DRAFT ENVIRONMENTAL REPORT
for the
MODESTO SURFACE WATER TREATMENT PLANT

Summary of Significant Project Impacts and Mitigations

October, 1989

3. SUMMARY OF SIGNIFICANT PROJECT IMPACTS AND MITIGATIONS

This section briefly reviews and compares significant environmental impacts which would result from the Proposed Action and its alternatives. A list of mitigations developed for the various resources in Section 4 are presented here for consideration by the District. The selected mitigations would form the basis for the Mitigation Monitoring Plan which will be developed in conjunction with the Final EIR.

3.1 SUMMARY OF IMPACTS

There are four basic project alternatives. Alternative A would obtain project water from the Modesto Reservoir. Four proximate sites for the water treatment plant (Sites Al, A2, A3 and A4) are under consideration. Alternative B would involve delivery of project water to an industrial site on the east side of Modesto via the Main Canal and Lateral 1. Alternative C would involve delivery of project water via the Main Canal to a location several miles northeast of Modesto. For Alternative D, the treatment plant site would be identical to that of Alternative B. However, project water would be released to the Tuolumne River and conveyed to a diversion point in the vicinity of the treatment plant from whence it would be pumped to the plant. Alternatives D1, D2 and D3 involve different methods of delivering project water via the river. Under Alternative D1 no project water would be released as long as the river flow at the project diversion point near Modesto was adequate to meet project needs. During periods of unusually low flow, project water would be released below La Grange Dam in amounts sufficient to augment flows at the diversion point to the levels needed by the water treatment plant. For Alternative D2, the project water would be diverted at La Grange Dam into the District's water system. The water would flow through Modesto Reservoir and into the Main Canal. The water would be released to the river at the Poletti Spill, located just east of Waterford. Alternative D3 would involve release of project water below La Grange Dam in an amount equivalent to that diverted to the treatment plant, downriver.

The project impacts which are described in Section 4 are summarized in Table 3-1. All of the alternatives would have significant beneficial impacts upon the domestic water supply system serving Modesto by providing an additional, high-quality source of water. Tuolumne River water would become the primary domestic water supply for the Modesto area. This is the objective of the project. Significant beneficial groundwater impacts would result from all of the alternatives. Substantial reductions in well pumpage, currently the area's only source of domestic water, would reverse declining groundwater levels through elimination of overdrafting in the area. This may halt or even reverse a declining trend in groundwater quality in the area.

TABLE 3–1: MATRIX OF THE IMPACTS OF THE ALTERNATIVES

impact Legend	0	Negligible	3	Signifkant and **Not** Mitigable
	1	Not Significant	b	Beneficial, Not **Signlflcant**
	2	Significanlbut Mitigable	B	Beneficial, Significant

Issue/Resource	A1	A2	A3	A4	B	C	D1	D2	D3	No Project
Water Supply	B	B	B	B	B	B	B	B	B	2
Water Resources										
Surface Water	1	1	1	1	1	1	3 *d*	b *d*	B *d*	1
Groundwater	B	B	B	B	B	B	B	B	B	3
Biological Resources	2 *a*	2 *a*	2 *a*	2 *a*	1	1	3 *d*	b *d*	B *d*	0
Geology and Soils	1	1	1	1	1	1	2	2	2	0
Cultural Resources	2 *a*	2 *a*	2 *a*	2 *a*	2 *a*	2 *a*	2 *a*	2 *a*	2 *a*	0
Land Use	1	2	1	1	0	1	0	0	0	0
Farming	2 *b*	2 *b*	2 *b*	2 *b*	2 *b*	2 *b*	1	2 *b*	2 *b*	0
Transportation	2 *c*	2 *c*	2 *c*	2 *c*	2 *c*	2 *c*	2 *c*	2 *c*	2 *c*	0
Utilities	0	0	0	0	0	0	0	0	0	0
Air Quality	1	1	1	1	1	1	1	1	1	0
Noise	1	1	1	1	1	2	1	1	1	0
Recreation										
River	0	0	0	0	0	0	3	b	B	0
Reservoir	2 *b*	2 *b*	2 *b*	2 *b*	2 *b*	2 *b*	1	2 *b*	2 *b*	0
Visual Resources	1	1	1	1	1	2	3	3	3	0
Energy	1	1	1	1	1	1	1	1	1	0

Notes:

- • A site survey is needed to determine whether potentially significant resources exist at the site; if not, the impact would not be significant.
- *b* Significant impact would occur only during the infrequent periods of drought.
- *c* Significant short-term impact which is not expected to last more than a few weeks at any one location.
- *d* Significant short-term impact.

The potential exists to encounter significant cultural resources at any of the sites. A cultural survey of the selected site would be needed to establish whether important resources exist and to document their method of treatment to avoid significant impact. Short-term significant traffic impacts are likely to occur under any of the alternatives due to construction of water transmission pipelines within or across important arterial roads. Recommended mitigation measures are expected to be adequate to reduce these impacts to a non-significant level. The use of substantial amounts of District water for project supply could have significant impacts upon farming and reservoir recreation during the infrequent periods of drought to which the area is subject. The impacts on farming would result from a potential shortage in irrigation supply in the District's system. The recreation impacts would result from an incremental decline in the water level of Don Pedro Reservoir which would already be lower than normal due to a drought. The impacts on farming and recreation could be reduced to non-significant levels through the adoption of drought-related mitigation measures. It should be noted that Alternative D1 would require substantially less project water and would therefore probably not have a significant effect upon farming or reservoir recreation.

The project would result in the diversion of a relatively minor fraction of the annual flow of the Tuolumne River. Downstream flow impacts would be relatively small, and would diminish progressively down the drainage system (i.e., within the San Joaquin River and the Delta regions). As discussed below, the surface water impact of the project is not expected to be significant with the exception of two of the Alternative D variations: D1 and D3.

Additional, significant impacts could occur under Alternative A. Potentially significant biological impacts could occur at three of the four Alternative A sites (Site A2 is occupied by an almond grove and would not be biologically impacted). These sites lie within a general area which is known to support an important and very sensitive habitat: vernal pools. This habitat supports as many as three species of listed grasses. A site survey conducted at the selected site, followed by avoidance of vernal pools, if any are found, would mitigate this impact to non-significance. The one remaining significant impact for Alternative A involves Site A2. If this site was selected, a single residence could be removed and a family relocated. A fair market value paid to the owner for the property, as well as relocation assistance for the resident, as entitled under the California Administrative Code, should mitigate this impact to non-significance. Alternately, a lease agreement may be reached allowing the existing family to remain.

No additional significant impacts would result from Alternative B.

Two additional significant impacts would occur under Alternative C. A number of residences are located in the immediate vicinity of Site C. Significant long-term noise and visual impacts could

occur as a result of this proximity. Appropriate mitigation measures such as setbacks within the site, berms and/or vegetative screening can reduce these impacts to non-significant levels.

All three variations for Alternative D would result in significant visual impact to recreational users as a result of the new diversion structure. This impact would not be mitigable. The high groundwater table and the nature of the soils in the river channel and banks represent significant geological hazards to the diversion and water inlet structures. A thorough geotechnical investigation of this site and proper site preparation would reduce the danger of liquefaction or the potential for other site-induced damage to the structure to acceptable levels. Potentially significant but mitigable biological impacts could occur due to disturbance of riparian habitat along the Tuolumne river as a result of construction of the intake and diversion structures. Significant adverse impacts upon the water quality of the Tuolumne River and possible interference with fish migration would occur during construction of the diversion and intake structures. This impact would be unavoidable but of short duration, lasting only during construction. Long-term impacts due to fish impingement at the intake structure and interference in fish passage around the low diversion structure are also possible.

Alternative D1 would augment river flows below the La Grange Dam only during those periods when the river flow in the Modesto area was insufficient to supply the water needs of the treatment plant. The limited periods of increased flow downstream of La Grange would result in only minor beneficial impacts. These benefits would be offset by the large proportional flow reduction that would occur during the summer low flow period in the Tuolumne River below the diversion point. Significant adverse impacts to surface water resources, biological resources and river recreation would be expected in the Modesto area. These impacts would not be mitigable except by a flow augmentation scheme similar to that presented for Alternatives D2 and **D3.**

During the summer low flow period, Alternative **D3** would substantially increase the flows in the Tuolumne River immediately below La Grange Dam. The increased flows during this period of the year could result in cooler water temperatures, the possible enhancement development of the coldwater fishery, and increased boating and recreational opportunities in this reach of the river. Thus there would likely be seasonally significant beneficial impacts on surface water resources, biological resources and river recreation. Alternative **D2** would result in flow augmentation at a point 19 miles further downriver, near Waterford. The summer flows in the Waterford area are currently on the order of 100 cfs. Thus this alternative would have a considerably smaller beneficial effect than Alternative **D3.** The beneficial impacts of Alternative **D2** upon surface water resources, biological resources and river recreation are judged to be non-significant.

The No-Project Alternative would have potentially significant impacts upon the groundwater aquifer and the domestic water supply systems serving Modesto. Groundwater levels in the Modesto area would continue to decline and would occur over a progressively larger area. The groundwater quality would also be likely to continue to decline. Significant water quality problems which now occur in the domestic water supply would be expected to worsen with time. As more wells were required to cut production back or shut down entirely, wellhead treatment would become increasingly common. Declining groundwater levels, increasing levels of treatment and the projected need to establish wellfields remote from the Modesto Urban Area would also increase future operations costs. The cost and complexity of providing domestic water would increase substantially over the levels experienced in the past.

The surface water supply offered by alternatives A, B, C, and D would provide a high-quality source of domestic water to the current water supply system serving Modesto. The surface supply generally has a lower dissolved solids (salt) content than the current groundwater supply and is considerably softer.

Alternative D has some serious operational drawbacks. Substantial agricultural and urban drainage flow into the Tuolumne River upstream of the proposed diversion point for Alternative D. This alternative is the most vulnerable to spills or accidental release of contaminants which may occur in the watershed. Existing river water quality is somewhat lower near Modesto than further upstream, where the raw water supplying the other alternatives would be withdrawn. The relatively high variability of the turbidity and the suspended matter in water diverted directly from the river would require a more complex water treatment process. Finally, the project water flowing down the Tuolumne River channel may be subject to losses due to evapotranspiration and due to diversion by riparian users, particularly during periods of lower flow. Although not quantified to date, if such losses occurred, this would reduce project water efficiency.

Alternatives B and C have an operational disadvantage due to year-round reliance upon irrigation supply laterals. Periodic shutdown of the laterals for maintenance would disrupt project water supply. The risk of accidental contamination, although less than that of Alternative D, is present due to the miles of open water laterals which would supply the water treatment plant constructed under either alternative. Alternative B would also require the enlargement of over eight miles of existing water lateral in order to provide sufficient supply capacity.

The alternative preferred by the District is A. Alternative A has the substantial public health advantage of diverting the water supply relatively far upstream within the study area. The potential for contamination of the water supply would be considerably lower than under the other alternatives. The water would be treated near a relatively high quality source (Modesto Reservoir),

and then would be piped to the Modesto area. Under Alternative A, the risk of accidental contamination, which is inherent in the additional miles of open-water 'laterals or river channel supplying Alternatives B, C, and D would also be less. Periodic lateral maintenance would not interrupt the water suppply to the treatment plant as would happen under alternatives B and C. As a result, Alternative A has the advantage of a greater assurance of long-term water quality, and simplicity and reliability of plant operation. The potentially significant biological impact at the three Alternative A sites can be readily mitigated and the remaining significant impacts of Alternative A are common to all of the alternatives. Among the four sites, Sites A1 and A4 would appear to be preferable because they are relatively remote from the county park at Modesto Reservoir and would avoid the removal of any residences.

3.2 SUMMARY OF POTENTIAL MITIGATION MEASURES

Mitigation measures that are recommended for consideration to reduce the level of project impacts are listed below. The set of mitigations which will actually be adopted will be identified in the Final EIR following District consideration and public comment. The mitigations are divided into groups directed at the design phase, at the construction phase, and at the operations phase. The measures are also listed by issue. Additional discussions and justifications for the mitigation measures are found under the specific issue discussions in Section 4.

3.2.1 Design-Related Mitigations

Biological

- If an Alternative A site is selected, the site and other areas affected by construction should be inventoried for rare plants using California Department of Fish and Game (CDFG) guidelines.
- If an Alternative A site is selected, design the treatment plant facilities to avoid potential impacts on rare plants and vernal pools, if these are found on the site.
- If Alternative D is selected, design the diversion structure in coordination with the CDFG to minimize impacts on instream habitat and fish resources. This would include fish passage facilities and an intake design which would minimize fish entrapment.

Air Quality

- House chlorination facilities in an airtight room equipped with an alarm, a special ventilation system, and an emissions scrubber to avoid leakage of chlorine gas.

Carry out maintenance procedures to assure the long-term integrity of the containment system.

Visual Resources

- Incorporate a combination of earth berms, landscaping, and/or tree screening along the perimeter of the site to reduce contrasts with surrounding visual resources and minimize the visibility of the facility from roads and sensitive land uses.
- Shield and direct lights away from sensitive land uses and the sky.
- Minimize alteration of natural surfaces.
- If Alternative C is selected, do not locate the facility adjacent to existing residences.

Noise

- Where possible, set more noise-intensive portions of the treatment facilities (ie., large pumps) back at least 200 feet from the site boundaries, and conform to existing City or County setback requirements for noise-generating land uses.

Energy

- Incorporate energy-conserving technologies into the project design. These may include energy-efficient plant layout design, consideration of variations in pumping requirements, and energy efficiencies in the design of the administration building.

3.2.2 Construction-Related Mitigations

Water Supply

- Provide sufficient advance notice of temporary domestic water or irrigation supply interruptions.

Water Resources

- Minimize the area of construction-related ground disturbance.
- After construction, mulch or otherwise stabilize disturbed areas to prevent erosion.
- Revegetate all uncovered or unpaved disturbed areas.

- Contain storm runoff onsite prior to complete revegetation and stabilization.

- Divert upgradient stormwater around the construction site.

- As feasible, maximize distances between the existing District laterals and construction of new pipelines in the laterals' rights-of-way or easements to avoid inadvertent contamination of the open channel.

- If Alternative A is selected, consider boring the pipeline underneaththe Dry Creek crossing (approximately 9 miles west of Waterford) rather than digging a ditch through the creek, to avoid water quality and possible wetlands impacts.

- Avoid construction of pipelines across intermittent streams during periods of flow.

- Construction within or adjacent to perennial streams should occur during low flow periods.

- Minimize the duration of construction activities that disturb stream or river banks to preclude prolonged downstream turbidity.

- If Alternative D is selected, the effects on salmon should be minimized by limiting construction within the Tuolumne River to June through September.

Biological

- If one of the Alternative A site is selected, fence off locations of rare plant communities (if any are found) in its vicinity, and inform construction crews of their locations and of their importance.

- Conduct all studies necessary under the Section 404 permitting process, including wetlands delineation of the immediate site and all areas affected by construction; implement modifications or mitigation measures required by the Army Corps of Engineers.

- If an Alternative A site is selected, loss of riparian habitat at the Dry Creek crossing (approximately 9 miles west of Waterford) that could result from construction of the delivery system should be alleviated through

revegetation with native or other acceptable species and restoration of disturbed habitat.

- If Alternative D is selected, riparian habitat disturbed by construction of the intake and diversion structures should be revegetated with native or other acceptable species.

- If Alternative D is selected and riparian habitat cannot be completely restored because of pumping operations and facilities, enhance and protect adjacent riparian habitat, and acquire, enhance, and preserve similar offsite riparian habitat.

Geology/Soils

- Limit construction to areas with depths to groundwater greater than 20 feet, and/or treat potentially liquifiable soils as necessary to ensure an adequate foundation.

- Provide drainage away from all foundations and artificial slopes.

- Compact all loose or soft zones prior to grading, and compact all structural fill to at least 95 percent of maximum dry density.

- Minimize disturbance of native vegetation.

- Provide temporary berms to control stormwater.

- Revegetate disturbed areas with native or other acceptable species following completion of construction.

- Backfill and compact pipeline trenches and excavations to 85 percent of maximum dry density using excavated material.

- Apply stabilizingmulch or palliative sprays to disturbed areas.

Historical/Cultural

- Conduct a cultural resources field survey of all areas to be impacted by the project.

- Evaluate all cultural properties or sites to be affected by the Project for National Register eligibility, and avoid, protect, or recover those resources determined to be National Register-eligible.

- Formulate appropriate treatment for each cultural resource in consultation with the California State

Historic Preservation Officer, Native American representatives if applicable, and available local authorities.

- Any necessary archaeological evaluations should only be conducted by authorized professionals. Surveys of surficial materials and subsurface testing to determine thickness, content, and integrity of the resources must occur prior to any construction-related disturbance.

Transportation

- Use caution signs, detour signs and flagmen in and around the construction area, and obey posted speed limits .

- In congested areas, consider limiting construction to the night hours in order to avoid peak daytime traffic. Noise impacts on adjacent residential areas must be considered before adopting this mitigation.

- Develop a traffic management strategy, including a detailed traffic control plan to be submitted to the City of Modesto Public Works, Transportation Division, and the Stanislaus County Public Works Department, that would minimize construction-related congestion.

- "Button up" site at the end of each construction day, use warning barriers, flashers, and proper warning signage, and cover holes or ditches with temporary pavement or approved street plates.

- Replace or repair any damage to the transportation network, including signals, signage, striping, and pavement, following completion of construction.

Air Quality

- Control dust by paving the main plant access road, surfacing other access roads and areas of the plant with gravel, and by using a truck-mounted water spray system.

- Cover (tarp or enclose) and ensure careful handling of all fine, dry construction materials such as cement or bentonite to avoid generation of fugitive dust.

Noise

- Except where traffic mitigation dictates, limit construction activities to weekday hours between 7 a.m. and 6 p.m.

- Develop a detour plan to reroute construction traffic away from residential areas as necessary.

- Advise affected residents of the proposed construction, its probable duration, and the timing of impacting actions.

- Muffle motorized construction equipment.

Visual Resources

- If Alternative D is selected, disturbed areas in the floodplain must be revegetated with native or other acceptable species immediately following construction; minimize clearing around the diversion and intake structures.

3.2.3 Operations-Related or Long-Term Mitigations

Water Supply

- Drill wells or develop alternate water supplies as necessary to meet water supply commitments during times of water shortage.

- Pump municipal and MID wells to irrigation laterals to alleviate water shortfalls.

- During shortages of surface water, initiate a coordinated increase in groundwater pumping among all major water suppliers.

- Institute additional water conservation measures during shortages of surface water.

- Encourage community water conservation measures.

Water Resources

- Adopt a cooperative groundwater management program involving the District, the City, and Del Este to assure that groundwater levels do not rise sufficiently to cause inundation or drainage problems.

Farming

- During drought, reduce the volume of surface water supplied to the water treatment facility to permit surface water utilization for agricultural irrigation.

- During drought, seek voluntary reduction in agricultural water use through a temporary halt in the irrigation of selected lands.

Noise

- **Erect sound barriers to shield sensitive land uses from noise produced on site.**