Groundwater Contamination *in the Sacramento Region*

A LEGACY OF THE PAST, CHALLENGE TO OUR FUTURE

Groundwater is one of the Sacramento region's most important resources. Unfortunately, the potential spread of contaminants from industrial sites poses a tremendous challenge to regional water management efforts and threatens to impose economic and environmental impacts on the Sacramento metropolitan region.

With so much at stake, local water suppliers have joined forces to protect the region's groundwater resources and water supply infrastructure from this growing threat. The most effective way to address the problem is through a sustained, highly coordinated regional effort that engages federal partners and others whose facilities and investments depend on a healthy groundwater basin.

The Sacramento Groundwater Authority (SGA), a joint powers authority charged with protecting the groundwater basin, is coordinating the effort. (For more information on SGA and its members, see the back cover.)

Groundwater Key to Region's Water Supply

Groundwater is an integral component of a complex water supply system for the greater Sacramento region. The groundwater basin supplies up to 50% of the water used by the region's communities and businesses. Local water purveyors are investing hundreds of millions of dollars in programs and infrastructure to manage groundwater and better coordinate its use in conjunction with surface water to meet the region's needs.

The Water Forum Agreement

The lower American River is the only nationally designated wild and scenic river in the country that runs through a major metropolitan area. Recognizing the need to protect the lower American River while meeting the region's needs for a reliable water supply, a broad representation of stakeholders signed the historic Water Forum Agreement in 2000. A centerpiece of the agreement is a regional program to manage and conjunctively use groundwater and surface water to help meet water needs while reducing diversions from the lower American River during dry spells or environmentally sensitive times. The program – and indeed the landmark agreement itself – hinges on the availability of a safe and reliable groundwater supply.

Long History of Federal Partnerships

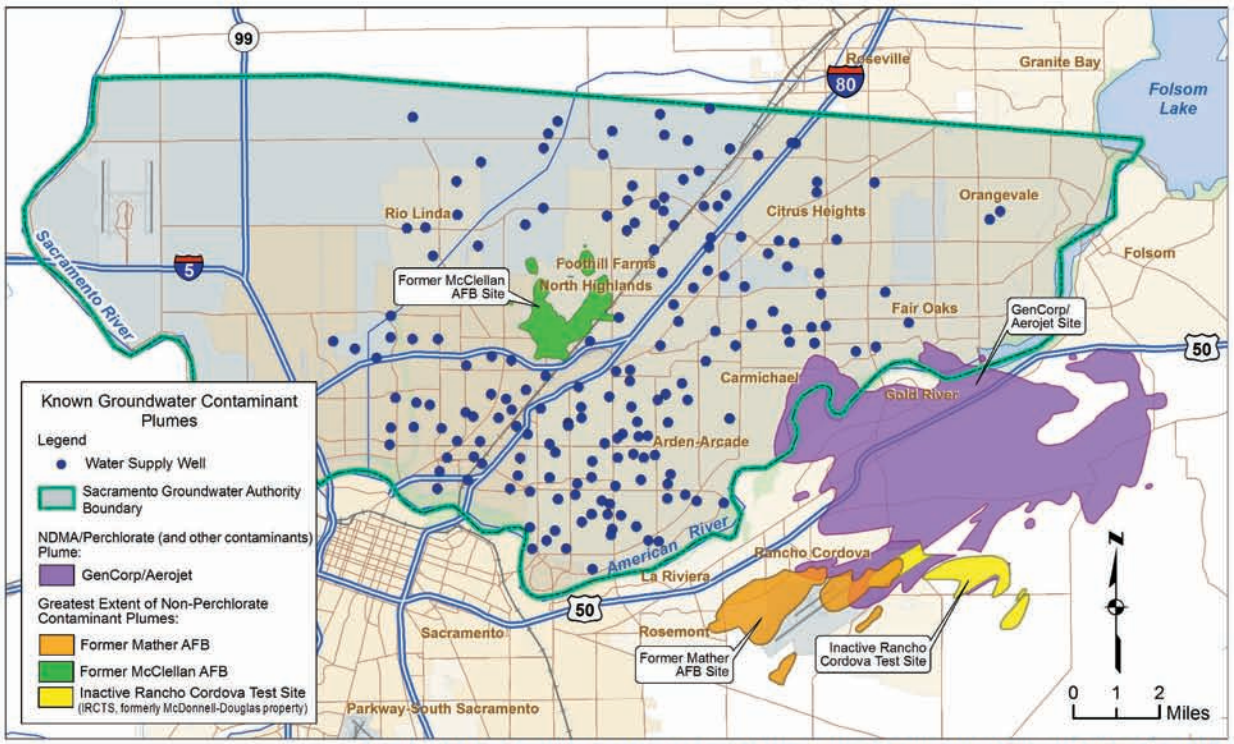
In addition to locally developed water supply infrastructure, federal projects and facilities play a key role in the region's water supply and flood control system. Facilities such as Folsom Dam on the American River and flood control and water supply facilities on the Sacramento River are important locally, but also form an essential part of the larger federal water system that delivers water to communities and some of the most productive farmland in the United States.

Federal water facilities in the Sacramento area also provide the operational flexibility needed to meet water quality and fisheries objectives in the Sacramento-San Joaquin River Delta. The success of these facilities depends in large part on the Sacramento region's ability to forgo surface water diversions at critical times. That ability in turn depends on the region's access to clean groundwater supplies. That access may be jeopardized, however, by the legacy of defense-related activities in the region.

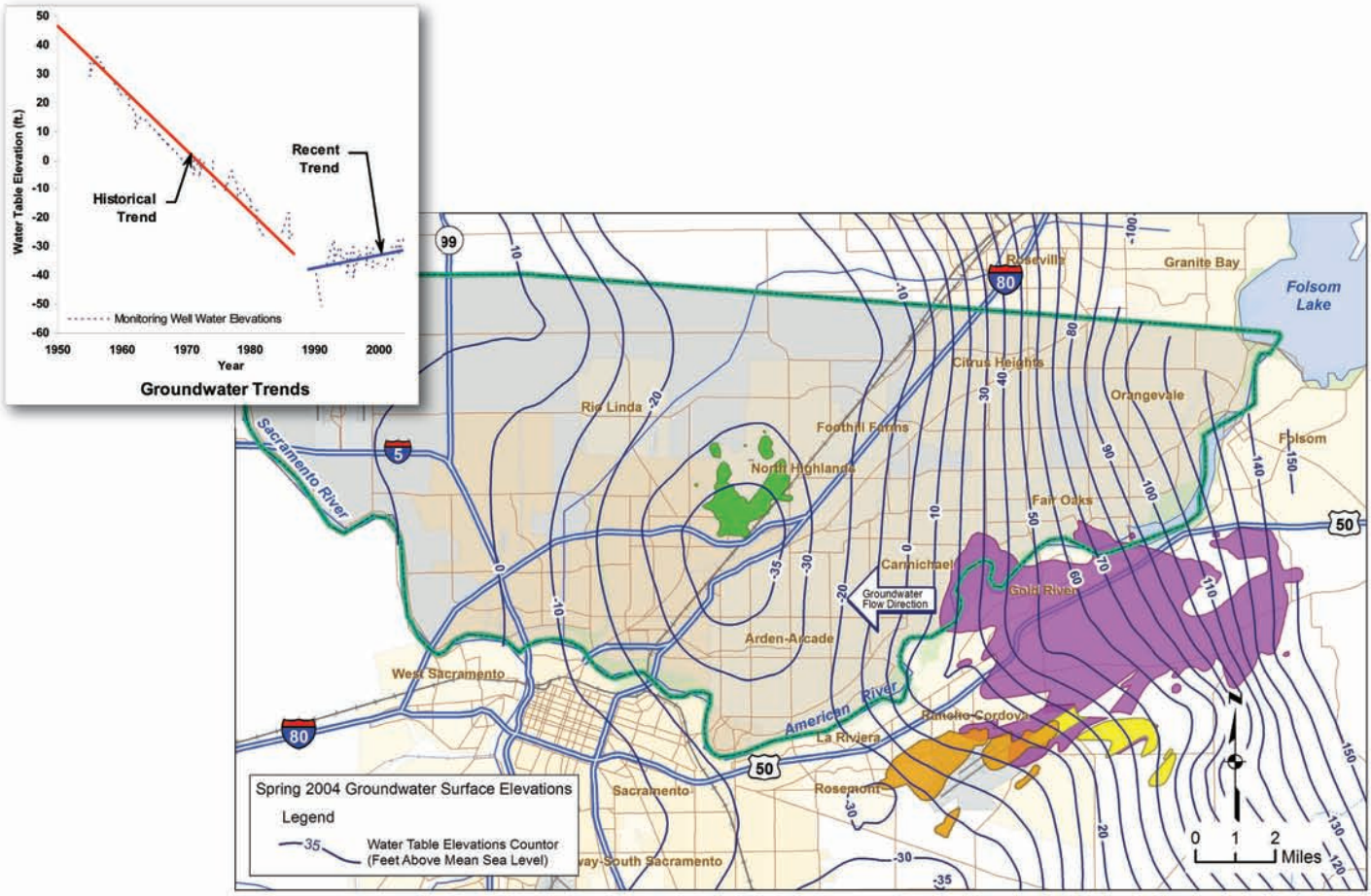
Sacramento has long been home to important federal facilities and industries such as the former McClellan and Mather Air Force Bases and Aerojet, a major defense contractor and manufacturer of critical defense and aerospace technology.

Folsom Dam and Reservoir on the American River

Though there have been many benefits derived from the years of national defense service and technology development in the Sacramento region, one legacy is groundwater contamination directly related to these activities. Several known plumes have contaminated, or threaten to contaminate, public drinking water wells. If not effectively contained and cleaned up, these plumes could render the groundwater basin unreliable.



Regionally extensive contaminant plumes in the vicinity of hundreds of public water supply wells cast an uncertain future on groundwater supply reliability.



Recent investments in water infrastructure have helped arrest a decades-long trend of declining groundwater levels that resulted in a large cone of depression in the heart of the basin.

Significant Investments, Environmental Values at Risk

Regional groundwater contamination could have enormous economic and environmental impacts, requiring replacement of existing water supplies and water supply infrastructure. Expansive contamination also threatens the region's ability to implement the Water Forum Agreement and to contribute to larger water quality and fish and wildlife programs downstream.

Groundwater contamination puts at risk hundreds of millions of dollars in water resources and infrastructure paid for by local ratepayers. Those resources and infrastructure – which include water rights, pipelines, water treatment plants, wells and other facilities – make it possible for water suppliers to reduce diversions of water from the lower American River during environmentally sensitive times. Regional contamination places that public investment at risk.

Contamination could also force water purveyors to acquire costly replacement water supplies, and to construct expensive new facilities to divert and distribute that replacement water to millions of people in the Sacramento region.

Environmental impacts could also be significant. Losing reliability of the groundwater basin places additional pressure on the lower American River to meet the region's water needs. These additional stressors not only affect local environmental and recreational values, but could also reduce benefits to water quality, fish and wildlife and environmental values in the Bay-Delta region.

Opportunities Exist to More Effectively Deal with the Contamination

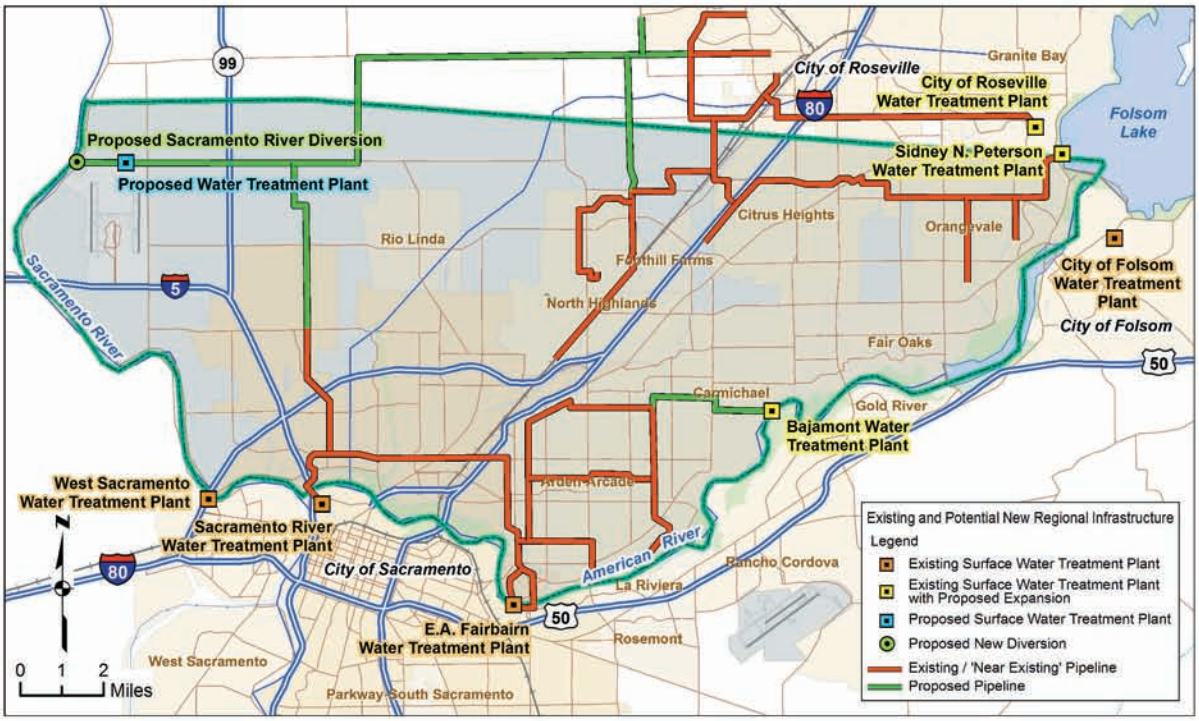
The most recent trend in water supply planning has been to integrate planning across multiple disciplines to achieve the greatest benefit. One example is increasing the use of recycled water for irrigation uses to offset demand for freshwater supplies.

Historically, efforts to address groundwater contamination have not been coordinated with water supply planning. The focus has been on remediation, rather than maximizing the effectiveness of clean-up efforts by coordinating operations with the activities of regional water suppliers.

The SGA and local water purveyors have no responsibility for remediating groundwater contamination in the region. Nevertheless, the collective interest in protecting the basin requires new strategies to more effectively address contamination. SGA and its members are exploring potential opportunities to build on remediation efforts that are currently underway, and to potentially coordinate those activities with ongoing water management activities to protect the groundwater basin and provide reliable water supplies for the region. Obviously, these coordinated efforts would need to prioritize protection of human health and minimize fiscal impacts to ratepayers.

If identified in a timely fashion, such opportunities could result in significant long-term savings in both contamination cleanup and required basin management activities.

Peterson Water Treatment Plant Improvements Under Construction.



The region has constructed and is currently planning many hundreds of millions of dollars in new and expanded water supply facilities.

Potential Ways to Better Address Contamination

- **Develop a plan for an advance replacement water supply**
  A number of water supply wells have already been lost to contamination in the region. Identifying and planning for replacement water is a long and complicated process that cannot be completed overnight. A focused effort is necessary to develop advance plans for replacing water that could be lost, or potentially lost, to contamination. Regulatory agencies should work with water purveyors to identify and plan for replacement water years in advance of when it may be needed.

- **Assist with and expedite the ongoing cleanup efforts**
  Water purveyors can assist by providing local expertise, data and access for monitoring and remediation.

- **Fully delineate and contain the plumes**
  Recent data indicate that a number of contaminant plumes in the Sacramento area have not been fully delineated, which creates substantial uncertainty in water supply planning. The current approach is not adequate for delineating or containing these plumes within the timeframe appropriate for water supply planning efforts. Monitoring, delineation and remediation efforts should be developed with water purveyor input to resolve this issue.

Groundwater well at a farm near Sacramento.

Near-term funding is needed to conduct the following studies and risk assessments related to groundwater contamination problems and potential water supply implications:

- Develop an inventory and assessment of contributing contamination activities and potentially affected facilities and stakeholders;
- Develop a risk assessment of the various contributing activities;
- Identify possible water supply solutions;
- Develop facility and operational contingency plans and strategies that could address impacts to public water supply systems and assist ongoing remediation efforts;
- Assess existing regional groundwater modeling capabilities and make recommendations for improvements to assist with future risk assessments; and
- Develop a regional monitoring plan with recommendations of where new monitoring wells are needed as "sentry wells."

Sacramento Groundwater Authority

The Sacramento Groundwater Authority (SGA) is a joint powers authority created to collectively manage the groundwater basin, underlying Sacramento County north of the American River. SGA's formation in 1998 was inspired by the Sacramento Area Water Forum, a nationally recognized collaborative process to reach consensus among 40 local utilities, business leaders, and the environmental community to preserve the lower American River and ensure a reliable water supply through the year 2030.

SGA draws its authority from an agreement between the cities of Citrus Heights, Folsom, and Sacramento and the County of Sacramento to exercise their police power to protect the basin. In turn, these agencies chose to manage the basin cooperatively by allowing representatives of the fourteen local water purveyors and a representative from agricultural and self-supplied pumpers to serve as the Board of Directors of the SGA. Collectively, these purveyors provide a high quality, reliable water supply to over 500,000 people.

SGA has developed a progressive groundwater management vision including a groundwater management plan and a regional conjunctive use program designed to provide local and regional benefits with the potential to provide broader statewide benefits.

Additional SGA goals include:

- supporting and implementing the Water Forum objectives of preserving American River environmental values and providing water supply reliability to support the Sacramento region's economic health
- maintaining and protecting the long-term sustainable yield and quality of the underlying groundwater basin
- promoting wet-year banking so that the basin can sustain users during dry periods
- coordinating with central and south county groundwater management efforts
- improving communication with other regional, state and federal water management agencies.

SGA Mission

To manage, protect and sustain the groundwater resources of the basin in Sacramento County north of the American River consistent with the Water Forum Agreement for the benefit of the water users within the basin, and to coordinate with other water management entities and activities throughout the region.

Member Agencies

California-American Water Company
Carmichael Water District
Citrus Heights Water District
Del Paso Manor Water District
Fair Oaks Water District
Folsom, city of
Golden State Water Company
Natomas Central Mutual Water Company
Orange Vale Water Company
Rio Linda/Elverta Community Water District
Sacramento, city of
Sacramento, county of
Sacramento Suburban Water District
San Juan Water District
Agricultural and self-supplied representatives

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