



2011 RMP Report Card

INTRODUCTION

This 2011 Remediation Management Plan (RMP) Report Card is the first annual status report on the specific goals identified within the Central Truckee Meadows Remediation District (CTMRD) Program RMP. The RMP serves as the guidance document or “roadmap” for implementation of the CTMRD program and is required by the State statute (NRS 540A.260) which led to the creation of the CTMRD. This report card reflects the goals defined by the participatory stakeholder agencies in the course of an ongoing update to the RMP. This report also presents challenges and/or constraints that are limiting progress toward those goals as well as the efforts that are underway to address those issues. Additional background, context and/or detail for this report card are available in the Remediation Management Plan Activity Table (attached) and the 2011 CTMRD Annual Report (www.washoecounty.us/water/2011CTMRD.htm).

While the CTMRD program (administered by Washoe County through the Department of Water Resources) is charged with spearheading efforts to address the widespread PCE problem in the central Truckee Meadows, other agencies are key participants in the process. These stakeholder agencies include:

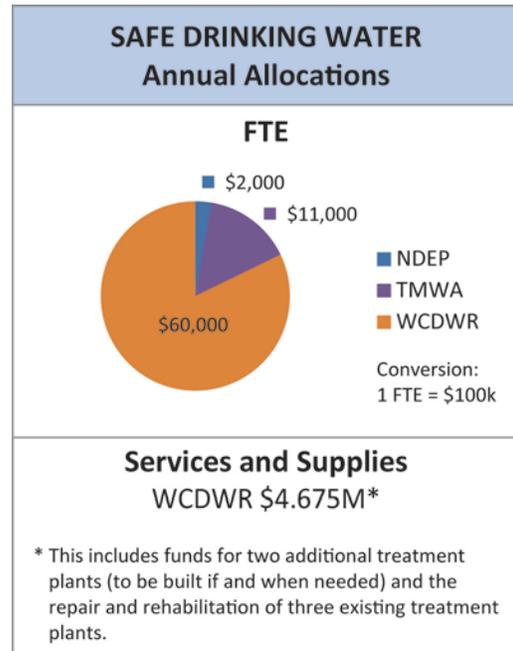
- Washoe County Department of Water Resources (WCDWR);
- Nevada Division of Environmental Protection (NDEP);
- Washoe County Health District (WCHD);
- Truckee Meadows Water Authority (TMWA);
- City of Reno; and,
- City of Sparks.

The CTMRD program and stakeholder agencies utilize a holistic approach to address the PCE problem. Agency activities focus on four key, complementary and interdependent areas:

- Providing safe drinking water by treating tetrachloroethene (also known as PERC or PCE) contaminated groundwater while also controlling the migration of contaminated groundwater.
- Managing sources and potential sources of contamination to protect the aquifer from past, present, and future activities that involve PCE and to prevent additional groundwater contamination.
- Groundwater investigation and monitoring helps to characterize the aquifer system and supports all aspects of the CTMRD program.
- Enhancing coordination and outreach ensures that stakeholders work together in an effective and informed manner and that interested parties are kept up to date with respect to the PCE problem and program activities.

PROVIDING SAFE DRINKING WATER

Wellhead treatment is a critical CTMRD program activity that allows for the provision of safe drinking water in the CTMRD service area. Treatment systems that remove PCE from groundwater are in place at 5 municipal supply wells in the Reno/Sparks area. Wellhead treatment is the most efficient and cost effective way to deal with large volumes of groundwater contaminated with relatively low levels of PCE. Wellhead treatment allows the impacted municipal water supply wells to continue to operate. This is imperative, as peak water demands cannot typically be met without the use of these wells. These wells can become even more important during times of decreased surface water availability (such as during a drought). Wellhead treatment is conducted according to the Pumping Plan (an agreement between Washoe County and TMWA) which specifies the amount of annual pumping by these wells to achieve the additional remedial benefit of controlling the two largest PCE plumes and protecting other wells in the CTM. The CTMRD program reimburses TMWA for any additional costs incurred in providing that remedial benefit.



Accomplishments

- **Providing Safe Drinking Water**
 - ❖ Treatment of more than 1.4 billion gallons of groundwater in 2011.
 - ❖ Treatment of more than 24 billion gallons of groundwater since 1996.
- **Removing PCE from Groundwater**
 - ❖ Removal of more than 14 gallons of PCE from groundwater in 2011.
 - ❖ Removal of more than 252 gallons of PCE since 1996.

To put these numbers into perspective, only 1 tablespoon of PCE would make enough water to fill 2 Olympic-sized swimming pools unfit to drink.



- **PCE Plume Containment**

The Pumping Plan (first implemented in 2000 and revised in 2006) provides a cost effective means to both provide safe drinking water and keep existing PCE plumes in place (preventing further contamination of the aquifer system and impacts to other municipal water supply wells).
- **2006 Pumping Plan Refinements**
 - ❖ Resulted in changes to pumping plan targets for individual wells and an increase in the annual pumping goal.
 - Pre-2006 – 1.3 billion gallons per year with 75% plume capture.
 - Post-2006 – 1.55 billion gallons per year with more than 90% plume capture.

- ❖ Changes in the basis for determining the cost of remedial benefit resulted in a decreased unit cost while keeping TMWA whole.
 - Through 2005 – Average of \$174.60 per million gallons.
 - 2006-2011 – Average of \$84.05 per million gallons.

Challenges and/or Considerations

- **Potential Changes to the Drinking Water Standard**

- ❖ The drinking water standard for PCE is under review by the U.S. Environmental Protection Agency (and may be changed within 3 to 5 years).
- ❖ If the standard becomes more stringent, additional wells may require treatment. This would result in significant additional costs.
- ❖ The CTMRD program has completed the preliminary design for two new wellhead treatment systems at the Sparks and Poplar #2 wells.
 - These wells have had PCE impacts in the past.
 - The funds for construction of treatment systems are included in the CTMRD capital improvement plan.

This ensures that the viability of these wells can be maintained if PCE concentrations increase, if the drinking water standard changes, and/or if measures to identify and mitigate the PCE source(s) for impacts is unsuccessful or proves to not be cost effective.

- **Pumping Plan Targets**

- ❖ Operating existing wells equipped with wellhead treatment systems to capture and contain known PCE plumes is the most cost effective way to:
 - Address PCE contamination in the deeper portions of the aquifer system, and
 - Protect other wells in the basin.

In order to accomplish these goals, it is important that Pumping Plan targets are met.

- ❖ Operational constraints (such as individual well capacity or the window of operation of the TMWA Glendale treatment plant) can pose obstacles to meeting pumping plan targets. As a result, the CTMRD program and TMWA are working together to eliminate those obstacles and ensure that PCE management and water resource management are coordinated in the most cost effective manner possible. Current joint efforts include:
 - Restoring the capacity of the Mill Street well so the pumping plan target can be reached within the annual operational time window for that well.

MANAGING SOURCES OF CONTAMINATION

PCE discharges originating both from historical activities and from active PCE-using businesses have contributed to soil and groundwater contamination in the CTM. Managing these sources of contamination and mitigating any threat to groundwater and human health (in a practical and cost effective way) is a fundamental objective of the CTMRD program. Source management includes a number of complex activities, and here they are divided into three sections focusing on prevention, investigation and remediation.

Preventing Contamination

Key goals associated with preventing PCE contamination focus on:

- Having use standards in place at PCE-using businesses;
- Providing education on these standards and the hazards related to PCE;
- Inspecting/monitoring PCE-using facilities to ensure compliance with standards; and
- Enforcing those standards through a consistent and progressive regulatory response process.



Accomplishments

- **Stakeholder Coordination and Collaboration**

Stakeholder agencies collectively work together to make progress on preventing contamination from occurring. In 2005, Washoe County and the Cities of Reno and Sparks:

- ❖ Standardized sewer discharge regulations by developing use standards for dry cleaners and prohibiting any release of PCE into the sanitary sewer.
- ❖ Implemented an inspection and monitoring program to verify compliance.
- ❖ Created a consistent and progressive regulatory response process for addressing non-compliance.

- **Decrease in PCE Use/Disposal Violations**

| 2006 | 2011 | 2011 vs. 2005 |
|------|------|---------------|
| 34 | 13 | 65% fewer |

The decrease in violations is interpreted to result from increased regulatory oversight and outreach activities for dry cleaners that have occurred over the past several years.

- **Decrease in PCE-Using Dry Cleaners**

Today, there are fewer dry cleaners overall and more dry cleaners using PCE alternatives.

| | 2005 | 2011 | 2011 vs. 2005 |
|---|------|------|---------------|
| # of dry cleaners | 36 | 30 | 17% fewer |
| # of PCE-using dry cleaners | 34 | 24 | 29% fewer |
| # of dry cleaners using PCE-alternatives | 2 | 6 | 300% more |

Challenges and/or Considerations

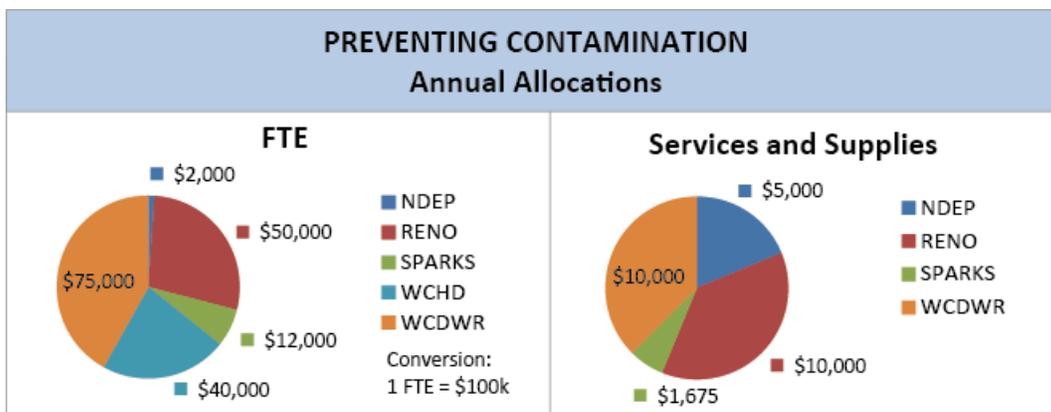
■ Proper Disposal Costs vs. Wellhead Treatment Costs

Proper disposal of PCE is critical to preventing contamination of soil and groundwater. Costs of proper disposal are minimal when compared to costs associated with cleaning up contamination after it has already occurred:

- ❖ Cost to properly dispose of PCE as a hazardous waste:
\$5 - \$10 per gallon of PCE (paid for by PCE user)
- ❖ Cost to remove PCE from groundwater via wellhead treatment:
\$8,300 per gallon of PCE (paid for by remediation fee-payers)

■ PCE Releases Continue to Occur

Although there were fewer discharges of PCE to the sewer in 2011 compared to previous years, discharges still happen. As long as PCE is in use, accidental or illicit releases to the environment can occur. Limited stakeholder agency resources have a direct effect on the level of sustainable regulatory oversight that can be provided. One way to ensure that PCE contamination of groundwater becomes a finite problem is to require that PCE-use be phased out. This has been considered locally and would require policy-level support from elected/appointed officials.



Investigating and Characterizing Sources of Contamination

When dealing with groundwater contamination, best practice dictates that eliminating the source of contamination is an essential part of and the second most cost-effective consideration (after prevention) in addressing and ultimately resolving the contamination problem. The CTMRD program's efforts over the last several years have focused on identifying sources of the PCE contamination with the intent of eliminating those that pose a threat to groundwater resources. If activities determine that contamination is attributable to a specific point of use, that source will be referred to NDEP for corrective action.

Accomplishments

■ Potential Source Area (PSA) Investigations

- ❖ 19 potential sources of contamination have been identified in 5 PSAs (Downtown Sparks, El Rancho, Mill/Kietzke, W. Fourth St. [Downtown Reno], and Vassar/E. Plumb).

- ❖ Ongoing work will determine if these potential sources pose a threat to groundwater resources. If they do, the feasibility of mitigating the potential sources will be assessed.

Challenges and/or Considerations

- **Resource Constraints**

Resource constraints have resulted in progress delays for source investigation and characterization goals.

- ❖ **Manpower Shortage**

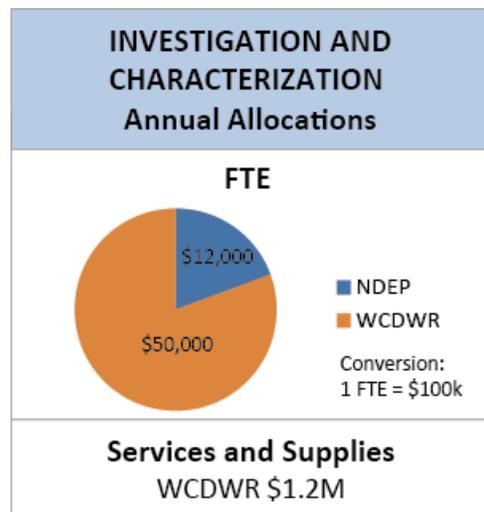
- Loss of a CTMRD program staff member has slowed progress in PSA investigations.
- Progress expected to get back on track in mid to late 2012, once vacancy is filled.

- ❖ **Source Referral Process**

- 2011 – NDEP and WCDWR began working to formalize the source referral process.
- NDEP resource constraints have put this process on hold.
- Expected to be revisited in 2012 with additional NDEP resources.

- ❖ **Cost Recovery Process**

- Remediation fees are intended to address PCE problems that cannot be attributed to a responsible party. If a responsible party is identified, state statutes authorize NDEP to recover the costs of remediation from the responsible party on behalf of the fee payers.
- 2011 – NDEP/WCDWR began work to define the cost recovery process.
- NDEP resource constraints have temporarily put this on hold.



- **Access**

Work outside the public right-of-way may be required in order to identify and characterize potential contamination sources. Delays may occur if property owners are unavailable, reluctant or unwilling to allow work to occur on their property.

Remediating Sources of Contamination

Source remediation is implemented through the CTMRD program when it cannot be attributed to a specific point of use and/or responsible party. Where a responsible party has been identified, NDEP and/or WCHD manage source remediation through regulatory corrective actions.

Accomplishments

- **Corrective Actions**

- ❖ Seven corrective actions are currently being managed by NDEP for PCE releases.
- ❖ Throughout 2011, NDEP worked with the responsible parties to continue activities focused on characterization and/or remediation.

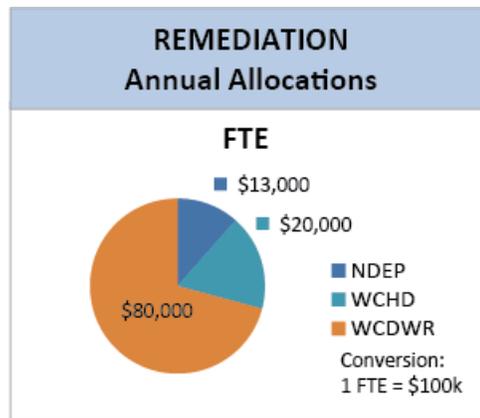
■ **Ongoing Remediation**

- ❖ Sparks Solvent/Fuel Site: 264 million gallons of groundwater treated and 11 pounds of PCE removed in 2011; 5,494 million gallons of groundwater treated and 295 pounds of PCE removed since 1995.
- ❖ Remediation continues at Old Town Cleaners corrective action site in Reno. The data to determine the amount of PCE removed and the effectiveness of remediation activities is presently not available.

Challenges and/or Considerations

■ **Limited Stakeholder Agency Resources**

- ❖ The extent and complexity of the PCE problem means it will take a significant amount of time and money to assess threats, characterize sources, evaluate options, and implement the most practical and cost effective solutions.
- ❖ With multiple potential sources, the CTMRD program and stakeholder agencies will prioritize threats in order to address the problem in the most cost-effective manner.
- ❖ In 2012, efforts will focus on areas where the biggest difference can be made.



■ **Limited Property Owner Resources**

A potentially responsible party may not have the resources to comply with a corrective action swiftly, comprehensively or at all.

■ **Unresponsive Potentially Responsible Party (PRP)**

- ❖ PRP may be unwilling or unable to characterize and/or remediate the threat to groundwater.
- ❖ To address this possibility, NDEP and WCDWR will work together to determine if, and when, it would be appropriate for the CTMRD program to intervene and conduct investigatory and/or remedial activities to ensure groundwater is not further contaminated.

INVESTIGATING AND MONITORING GROUNDWATER

Regular and systematic groundwater monitoring of more than 200 wells takes place in order to track PCE in groundwater and identify threats to municipal water supply wells. These efforts are part of the Groundwater Monitoring Plan (GMP), which supports all aspects of CTMRD program activities and provides data that help to characterize the distribution of PCE in the aquifer system.



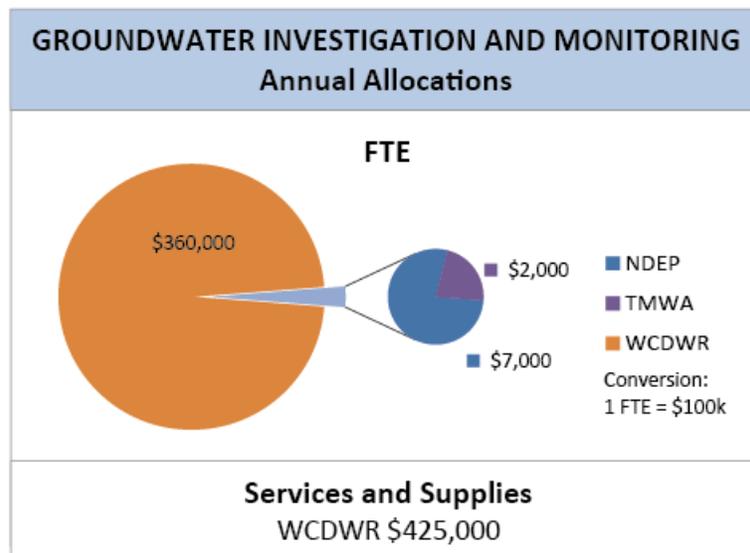
Accomplishments

- **Significant Details Identified**
 - ❖ Provided key information that helped identify the potential source areas (PSAs) where PCE can potentially be cleaned-up closer to the source in a more cost-effective manner.
 - ❖ PCE plumes are stable, meaning that they are not getting larger and that the strategy of using wellhead treatment according to the Pumping Plan schedule is effective.
 - ❖ Work through 2011 has identified eight discrete PCE plumes and demonstrated that the extent of groundwater contamination is less now than when the CTMRD was first created.
- **Contaminant Boundary Changes**
 - ❖ CTMRD contaminant boundary (the area within which PCE contamination exists) was reduced to about 9.5 square miles (from about 16.5 square miles).
 - ❖ Changed because PCE contamination is no longer as extensive as when the contaminant boundary was first defined in 2001.
 - ❖ The extent of two previously recognized contaminated areas (in south central Reno and in south east Sparks) increased slightly and one new contaminated area (around the El Rancho well in Sparks) was added.
- **Continued Optimization**
 - ❖ Several monitoring wells eliminated (determined to be no longer being useful or to provide redundant information).
 - ❖ Frequency/amount of data gathered adjusted so only essential information obtained.
- **Investigation of New Areas or Issues of Concern**
 - ❖ Eleven new wells are planned for construction in 2012. They will be used to:
 - Verify capture and containment of the Downtown Reno plume,
 - Assess potential threats to the Longley Lane 1 municipal water supply well, and
 - Help locate and characterize the El Rancho plume.

Challenges and/or Considerations

- **Resource Constraints**
 - ❖ Resource constraints can contribute to data gaps within the GMP – an ongoing issue to be addressed through continued optimization and prioritization of activities based on potential threat.

- ❖ Although GMP activities to monitor and investigate groundwater contamination require significant resources, it is intended that activities will eventually shift more toward potential source investigations.



ENHANCING COORDINATION AND OUTREACH

The CTMRD program stakeholder agencies are committed to proactively communicating with each other, policy-makers, affected business sectors, press, and the public about events or program efforts that may affect our community. Effective outreach has been established as a major objective. Stakeholder information sharing to accomplish program goals in an efficient and coordinated manner is a key component in meeting that objective.

Accomplishments

- **Community Relations and Communications Plan**

Stakeholder agencies completed the Community Relations and Communications Plan (CRCP), which reiterates our commitment to timely communication and defines a framework to do so in a consistent and comprehensive manner. Outreach efforts include:

- ❖ **Outreach for 2011 Contaminant Boundary Changes**

- Attended 17 Citizen and Neighborhood Advisory Board meetings January-May 2011.
- Solicited public comment on the changes and their effect on remediation fees.

- ❖ **2011 CTMRD Program Annual Report**

- Intended for a broad audience and designed to provide an overview about PCE in the Truckee Meadows and the CTMRD program.
- Completed and printed for distribution in early 2012.

- ❖ **Business and Property Owner Outreach**

- A letter to business and property owners where hazardous materials are used that:
 - Reiterates use, storage and disposal requirements and encourages utilization of available resources to ensure compliance with applicable regulations.

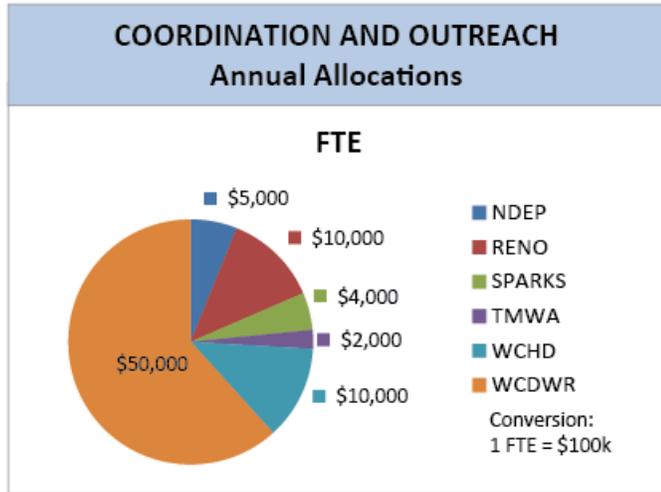
- Mailed to approximately 1000 recipients in early 2012.
- PCE fact sheets for the business sector and a roadmap for potential investors/developers in the PCE-impacted areas of Reno and Sparks to be created and distributed in 2012.

❖ **Press Releases**

Distributed to the media when activities may affect the public (such as road closures during drilling and the temporary remediation fee reduction).

▪ **Remediation Management Plan (RMP) Update**

The RMP guides the activities of the stakeholder agencies during their collaborative efforts to address the PCE problem. The RMP is required by the state law that led to the creation of the CTMRD. Originally developed in 2002, the RMP is currently being updated to reflect an improved understanding of the PCE problem and the ways that stakeholders can more effectively work together to address it.



- ❖ Early 2011 – Stakeholders completed a major milestone – the CTMRD “activity table”, which provides refined program goals and objectives and defines the roles and responsibilities of the stakeholder agencies in meeting them.
- ❖ Mid-2012 – The updated RMP is expected to undergo the review and approval process. Interlocal agreements will follow, formalizing respective roles and responsibilities.

OTHER KEY ACCOMPLISHMENTS

▪ **Improved Fee Determination Process**

The improved process allowed for the retirement of a \$2.5 million fee reserve, resulting in the remediation fee rate being reduced by 50% for FY 11-12 and FY 12-13.

▪ **40% Fewer Parcels Inside Contaminant Boundary**

Parcels inside the contaminant boundary are assessed a higher remediation fee rate because of the added benefit of liability protection. Due to the 2011 contaminant boundary changes, 40% fewer parcels now pay this higher fee rate.

We hope that the information contained within this report has been useful. If you have any questions about this report, or for additional information about the CTMRD program, contact Chris Benedict, Remediation District Program Manager at 775-954-4642 or cbenedict@washoecounty.us.