Nipomo Supplemental Water Project
Groundwater Impact Review

The Nipomo Mesa Management Area (NMMA) Technical Group is one of three management area committees charged with developing the technical bases for sustainable management of surface and groundwater supplies available to each of the management areas. Each management area was established to promote monitoring and management practices so that present and future water demands are satisfied without causing long-term damage to the underlying groundwater resource. The NMMA lies between the Northern Cities Management Area to the north and the Santa Maria Valley Management Area to the south.

The NMMA Technical Group was established as a component of the court judgment in the Santa Maria Groundwater Basin litigation (Judgment). The Judgment incorporates an agreement between most of the parties to the litigation, which is referred to as the Stipulation. The Technical Group includes representatives appointed by the Nipomo Community Services District, Golden State Water Company, Woodlands Mutual Water Company, ConocoPhillips, and agricultural property owners.

The Technical Group has reviewed the proposed Nipomo Supplemental Water Project (Project), which includes a water purchase agreement with the City of Santa Maria (City) for a supplemental water source, and a pipeline for delivery of that supplemental water from the City to the Nipomo Mesa. This document provides a qualitative assessment of potential impacts of the Project on the groundwater resources of the NMMA.

Project Description

The Stipulation includes a requirement for the Nipomo Community Services District to purchase from the City a minimum of 2,500 acre-feet of water each year to supplement and recharge groundwater resources within the NMMA. The Stipulation also requires Nipomo Community Services District, Rural Water Company, Woodlands Mutual Water Company, and Golden State Water Company to share in the cost and use of the supplemental water.

The Project includes the purchase of water from the City and the construction of facilities to deliver (i.e. a pipeline), store, and blend this water with purveyor well water. Supplemental water from the City delivered to the NMMA would be used to reduce groundwater production from wells in the NMMA by the Nipomo Community Services District and other participating purveyors. Of the 3,000 acre-feet per year (AFY) included in a wholesale agreement with the City, 2,500 AFY would be used in compliance with the Stipulation. The remaining 500 AFY would be used to meet a previously planned increase in Nipomo Community Services District demand, as described below.

Of the planned 3,000 AFY of supplemental water, 2,500 AFY would directly offset groundwater production by some proportion of use by each of the funding NMMA purveyors (Figure 1). The

reduction in groundwater production would be principally in the area of the pumping depression near the central portion of the NMMA. A pumping depression is a localized area of lowered groundwater levels that can negatively impact a groundwater basin. A pumping depression may also influence the migration of saline groundwater typically found near the ocean and coast, inland toward or into, purveyor wells located within the area of lowered groundwater levels. This phenomenon is referred to as seawater intrusion.

Existing and planned system connections (i.e. via pipeline) between several purveyors, including Nipomo Community Services District, the Woodlands Mutual Water Company, Rural Water Company, and Golden State Water Company, would allow full use of the supplemental water available from the Project. Depending on the nature and management of these connections, reduced groundwater production would occur at one or more locations within these purveyors' well fields. The implementation and use of such connections for the purpose of groundwater basin management is documented in the January 2010 NMMA Purveyor Well Management Plan.

Some possible pumping scenarios resulting in reduced production from certain wells within each purveyor's well field are summarized in Table 1. These scenarios reflect the delivery of up to 2,500 AF of supplemental water to the Nipomo Mesa, with the amount of water delivered to each purveyor differing depending on the number of purveyor connections considered for each scenario (Table 1). As summarized in Table 1, four scenarios were considered based on current projections.

In all scenarios presented, total groundwater production by purveyors would be reduced to approximately 50 percent of current production. For Scenario 2 through Scenario 4, groundwater production for any one purveyor may be reduced as little as 20 percent (i.e. under Scenario 2, for Golden State Water Company) to as much as 70 percent (i.e. under Scenario 4, for Nipomo Community Services District). If supplemental water is not delivered to any other purveyor, groundwater production from specific wells operated by the Nipomo Community Services District could be reduced by 100 percent (i.e. under Scenario 1, Table 1). It should be noted that the scenarios summarized in Table 1 do not include 500 AFY of the planned 3,000 AFY of supplemental water, which would be used by the Nipomo Community Services District for potential future customers within existing district boundaries, consistent with the current San Luis Obispo County General Plan.

Source of Supplemental Water

The City would supply supplemental water from its potable water distribution system, which contains a combination of groundwater and State Water Project (State) water delivered from northern California. The City produced 10,000 to 12,000 AFY of groundwater from its seven wells in the thirteen years prior to receiving delivery of State water in 1997. Since then, the City's groundwater production has been less than 3,045 AFY.

The City's Urban Water Management Plan confirms that its State contract entitles it to receive up to 17,800 AFY of State water. The Stipulation requires that the City use no less than 10,000 AFY of available State water, or its full allocation of State water, if the amount available is less than 10,000 AF in a given year. The remainder of the City's water supply in any given year would be obtained from local groundwater.

The ratio of groundwater to State water that would be delivered to the NMMA would vary from year to year, in response to water demands, any restrictions in the amount of delivered water, and distribution system constraints. In 2010, the City used 10,207 AF of State water (77 percent of its total water supply) and 3,044 AF of groundwater (23 percent of its total water supply). The City's Urban Water Management Plan forecasts that deliveries of State water will remain at about 10,000-11,000 AFY, assuming a reliability factor of 60 percent. The remainder would come from groundwater as demands increase (including the transfer of water to the Nipomo Community Services District). Forecasted groundwater production by the City in the year 2035 would be 9,070 AF.

The delivery of supplemental water to the NMMA most likely would require the City to increase its groundwater production compared to current levels. However, the City's groundwater use is expected to remain well below its historical maximum. To the extent the City is required to increase its groundwater production to provide supplemental water to the NMMA beyond that required for in-City uses, comparatively lower groundwater levels at the City's well field are expected. However, the City's well field is located six miles southeast of the NMMA, and more than 10 miles east of the ocean.

Impact on NMMA Groundwater Production

The 2,500 AFY of supplemental water delivered to the NMMA amounts to an increase in the overall water supply, and would reduce purveyor groundwater production from the NMMA by that amount within and near the existing pumping depression. In addition, the water that percolates back into the ground after use (termed "return-flow") is an increase in to the NMMA and may be as much as 300 AFY from the 500 AFY of additional water provided to the Nipomo Community Services District. The amount of reduced groundwater production for each purveyor would depend on the nature of any connection to deliver the supplemental water.

The 2,500 AFY of supplemental water delivered to purveyors would offset approximately 50 percent of their local groundwater production, based on 2010 data (Table 1). In response to the reduction in groundwater production and, to a lesser extent, the increased return-flow resulting from the Project, groundwater levels are expected to rise significantly, particularly in the pumping depression in the central portion of the NMMA (Figure 1).

Impact on Potential Seawater Intrusion

The delivery of supplemental water from the City would reduce the potential for seawater intrusion into the NMMA. This reduction in the potential for seawater intrusion results principally from shrinking of

the area of lowered groundwater levels (i.e. the pumping depression) as groundwater levels rise. The NMMA Technical Group regularly considers seawater intrusion threats in its evaluation of water conditions, such as the threat posed by the documented seawater intrusion event north of the NMMA in 2009.

Table 1
Possible Groundwater Production Scenarios[1]
(Approximate AFY)

	Nipomo Community Services District[2]	Golden State Water Company[2]	The Woodlands Mutual Water Company[2]	Rural Mutual Water Company[2]	Total (Percent of 2010 Production)
Current Scenario (2010 Production)[3]	2,370	1,060	850	720	5,000
Scenario 1:Delivery to Nipomo Community Services District Only - No Connections	0	1,060	850	720	2,630 (52%)
Scenario 2: Add Golden State Water Company Connection	80	850	850	720	2,500 (50%)
Scenario 3: Add Golden State Water Company and Woodlands Mutual Water Company Connections	495	850	435	720	2,500 (50%)
Scenario 4: Add Golden State Water Company, Woodlands Mutual Water Company, and Rural Water Company Connections	705	850	435	510	2,500 (50%)

[1]Based on 2,500 AFY of available supplemental water and 2010 demand met by specific wells.
[2]See Figure 1 for the location of specific wells where reduced production would occur.
[3]For specific wells where reduced production would occur under alternative scenarios.