet pits invading the aquifer should be construed as inherently dangerous to the public health and safety and such mining operators should not receive any diminution of responsibility or accountability as a result of their creation of this hazard. 15-3
- 4. The Technical Advisory panel created for In-Stream mining should also have jurisdiction over Off-Channel mining. Experience has proven via the Homestake TRP that the County interests are better served by such review capability. 15-4
- 5. Todd Engineers by their Jan. 5,1996 fax to contract planner Tschudin states "Accordingly the Technical Studies recommend that SUCH USE OF WET PITS BE DISCOURAGED' photocopy attached. 15-5

6. Monitoring wells once established should be maintained to contribute to the database for the life of the operator's permits plus probably 20 years.] 15-6

Should you not agree to the above inconsistencies, recommendations please explain your position and justification therefor.

Respectively yours



E. Avery Tindell - P.O, Box 8, Rumsey, CA 95679
May 9, 1996

STATE WATER RESOURCES CONTROL BOARD
 THE PAUL R. BONDERSON BUILDING
 901 P STREET
 SACRAMENTO, CA 95814
 (916) 657-1359

Mailing Address
 DIVISION OF WATER RIGHTS
 P.O. BOX 2000, Sacramento, CA 95812.2000



FAX: (916) 657-1485

MAY 7 1993

In Reply Refer
 to:333:JAL:266.0

Ms. Sally Oliver
 16634 County Road 98
 Woodland, CA 95695

Oear Ms. Oliver:

GRAVEL MINING IN THE CACHE CREEK AREA OF YOLO COUNTY

Thank you for your participation in the Public Forum of the State Water Resources Control Board's (State Water Board) workshop on April 12, 1993, and for your letter of the same date. In your presentation you requested that the State Water Board commence a study on strip mining for gravel on Cache Creek to determine impacts to aquifer recharge from the stream and impacts to aquifer storage capacity. In response to your request, the State Water Board ~~agreed~~ agreed to discuss this issue with other involved agencies and to furnish you with a written response.

The California Division of Mines and Geology (DMG) and the Yolo County Planning Department were contacted and the following information was obtained. Pursuant to the Surface Mining and Reclamation Act, the DMG completed a mineral land classification study of aggregate resources in the Sacramento-Fairfield production-consumption region which includes the Cache Creek drainage. The DMG study, however, did not address the issues of impacts to water quality and quantity resulting from mining operations. The study concluded that Cache Creek deposits, totaling 27 square miles in area, contain high-grade aggregate. According to DMG geologist, Don Dupras, in spite of the presence of high grade aggregate resources, the State Mining and Geology Board did not designate the Cache Creek area as having regionally significant mineral deposits for land use planning purposes.

Mr. David Flores of the Yolo County Planning Department explained that the county is preparing an environmental impact report (EIR) on aggregate mining in the Cache Creek area. Previously, a resource management plan was prepared for the county by consultant Dames & Moore. Because of opposition from the community, this plan was not adopted. Mr. Flores stated that Yolo County has authorized hiring a Resource Manager to prepare a request for proposal on a new resource management plan. Mr. Flores explained that the county has completed a project description, and the subsequent EIR will address the issues of impacts to storage capacity in the underlying aquifers and impacts to the quality of groundwater due to aggregate extraction.

Ms. Sally Oliver

-2-

MAY 7 1993

According to Mr. Flores, the source of water for the ongoing mining is groundwater pumped from nearby wells. The EIR will address the issue of groundwater pumping impacts on Cache Creek. Division of Water Rights (Division) staff asked Mr. Flores to examine the issue of groundwater classification for appropriate water right purposes in the EIR. Mr. Flores agreed to this request.

The potential exists for impacts to the aquifers underlying Cache Creek due to aggregate mining; however, Division staff did not discover any reports or studies that document the existence of such problems. Yolo County intends to examine these issues in its EIR. State Water Board staff will review and comment on this document when it is circulated through the State Clearinghouse.

I hope the information in this letter is helpful to you. If you have questions regarding this letter, please call me at the number above.

Sincerely,



Edward C. Anton, Chief
Division of Water Rights

**Did you know that dumping
one quart of motor oil down
a storm drain contaminates
260,000 gallons of water?**

**Most people don't realize that
emptying oil and other pollutants into
a gutter or storm drain contributes to
urban runoff pollution in the San
Francisco Bay. That is one of the
reasons the Alameda County Urban
Runoff Clean Water Program was
formed by Alameda County and 14
cities in the East Bay.**

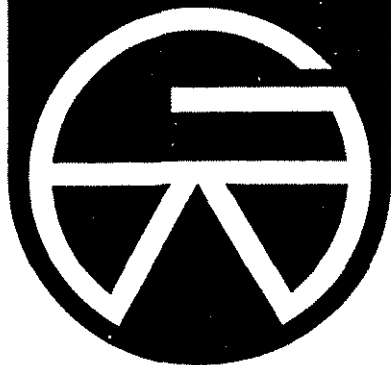
The program participants recognize
the need for providing information to
the public **and** encouraging active
involvement to improve water quality
in the Bay. In addition, the Program is
initiating a pollution control program
which includes inspection of storm
drain discharges and an
implementation program to control
pollutant runoff through public
agencies and regulatory means.

A combined and widespread effort
by public agencies, businesses and
community residents in Alameda
County will effectively control **Bay-**
damaging pollutants at their source.



**Alameda County
Urban Runoff
Clean Water Program**

editorial



by John Bredehoeft

MUCH CONTAMINATED GROUND WATER CAN'T BE CLEANED UP

I recently attended a national meeting convened to consider the current status of environmental remediation, including ground-water cleanup. One of the keynote speakers was John Cherry, who many of us feel is the leading consultant on problems of ground-water contamination. He pointed out how our paradigm for cleaning up ground water has changed as we have gained field-experience during the past ten years.

The View a Decade Ago

Ten years ago the prevailing view was that most sources of contamination were in the shallow subsurface; it was thought that most aquifers were contaminated by undesirable chemicals in solution in the ground water. Most ground-water hydrologists believed that we could clean up aquifers by pumping to remove the contaminated ground water from the aquifer, once the source of shallow contamination was eliminated through remediation. It was recognized that some contaminants could be sorbed on the aquifer skeleton. However, few ground-water professionals thought that the sorbed contamination posed an insurmountable problem; one might have to pump more ground water to remove the sorbed contaminants.

It was on the basis of this paradigm that many cleanups were redesigned. It left one with the warm feeling that indeed we could clean up ground water, even though it might be expensive.

Our Current Paradigm

At the conference, John Cherry stated that the field experience of the past decade indicates that in many cases, if not most instances, the contaminating source is either a free, or residual, phase of the contaminant that has penetrated deep within the aquifer. This is especially true for the chlorinated organic liquids that are in general and approximately 50 percent denser than water. A number of recent papers document the occurrence of a free, or residual, contaminant phase within the saturated aquifer.

The chlorinated organic solvents are common ground-water contaminants. They have been used widely for cleaning many industrial products, and by dry cleaning establishments everywhere in the United States. It is suggested that these are by far the most prevalent source of industrial ground-water contamination.

The chlorinated organic liquids, which are immiscible and heavy, tend to migrate both downward and laterally until they reach a stable configuration and then no longer move. They exist either as a residual fraction left behind in the pore spaces between grains or as a pool of free contamination. The compounds are sometimes in solution in the water. As ground water flows past the contaminant—either the residual fraction or the pool—some of the contaminant dissolves into

The views expressed in this editorial are those of the author, and do not reflect the views of the Ground Water Publishing Company, the Association of Ground Water Scientists and Engineers, and/or the National Ground Water Association.

the ground water, contaminating it. Since we are usually concerned about contamination at the parts per billion level, a little dissolved chlorinated organic can contaminate an enormous quantity of ground water.

The light, immiscible phase contaminants pose a problem because that they tend to rise in the ground-water system. The light organic liquids are common contaminants associated with petroleum products—gasoline, jet fuel, heating oil, etc.

A free, or residual, immiscible phase contaminant within the aquifer system poses a very different remediation problem from that of a contaminant in solution. John indicated that they are unable to clean up. We simply do not know how to remove a residual phase of an immiscible contaminant from an aquifer, short of freezing it in place and mining it out.

Petroleum reservoirs provide a perfect example of the problem. Additional oil recovery can mean great additional profit. Large investments in enhanced recovery technologies in the oil industry. Even with the most advanced recovery, a substantial portion of the oil—somewhere between 10 and 50 percent—is left in the reservoir. Enhanced oil recovery technologies include use of solvents such as liquefied carbon dioxide, steam flooding, and the use of surfactants. Some of these methods are being experimented with for ground-water remediation.

John Cherry made it clear that we do not presently have the technology to clean up an immiscible phase of contaminant that has reached the aquifer. The best we can do is contain the contamination. This is a disconcerting fact.

A Public Backlash?

The enormous waste remediation effort in the United States has now reached an annual expenditure of approximately \$10 billion. The public, I believe, think that we are cleaning up the environment, including ground water. They are unaware of the technical difficulties posed by the problem.

In my opinion, the greatest change in our understanding of the problem. A decade ago, many of us felt that it was feasible to clean up most ground water. We now know that we did not understand the problem.

I am concerned that as the public find out what they are actually buying for their \$10 billion a year, they will become completely disenchanted with both the cleanup and the professional community engaged in this effort. There will be a public backlash. We will have spent tens of billions without much to show for it. All of us stand to lose greatly from such a backlash; we stand to be the bad guys in a ground-water cleanup effort. It is incumbent upon us, as professionals, to alert the public to the true nature of the problem as our scientific understanding grows. It is in our long-term, best interest to have a well-informed public.

TODD ENGINEERS

GROUNDWATER • WATER RESOURCES • HYDROGEOLOGY • ENVIRONMENTAL ENGINEERING

January 5, 1996

Post-It® Fax Note	7671	Date	1/5/96	# of pages	1
To	Heidi Tschudin	From	Iris Priestaf		
Co./Dept.		Co.			
Phone #		Phone #			
Fax #	916 444 0227	Fax #			

MEMORANDUM

To: Heidi Tschudin

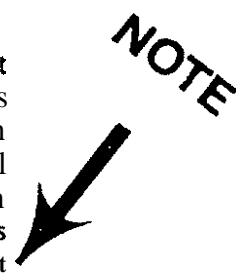
From: Iris Priestaf

Re: ini Responses to Comments on the Technical Studies for the CCRMP

Rick Hanson informed me that questions remaine regarding the salt balance of groundwater in the vicinity of Cache Creek, factors affecting the salt balance, and potential impacts of mining reclamation to wet pits. These impacts wuld occur through evaporation losses or possible use of pits for agricultural tailwater retention. This memorandum reiterates the findings of the Technical Studies that address this topic.

First, the historical perspective indicates a possible trend toward increasing salinity in groundwater and an adverse salt balance. As indicated in the report, this is likely the result of increased cycling of groundwater for irrigation uses; in other words, the major factor changing the salt balance is groundwater irrigation.

Potential impacts of mining on the salt balance are limited to creation of wet pits. The effect of exposure of the water table on evaporation and salt loading is shown in the Technical Studies to be an unavoidable, but minor impact that can be mitigated by lessening evaporation through pit design. Discussions with County staff revealed no serious intentions or plans for disposal or retention of poor quality irrigation tailwater in wet pits. Retention of poor quality water in wet pits was stated in the Technical Studies as potentially entailing significant adverse impacts on groundwater quality. Accordingly, the Technical Studies recommend that such use of wet pits be discouraged.



Please call if you have questions or comments.

Iris Priestaf

2200 Powell Street, Suite 225 • Emeryville, CA 94508 • 510/595-2120 • Fax 510/595-2112

LETTER 15: E. AVERY TINDELL

Response to Comment f Q-1:

Thank you for your letter. The commentor is correct in noting that the Regional Water Quality Control Board did not comment on the OCMP. The County Director of Environmental Health's comments were received on May 13, 1996 and are responded to in this document (see Comment Letters #19 and #20 from the County of Yolo, Department of Public Health).

Response to Comment 15-2:

The preparers of the DEIR are aware that a relatively small amount of a chemical contaminant can degrade the quality of a large amount of water, although it should be noted that 250,000 gallons is less than 1 acre foot of water. With regard to the project, no storm drains are proposed to drain into the wet pits. In addition, numerous mitigation measures have been included in the DEIR which would minimize potential impacts to water quality. The editorial by John Bredehoeft (published in one of the National Groundwater Association's journals, Ground Water) was primarily focussing on the difficulties remediating sites where dense nonaqueous phase liquids (primarily chlorinated solvents) have been spilled. As discussed above, the DEIR provides mitigation measures to minimize the risk of such a spill (refer to Mitigation Measure 4.12-1a).

Response to Comment 15-3:

The DEIR examines the potential for impacts to water quality from the proposed depth of mining. Numerous mitigation measures have been included to address the potential impact. The aggregate producers, under the supervision of the County, would be largely responsible for ensuring that the mitigation measures are implemented. The MMP contained in Appendix B of this document identifies the entity with responsibility for implementation of each mitigation measure.

Response to Comment 154:

The commentor's opinion that the Technical Advisory panel created for in-stream mining should also have jurisdiction over off-channel mining is noted for the record. The staff have not made this recommendation because of the different types of programs being proposed. Future erosion control, channel sculpting, and habitat restoration projects proposed under the Cache Creek Resources Management Plan and accompanying Cache Creek Improvements Program will alter the creek's dynamics, creating a more stable channel. As geomorphological conditions change, however, both the CCRMP and the CCIP may need to be adjusted in order to respond to new reach-specific characteristics. Due to the complexity of issues involved in river management, interdisciplinary expertise will be periodically needed in order to assess these changes and recommend appropriate measures for addressing the changing conditions.

In contrast, off-channel surface mining will have to comply with the standards, mitigation measures, and monitoring programs adopted as a part of the OCMP, and the requirements imposed by the State through SMARA. Where appropriate, these regulations and mitigations have specific stated thresholds which, if exceeded, could result in adverse environmental impacts and would require remedial actions by the mining operators. If an operator is found by the Community Development Agency to be in violation, and fails to carry out orders requiring them to comply, the case would be referred to the Planning Commission, which may begin the process of modifying or revoking the mining permit. In addition, copies of all monitoring reports filed by the operators will also be provided to the Planning Commission, along with any analysis provided by staff or independent consultants. If unforeseen problems develop, the Commission can recommend to the Board of Supervisors that changes be made in the Off-Channel Mining Plan, so that activities creating the problems would be prohibited.

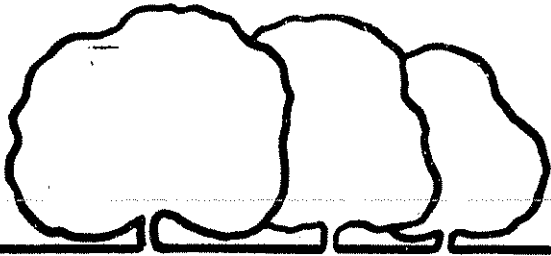
Expanding the scope of the Technical Advisory Committee to include off-channel mining would duplicate the proposed regulatory framework of SMARA, the OCMP, and implementing County ordinances, as well as the oversight responsibilities of the Planning Commission. No modification of the project or the EIR, as related to this point, is recommended.

Response to Comment 15-5:

As noted in the memorandum referenced by the commentor, the Technical Studies discouraged use of wet pits for retention of poor quality water (e.g. agricultural tailwater, industrial effluent). The OCMP and DEIR severely restrict inputs to the wet pits. Sites must be graded so that tailwater drains away from the pits (Performance Standard 3.5-3 under Mitigation Measure 4.4-2a on page 4.4-37 of the DEIR). The use of off-channel wet pits for the storage and treatment of sewage effluent, or for landfill purposes, is prohibited (Performance Standard 3.5-11 page 4.4-49 of the DEIR). For additional discussion of the salt loading issue, please refer to Response 13-152.

Response to Comment 15-6:

Please refer to Response to Comment 13-105 and 16-3.



City of Woodland

CITY MANAGER

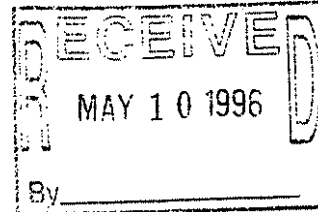
300 FIRST STREET

WOODLAND, CALIFORNIA 95695

(916) 661-5800

FAX (916) 661-5844

May 9, 1996



Mr. David Morrison
Resource Management Coordinator
Yolo County Community Development Agency
292 West Beamer Street
Woodland, CA 95695

SUBJECT: OFF-CHANNEL MINING PLAN FOR LOWER CACHE CREEK

Dear Mr. Morrison:

We have reviewed the March 26, 1996 Draft EIR for the Off-Channel Mining Plan for Lower Cache Creek (OCMP) and the April 8, 1996 Draft Program EIR for the Cache Creek Resources Management Plan (CCRMP) and Project Level EIR for Cache Creek Improvement Program for Lower Cache Creek.

As we stated in our comments November 9, 1995, December 20, 1995 and January 10, 1996 regarding the Technical Studies and the Off-Channel Mining Plan (OCMP), the City of Woodland is primarily concerned about the possibility of contamination of our groundwater drinking supplies by way of a nearby open wet pit either during mining or after reclamation.

16-1

As seen in Figure 1 of the Cache Creek Resources Management Plan (CCRMP), the eastern limits of both the Mineral Resource Zone (MRZ) and the Recommended In-Channel Boundary come to within half a mile of the Woodland City limits. This area is in Subreach 3, an area hydrologically upgradient from Woodland wells and an area that, given time, would contribute water to our wells. Consequently we find that the CCRMP, OCMP, the draft County Gravel Mining Ordinance and the draft EIR documents do not adequately address the City's concerns for potential water quality degradation from gravel mining in this area.

The Draft EIR for the OCMP page (4.4-13 Table 4.4-2) indicates the distance from Woodland wells to the nearest "Proposed Mining Sites" is 10,500 feet. Our concern is not with current proposed mining sites but with an OCMP, CCRMP and related Ordinances that would allow future mining sites within the full MRZ, an area whose southeastern boundary comes closer than one half mile of the current Woodland city limits. In prior meetings with the county, its consultants and representatives from a major gravel mining company regarding the close proximity of the MRZ to the City, we understood that an acceptable solution to our concerns would be to limit gravel mining to an area smaller than the entire MRZ, thus creating a larger buffer zone near Woodland municipal wells. Although there may be no current plans to mine

16-2

City of Trees

gravel in the area close to Woodland, we would like to see this restriction stated in the plan, EIR and ordinances.

16-2

A second item of **concern** to us is the long **term** monitoring of groundwater quality related to the effects of gravel mining. There still seems to be a lack of a plan to investigate or clean up contaminants if they are discovered in a monitoring well downgradient of a wet pit. The Technical Study says the water quality in the pits needs to be maintained "in perpetuity". However, the OCMP DEIR, page 4.4-39, states that after active reclamation, **monitoring** wells need not be tested for petroleum hydrocarbons and pesticides, two of our major constituents on concern. It further states that "If, at the completion of the mining and reclamation period, water quality has not been impacted, all monitoring wells shall be destroyed . . ." This does not seem to assure the maintenance of the water quality "in perpetuity". Also the lack of a pollution remediation plan leaves the method of funding of clean up work and responsibility uncertain.

16-3

An additional comment we have in the OCMP DEIR is that page 4.4-56, Action 3.4-2 states "Coordinate with the Yolo County Flood Control and Water **Conservation** District (YCFWCWD) in developing an integrated recharge plan for Cache Creek, in order to increase the available aroundwater **supply** for **municipal** and agricultural uses." While we are encouraged by the **potential for conjunctive use, if the City of Woodland is potentially affected by either of the projects should be coordinated with the City as well as the**

16-4

Thank you for your consideration, we look **forward** to working with you and the County to **ensure development of a OCMP, CCRMP, and gravel mining ordinances that best suit the**

Sincerely,



Kris Kristensen
City Manager

cc: Woodland City Council members
Tom Stallard
Gary Wegener
Mike Horgan
Harrison Phipps

LETTER 16: CITY OF WOODLAND

Response to Comment 16-1:

It is unclear how the City can conclude that the OCMP DEIR and other documents do not adequately address the potential for water quality degradation, based on a Figure in the CCRMP. The CCRMP is not analyzed in this DEIR and the referenced Figure simply portrays various boundaries. No response is possible. The DEIR fully discusses the issue of water quality under Impacts 4.4-2 and 4.4-3 in Section 4.4.

Response to Comment 16-2:

The commentor is referred to **Impact 4.2-10** of the DEIR for discussion of allowable mining areas. Mitigation Measure 4.2-10a associated with this impact does exactly what the City is requesting. It narrows the possible area for mining from 23,174 acres to 2,932 acres over 50 or more years. It also restricts new mining to areas west of CR 96. In other words, an applicant wishing to mine on acreage other than that identified, would have to secure a General Plan Amendment, Cache Creek Area Plan Amendment, rezone, mining permit and reclamation plan approval, and would be subject to a full EIR analysis **including** a re-examination of cumulative effects based on changes in the reasonably foreseeable future.

Response to Comment 16-3:

The DEIR establishes rigorous monitoring of surface water quality in the wet pits and groundwater quality upgradient and downgradient of the pits. This program would begin prior to commencement of mining and continue until ten years after reclamation. The preparers of the DEIR believe that by the time monitoring may be discontinued, an excellent database would have been generated and the potential for degradation adequately determined. For the entire OCMP, 30 years of water quality would be collected. Individual mining projects would have monitoring periods ranging from 10 to 30 years. Specific actions are required under Mitigation Measure 4.4-2a if water quality degradation is identified, including notification of regulatory agencies, additional characterization, and corrective action. The Technical Studies state that "maintenance of the water quality in the lake is essential." Appropriate site design and maintenance measures described in the studies include: perimeter berms, site runoff and erosion controls, restrictions on site activities, and setbacks. These have been implemented in Mitigation Measure 4.4-2a and 4.4-3a. With regard to the destruction of monitoring wells, this is another measure designed to protect water quality. Abandoned wells often act as a conduit for contamination of groundwater. The mitigation measure does allow the **County** or another regulatory agency to take over **maintenance** of selected wells for future **water** resources evaluation after the close of the required monitoring period, should they so choose.

Response to Comment 16-4:

Action 3.4-2 is recommended for deletion in Mitigation Measure 4.4-5a because a recharge program has not been proposed for consideration or comparison. Please see page 4.4-55 of the DEIR.

Thank you for your letter.

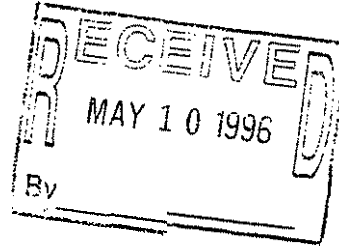
PRESIDENT
Dona Mast
FIRST VICE-PRESIDENT
Blake Harlan
SECONOVICE-PRESIOENT
Duane Chamberlain
SECRETARY /TREASURER
Tara Atkinson

American Farm Bureau Federation/California Farm Bureau Federation

YOLO COUNTY FARM BUREAU

P.O. Box 1556, Woodland, California 95776
(916) 662-6316

May 10, 1996



Yolo County Community Development Department
292 West Beamer Street
Woodland, CA 95695

Re: Comments on Draft EIR for Off-channel Mining

The Yolo County Farm Bureau's interest that drives comments for this draft EIR off-channel mining stems from our commitment to protect, promote and enhance the agricultural industry in Yolo County. The Farm Bureau finds that the issue of gravel mining surfaces the major concerns of water quality, groundwater quantity and loss of productive agricultural land.

17-1

The following are specific concerns that have arisen in our studies of the draft EIR. We wish to bring these to your attention.

In the summary table of impacts and mitigations on page 2-23, "potential impacts associated with groundwater recharge" is listed as a significant environmental impact. In order to mitigate this impact the EIR proposes the elimination of objective 3.3-3 which states "insure that off-channel mines are operated such that the surface and groundwater supplies are not adversely affected by erosion, lowering of the water table, and/or contamination." We oppose the elimination of this objective.

17-2

While we recognize that there is an opportunity for our local water district to utilize available underground storage and manage the groundwater basin to meet growing needs, we are fearful that if the county chooses to allow wet pit mining, it may subject itself to unnecessary risk of contamination. We would like the assurance that responsibility is taken for long-term maintenance and monitoring of wet pits.

17-3

We concur with the EIR's conclusion that Alternative 4 poses the least amount of risk to our groundwater resource. Additionally, all of the land that was farmed before mining will be available for reclamation to agricultural use. We see this as positive; however, the current draft of the off-channel mining ordinance does not contain a section on land reclamation standards. The American Farm Bureau Federation Policy on mineral development #138 states that mined lands should be subject to rules and regulations which



require the reclamation of all mined lands, including disrupted underground and surface water.

17-3

We do recognize that Alternative 4 may not provide the quantity of gravel necessary to make the gravel industry a viable one over the proposed 30-year contract period. A shorter contract may be more appropriate. This may also allow more latitude for study and monitoring changing conditions within mining areas.

We question Objective 7.3-2 which says "consider reclamation that includes recreation elements as meeting all or a portion of the net gains requirements." While we **realize that** there is a value to recreation elements, the **Farm** Bureau would like to see a net gain analysis included in the EIR.

17-4

Thank you for your consideration on this important issue.

Sincerely,



Blake Harlan
Vice President

cc: **Yolo** County Board of **Supervisors**

LETTER 17: YOLO COUNTY FARM BUREAU

Response to Comment 17-1:

Thank you for your letter. The commentor has identified an error in the text. Objective 3.3-2 of the OCMP is incorrectly listed as Objective 3.3-3 in the DEIR, and recommended for deletion. This was not intentional. It is Objective 3.3-2 that is actually recommended for deletion. Please refer to Text Change # 36.

Response to Comment 17-2:

Long term maintenance and monitoring of the wet pit is provided for in revised Performance Standard 3.5-4 and will be ensured through implementation of the Mitigation Monitoring Plan as required under CEQA.

Response to Comment 17-3:

Staff concurs with American Farm Bureau Federation Policy that all mined lands should be reclaimed. Agricultural reclamation standards are included in the draft Surface Mining Reclamation Ordinance, not the Off-Channel Mining Ordinance. Conditions requiring field releveling of settled areas, the ripping of reclaimed soils, the handling of dry topsoil to avoid compaction, and the preservation of stockpiled topsoil are all included. The DEIR provided mitigation measures that required prime land converted to non-agricultural uses to be offset at a 1:1 ratio, phasing plans that minimize disturbed agricultural lands, and adequate storm drainage for reclaimed fields. These are in addition to existing Williamson Act and SMARA requirements, which shall also be enforced. A shorter permit period may be approved, regardless of whether Alternative 4 is selected by the County Board of Supervisors as the preferred alternative. The mitigation measures and draft ordinances require a number of monitoring programs and annual reports that will allow for the ongoing analysis of environmental conditions within the mining areas. It is also proposed that both the mining permit/reclamation plan and the OCMP undergo review a minimum of every 10 years, to respond to changing circumstances. Alternative 5b examines a shorter mining period (15 years). The commentor's thoughts regarding this alternative will be considered by the decision makers.

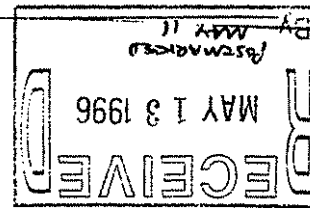
Response to Comment 17-4:

The "net gains" proposed by each mining applicant are described in the project-level EIRs, and will be compared and contrasted in the full staff report on the OCMP.



LEAGUE OF WOMEN VOTERS OF WOODLAND

P. O. Box 2463. Woodland. CA 95776



1121 West Street
Woodland, CA 95695
May 7, 1996

To: Heidi Tschudin, County Contract Planner, and David Morrison, planner for Yolo County Community Development Agency
From: Woodland League of Women Voters
Subject: Written comments for the final comment period for the DEIR for the Off-Channel Mining Plan

The League's specific comments and questions on the DEIR Off-Channel Mining Plan appear in another document as composite questions of several groups. They are written because of the League's grave concern over what will happen to this County's natural resources. Some of our concerns are:

- the threat of contamination to the water,
- the loss of so many acres of productive agricultural land,
- the danger to the public safety of citizens traveling the roads with thousands of trucks hauling gravel daily,
- the tremendous increases in air emissions in an Air Quality District that is already a non-attainment area,
- the health effects of the emissions on citizens living in the mining areas,
- the loss of wildlife habitat of all types, and,
- the changing forever of the landscape along Cache Creek from Capay to Yolo with either pits reclaimed to agriculture many feet below ground surface, or pits filled with water with fenced and locked gates around them.

18-1

18-2

18-3

18-4

18-5

18-6

18-7

18-8

Yolo County has many laudable and fine sounding Conservation Policies in their General Plan. Conservation Policy 6 states: Yolo County shall plan, encourage, and regulate to ensure that natural resources are maintained for their long-term ecological values as well as for their more direct and immediate benefits.

1

Conservation Policy 10 states: Yolo County shall plan, encourage, and regulate public and private agencies to prevent the wasteful exploitation, destruction, or neglect of the State's resources.

18-9

The League of Women Voters has similar positions that address the conservation of natural resources.

How can the County be said to be upholding those policies when they are going to allow 5.5 million tons of aggregate to be removed off-channel in deep wet pits every year for the next 30 years and then guarantee that the aggregate companies can apply to do the same for 20 more years?

The gravel has been identified by the State Division of Mines and Geology in Special

Report 156 as being in the MRZ-2 zone around Cache Creek, but just because it has been identified does not mean it needs to be mined at such a great rate. In fact, Report 156 states that although SMARA provides for the aggregate resource to be classified, and acted upon by affected local governments, "the sectorization and sector maps do not of themselves carry with them specific obligations imposed on local governments by SMARA". **It can be conserved and made to last for many, many years!**

18-9

PCC gade **aggregate** is the highest **grade** of aggegate. PCC stands for Portland cement concrete. The gravel in and along Cache Creek has the PCC designation and can be used for foundations, dams, airport runways, bridge abutments buildings and general construction. It is a high quality, non-renewable resource and should be used for the above uses. Instead, much of **it** is going into asphalt and road beds where a lesser gade of aggegate would suffice.

The League would suggest that the County is not only putting our **agricultural lands**— and water, and the safety of its citizens in jeopardy, but is allowing a small group of **aggregate** companies to squander a non-renewable resource, gravel, for very little gain to anyone but the **aggregate** companies.

18-10

Marie E. Bryan
Marie E. Bryan

Patricia Murray
Patricia Murray, co-presidents

Lois V. Linford
Lois V. Linford, Natural Resources Chair

LETTER 18: THE LEAGUE OF WOMEN VOTERS OF WOODLAND

Response to Comment 18-1:

Thank you for your letter. The staff assumes the comment is in reference to Letter 13 of this volume. Please refer directly to Letter 13, and corresponding responses for a detailed discussion.

The list of concerns summarized in the commentors' letter are addressed in the OCMP DEIR, and Response to Comments 18-3 through 18-8 below address each concern individually.

Thank you for your correspondence.

Response to Comment 18-2:

The threat of contamination to the water is evaluated and fully mitigated under Impacts **4.4-2: Potential Degradation of Water Quality During Aggregate Mining and Reclamation**, and **4.4-3: Potential Degradation of Water Quality after Reclamation of Mined Lands**.

Response to Comment 18-3:

The loss of productive agricultural land is discussed and partially mitigated under Impact **4.5-2: Potential Impact of Permanent Loss of Agricultural Land Caused by Conversion of Agricultural Land to Other Post-Reclamation Uses**.

Response to Comment 18-4:

The danger to public safety along mining haul routes is discussed and fully mitigated under Impacts **4.8-1** through **4.8-16** within the Traffic and Circulation section.

Response to Comment 18-5:

The increases in air emissions in a non-attainment area are discussed and partially mitigated in Impacts **4.7-1** through **4.7-4** within the Air Quality section.

Response to Comment 18-6:

Health effects of those emissions on local residents are evaluated and fully mitigated under Impact **4.7-4: Potential Impacts on Sensitive Receptors**.

Response to Comment **18-7:**

The loss of wildlife habitat is addressed and fully mitigated in impacts 4.6-1 through 4.6-5 within the Biological Resources section.

Response to Comment **18-8:**

Permanent changes to the landscape are evaluated and partially mitigated in impact 4.10-2: Effects on Views or Vistas Following Reclamation, and Impact 4.10-3: Potential for Visual Compatibility with Surrounding Land Uses.

Response to Comment **18-9:**

The consistency of the OCMP with Yolo County General Plan Policies is addressed and fully mitigated in Impact 4.2-1 within the Land Use and Planning section. No decision to allow mining will occur until findings are made under Section 15091 of the CEQA Guidelines, and after the County Board of Supervisors considers this EIR and decides whether and how to approve or carry out the project. Staff concurs with the commentor's observation that aggregate resources can be conserved and made to last for years. The OCMP looks at mining of 2,887 acres out of a land area of 23,174 acres where mining theoretically could occur over the next 50 years. The 216 million tons of aggregate resulting from this would represent approximately 27 percent of the nearly 807 million tons (918 million tons including those deposits located below the theoretical thalweg) estimated to occur in the total acreage.

Regarding PCC grade aggregate being utilized for "lesser" uses, the mining operators have indicated that much of the aggregate contained in the deposit is not of PCC grade because it is either too large, too small, too "dirty", or not in proper proportions to be used in PCC projects. It should also be noted that Standard Specifications adopted by Caltrans in July 1995 (and many other jurisdictions in the state) are more restrictive than the specifications that aggregate for other applications must meet, and prohibit or limit the use of lesser grade materials for its various uses.

Response to Comment **18-10:**

The DEIR and other technical studies in the record do not support the commentor's suggestion that responsible, conditioned, mitigated aggregate mining puts agriculture, water, or citizens in jeopardy. In their final deliberations, the Yolo County Board of Supervisors must balance the advantages and disadvantages of the project and then make a decision.

DEPARTMENT OF PUBLIC HEALTH

Environmental Health Services



COUNTY OF YOLO

ROBERT O. BATES, Jr., M.D. - DIRECTOR OF PUBLIC HEALTH
THOMAS Y. TO - DIRECTOR OF ENVIRONMENTAL HEALTH

10 COTTONWOOD ST. • WOODLAND, CA 95695
(916) 666-8646
 600 "A" ST. • DAVIS, CA 95616
(916) 757-5540 • (916) 372-3700

RECEIVED
MAY 13 1996

MEMORANDUM

TO: David Morrison, Resource Management Coordinator
Community Development Agency

FROM: Tom To, Director
Environmental Health

DATE: May 10, 1996

SUBJECT: Comments on the Draft EIR for Off-Channel Mining Plan
for Lower Cache Creek

Off-channel gravel mining can impact groundwater quality in many ways as detailed in the referenced DEIR chapter 2.7, 4.4 and 4.12. Upon the review of the DEIR, I found that the proposed approach and measures to mitigate potential impacts on groundwater quality resulting from the proposed off-channel mining to be acceptable with the following exceptions:

19-1

1. On page 2-18 under Mitigation Measures. The DEIR currently stated that the sampling and testing of TPH and BTEX may be discontinued immediately after all the heavy equipment work has been completed in the vicinity of the pit. I suggest that at least one more testing on TPH and BTEX from the pit should be done after all the heavy equipment has been removed from the site. This will allow the detection of any spillage from heavy equipments at the last moments of activities prior to their departure.

19-2

2. The mercury level in Cache Creek has been found to exceed the maximum contaminant level when measured in the Winter of 1995 by the State Regional Water Quality Control Board. Being adjacent to Cache Creek and sharing the same water aquifer, the proposed deep wet pits for off-channel gravel mining may be affected with mercury and its sediment may encourage methylation of this heavy metal. Since mercury can accumulate in fish tissues and the wet pits may be transformed into lakes stocked with game fishes after reclamation, I suggest that the on-going testing of methyl mercury be included in the monitoring program. In addition to the analysis of pit water for mercury as an inorganic element, soil sediment and fish (as soon as they are available) from the wet pits should also be tested for methyl mercury and total mercury at a frequency

19-3

Morrison
DEIR-OCMP
5/10/96

similar to that of the inorganic chemicals. A baseline of mercury and methyl mercury should be obtained in the early stage of the project. 19-3

3. The DEIR does not appear to have clearly stated the number of samples to be collected at each time at each of the proposed monitoring points. Adequate number of samples must be provided at each monitoring point especially at the wet pit which is the focal point of monitoring for baseline and detection. 19-4

4. On page 4.4-33 under PS 3.5-5. Permanent toilets shall be properly engineered and design approved by the Yolo County Environmental Health not by Yolo County Building Official. 19-5

Please do not hesitate to contact me (X8646) if you have any questions regarding this matter.

LETTER 19: COUNTY OF YOLO, DEPARTMENT OF PUBLIC HEALTH

Response to Comment 19-1:

The commentor's acceptance of the proposed approach and measures to mitigate potential impacts on groundwater quality resulting from the proposed off-channel mining with the exceptions noted in the comments responded to below is noted for the record.

Response to Comment 19-2:

Please refer to Text Change # 32.

Response to Comment 19-3:

Staff agrees with the commentor's point that testing of mercury and methylmercury should be conducted as part of the monitoring for the proposed project. Performance Standard 3.54 of **Mitigation** Measures 4.4-2 requires testing of inorganics (which includes total mercury) in groundwater and surface water in the mining pits. This monitoring is required in the mining and reclamation phases (Mitigation Measure 4.4-2a) and post-reclamation (Mitigation Measure 4.4-3a) periods at the same frequency as other required analyses. The monitoring of methylmercury in fish is required (Mitigation Measure 4.4-3a) for the post-reclamation phase as the most reliable indication of the accumulation of this compound in the environment. The requirement for monitoring of the existing mining pit lake was included in Mitigation Measure 4.4-3a in the **DEIR**, which provides a "baseline" for mercury and methylmercury in mining pit lakes. In addition, testing of inorganics (including mercury) in groundwater prior to the beginning of wet pit mining is also required. Please refer to Response to Comment ~~14-1~~.

Response to Comment 19-4:

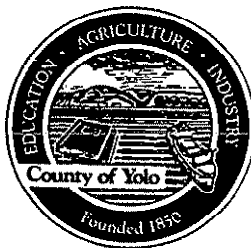
Mitigation Measure 4.4-2a (under "Monitoring" bottom of the second paragraph) requires that water samples collected from the wet pits be representative. This would require multiple sampling locations. The sampling strategy specific to each site is left to the qualified professionals implementing the monitoring program.

Response to Comment 19-5:

Please refer to Text Change # 31.

DEPARTMENT OF PUBLIC HEALTH

Environmental Health Services



COUNTY OF YOLO

ROBERT O. BATES, Jr., M.D. - DIRECTOR OF PUBLIC HEALTH
THOMAS V TO - DIRECTOR OF ENVIRONMENTAL REALM

- 10 COTTONWOOD ST ■ WOODLAND, CA 95695
(916) 666-8646
- 600 A" ST ■ DAVIS CA 95616
(916) 757 5540 • (914) 372 37W

MEMORANDUM

TO: David Morrison, Resource Management Coordinator
Community Development Agency

FROM: Tom To, Director *TT*
Environmental Health

DATE: May 10, 1996

SUBJECT: Comments on "Ground-Water Quality Protection Near Planned
Wet-Pit Mining operations^M

I have reviewed the above referenced document and found that the approach and method proposed to protect the groundwater near and at the planned wet-pit mining areas to be acceptable. I agree that the focal point of baseline and detection monitoring should be at the wet pit. Under this proposed monitoring plan, regulatory agencies are given the flexibility to require additional sampling and testings when contaminants are discovered by this process.

20-1

Since the question of whether deep wet pit mining can encourage the methylation of mercury has not been answered, I suggest that methyl mercury and total mercury to be included as items of on-going monitoring. Soil sediment and fish when available from the wet pits should be sampled and tested regularly at a frequency similar to other stated items such as inorganic chemicals. A Baseline for methyl mercury and total mercury should be formed at the early stage of the operation.

20-2

I do not notice a clear description of the number of samples that will be taken at each time at each monitoring point. The number of samples at the monitoring wells can be minimum. However, due to the large surface area and volume of water in the wet pit, adequate number of samples should be collected each time from the wet pit to form the representative composite sample.

Please do not hesitate to call me (X8646) if you have any questions.

LETTER 20: COUNTY OF YOLO, DEPARTMENT OF PUBLIC HEALTH

Response to Comment 20-1:

The commentor's acceptance of the proposed approach and method to protect groundwater near and at the planned wet-pit mining areas is noted for the record.

Response to Comment 20-2:

The commentor is referred to the Response to Comment 19-3 to address the issues related to mercury testing and to the Response to Comment 194 for the number of sampling points.



PETE WILSON
GOVERNOR

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO 95814



LEE GRISSOM
DIRECTOR

May 10, 1996

DAVID MORRISON
YOLO COUNTY COMMUNITY DEVELOPMENT AGENCY
292 WEST BEAMER STREET
WOODLAND, CA 95695

Subject: CACHE CREEK OFF CHANNEL MINING PLAN SCH #: 95113034

Dear DAVID MORRISON:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

"a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

21-1

Commenting agencies are also required by this section to support their comments with specific documentation.

These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Enclosures
cc: Resources Agency

Notice of Completion *Supplementary Document M*

State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

SCH # 45113C34 NOTE: 45113C34

Project Title: CACHE CREEK CREEK CHANNEL MINING PLAN
 Lead Agency: YOLCO COUNTY COMMUNITY DEV. AGENCIES Contact Person: DAVID MCGRISEN
 Street Address: 292 WEST BEAVER ST Phone: 916-446-8000
 City: WEAVER Zip: 95693 County: YOLCO

Location
 County: YOLCO City/Nearest Community: SARBY, ESPARTE, MADISON, YOLCO
 Cross Streets: _____ Zip Code: _____ Total Acres: 23,174.1
 Assessor's Parcel No. _____ Soil: _____ Twp. _____ Blk: _____
 Within 2 Miles: State Hwy #: 16, 505, 5 Waterways: CACHE CREEK
 Airports: WEAVER Railways: _____ Schools: _____

Document Type
 CEQA: NOP Supplement/Subsequent NEPA: NOI Other: Joint Document
 Early Cons EIR (Prior SCH No.) EA Final Document
 Neg Dec Other _____ Draft EIS Other _____
 Draft EIR

Local Action Type
 General Plan Update Specific Plan Rezone Annexation
 General Plan Amendment Master Plan Prezone Redevelopment
 General Plan Element Planned Unit Development Use Permit Coastal Permit
 Community Plan Site Plan Land Division (Subdivision, Parcel Map, Tract Map, etc.) Other: MINING PLAN

Development Type
 Residential: Units _____ Acres _____ Employees _____
 Office: Sq. ft. _____ Acres _____ Employees _____
 Commercial: Sq. ft. _____ Acres _____ Employees _____
 Industrial: Sq. ft. _____ Acres _____ Employees _____
 Educational _____
 Recreational _____
 Water Facilities: Type _____ MGD _____
 Transportation: Type _____
 Mining: Mineral AGGREGATE
 Power: Type _____ Watts _____
 Waste Treatment: Type _____
 Hazardous Waste: Type _____
 Other: _____

Project Issues Discussed in Document
 Aesthetic/Visual Flood Plain/Flooding Schools/Universities Water Quality
 Agricultural Land Forest Land/Fire Hazard Sewer Systems Water Supply/Groundwater
 Air Quality Geologic/Seismic Sewer Capacity Wetland/Riparian
 Archaeological/Historical Minerals Soil Erosion/Compaction/Grading Wildlife
 Coastal Zone Noise Solid Waste Growth Inducing
 Drainage/Absorption Population/Housing Balance Toxic/Hazardous Landuse
 Economic/Job Public Services/Facilities Traffic/Circulation Cumulative Effects
 Fiscal Recreation/Parks Vegetation Other _____

Present Land Use/Zoning/General Plan Use Agriculture & aggregate extraction
A-P and A-L
Agriculture & aggregate extraction
 Project Description filling document & ordinances to regulate all-channel mining along cache creek between the copen Dam and the town of yolo

State Clearinghouse Contact: Ms. Dana Lidster (916) 445-0613
 State Review Began: 3.27.96
 Dept. Review to Agency: 5.3
 Agency Rev to SCH: 0.8
 SCH COMPLIANCE: 5.10
 Please note SCH Number on all Comments
 Please forward late comments directly to the Lead Agency
 AQMD/APCD 4D (Resources: 3, 30)

Project Sent to the following State Agencies

<input checked="" type="checkbox"/> Resources	State/Consumer Svcs
<input type="checkbox"/> Boating	General Services
<input type="checkbox"/> Coastal Comm	Cal/EPA
<input type="checkbox"/> Coastal Conserv	<input checked="" type="checkbox"/> ARB
<input type="checkbox"/> Colorado Rvr Bd	CA Waste Mgmt Bd
<input checked="" type="checkbox"/> Conservation	SWRCB: Grnnts
<input checked="" type="checkbox"/> Delta Protection Commission	SWRCB: Delta
<input checked="" type="checkbox"/> Forestry	SWRCB: Wtr Quality
<input checked="" type="checkbox"/> Parks & Rec/OHP	SWRCB: Wtr Right
<input type="checkbox"/> Reclamation	SWRCB: Wtr Rights
<input type="checkbox"/> BCDC	<input checked="" type="checkbox"/> SWRCB # <u>542</u>
<input checked="" type="checkbox"/> DWR	Yrb/Adit Corrections
<input type="checkbox"/> OES	Corrections
<input type="checkbox"/> Bus Transp Hous	Independent Comm
<input type="checkbox"/> Aeronautics	Energy Comm
<input checked="" type="checkbox"/> CHP	NAHC
<input checked="" type="checkbox"/> Caltrans # <u>3</u>	PUC
<input type="checkbox"/> Trans Planning	Santa Mn Mtns
<input type="checkbox"/> Housing & Devel	<input checked="" type="checkbox"/> State Lands Comm
<input type="checkbox"/> Health & Welfare	Tahoe RgtPlan
<input type="checkbox"/> Drinking H2O	Other: _____
<input type="checkbox"/> Medical Waste	

LETTER 21: GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

Response to Comment 21-1:

No response is necessary. Referenced comments letters from other state agencies are addressed individually. Thank you for your correspondence.

**Historical
Resources
Information System**

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE

MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO

SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

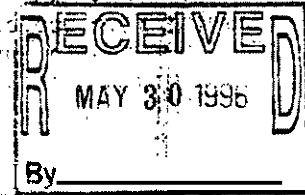
Northwest Information Center
Sonoma State Library Center
1801 East Cotati Avenue

Robert Park, California 94926-3900
(707) 664-2494 • Fax (707) 664-3947
E-mail: nwic.center@sonoma.edu

May 24, 1996

Pile No.: 96-YO-31E

David Morrison
Resource Management Coordinator
292 West Beamer Street
Woodland, CA 95695



re: Notice of Availability and Public Hearing Draft Environmental Impact Report
for the Polo County Off-Channel Mining Plan.

Dear Mr. Morrison:

Records at this office were reviewed to determine if this project could adversely affect historical resources. The review for possible historic structures, however, was limited to references currently in our office. The office of Historic Preservation has determined that any building or structure 45 years or older may be of historic value. Therefore, if the project area contains such properties they should be evaluated by a historian prior to commencement of project activities. Please note that use of the term historical resources includes both archaeological sites and historic structures.

The proposed project area contains or is adjacent to the archaeological site(s) (). A study is recommended prior to commencement of project activities.

The proposed project area has the possibility of containing unrecorded archaeological site(s). A study is recommended prior to commencement of project activities.

The proposed project area contains a listed historic structure (). See recommendations in the comments section below.

Study # 16 identified one or more historical resources. The recommendations from the report are attached.

Study # 16 identified no historical resources. Further study for historical resources is not recommended.

There is a low possibility of historical resources. Further study for historical resources is not recommended.

Comments: It is re—ended that the policy on pg. 4.11-6 "Potential Impacts to Cultural Resources" include the statement that all resource records are checked for the presence of and the potential for prehistoric and historic sites.

22-1

if archaeological resources are encountered during the project, work in the immediate vicinity of the finds should be halted until a qualified archaeologist has evaluated the situation. If you have any questions please give us a call (707) 664-2494.

22-1

sincerely,

Liz Black

Liz Black for
Leigh Jordan
Coordinator

LETTER 22: NORTHWEST INFORMATION CENTER

Response to Comment 22-1:

Thank you for your correspondence. The additional performance standard identified in Mitigation Measure 4.11-1a on page 4.11-9 would ensure that site-specific cultural resource studies would be conducted as part of project level EIRs prior to commencement of mining activities. In response to the comment, the performance standard has been further modified as noted in Text Change # 70 to ensure that all resource records are checked for the presence of and the potential for prehistoric and historic sites. As noted by the commentor and in Performance Standard 2.5-3 of the OCMP, if archeological sites are encountered during the project, work would be stopped until a qualified archeologist assesses the situation.