Chapter 18

Programmatic Analysis of the Groundwater Storage/Conjunctive Use Element of the Sacramento Parties' Modified Proposal

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BACKGROUND

On June 8, 1999, the Sacramento Parties offered a Modified Proposal in lieu of the Joint Project among EBMUD, the County, and the City, described as Alternative 3 in the 1997 DEIR/EIS. The Modified Proposal provides for a diversion and pipeline project that would enable EBMUD to take delivery of water under its CVP contract at Site 5 when flows at the mouth of the Lower American River are above the threshold requirements imposed under Judge Hodge's decision in the Environmental Defense Fund et al. v. EBMUD. Whereas the Joint Project alternative provides for delivery of contract water from the river in dry years, the Modified Proposal limits deliveries at Site 5 to wetter years in which the requirements of the Hodge decision can be met.

In addition to providing for diversions from the lower American River, the Modified Proposal provides that the Sacramento Parties would support EBMUD banking water in groundwater basins in Sacramento and San Joaquin counties at reasonable ratios and subject to the Sacramento Parties' review of the details of the banking program (See Appendix A, Elements 2-6 of the Modified Proposal and Attachment #2). The Modified Proposal identifies 17 parties who would be in negotiations to develop a banking project and a list of points to be negotiated, including:

- How much water can be banked and under what conditions.
- How much water can be extracted by EBMUD and under what conditions.
- What benefit is reasonable for groundwater users in Sacramento County.
- The location of banking and extraction facilities.
- The relationship of the banking program to a groundwater management plan being developed by local water districts in Sacramento County.
- Financing of the banking program.
- Other issues as defined by the parties.

The Modified Proposal suggests a two- to three-year time period for the negotiation process, taking into account past experience with forming the Sacramento North Area Groundwater Management Authority and the unique circumstances of the South Area subbasin and the Galt Area subbasin.

As part of its ongoing water supply planning, EBMUD is continually evaluating alternatives to increase available long-term storage. For a decade, EBMUD has expressed strong interest in a cooperative groundwater replenishment and conjunctive use project in San Joaquin County. The district has undertaken extensive technical studies and actively pursued years of negotiation in an effort to develop such a program. EBMUD similarly intends to evaluate and pursue opportunities for groundwater banking in Sacramento County and, with the cooperation of the Sacramento Parties, to work with the multitude of stakeholder interests in addressing the many issues identified in the Modified Proposal related specifically to development of a banking project. In response to comments on the 1997 Draft EIR/EIS that address groundwater replenishment and conjunctive use and to the Sacramento Parties' offer of support for such a project expressed in the Modified Proposal, this supplemental environmental analysis includes discussion of banking in the groundwater basins of both San Joaquin County and Sacramento County.

Recognizing the complexity and controversial nature of such a banking project, its uncertainty and speculative nature, and that it can take years to develop a project description adequate for detailed environmental review, this

supplemental environmental analysis provides a general assessment of groundwater storage utilization at a broad program level. If a specific project can be developed through negotiation with stakeholders and the issues identified in the Modified Proposal addressed to the satisfaction of the Sacramento Parties and other interest groups, further environmental documentation for groundwater storage utilization will be undertaken at that time.

GENERAL DESCRIPTION OF GROUNDWATER STORAGE/CONJUNCTIVE USE PROGRAM

Elements 2-6 of the Modified Proposal state the following:

2. The City, County, and the Sacramento Environmental Water Caucus would support EBMUD banking water in groundwater basins in Sacramento and San Joaquin Counties at reasonable ratios (e.g., 2-3 acre-feet "put" to 1 acre-foot "take") subject to Sacramento Parties review of the details of the banking program.

3. The City, County, and the Sacramento Environmental Water Caucus would request Judge Hodge to amend his order to allow EBMUD to bank American River water (diverted only at Site 5 above the Hodge threshold) in Sacramento or San Joaquin Counties. The order would be specifically amended to allow EBMUD to sell water diverted from the American River to third parties as part of the conjunctive use program in Sacramento and San Joaquin. This would help EBMUD get a dry year supply from banked groundwater.

4. Sacramento County would work with its stakeholders to provide assurances that EBMUD could bank water in Sacramento County. This could include in lieu storage in the Galt groundwater subbasin and in lieu, and perhaps direct injection, in the South Sacramento County groundwater subbasin (including Zone 40).

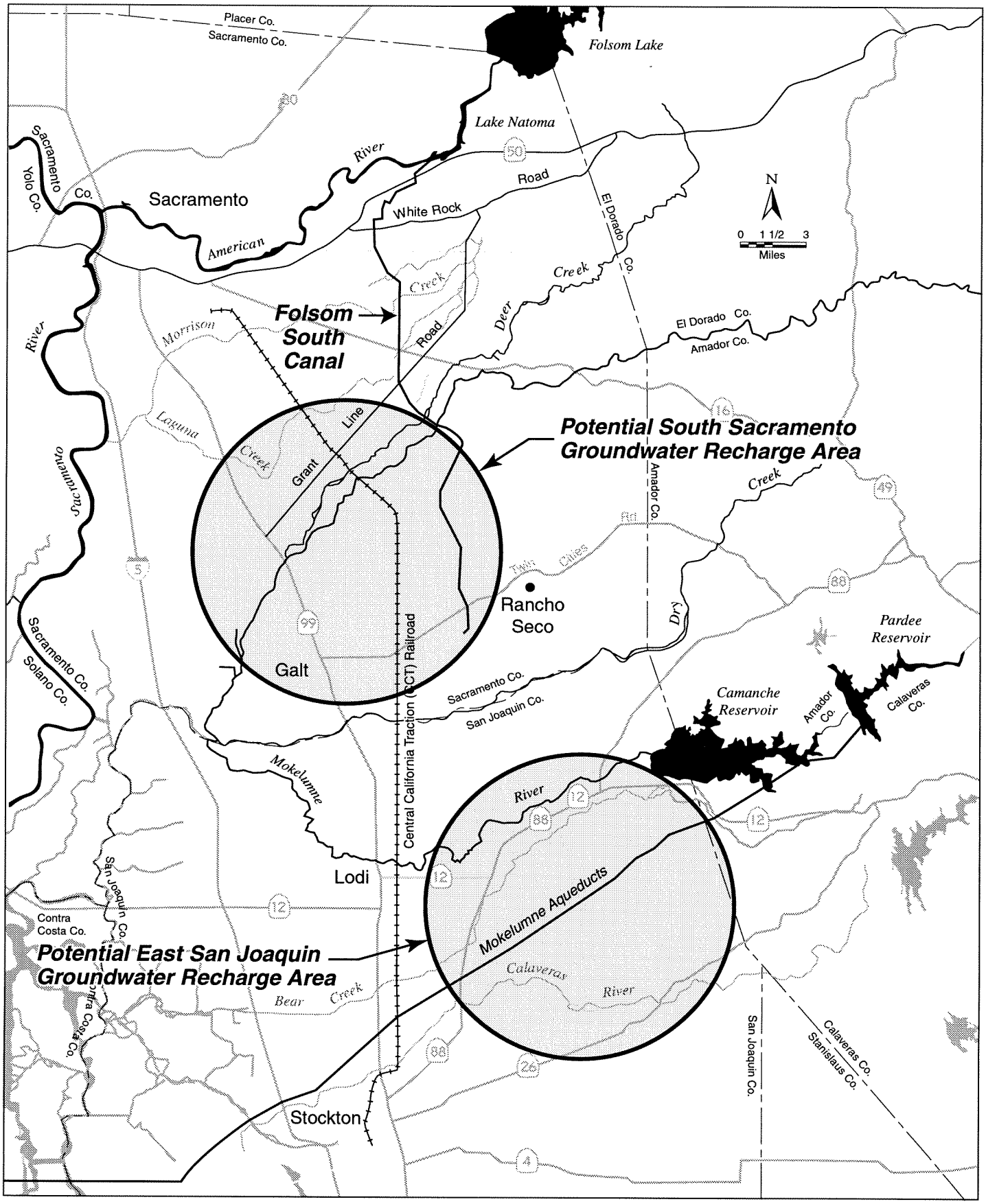
5. Sacramento County would also work with stakeholders to provide EBMUD enforceable assurances that it would be able to draw agreed upon amounts of previously stored water from the subbasins under agreed upon conditions. This would be subject to adequate protections and improvements for Galt area and south Sacramento County groundwater users.

6. It is estimated that a total of 75,000 acre-feet of water could be withdrawn by EBMUD from a groundwater bank in the south Sacramento and Galt subbasins over a 3-year period.

Based on these concepts and on the previous work conducted by EBMUD related to groundwater banking in San Joaquin County, EBMUD and Reclamation have examined possible groundwater banking opportunities in the south Sacramento and San Joaquin County areas. Figure 18-1 shows the general locations within which a groundwater banking program might be located. Banking could include direct recharge, using injection wells and possibly spreading basins, or indirect recharge, through which groundwater users in the area would be provided surface supplies during wet years, thereby allowing the groundwater basin storage to increase so that water would be available for withdrawal during dry years without unacceptable declines in water levels.

For either type of program, generally similar types of facilities would be required. These facilities include pipelines to distribute surface water and collect groundwater and wells to withdraw groundwater and possibly to inject surface water. In addition, infiltration basins may also be a component of a groundwater storage/conjunctive use program.

The overall goals of such a program would be to increase groundwater storage in the recharge area in wet years so that specific quantities of water could be removed during dry years with a negligible effect on the preexisting groundwater levels and groundwater users. Additionally, assurances would be required so that the water recharged, whether directly or in



Jones & Stokes

Figure 18-1
Potential Groundwater Storage Locations

lieu, would remain available for extraction during dry periods.

PROGRAMMATIC ASSESSMENT OF POTENTIAL ENVIRONMENTAL EFFECTS ASSOCIATED WITH A GROUNDWATER STORAGE/ CONJUNCTIVE USE PROGRAM

As discussed in Chapter 2, "Alternatives Considered in the REIR/SEIS," no detailed plans are available for a groundwater storage/ conjunctive use program at this time. As noted, however, the general location and types of facilities for potential projects that have been the subject of preliminary discussion can be described. Based on that information, a general discussion of potential environmental effects is provided below. It is important to note that actual site-specific impacts would need to be addressed in a subsequent environmental assessment document if and when a specific project has been identified and adequately defined.

Hydrology, Water Supply, and Power

It is anticipated that a groundwater storage/conjunctive use program would involve EBMUD taking delivery of water during wet years when river flows are relatively high. This water could then either be directly recharged or provided to existing groundwater users in lieu of their use of groundwater. As a result, groundwater levels would be expected to increase above existing levels. During dry years, EBMUD would pump the stored water and convey it to the Mokelumne Aqueducts for direct use by its customers, thereby causing groundwater levels in the vicinity of the pumping facilities to decrease temporarily. It is further anticipated that the program would be designed to have a positive net effect on groundwater levels. Overall, the program would be expected to have minimal effects on surface waters, because the deliveries would be taken during wet years. The effect on groundwater basins used for storage would be expected to be beneficial overall, as groundwater levels would be expected to increase on the average when compared to anticipated conditions without such a project.

It is anticipated that the groundwater storage/conjunctive use program would be designed to either fully meet EBMUD's dry-year need for water, as described in the 1997 Draft EIR/EIS, independently or to be part of a program that fully met EBMUD's dry-year need for water. Therefore, the program would have a beneficial effect on EBMUD's water supply to its customers.

Relatively minor amounts of power would be required to take delivery of the water and convey it to the storage location. Further minor amounts of power would be required to inject the water into the groundwater aquifer and to extract the water for use. Many conjunctive use programs similar to those that might be implemented by EBMUD are in operation, and energy consumption has not been a significant factor in project selection.

Water Quality

As discussed above, water to be stored would be taken from the system during wet years and periods of relatively high flow. Therefore, little effect on surface water quality is anticipated. The effect on groundwater quality and EBMUD drinking water quality cannot be determined without further study, but it is assumed that any program would be designed to minimize effects on both.

Fisheries

Taking delivery of water during wet years and periods of relatively high flow would be expected to have minimal effects on fishery resources. However, specific effects cannot be determined at this time.

Recreation

Taking delivery of water during wet years and periods of relatively high flow would be expected to have minimal effects on recreational opportunities. However, specific effects cannot be determined at this time

Vegetation and Wetland Resources

The facilities required for conveyance and groundwater recharge would likely include pipelines and well fields. The construction of such facilities has the potential to temporarily affect vegetation and wetland resources, depending on the location of the facilities. It is assumed that the facilities could be sited to have minimal effects on these resources. In addition, the availability of water from the facilities would provide opportunities for wetland mitigation, creation, and enhancement.

Wildlife

The facilities required for conveyance and groundwater recharge would likely include pipelines and well fields. The construction of such facilities has the potential to temporarily affect wildlife resources, depending on the location of the facilities. It is assumed that the facilities could be sited to have minimal effects on these resources.

Geology, Soils, Seismicity, and Groundwater

Implementation of a groundwater storage/conjunctive use program would be expected to have no effect on geologic conditions. The areas that have been the subject of past consideration are relatively flat and generally not subject to unstable conditions, other than seismicity.

It is likely that the facilities would be sited in agricultural areas in south Sacramento and/or San Joaquin Counties. Soils in these areas are generally productive to highly productive. Construction and operation of the facilities would require the conversion of relatively small areas to nonagricultural uses. Specific impacts cannot be determined without further study and preliminary design of facilities. In addition, there is a slight potential that localized increases in groundwater levels could result in soils becoming waterlogged, thereby decreasing their productivity. This risk is considered slight and can be avoided through proper design and operation.

The area under consideration is not highly active seismically, but facilities would be subject to potential damage from earthquakes. This risk is considered small, and proper engineering design would minimize such risks.

Effects on groundwater quality and quantity cannot be determined without further study. However, the quality of water to be recharged is relatively high, and it is not considered likely that significant impacts on groundwater quality would result. Groundwater levels would be expected to increase as compared to a no-action alternative under this program. Given that much of the area that has been the subject of past discussion is in overdraft, this effect is considered generally beneficial.

Land Use

As described above, minor changes in land use may result from construction and operation of recharge and extraction facilities. These facilities are generally consistent with area agricultural land uses, however, and would not be expected to have significant land use impacts.

Agricultural Resources

It is anticipated that relatively minor losses of agricultural land would result from the construction and operation of facilities. While these effects are expected to be relatively minor, effects are dependent on the actual location of facilities and would require further analysis.

Transportation and Circulation

Construction of facilities would be expected to have minor effects on transportation and circulation. During construction, minor amounts of additional traffic would be anticipated. In addition, minor and temporary disruptions to area roadways and circulation patterns would be anticipated during construction.

Air Quality

During construction, there would be a temporary increase in emissions related to construction vehicles and equipment, as well as increased emissions of dust. The severity of these impacts is expected to be relatively minor but may be considered significant under local air pollution control district rules.

Noise

During construction, there would be a temporary increase in noise levels related to construction vehicles and equipment. In addition, operations may involve use of wells, which would create noise. The severity of these impacts is expected to be relatively minor, but a site-specific assessment of impacts would be required.

Public Health and Safety

No significant public health and safety impacts are anticipated. However, a site-specific assessment would be required.

Cultural Resources

The areas that have been the subject of past discussion have the potential to contain known and currently unknown historic and archeological sites. It is anticipated that facilities could be sited to avoid known resources. However, the potential for impacts on currently undiscovered sites would remain. Proper construction management techniques and preparation of a cultural resource discovery treatment plan would minimize the potential for significant effects.