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INDIAN WELLS VALLEY COOPERATIVE GROUNDWATER MANAGEMENT GROUP

Post Office Box 1329
Ridgecrest, California 93556-1329

May 20, 2010

Mr. Eric Solorio, Project Manager
Siting, Transmission and Environmental Protection Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814-5504

Dear Mr. Solorio,

As chairperson for the Indian Wells Valley Cooperative Groundwater Management Group (IWVCGMG), I am writing on behalf of the group in response to a letter sent to you by Judith Decker dated April 19th. In her letter Ms. Decker included her perceptions of the IWVCGMG and I would like the opportunity to respond to her statements, particularly since her letter has been posted with the Solar Millennium documents on the Commission's web site for public review.

First, some information about our group. The IWVCGMG, which was formed in 1995, is comprised of eleven stakeholders in the Indian Wells Valley. Members include China Lake Naval Air Weapons Station (NAWS), Indian Wells Valley Water District, Bureau of Land Management, City of Ridgecrest, Kern County Water Agency, Inyokern Community Services District, Kern County, East Kern County Resource Conservation District, Inyokern Airport District, Quist Farms, and Searles Valley Minerals. I have enclosed an updated copy of the agreement originally signed in 1995. This agreement forms the framework from which the group operates. As you can see, there is no implication that the IWVCGMG professes to claim authoritative jurisdiction over the entire basin. As major producers and stakeholders in the valley, the group simply has agreed to share resources and facilitate the acquisition and open exchange of information regarding groundwater management in the valley. We use this knowledge to develop and implement improved management practices intended to prolong the life of the groundwater resource.

Ms. Decker states, "This organization has in fact misrepresented itself to the County of Kern and to the State of California Water Resources Board." We take exception to this statement. In fact, you will note Kern County is a signatory to this agreement and has a representative attend our meetings, which, by the way, are open to the public. We have had staff from the Kern County Planning Department attend our meetings and also make presentations. I have no doubt the County understands the limits of our group.

Ms. Decker's statement that "the IWVCGMG serves primarily as a cover for some of the major pumpers" is puzzling. The tone of the statement implies some collusion or covert activity among the major water producers. To the contrary, our group has sought to be a source of information. The meetings are open to the public and we maintain a web site on which all agendas and meeting notes are available. The web site (www.iwvgroundwater.org) also provides links to relevant studies and reports and access to a wealth of data pertaining to the groundwater resource in the valley. All of this is intended to be a resource for the general public.

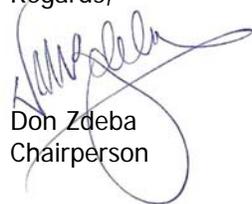
Ms. Decker also states, "There is no representative for the private, coop or mutual water well owners nor is there anyone representing the public." As Ms. Decker mentioned, she served as an elected Board member of the Indian Wells Valley Water District for almost 18 years so it is surprising to me that she does not recall the group's effort to have the private well owners participate and sign the original agreement in 1995. At that time, there was a cooperative consisting of private well owners, primarily in the more rural Inyokern area. When the group was being formed, this cooperative was encouraged to be a participant. Unfortunately, the leadership of the cooperative at that time elected to step down and there was no clear leadership or direction for the group to follow. Ultimately, the group disbanded.

It is the stated perception of Ms. Decker that overdraft in the basin is the result of "inaction of this impotent group." To the contrary, the group has initiated a number of actions aimed at management of the groundwater resources and I offer the enclosed document, "Indian Wells Valley Cooperative Groundwater Management Committee - Signatory Achievements" as proof. Among the more significant actions are two projects funded by State Department of Water Resources AB303 grants. The first, awarded in 2003, to complete the Geographic Information Systems (GIS) database for all the hydrogeologic information in and around the Indian Wells Valley thereby enabling the Kern County Water Agency to create groundwater maps of all types (water levels, water elevations, change in elevations, water quality, etc.). The second, in 2005, provided funds to drill eight deep monitoring wells in the Southwest Area of the Indian Wells Valley where data was sparse. Also, over 70 sites throughout the valley were sampled for water chemistry and isotopic composition. Hydrogeologic conditions of the Southwest Area, with supporting geologic cross-sections, groundwater flow paths, relative groundwater ages, and travel times, were interpreted and published in the final report. Also, through the cooperative funding of Searles Valley Minerals, the Indian Wells Valley Water District, and the Navy, a groundwater flow model for the basin was developed providing a valuable tool for managing the groundwater resources within the valley by producing predictive results for various pumping scenarios.

We understand water is an emotionally charged issue, particularly in California. We also understand that water is one of the significant issues raised with the proposed Solar Millennium project. We appreciate and respect the opinion of Ms. Decker with regard to this project. We do, however, regret that Ms. Decker has chosen to diminish the efforts and accomplishments of the IWVCGMG over the past 15 years.

We do wish to thank you for the opportunity to respond and request that this letter be posted on the Commission's web site in response to Ms. Decker's correspondence.

Regards,

A handwritten signature in blue ink, appearing to read "Don Zdeba", with a large, sweeping flourish extending to the right.

Don Zdeba
Chairperson

Cooperative Groundwater Management Plan for the Indian Wells Valley

Preamble:

The groundwater aquifer system in the Indian Wells Valley (as shown in Figure #1) is complex and the supply is finite. Substantial data is available regarding groundwater production in the Valley but only limited data exist pertaining to the aquifer characteristics. While considerable data has been collected through individual and cooperative technical studies, there is still a need for additional information to further characterize the watershed and to support the management of the aquifer system in the Valley.

Large-scale cooperative groundwater technical studies have been completed and are continuing in the Indian Wells Valley. The results of this effort contributed valuable insights to the nature of the Valley's groundwater resources. Based on these studies, the major participants in the study (the Indian Wells Valley Water District, Naval Air Weapons Station/China Lake, Searles Valley Minerals) and other Parties have concluded that it is in their best interest to participate in the development of this Cooperative Groundwater Management Plan (the "Plan") to extend the useful life of the groundwater resources to meet current and foreseeable user needs in the Valley.

Purpose:

The purpose of this Plan is to:

- 1) set forth guidelines and management principles for the production, distribution, and use of groundwater within the purview of the participants;
- 2) further develop (cooperatively or individually) the technical data and analytical capabilities to better understand the nature and characteristics of the watershed and aquifer system;
- 3) apply these guidelines toward sound management practices to extend the useful life of the groundwater resource to meet current and foreseeable future demands;
- 4) coordinate interested local agencies and water producers into a cooperative planning effort to share information and management practices to maintain the life of the resource.

The Parties agree that, within the framework established by this Plan, the Parties themselves are best able to determine how to meet their respective future water supply needs and assure the availability of a long-term, high quality water supply.

The Parties recognize the varied beneficial uses within the Valley, including residential, agricultural, industrial, municipal, commercial, and public. In addition, Searles Valley Minerals currently exports water from the Valley. Groundwater planning for the Valley must take these existing uses into account.

This Plan is not intended to alter or affect any existing water rights, and no Party, by executing this Plan, waives any of its rights.

This Plan is intended to be a flexible document. As more groundwater information becomes available through technical studies, data collection and analysis, and experience in interpreting the effects of pumping pattern changes it is expected, and agreed, that this Plan will be modified accordingly.

Planning Concerns:

The following concerns have provided the incentive to the Parties for participating in a cooperative planning effort in the Indian Wells Valley.

- 1) Water levels have declined in areas within the Valley.
- 2) As depth to groundwater increases, production and distribution costs will increase.
- 3) As depth to groundwater increases, the potential exists for poorer quality water to mix with and degrade higher quality water.
- 4) Some portion of the recharge to the Valley from the Sierra Nevada may be lost to evaporation in the China Lake playa.
- 5) Our understanding of the geohydrology of the Valley is based on groundwater quantity and quality data collected from available production and monitoring wells located throughout much of the Valley. The recharge and discharge characteristics of the aquifer are not fully understood. Adequacy of the known groundwater reserves to meet future demands shall be determined.

Planning Objectives / Groundwater Management Guidelines:

In an effort to successfully address the aforementioned concerns, the Parties' actions will be directed toward the following groundwater management objectives:

Planning Objective #1: Limit additional large scale pumping in areas that appear to be adversely impacted.

No Signatory producing water will increase its annual production of water from the groundwater depression identified in Figure #2 (applies to extractions greater than 5 AF/yr.). The water producing Signatories' long-term goal is to limit new and reduce existing production in this area to the fullest extent possible over an economically reasonable time frame.

Planning Objective #2: Distribute new groundwater extraction within the Valley in a manner that will minimize adverse effects to existing groundwater conditions (levels and quality), and maximize the long-term supply within the Valley.

Future groundwater development by the Parties will be distributed within the Valley in a manner that is designed in accordance with aquifer characteristics. The Parties will consider developing, to the fullest extent possible, individually or as a cooperating group, wells in the outlying areas of the Valley. Areas such as Indian Wells Valley Water District's southwest field should be considered as should wells designed to capture recharge from all areas of the watershed. As a general guideline, the location and capacity of new production wells (excluding domestic wells) should not unreasonably interfere with existing wells.

Planning Objective #3: Aggressively pursue the development and implementation of water conservation and education programs.

The Parties have collectively developed a written policy regarding water conservation (Water Conservation Public Advisory) and will continue to develop, to the extent possible, water conservation guidelines and education programs.

Planning Objective #4: Encourage the use of treated water, reclaimed water, recycled, gray and lower quality water where appropriate and economically feasible.

The Parties will consider, individually or collectively, use of non-potable water, such as treated sewage effluent or poorer quality sources, for appropriate re-use applications. The Parties will consider constructing, individually or collectively, recharge facilities including spreading basins and other types of facilities to capture and conserve storm water flows to augment efforts to replenish groundwater reserves. Water treatment and blending of different quality waters should be pursued to extend the life of the groundwater resource.

Planning Objective #5: Explore the potential for other types of water management programs that are beneficial to the Valley.

The Parties will consider, individually or collectively, projects such as water transfers, water banking, water importation, groundwater replenishment, and other programs that will enhance or prolong the groundwater reserves in the Valley. The Parties may consider joint acquisition, use, and operation of such projects and/or programs.

The Parties will coordinate with, and provide input to, land use planning authorities regarding water-intensive development activities within the Valley.

The Parties will review any new proposed export of water from the Valley with respect to its effect on groundwater resources, and make appropriate response, including but not limited to participation in the environmental review and planning process.

Planning Objective #6: Continue cooperative efforts to develop information and data which contributes to further defining and better understanding the groundwater resource in the Indian Wells Valley.

The Parties will continue to cooperate, to the fullest extent possible, in data gathering and analysis projects focusing on groundwater recharge, discharge, storage, quality, quantity, transmissivity and storativity as it pertains to the groundwater resources of the Indian Wells Valley. In conjunction with this objective, the Parties have collectively developed and will continue to develop a Water Sampling Plan, a Water Level Measurement Protocol, and a Monitor Well Selection Protocol.

Planning Objective #7: Develop an interagency management framework to implement objectives of this Plan.

The following entities are signatories on this Plan: Eastern Kern County, Resource Conservation District, Indian Wells Valley Airport District, Indian Wells Valley Water District, Inyokern Community Services District, Kern County Water Agency, Naval Air Weapons Station/China Lake, Searles Valley Minerals, the City of Ridgecrest, Quist Farms, the Bureau of Land Management, and **Kern County**.

The Parties may develop a cooperative agreement which defines the roles, responsibilities, rights, and obligations of all participants, affords opportunities to enlist new members and provides the administrative framework for implementing applicable elements of this Plan. A Steering Committee with representatives from each signing entity has been established to assist with coordinating each signing entity's groundwater management actions in conformity to the Plan.

Signing this Plan does not create any financial obligations. Future financial obligations will be determined in the agreement developed to implement this plan.

Severability:

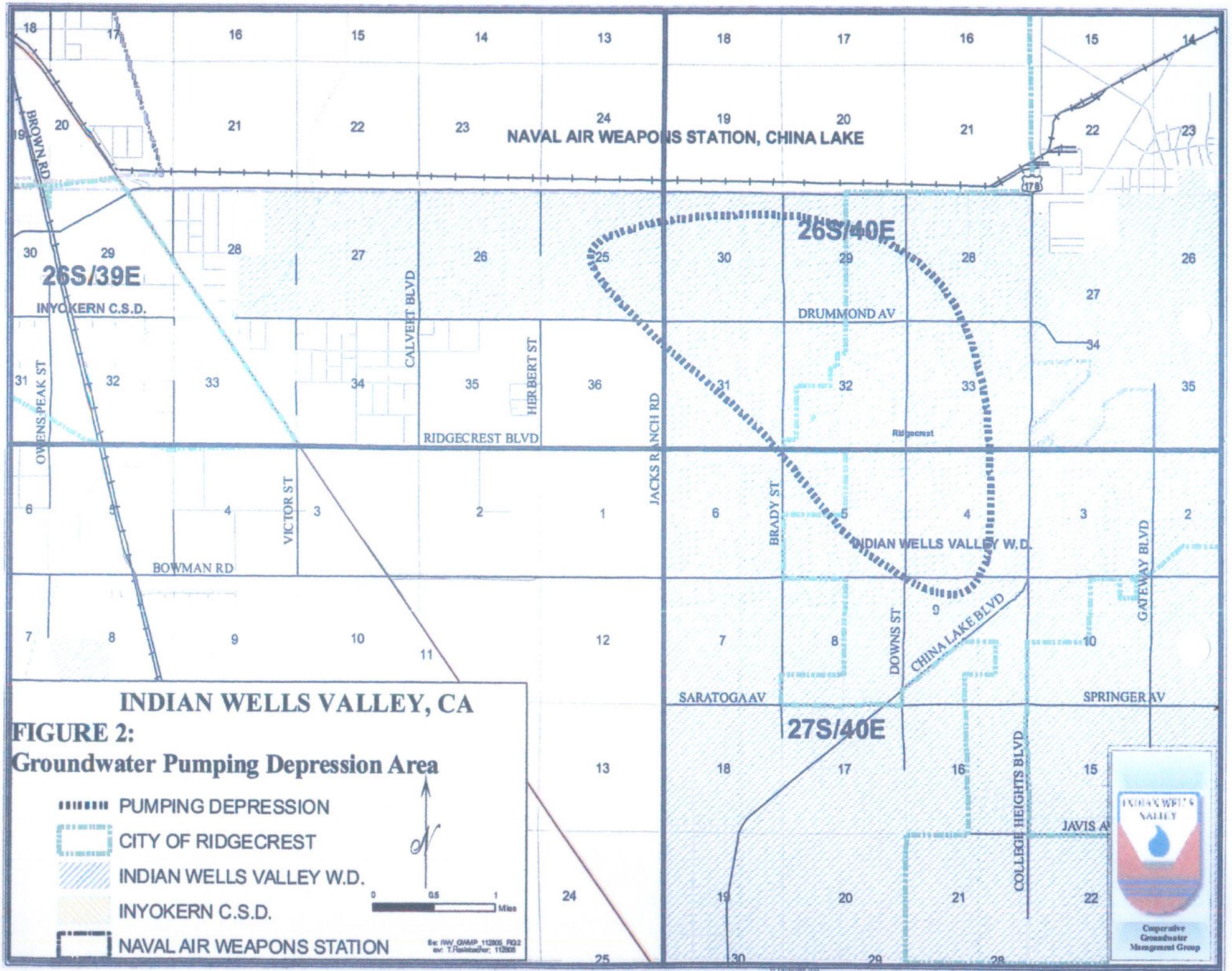
If any part of this Plan is declared invalid by a court of law, the remaining provisions of the Plan shall continue in full force and effect.

Changes:

It is understood and agreed that this Plan contains all the provisions agreed upon by the Parties thereto. This Plan may be amended at any time by mutual written consent of the Parties. Notice of proposed changes must be submitted to the other Parties at least thirty (30) days in advance of the proposed change.

Effective Date, Termination, and Withdraw:

This Plan is effective when signed, and will remain in effect until amended or terminated by mutual written agreement. Any Party may withdraw from this Plan by giving the other Parties six months' written notice.



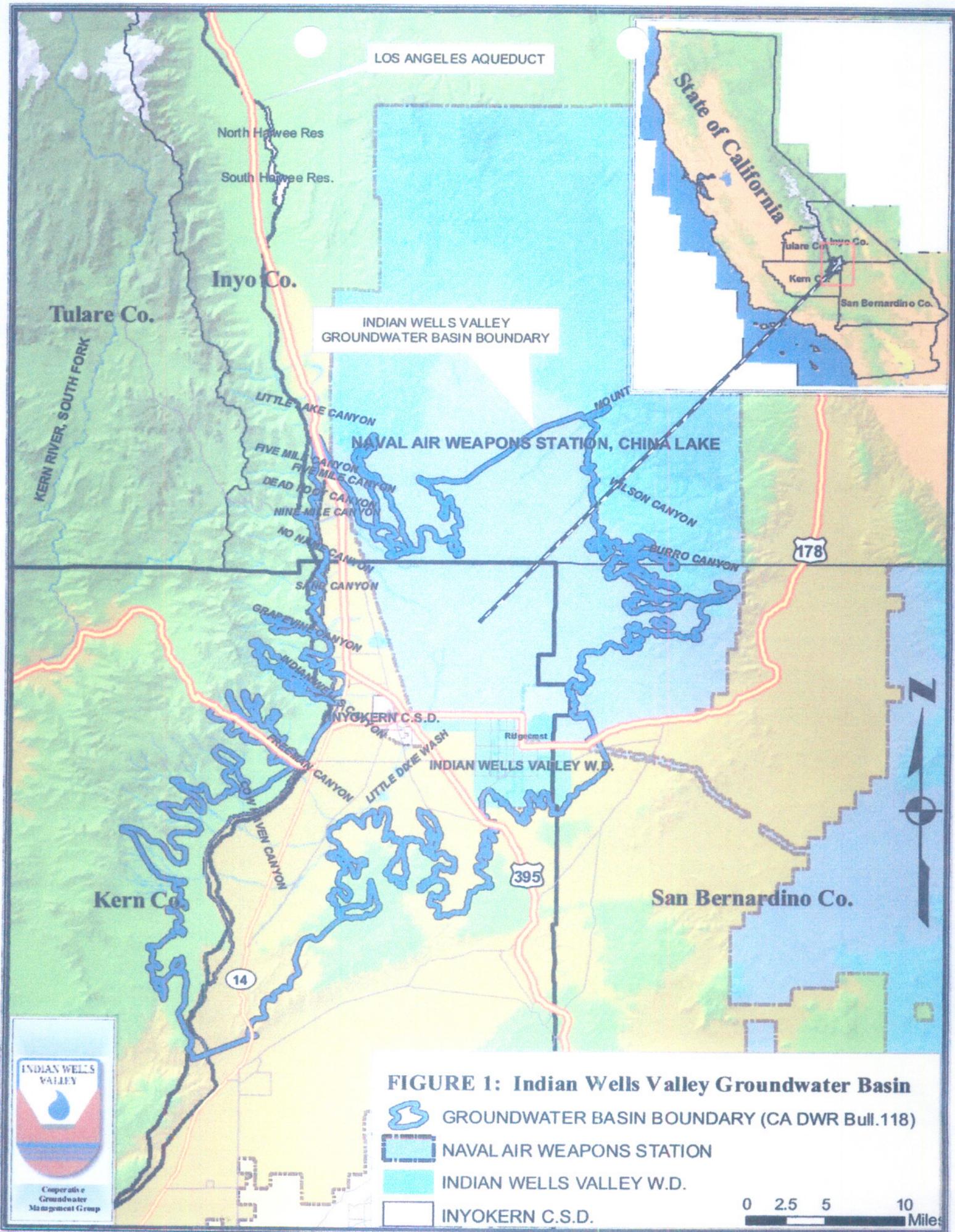
INDIAN WELLS VALLEY, CA
FIGURE 2:
Groundwater Pumping Depression Area

- PUMPING DEPRESSION
- CITY OF RIDGECREST
- INDIAN WELLS VALLEY W.D.
- INYOKERN C.S.D.
- NAVAL AIR WEAPONS STATION

Scale: 0 to 1 Miles
 North Arrow

See IWV_GAMP_112005_F02
 av. T. Postleacher, 112005





Revised and accepted this 16TH day of March, 2006 at Ridgecrest, California



NAVAL AIR WEAPONS STATION
CHINA LAKE



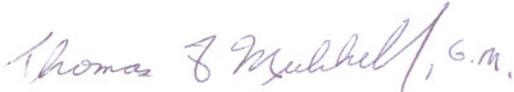
KERN COUNTY WATER AGENCY



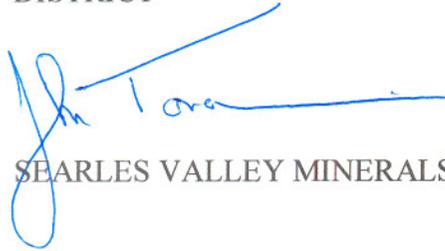
CITY OF RIDGECREST



INYOKERN COMMUNITY SERVICES
DISTRICT



INDIAN WELLS VALLEY WATER
DISTRICT



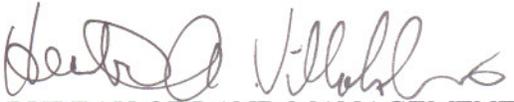
SEARLES VALLEY MINERALS



EASTERN KERN COUNTY
RESOURCES CONSERVATION
DISTRICT



INDIAN WELLS VALLEY AIRPORT



BUREAU OF LAND MANAGEMENT



QUIST FARMS

KERN COUNTY

By: Barbara Patrick
Chairman, Board of Supervisors

JAN 31 2006

APPROVED AS TO CONTENT:

Planning Department

By: Ted
Planning Director

APPROVED AS TO FORM:

Office of County Counsel

By: Bruce Dzielbun
Deputy

Indian Wells Valley Cooperative Groundwater Management Committee -Signatory Achievements-

Well Location

- Navy

Navy well locations (since 1995) have been based on a number of issues including; drilling costs, existing utility and distribution piping locations, range access, and hydrogeologic conditions focusing on long-term impacts to groundwater elevations, water levels, water quality conditions, proximity to known contaminants, and proximity to potential mixing with low-quality groundwater. Since the Navy signed the Cooperative Groundwater Management Plan, only two production wells remain in the Intermediate Wellfield (Navy Well #18 and Navy Well #28).

- IWV Water District

The Water District has spread out pumping by relocating major water production farther to the west/southwest of the City and not constructing new wells in the vicinity of the City.

Well Design

- Navy

Navy wells are typically designed to provide high volume flows from the aquifer with screened intervals at more than 600 feet below land surface. It is Navy policy to drill production wells to total depths of around 1,000 feet and extract water from deeper zones than the typical private domestic well which is screened in the 250-350 feet range. Bentonite seals are placed at certain intervals or “zones” to help prevent vertical aquifer mixing. Separation of the two types of wells is important with respect to well interference (water levels and possible industrial/domestic contamination).

- Searles Valley Minerals Corporation

Searles Valley Minerals re-designed two of its production wells (#35 and #36) to minimize well interference with private wells. Well #35 was completed to 805 feet which replaced Well #34 which was drilled to 403 feet. Similarly, Well #36 was completed to a depth of 982 feet.

Well Spacing

- Navy

New Navy wells (Navy Well #30 and Navy Well #31) have been drilled with at least ½ mile horizontal separation to reduce well interference (both water level and water quality). The only wells the Navy currently operates that are closer than ½ mile are Navy Well #15 and Navy Well #27 located in the Harvey Wellfield. Replacement wells were drilled at those original (circa 1944) well sites based on existing water lines, water storage, utility line availability, and continued use of the Navy land corridor in Inyokern, as well as the fact, that water from Navy Well #15 and Navy Well #27 can be gravity-fed from Inyokern to the “B” Mtn reservoirs.

Water Blending

- Navy

Navy Well #18 and Navy Well #28 run simultaneously when in production due to the concentrations of naturally-occurring arsenic in Well 18. The State has approved this blending as a treatment method for the elevated arsenic concentrations in Navy Well #18 (concentrations range from 8.5ppb-11.0 ug/l since 2003). The only time one well operates without the other is during well maintenance or well failure, at which time, another well in the system is run simultaneously with Navy Well #18.

Well Destruction

- Navy

Since 1995, the Navy has destroyed approximately 30 former production wells and monitoring wells that had either failed or were in poor condition. Each well was properly destroyed per the State of California Well Standards.

- IWV Water District

The Water District has recently taken Well #16 and Well #19 out-of-service. They are scheduled to be destroyed in 2010.

- Searles Valley Minerals Corporation

Searles Valley Minerals sealed and destroyed production Well #34 per State of California Well Standards in March, 1991. Properly destroying the well prevents potential contamination of neighboring wells.

System Monitoring and Conservation

- Searles Valley Minerals Corporation

In the past 15 years, Searles Valley Minerals has undertaken installation of several flow meters and a telemetry system to monitor potable water use throughout its operations and continues to publish a weekly report of water use at each of its facilities. This information has been used to justify a number of projects to re-use streams and improve efficiencies within our processes. Despite production increases throughout the operations, water use has been maintained at a relatively stable rate since 1983.

When possible, SVM utilizes lower quality brackish water sources available locally to offset use of potable water within its facilities.

- Navy

The recent (March 2008) Navy Water Conservation Policy has robust plans to conserve up to 20% of water production from 2008 through 2010. Current projects include turf reduction plots, xeriscape landscaping designs, redesigning and installation of water-conserving irrigation systems, and installation of low-flow toilets/showers/faucets.

- **IWV Water District**

The District has constructed monitoring wells along Victor Street and in the Southwest area of the valley and has committed to installing a monitoring well each time a new production well is installed.

The District hired a Conservation & Education Coordinator in 2006 who is reaching out to the community in many forms, including workshops, seminars, presentations at schools and community groups, the Home Show, and creation of educational materials. The District also has a group of award-winning programs that use volunteers to assist community members with conversion of turf to xeriscape.

Most significantly, the District has passed two new water conservation ordinances (Ordinances 90 and 91) limiting turf for new single family residences to backyard only and 50% for commercial/multifamily/institutional developments. The District also entered into an MOU with the City of Ridgecrest to establish a Water Efficient Landscape Ordinance (WELO). The City has adopted the ordinance and the District is planning to adopt a “mirror” ordinance that limits water times during the summer and runoff onto pavement and sidewalks. The District will also be hiring staff to enforce the WELO.

Groundwater Level and Groundwater Elevation Monitoring

- **Kern County Water Agency**

The Kern County Water Agency (Agency) with assistance from the Navy has measured 200+ monitoring wells on a semi-annual basis since the late-1980s. The data is compiled by the Agency into the Geographic Information System created during the first AB 303 Project and is used to compile “Depth To Groundwater”, “Groundwater Elevation”, and “Change in Groundwater Elevation” maps for the Indian Wells Valley. The Agency also completes water level/elevation hydrographs on a semi-annual basis that are used for trend analysis purposes. These data are presented to the Working Group and are posted on iwv.groundwater.org.

The Agency also funded and completed the construction of surface water flow gauging stations in Grapevine Canyon and Sand Canyon. Both stations record daily surface water flows near the mouths of each canyon. Agency personnel maintain, download, analyze, and report the data to the Technical Advisory Committee and the Working Group on a semi-annual basis.

Use of Reclaimed Water

- **Navy**

New chlorination equipment, infrastructure upgrades (new block building), and filtration system have been installed at the reclaimed water treatment facility. This should ensure it’s capability to continue the reclaimed water use (up to 1.4 MGD) at the China Lake golf course for years to come.

Water Sampling

- Navy

The Navy has conducted numerous rounds of water quality and isotope sampling throughout the Indian Wells Valley and surrounding areas including surface streams and natural springs. This data has been used by a variety of investigators including hydrogeologic consultants (Navy, Water District, and Searles Valley Minerals Corporation), public agencies, academia, and private citizens. The data has been used to establish groundwater types, groundwater flow paths, groundwater ages, groundwater travel times, and potential areas of recharge and where recharge is limited.

HYDROGEOLOGIC DATA COLLECTION, ANALYSIS, AND INTERPRETATION

Bureau of Reclamation Well Drilling Project (1991-1993)

The IWW Water District, Searles Valley Minerals, and the Navy matched funding with the United States Bureau of Reclamation to drill nine deep (to 2,000 feet), nested piezometers to characterize the hydrogeologic conditions throughout the Indian Wells Valley. Hydrogeologic data collected from the wells included drilling logs, geologic logs, geophysical logs, and water samples. The monitoring wells are used to this day for water level measurements and as water quality sampling points.

Basewide Hydrogeologic Characterization Study (2003)

The Navy expanded their original plan of investigating potentially contaminated sites to also include drilling deep boreholes and monitoring wells in the City of Ridgecrest and other areas off Station property. The hydrogeologic characterization investigation confirmed no contaminants mixing with groundwater and migrating off-Station. The Fenceline Study is an on-going investigation that includes water level and water quality monitoring at selected wells along the Station boundary fenceline to assure no groundwater migration is occurring.

SeaBee Well Drillers (1986-Present)

The SeaBees have drilled monitoring wells throughout the Indian Wells Valley. The well depths range from 300 feet to 1200 feet. Perforated intervals vary at each well usually depending of formation (cuttings) samples and required depth of subsequent water samples to be collected. Each well is located based a set of particular data needs, ie., monitoring well near an existing production well, exploratory monitoring well (no wells in an area to set baseline water level and/or water quality parameters), monitoring wells located in areas of concern (water quality issues, potential contaminants, etc). Searles Valley Minerals Corporation has provided their electric logging services on many of the SeaBee wells.

Well Video Logging

Searles Valley Minerals Corporation and the Navy have conducted video surveys of 30+ wells in an effort to collect well depth, screened intervals, water levels, and well

condition information on wells in key locations that previously had little to no available information.

Monitoring Well Re-Development

Searles Valley Minerals Corporation and the Navy have re-developed and/or sampled numerous monitoring wells using the air-lift method. Wells that were selected for this program showed irregular water levels (ie., no fluctuation) or exhibited signs of limited development during construction (high turbidity influenced by drilling muds, etc.).

AB303 Project (2003)

The focus of this effort was the completion of a Geographic Information Systems database for all the hydrogeologic information in and around the Indian Wells Valley. Once the GIS software was installed, the Kern County Water Agency was capable of creating groundwater maps of all types (water levels, water elevations, change in elevations, water quality, etc.)

An updated groundwater conceptual model was completed and published in the Final Report.

Southwest Well Field Groundwater Recharge Study (2003-2005)

The IWV Water District received Proposition 13 funding for conducting a study at its Southwest Well Field to determine the viability of recharge in this area of the Valley.

AB 303 Project (2005)

Eight deep monitoring wells were drilled and completed by the Navy SeaBees in the SW Area of the Indian Wells Valley. Over 70 sites throughout the Valley were sampled for water chemistry and isotopic composition. Hydrogeologic conditions of the SW Area, with supporting geologic cross-sections, groundwater flow paths, relative groundwater ages, and travel times, were interpreted and published in the final report.

Global Positioning Satellite (GPS) Surveys

The Navy with contractor (Epsilon System Solutions and the National Imagery and Mapping Agency (NIMA)) and Kern County Water Agency support has completed GPS surveys at over 300 individual monitoring, domestic, major production wells and USGS benchmarks in the Valley. These data are used by the Kern County Water Agency to generate their state-of-the-art groundwater contour maps.

Brackish Water Treatment Pilot Study (2008-10)

The IWV Water District received a Proposition 50 grant for conducting a study on the feasibility of treating brackish groundwater at its Northwest Well Field (NWWF). Along with the feasibility study are cost estimates for treating the water to zero-liquid discharge.

Contribution of Resources

Remote Access Weather Stations

Bureau of Land Management, Searles Valley Minerals, IWV Water District, and the Navy have contributed funding and man-power to support installation and maintenance of Remote Access Weather Stations (RAWS) to gather weather data within the Indian Wells Valley watershed.

Groundwater Flow Model

Searles Valley Minerals, Indian Wells Valley Water District and the Navy provided funding for the development of a groundwater flow model for the basin. This model will provide a valuable tool for managing the groundwater resources within the valley by producing predictive results for various pumping scenarios. The groundwater flow model will be updated and refined as more hydrogeologic data becomes available.