Attachment B

Integration Panel

Project Location

Madera Ranch is located in southwestern Madera County approximately 20 miles northwest of Fresno (see Figure 1).

Madera Ranch Groundwater Bank Operations

The proposed Madera Ranch groundwater bank could provide storage for a water reserve account that would assist Interior in meeting the requirements under Public Law 102-575 Title XXXIV (CVPIA). Requirements dedicating 800,000 acre feet to enhance fish and wildlife and associated habitats are described in Section 3406 (b) (2), and detailed in the final *Administrative Proposal on the Management of Section 3406 (b)(2) Water*, released November 20, 1997.

Interior proposes creating a Water Reserve Account for environmental, agricultural, and urban uses. In the long-term (beyond 2000), the Water Reserve Account could be banked in the Madera Ranch Groundwater Banking Project.

Water to be stored at the water bank would be spills on the San Joaquin and Kings Rivers and CVP water pumped from the Delta. Water for storage would be diverted at the Mendota Pool and transported by a two way delivery canal to the recharge facility on the Madera Ranch. Water would be returned to the Mendota Pool when needed by pumping from the recharged aquifer into the two way delivery canal. Water returned to the Mendota Pool would be diverted for agricultural irrigation or refuge water needs. Other users of the water bank would participate by exchanges with Mendota Pool diverters. In stream flows in the San Joaquin River below Mendota Pool could also be supplemented by deliveries from the water bank. Operational rules would be developed to protect adjacent landowners from adverse impacts to the aquifer.

The operations of the proposed water banks were modeled using a spreadsheet model with the following assumptions:

1. 400 cfs channel capacity from Mendota Pool to Madera Ranch (24 taf/month)

2. 3,500 acre infiltration area, with a surface storage depth of 6 feet (21 taf)

3. 0.2 acre-feet/acre/day infiltration rate (21 taf/month)

4. 0.1 specific yield of the aquifer

5. 50 ft/day hydraulic conductivity of the aquifer.

6. 208 cfs maximum extraction rate (12.5 taf/month).

Other Assumptions

1. The source of infiltration water is spill water from Friant and Kings River north and releases from the Delta Mendota Canal originating in the Delta.

2. A 15 percent loss of Friant Dam spill water to the groundwater basin between Gravelly Ford and Mendota Pool.

3. The basic demand pattern is a combination of the agricultural pattern for demands from March through September and Refuge water demands for October and November.

A summary of the modeling results that were used in the May 1998 "Madera Ranch Groundwater Bank Phase 1 Report" is attached.

Biological Benefits and Impacts

The detailed investigation of biological benefits and impacts will occur during the next phase of the decision process leading to implementation of the groundwater bank. In concept, the project could be implemented and operated to benefit both aquatic and terrestrial species.

Aquatic species could benefit from the water stored in the groundwater bank for use in supplementing dry and critically dry year environmental water supplies. Terrestrial species, including special status species, on the Madera Ranch could benefit from habitat protection and enhancement activities with removal from private ownership and development.

Temporary impacts to terrestrial species will occur during construction of the supply canal, recharge ponds and retrieval wells. Construction of the recharge ponds will permanently convert up to 3500 acres from irrigated agriculture and undeveloped pasture to intermittently flooded land.

The potential for wetland development associated with construction of the recharge ponds will be investigated.