

## **ATTACHMENT 3. STATUS OF GWMP**

### **Groundwater Management Plans (GWMPs) and Related Programs**

SCWA has elected not to prepare a GWMP since its member agencies overlying the groundwater basin have prepared coordinated individual GWMP's. The following agencies have GWMPs that overly the Solano Subbasin: Reclamation District No. 2068, Solano Irrigation District, City of Vacaville and Maine Prairie Water District. The areas covered by the GWMP's are shown in **Figure 3-1**.

In 2005 SCWA prepared an Integrated Regional Water Management Plan (IRWMP) on behalf of itself and its member agencies, including all the agencies overlying the Solano Subbasin. The IRWMP describes regional policies and projects for long-term water resources planning and management and identifies "Increased Use of Groundwater" and "Increase Opportunities for Conjunctive Use" as Tier 1 priorities. Further discussion of the IRWMP is included below.

### **Proof of Adopted GWMP**

Reclamation District No. 2068. RD 2068's GWMP was prepared in accordance with CWC section 10750 *et seq.* GWMP was adopted December 8, 2005. A copy of the resolution adopting the GWMP is on the third page of the GWMP (a copy of this page is also included in the **Attachment 3 Appendix**).

Solano Irrigation District. SID's GWMP was prepared in accordance with CWC section 10750 *et seq.* GWMP was adopted January 16, 2006. A copy of the resolution adopting the GWMP is attached to the end of the GWMP (a copy of the stamped pages of the original 1995 GWMP and also the updated 2006 GWMP are included in the **Attachment 3 Appendix**; also included in the Appendix is DWR's list of approved GWMPs as of 2004).

City of Vacaville. Vacaville's original GWMP was adopted February 28, 1995. A copy of the resolution adopting the GWMP is on the second page of the GWMP (a copy of this page is also included in the **Attachment 3 Appendix**). The City of Vacaville updated its GWMP to meet SB 1938 CWC requirements in February 2011 (LSCE 2011, *City of Vacaville Groundwater Management Plan Update*).

Maine Prairie Water District. MPWD has an approved GWMP (in accordance with CWC prior to 2003 amendments). The GWMP was adopted January 21, 1997. A copy of the resolution adopting the GWMP is on the fifth page of the GWMP (a copy of this page is also included in the **Attachment 3 Appendix**). MPWD does not pump groundwater, so they have not updated their GWMP to SB 1938 standards.

### **Purpose, Goals, and Map**

#### **Purposes and Goals**

Reclamation District No. 2068 – 1) state RD 2068's overall groundwater management goal; 2) put forth preliminary basin management objectives applicable to the RD 2068 service area; 3)

provide a mechanism for the continued collection of baseline groundwater and aquifer information; and 4) establish preliminary management actions, including provisions for updating the plans as conditions change and new information becomes available.

Solano Irrigation District – to help maintain a long term, sustainable, reliable supply of high quality groundwater which will benefit the water supplies for all parties within the service area.

City of Vacaville – Maintain a high quality, reliable, and sustainable water supply. Continue to manage groundwater conjunctively with surface water resources and support basin management objectives directed towards sustainability of groundwater supplies within the basin and subbasin. Groundwater management involves the ongoing performance of coordinated actions related to groundwater withdrawal, replenishment, and protection to achieve long-term sustainability of the resource without detrimental effects on other resources.

Maine Prairie Water District – work cooperatively with landowners within the District to most efficiently manage and monitor the groundwater resources within the District.

### **Mapping**

Included in this application is **Figure 3-1** that depicts the boundaries of each entity’s GWMP. **Figure 3-2** shows the SCWA member entities with GWMPs and the Sacramento Valley Groundwater Basin/Solano Subbasin (5-21.66).

Reclamation District No. 2068 – The GWMP boundaries are the District boundaries as shown in Figure 1-1 of their GWMP and on **Figure 3-1 of this Attachment**.

Solano Irrigation District – The GWMP boundaries are the District boundaries as shown in the series of maps at the end of the GWMP and on **Figure 3-1 of this Attachment**.

City of Vacaville - The GWMP boundaries are the city limits as shown in Figure 2-1 of their GWMP and on **Figure 3-1 of this Attachment**.

Maine Prairie Water District – The GWMP boundaries are the District boundaries as shown on **Figure 3-1 of this Attachment**.

### **Implementation**

Agencies overlying the groundwater basin have a history of collaboration and joint planning and management. The Solano Water Authority (SWA) as a joint powers authority established to perform water projects. One of the SWA projects is SWA #4 – Coordinated Groundwater Data Analysis Project. The purpose of this Project is to collect groundwater data and monitor groundwater levels and water quality for the Solano Subbasin. Data for about 200 wells are reported. Reports are prepared biennially to document groundwater levels. To date, the reports show no adverse groundwater conditions. The Solano County Water Agency prepares the reports and is the repository for groundwater data.

One of the needs recognized in the GWMPs is an upgraded data management system that would improve the existing process performed by SCWA to collect and publish biennial groundwater level reports. In 2010, as part of the AB 303 Solano Groundwater Investigations Project (DWR AGREEMENT NO. 460008203), SCWA developed Data Management System that augments the

paper reports and includes water quality data for the SCWA service area, including the Solano Subbasin. The data is accessible to the groundwater agencies.

To further collective groundwater management, SCWA, in a joint effort to upgrade GWMPs to SB 1938 standards, prepared a report that examined all existing (at that time) GWMPs. After meetings and consultations with the participating agencies (RD 2068, Solano Irrigation District, Maine Prairie Water District and the City of Vacaville), common Basin Management Objectives were recommended and information to be utilized by each agency to update their GWMPs was provided. The goal of this effort was to have coordinated groundwater basin management occur among the above entities and to reflect this cooperation and consistency between planning documents within the even with four individual GWMP's. This report was the foundation for preparing GWMP updates for the RD 2068, Solano Irrigation District and City of Vacaville GWMPs. Examination of the new GWMP's show that they have common Basin Management Objectives.

In 2005, SCWA prepared an Integrated Regional Water Management Plan (IRWMP) on behalf of itself and its member agencies, including all the agencies overlying the Solano Subbasin. The IRWMP identified "increased Use of Groundwater" and "Increase Opportunities for Conjunctive Use" as Tier 1 (the highest) priorities.

As part of those groundwater recommendations, the IRWMP acknowledged that additional data about the groundwater basin are needed to implement the recommendations. As recommended by the IRWMP, and consistent with the GWMP's, SCWA funded the installation of four deep (over 2000 feet) nested monitoring wells and two subsidence monitoring stations in the Solano Subbasin. Costs, including engineering, construction, data analysis and reporting, is over \$2 million funded by SCWA. The data collected significantly increases the knowledge about the geology of the groundwater basin and provides more information to current groundwater users and provide information leading to conjunctive use projects.

RD 2068 – Since RD 2068 is not currently a groundwater user, implementation measures in the GWMP consist mostly of monitoring regional groundwater levels, water quality and subsidence. RD 2068 has performed monitoring as described in the GWMP. The GWMP recommended completion of a conjunctive use study. RD 2068 completed the conjunctive use study (funded by a previous AB 303 Grant), and has published the report "Reclamation District 2068 Conjunctive Use Feasibility Study" dated January 31, 2006. RD 2068 received funding through a later grant application for a test conjunctive use well. RD 2068 continues to participate with other agencies (through the Solano Water Authority and SCWA groundwater activities) overlying the groundwater basin to collectively monitor and report groundwater levels and coordinate groundwater basin management.

Solano Irrigation District – SID owns approximately 40 wells throughout the District (not all in the Solano Subbasin). SID is a major user of groundwater from the Solano Subbasin extracting approximately 10,000 acre feet per year, about 6% of the overall SID water supply. SID uses groundwater for both agricultural and municipal purposes. Implementation measures in the GWMP consist mostly of monitoring groundwater levels, managing groundwater extraction and monitoring water quality. SID has performed monitoring as described in the GWMP. SID continues to participate with other agencies (through the Solano Water Authority and SCWA groundwater activities) overlying the groundwater basin to collectively monitor and report

groundwater levels and coordinate groundwater basin management.

City of Vacaville - Vacaville is a major user of groundwater from the Solano Subbasin extracting approximately 6700 acre feet per year, about 20% of the overall City water supply. Implementation measures in the GWMP consist mostly of monitoring groundwater levels, managing groundwater extraction and monitoring water quality. Vacaville has performed monitoring as described in the GWMP. Vacaville continues to participate with other agencies (through the Solano Water Authority and SCWA groundwater activities) overlying the groundwater basin to collectively monitor and report groundwater levels and coordinate groundwater basin management.

Maine Prairie Water District - Since MPWD is not currently a groundwater user, implementation measures in the GWMP consist mostly of monitoring regional groundwater levels, water quality and subsidence. MPWD has performed monitoring as described in the GWMP. MPWD continues to participate with other agencies (through the Solano Water Authority and SCWA groundwater activities) overlying the groundwater basin to collectively monitor and report groundwater levels and coordinate groundwater basin management.

## **Public Process and Cooperation**

Each entity that has a GWMP went through the required public process for adoption of the GWMP. Notices were published, public hearings were held and adoption of the GWMP was done at a public meeting of the governing boards of the agencies. No opposition to the GWMPs was voiced at any of the public meetings. There is support for the GWMP's by all identified stakeholders in the Solano Subbasin. Groundwater information to the public comes mainly from the agencies that use groundwater from the Solano Subbasin – Solano Irrigation District and City of Vacaville. These agencies report groundwater usage in various public forums such as reports to their governing bodies, water supply assessments required by law for new developments, Urban Water Management Plans (such as is required for the City of Vacaville), and to the California Department of Public Health (such as required for the City of Vacaville).

Local and regional cooperation and participation with other agencies in groundwater activities is evidenced by the collective groundwater management efforts through the Solano Water Authority and SCWA as described above. Any disputes about groundwater management would be resolved through the Solano Water Authority forums or through SCWA acting as a neutral informed party with its member agencies.

The 2005 Solano Agencies Integrated Regional Water Management Plan (IRWMP) [Solano Agencies. 2005. *Integrated Regional Water Management Plan and Strategic Plan*. Elmira, CA. Posted at Solano Agencies IRWMP (2005) [www.scwa2.com/UWMP\\_IRWMP.aspx](http://www.scwa2.com/UWMP_IRWMP.aspx) ] has a very prominent groundwater management component. The IRWMP was developed through a broad stakeholder effort and public meetings were held at several times during the development of the IRWMP. GWMP's were used as source documents for the development of the IRWMP and are consistent with the IRWMP.

### **Westside IRWMP**

SCWA and its member entities, along with Lake County Watershed Protection District (Lake County WPD), Napa County Flood Control and Water Conservation District (Napa County

FC&WCD), Water Resources Association of Yolo County (WRA of Yolo County) and Colusa County Resource Conservation District (Colusa County RCD), are now jointly involved in new efforts for the Westside Integrated Regional Water Management Plan development (2012). The Westside Regional Water Management Group (RWMG), which received Proposition 84 Grant Funds on October 6, 2011, is developing a Westside IRWMP that will serve as the planning document for all regional water projects in the Putah or Cache Creek watersheds. Useful planning information already included in adopted IRWMPs, such as the Yolo County IRWMP, Solano Agencies IRWMP, and Sacramento Valley IRWMP will be utilized to create the Westside IRWMP. Significant water management issues to be covered in the IRWMP include water rights and diversions, groundwater quantity and quality, general water quality issues, and specific water management issues dealing with invasive species and mercury contamination. Specific actions are planned to be included to solicit and facilitate the participation of the Disadvantaged Communities in the planning process. The web site for the Westside IRWMP development is at <http://westsideirwm.com/documents/>

### ***Additional Groundwater Reports***

Currently, the biennial groundwater reports produced by SCWA include local data from the DWR data base. Member agencies using groundwater will continue to report their groundwater levels to DWR. Groundwater used for drinking water is monitored and reported to the State Department of Public Health, as required. SCWA has an agreement with the United States Bureau of Reclamation to conduct groundwater level monitoring at several wells related to the Putah Fan (a shallower aquifer that overlies the Solano Subbasin). Reclamation is required by the State Water Resources Control Board (as a water rights permit condition) to report groundwater levels at specified wells downstream of the Solano Project (Lake Berryessa).

### ***CASGEM - SCWA is the Countywide Monitoring Entity***

In 2010, SCWA applied to become the local countywide Monitoring Entity responsible for designating wells to be included in the DWR CASGEM program and for reporting groundwater elevation data for the CASGEM program. The wells selected by the SCWA for the CASGEM program are chosen from a larger population of wells monitored as part of the countywide groundwater level monitoring network. As the Monitoring Entity, SCWA identified 49 wells (**Figure 3-3**) to be included in the CASGEM network and prepared a CASGEM Network Plan as required by DWR (SCWA, December 2011). SCWA's participation in the CASGEM program complements other pre-existing groundwater monitoring that has been ongoing in Solano County for decades.

## **Groundwater Management**

***Basin Management Objectives.*** As described above, SCWA encouraged the agencies overlying the Solano Subbasin to be consistent with their groundwater management objectives. This consistency is demonstrated in the summary of Basin Management Objectives provided below.

RD 2068

1. Maintain groundwater elevations that result in a net benefit to basin groundwater users.
2. Protect and maintain groundwater quality within the RD 2068 service area for the benefit of basin groundwater users.

3. Minimize the risk of future significant impact due to inelastic land subsidence.
4. Plan and implement a conjunctive use program that minimizes short-term decreases in groundwater elevations, maintains groundwater elevations at acceptable levels over the long term, and minimizes water quality impacts resulting from the use of groundwater to meet some of the demands previously met by surface water.

#### Solano Irrigation District

1. Monitor and manage groundwater levels that will result in a net benefit to groundwater users throughout the District.
2. Strive to maintain a reliable and consistent groundwater quality for the beneficial use of groundwater users in the District.
3. Strive to minimize the risk of future significant impacts from land surface subsidence.
4. Facilitate conjunctive use operations which will encourage the optimum beneficial use of water resources within the District.

#### City of Vacaville

1. Assessment of groundwater basin conditions
2. Avoidance of progressive groundwater level declines
3. Preservation of groundwater quality
4. Increased conjunctive use of surface water and groundwater resources

#### Maine Prairie Water District

1. Conduct monitoring of four key wells to evaluate local groundwater conditions.
2. Review DWR groundwater quality monitoring for the area.
3. Acknowledges that groundwater levels benefit from abundant surface water supplies.
4. Accepts state standards for well construction, abandonment and destruction.

### ***Geologic and Hydrologic Principles***

The agencies overlying the Solano Subbasin have a history of sharing geologic and hydrologic data to promote coordinated groundwater management. Some reports were done for individual agencies, but all agencies utilize work done by others in the Solano Subbasin. New research and data are shared through the Solano Water Authority or SCWA groundwater forums. GWMPs are based on shared hydrogeologic information that describes the aquifers in the Solano Subbasin. That information has been supplemented by the new data coming from the new SCWA monitoring well program that was designed to provide more geologic data in key locations to further knowledge about subsurface geologic formations.

### ***Issues and Components of Groundwater Management***

*-The control of saline water intrusion.*

RD 2068 – In part due to the relatively shallow groundwater wells in the area, there has been no evidence of saline water intrusion.

Solano Irrigation District – No evidence of saline water intrusion.

City of Vacaville – No evidence of saline water intrusion even from the deeper Vacaville wells.

Maine Prairie Water District - In part due to the relatively shallow groundwater wells in the area there have been no evidence of saline water intrusion.

*- Identification and management of wellhead protection areas and recharge areas*

RD 2068 – There are no formally adopted wellhead or recharge area protection policies applicable to the RD 2068 service area, except for well construction and destruction standards. There are no direct recharge areas in the Solano Subbasin. The GWMP identifies actions for minimizing the potential for impacts to wells and recharge areas including evaluation of potential impacts from proposed projects to existing private wells and future RD 2068 wells.

Solano Irrigation District – Adopted State well construction and destruction standards. These standards are enforced through a permitting process by the Solano County Department of Resource Management. There are no direct recharge areas in the Solano Subbasin.

City of Vacaville – uses the Drinking Water Source Assessment Program (DWSAP) for new and existing wells. The DWSAP includes delineation of Groundwater Protection Zones surrounding an existing or proposed drinking water source where contaminants have the potential to migrate and reach that source. Permitting of new wells require a DWSAP analysis. Vacaville has performed 15 DWSAP assessments. Vacaville requires deep sanitary seal construction standards and well destruction policies. There are no direct recharge areas in the Solano Subbasin.

Maine Prairie Water District - Adopted State well construction and destruction standards. These standards are enforced through a permitting process by the Solano County Department of Resource Management here are no direct recharge areas in the Solano Subbasin.

*-Regulation of the migration of contaminated groundwater*

RD 2068 – No contaminated groundwater identified in the District.

Solano Irrigation District – There are some areas of high nitrate in the Dixon area that have been identified, but not to the extent where remediation or regulation are necessary.

City of Vacaville – No contaminated groundwater identified in the City. City actively monitors water quality to identify any contamination and works with relevant agencies on notification of contamination events and preventive measures.

Maine Prairie Water District - No contaminated groundwater identified in the District.

*-The administration of a well abandonment and well destruction program*

RD 2068 - complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards.

Solano Irrigation District – complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards.

City of Vacaville – complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards. The City also must get permits for wells from the State Department of Public Health since wells are used for drinking water.

Maine Prairie Water District - complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meet all State and local standards.

*-Mitigation of conditions of overdraft*

RD 2068 – No evidence of groundwater overdraft in the District.

Solano Irrigation District – SID evaluates groundwater levels in its wells annually for evidence of overdraft. No overdraft conditions have been detected.

City of Vacaville – Vacaville constantly monitors groundwater levels in 13 production wells and 11 monitoring wells. Local fluctuations in groundwater levels are managed by the managed distribution of the City’s groundwater pumping and the use of surface water supplies to meet the City’s demands. Vacaville has documented that local drawdown in specific areas can occur in years where pumping is increased, but recovery of groundwater levels occurs with conjunctive management of other wells and surface water supplies. No evidence of groundwater overdraft has been detected.

Maine Prairie Water District - No evidence of groundwater overdraft in the District.

*-Replenishment of groundwater extracted by water producers*

RD 2068 – Use of groundwater in the District is low due to abundant surface water supplies so groundwater recharge occurs without any implementation of specific recharge measures. The historical record would indicate that since the advent of wide scale application of surface water for diversified agricultural production there has been an increase in groundwater levels.

Solano Irrigation District – Groundwater levels are closely monitored by SID to confirm replenishment of groundwater extracted. Specific sources of groundwater replenishment of the Solano Subbasin are not well understood. Shallower aquifers are recharged by infiltration and precipitation of surface water. Further hydrogeologic investigations, part of which are requested to be funded by this application, will provide more information on the replenishment of the deep aquifer.

City of Vacaville – Groundwater levels are closely monitored by the City to confirm replenishment of groundwater extracted. Specific sources of groundwater replenishment of the Solano Subbasin are not well understood. Further investigations, part of which are requested to be funded by this application to develop a groundwater flow model, will provide more information on the replenishment of the deep aquifer.

Maine Prairie Water District - Use of groundwater in the District is low due to abundant surface water supplies so groundwater recharge occurs without any implementation of specific recharge measures.

*-Monitoring of groundwater levels and storage*

RD 2068 - RD 2068 monitors levels of six wells in and near the RD 2068 service area. These wells are included in DWR and SCWA reports. RD 2068 reviews the biennial groundwater level reports prepared by SCWA to collectively monitor the overall groundwater basin with other overlying agencies. Aquifer storage is not specifically monitored as the groundwater basin has several zones and covers a large area. Aquifer storage estimates will be refined as more data are collected over time. The groundwater flow model proposed in this application would aid determination of this estimate.

Solano Irrigation District – Depth to groundwater measurements in SID wells are made on a semi-annual basis in the spring and fall. These wells are included in DWR and SCWA reports. SID examines groundwater level data over five year periods for declining groundwater level trends. If a persistent decline is detected, SID could issue a two-year caution period, alert other agencies in the basin, and more closely watch groundwater levels during the two-year caution period. If groundwater levels do not return to prior safe levels, other collective actions would be considered in conjunction with other groundwater uses in the affected area. SID reviews the biennial groundwater level reports prepared by SCWA to collectively monitor the overall groundwater basin with other overlying agencies. Aquifer storage is not specifically monitored as the groundwater basin has several zones and covers a large area. Aquifer storage estimates will be refined as more data are collected over time. The groundwater flow model proposed in this application would aid determination of this estimate.

City of Vacaville – Vacaville monitors groundwater levels in its 13 production wells and 11 monitoring wells. These wells are included in DWR and SCWA reports. Vacaville reviews the biennial groundwater level reports prepared by SCWA to collectively monitor the overall groundwater basin with other overlying agencies. Vacaville uses 2002-2006 groundwater levels as base year groundwater levels. The goal is to not exceed these levels in a normal year, with the understanding that these levels can be exceeded during drought years when groundwater use may be temporarily increased to make up for reduced surface water supplies. Pumping records and groundwater level records show that the aquifer will recover following short-term pumping increases. Aquifer storage is not specifically monitored as the groundwater basin has several zones and covers a large area. Aquifer storage estimates will be refined as more data are collected over time. The groundwater flow model proposed in this application would aid determination of this estimate.

Maine Prairie Water District - MPWD monitors levels of four wells in and near the MPWD service area. These wells are included in DWR and SCWA reports. MPWD reviews the biennial groundwater level reports prepared by SCWA to collectively monitor the overall groundwater basin with other overlying agencies. Aquifer storage is not specifically monitored as the groundwater basin has several zones and covers a large area. Aquifer storage estimates will be refined as more data are collected over time. The groundwater flow model proposed in this application would aid determination of this estimate.

*-Facilitating conjunctive use operations*

RD 2068 – RD 2068 has completed the conjunctive use feasibility study, publishing a report dated January 31, 2006. That study recommended the development of a test conjunctive use production well to determine impacts of a potential conjunctive use project on the groundwater

basin. RD 2068 received funding through a grant application for the test well (DWR AGREEMENT NO. 4600008203). A draft report has been prepared on the results of that test program (West Yost Associates. 2012. *Reclamation District 2068 Conjunctive Use Test-Production Report, Draft*. Prepared for Solano County Water Agency). A conjunctive use program would involve RD 2068 pumping groundwater in dry years and relinquishing some of its surface water supplies for other users. Solano cities are interested in entering into an agreement with RD 2068 for dry year water supplies that may become available. The relinquished RD 2068 surface water could be conveyed via the North Bay Aqueduct (through an agreement with DWR) replacing State Water Project supplies that are reduced in dry years.

Solano Irrigation District – SID conjunctively uses its groundwater supplies with its surface water supplies. For agricultural water supply, groundwater is used to supplement surface water supplies. SID has the ability to use different combinations of wells to augment its surface water supplies and can react to any water quality conditions or adverse groundwater level conditions.

City of Vacaville – Vacaville currently conjunctively manages its groundwater and surface water supplies. Groundwater levels are constantly monitored to assess trends; the City manages its groundwater extraction and surface water usage to ensure that groundwater levels do not exhibit chronic declines. Vacaville uses 2002-2006 groundwater levels to define a base year groundwater levels. The goal is to not exceed these levels in a normal year, with the understanding that these levels can be exceeded in drought years when groundwater utilization may be temporarily increased to make up for reduced surface water supplies. Groundwater level trends show that groundwater levels recover in the deep aquifer from which the City pumps groundwater after periods when pumping has increased to meet the City's demands.

Maine Prairie Water District - MPWD has no plans for a conjunctive use project, but notes that the presence of abundant surface water supplies has kept groundwater levels at acceptable levels.

*-Identification of well construction policies*

RD 2068 - complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards.

Solano Irrigation District – complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards.

City of Vacaville – complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards.

Maine Prairie Water District - complies with the Solano County Environmental Health Services Division of the County Department of Resource Management permitting process for well construction and destruction that meets all State and local standards.

*-The construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects*

RD 2068 – There are no groundwater contamination cleanup projects in the Solano Subbasin that impact groundwater use. There are some small isolated groundwater clean-up projects, but not in the RD 2068 area. There are no direct recharge projects or specific groundwater storage projects, although the groundwater basin is used conjunctively, on a limited number of properties in RD 2068, with surface water supplies. RD 2068 does provide and operate a number of grower education programs and water conservation practices for its surface water operations, including a district wide water recovery and reuse system.

Solano Irrigation District – There are no groundwater contamination cleanup projects in the Solano Subbasin that impact groundwater use. There are some small isolated groundwater clean-up projects, but they do not impact SID water quality or supply. There are no direct recharge projects. There are no specific groundwater storage projects, although the groundwater basin is used conjunctively with surface water supplies. There are agricultural water conservation programs that are identified in the SID Agricultural Water Management Plan. There is no existing water recycling projects in SID. SID constructs and operates groundwater extraction wells as identified in the GWMP.

City of Vacaville — There are no groundwater contamination cleanup projects in the Solano Subbasin that impact groundwater use. There are some small isolated groundwater clean-up projects, but they do not impact Vacaville water quality or supply. There are no direct recharge projects, as recharge is indirect. There are no specific groundwater storage projects, although the groundwater basin is used conjunctively with surface water supplies. There are urban water conservation programs that are identified in the Vacaville Urban Water Management Plan. There are no existing water recycling projects in Vacaville, but Vacaville has a draft Recycled Water Master Plan that it plans to implement in the future. Vacaville constructs and operates groundwater extraction wells as identified in the GWMP.

Maine Prairie Water District - There are no groundwater contamination cleanup projects in the Solano Subbasin that impact groundwater use. There are some small isolated groundwater clean-up projects, but not in the MPWD area. There are no direct recharge projects, as recharge is indirect. There are no specific groundwater storage projects, although the groundwater basin is used conjunctively with surface water supplies. There are agricultural water conservation programs that are identified in the MPWD Agricultural Water Management Plan. There is no water recycling projects in MPWD. MPWD does not extract groundwater.

*-The development of relationships with state and federal regulatory agencies*

For all GWMPs - Currently the biennial groundwater reports include local data from the DWR data base. SCWA will be reporting groundwater data from the new monitoring wells to DWR. Groundwater used for drinking water (Vacaville and SID) is monitored and reported to the State Department of Public Health, as required. SCWA has an agreement with the United States Bureau of Reclamation for Reclamation to conduct groundwater level monitoring at several wells related to the Putah Fan (a shallower aquifer that overlies northwestern portion of the Solano Subbasin). Reclamation is required by the State Water Resources Control Board (as a water rights permit condition) to report groundwater levels at specified wells downstream of the Solano Project (Lake Berryessa).

*-The review of land use plans and coordination with land use planning agencies to assess*

*activities which create a reasonable risk of groundwater contamination*

RD 2068 – RD 2068 evaluates the potential of proposed projects in the vicinity of its service area to impact existing private wells and future wells that may be constructed by RD 2068. The Planning Division of the County Department of Resources Management submits projects that may have impacts on RD 2068 for review.

Solano Irrigation District – Not addressed in GWMP.

City of Vacaville – Since Vacaville is a city, it has land use authority over its city limits where the City’s wells are located. Vacaville has an internal review process to ensure that land use decisions do not impact water quality of the groundwater.

Maine Prairie Water District – Not addressed in GWMP.

## **Monitoring Protocols**

SID and Vacaville monitor groundwater levels in their own wells at least twice a year. All agencies monitor regional groundwater levels through the biennial groundwater reports prepared by SCWA. SCWA uses data from the DWR database and other local wells to prepare the report. Regional groundwater levels are plotted and can be compared to prior years to identify any trends.

In 2010, SCWA developed a Data Management System that expands the current groundwater level data to include groundwater quality data.

*Groundwater quality degradation* – There is no evidence of groundwater quality degradation in the Solano Subbasin except for some isolated areas that have higher nitrate levels in the upper aquifer. Vacaville regularly monitors water quality of the deeper aquifer since it uses that water for drinking water supplies. SID also regularly monitors water quality in its wells used for drinking water purposes (in the Dixon area). SID also has a program where a minimum of four agricultural wells are sampled each summer and irrigation water quality analysis is performed.

The four wells are rotated with 4 other wells annually to give an indication of overall irrigation groundwater quality in the District.

*Inelastic land surface subsidence* – Regional monitoring of land subsidence in the Solano Subbasin is limited. With an abundance of surface water, groundwater extraction is relatively low compared to other areas such as Yolo County. Subsidence has not been identified as a problem in the Solano Subbasin. Two Continuously Operating Reference Stations (CORS) are located in the Solano Subbasin, one south of Dixon (P267) and the other near Rio Vista (‘Lil Honker). SCWA has installed two new CORS station in the Solano Subbasin in June 2012. These CORS stations will provide long-term monitoring of ground surface elevations. RD 2068 installed a permanent land subsidence benchmark using funding from the 2002-2003 Local Groundwater Assistance Program Grant. This benchmark is included in the Yolo County Land Subsidence Network (YCLSN). Adverse impacts due to inelastic land subsidence have not been identified within RD 2068. However, implementation of a conjunctive use program by RD 2068 might increase the potential for adverse impacts due to land subsidence. Repeat elevation surveys of the RD 2068 benchmark will provide important information on the current rate of subsidence,

if any, and the impact of future groundwater pumping on land subsidence rates if a conjunctive use program is implemented.

*Changes in surface flow and surface water quality* – In the Solano Subbasin surface waters have limited impact on groundwater. Other than Putah Creek, there are no perennial streams that contribute to significant groundwater recharge. Changes in water flows and water quality in Putah Creek are limited since flows are managed by Monticello Dam and in accordance with water rights flow criteria.

*Groundwater levels, availability, water in storage, and/or beneficial uses* – All current monitoring protocols in the GWMPs are designed to provide this information. This information is shared with all groundwater agencies through collective programs for publishing data and collective groundwater management.