PISMO BEACH COUNCIL AGENDA REPORT

SUBJECT / TITLE:
STATUS REPORT ON SENTRY WELLS

RECOMMENDATION:
No action required; information only.

EXECUTIVE SUMMARY:

Background:
The Santa Maria Groundwater Basin is a large groundwater basin that consists of three distinct areas, the Northern Cities area, Nipomo Mesa, and the Santa Maria River area. Each area has distinct differences and is managed by three different types of management organizations. The Northern Cities area contains agricultural land, sand dunes, and the cities of Pismo Beach, Grover Beach, Arroyo Grande and Oceano Community Services District (Exhibit "A"). The Santa Maria Groundwater Basin consists of various types of geologic formations that can store and transmit groundwater. Two of the more common water bearing formations within the Santa Maria Groundwater Basin is the Paso Robles formation and the Careaga formation. These geologic formations extend from the Solomon Hills south of Santa Maria to the Pismo Creek Marsh. The various cities, community services districts and property owners pump groundwater from these formations to meet their needs. The City of Pismo Beach has two water wells located in the Northern Cities area of the Santa Maria Groundwater Basin. The Santa Maria Groundwater Basin is open to the ocean. This means that there is an interface between ocean water and fresh water along the coastline. This interface often moves towards shore and offshore depending on the groundwater elevations within the groundwater basin. Seawater is denser than groundwater therefore the interface often is a wedge shape rather than a vertical line between groundwater and seawater. In addition there is a zone of varying water quality becoming saltier as the wedge moves further onshore. The attached drawing provides a depiction of the seawater wedge along the coast. (Exhibit "B")

The sentry wells are, as the name indicates, small diameter wells (2-3 inches) that are placed along the coastline to detect when the seawater is beginning to move on shore. The existing sentry wells along the coastline were constructed by the Department of Water Resources in the late1950's and are currently owned by the County of San Luis Obispo. The County has in the past measured the sentry wells for water levels and performed limited water quality testing to determine the salinity of the water extracted from the sentry wells.

The Santa Maria Groundwater Litigation requires the Northern Cities complete an annual report for submission to the court. The annual report contains information on groundwater levels, pumping activity and the general condition of the groundwater

basin. The Northern Cities area submitted the first annual report to the court in April 2008.

Discussion:
During the May 2009 quarterly sampling of the sentry wells, one sentry well exhibited higher than normal salinity concentrations, this sentry well is located near Pier Avenue just west of Hwy 1. This event coupled with the groundwater elevations shown in the annual report at or below sea level may indicate that sea water is beginning to creep onshore. The Northern Cities authorized a second round of testing to confirm the initial test results. The Northern Cities received this information in late September, which confirmed the initial results. A series of additional diagnostic tests were undertaken that indicate that the seawater interface is now onshore and progressing inward. Only one of the five sentry wells is exhibiting this phenomenon. The Northern Cities have authorized additional quarterly sampling to monitor water quality within the sentry wells. A peer review of the sampling results is currently underway.

Once the seawater wedge is detected onshore, immediate actions are warranted to reduce the onshore flow of seawater. Once seawater intrusion has occurred in a groundwater basin, it is very difficult to remove. The Salinas Valley has a recent history of seawater intrusion, which rendered the municipal wells along the coastline unusable.

The Northern Cities have agreed that the best defense to seawater intrusion is to reduce groundwater pumping. The goal is to increase groundwater levels above sea level to provide a barrier to further migration of seawater onshore. Each of the Northern Cities has agreed to review their water conservation policies and urge our residents to double their efforts to conserve water. In addition the Northern Cities are meeting monthly to determine how best to reduce groundwater pumping. The City of Pismo Beach pumps very little groundwater while other Northern Cities rely more heavily on their groundwater supplies. The Northern Cities are reviewing the possibility of acquiring additional short-term water supplies to offset groundwater pumping in case the Northern Cities areas exhibit another dry year.

Staff will be updating City Council on additional water conservation measures that maybe effective in reducing water demand and other groundwater pumping reduction measures that will assist the Northern Cities to limit the amount of groundwater extracted from the basin. These measures will need to continue until the water levels recover within the basin.

FISCAL IMPACT:
At this point, there are no additional costs for the City of Pismo Beach other than our share of the additional testing.

OPTIONS:
Information only report.

ATTACHMENTS:

1. Map with Sentry Well location (Exhibit ”A”)
2. Seawater Wedge map (Exhibit ”B”)

Prepared by: Dwayne Chisam, P.E., Public Works Director **Meeting Date:** October 20, 2009

City Manager Approval:

Exhibit A

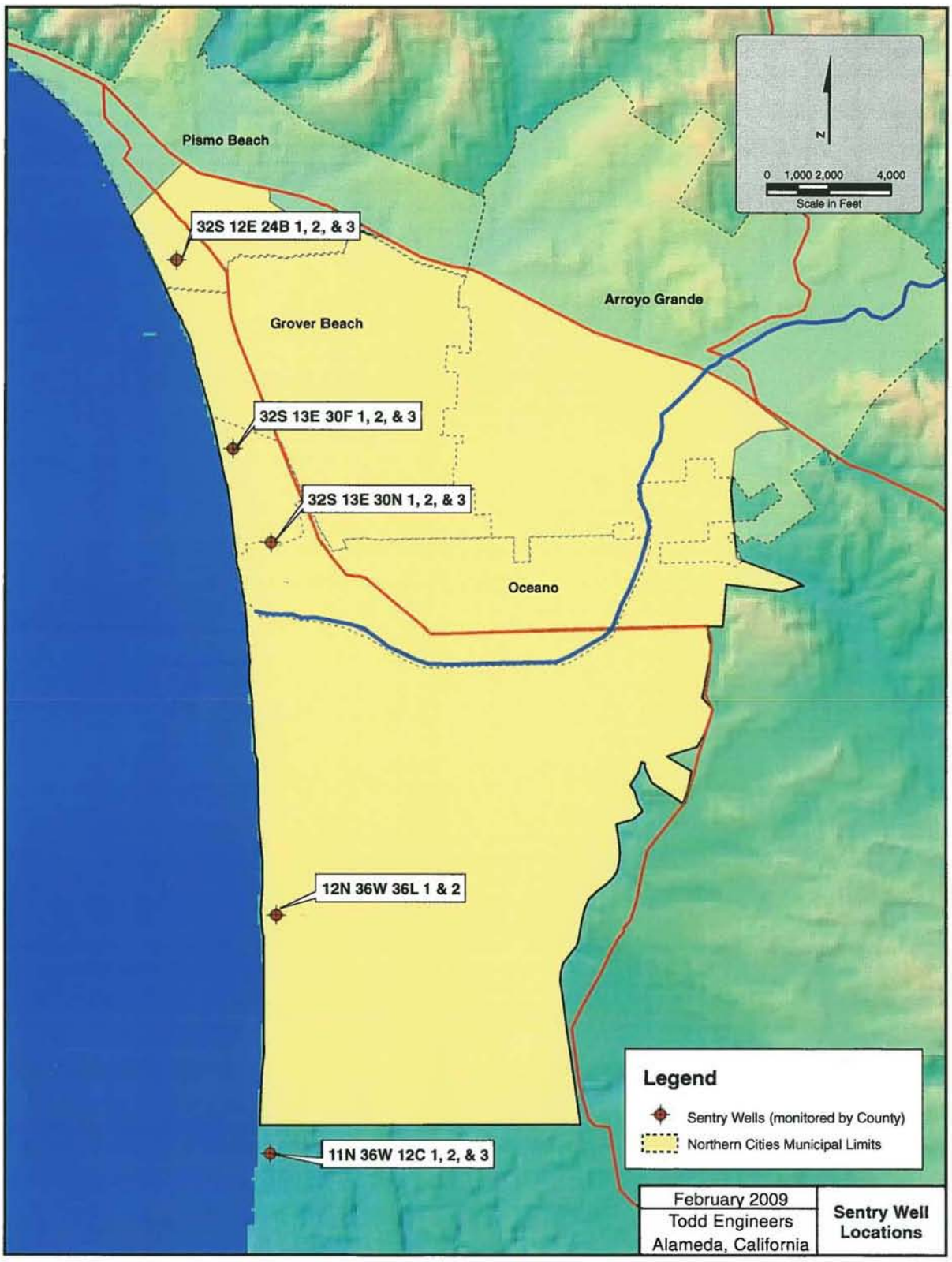

Exhibit B

CITY OF PISMO BEACH

SEAWATER WEDGE MAP

DRAWN BY: BAF	SCALE: NOT TO SCALE
DATE: 10/13/09	