

Shannon Road/El Camino del Cerro
Water Quality Assurance Revolving Fund ([WQARF](#)) Site
(formerly the Shannon Road-Rillito Creek WQARF Site
and the El Camino del Cerro WQARF Site)

Boundaries:

The Shannon Road/El Camino del Cerro Site (Site) is located in northwest Tucson, Arizona and is bounded approximately by Orange Grove Road on the north, Meadowbrook Park on the east (north of the Rillito River), Shannon Road on the east (south of the Rillito River), El Camino del Cerro Road on the south, and Camino de la Tierra and the Santa Cruz River on the west. The Site consists of industrial and residential properties to the northeast of Interstate 10 (I-10). Also, the closed El Camino del Cerro Landfill occupies approximately 20 acres of land in the southwest portion of the Site, north of El Camino del Cerro Road between the Santa Cruz River and I-10.

The plume geographic boundaries depicted on the [Site map](#) represent the Arizona Department of Environmental Quality's (ADEQ) interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the plume may change in the future as new information becomes available.

Site Status Update:

As of April 2009, the [Metropolitan Domestic Water Improvement District](#) (Metro Water) South Shannon Wellhead [Granular Activated Carbon](#) (GAC) Treatment System has treated 468 million gallons of water and removed approximately 91.4 total pounds of [volatile organic compounds](#) (VOCs).



**Metro Water's South Shannon Well
and Water Tank**

The water levels in some of the [monitor wells](#) in the Site are steadily decreasing and some wells no longer have sufficient water to sample. The possibility of more wells going dry in the near future exists if the current trend of water level decline continues.

The El Camino del Cerro Landfill is the only confirmed source of groundwater contamination within the Site.

Community Involvement Activities:

A joint [community advisory board](#) (CAB) was formed in October 2000. The CAB was combined at that time to include both the El Camino del Cerro WQARF Site and Shannon Road-Rillito Creek WQARF Site, which were separate WQARF sites until Fall 2004. Details of meeting

[agendas](#) and minutes for 2008 and 2009 can be viewed at the ADEQ Web site. These meetings are open to the public. The most recent [fact sheet](#) can be found on the ADEQ Web site.

Site History:

1950's-1974: The E.C. Winter Oil property was a used oil recycling facility from the 1950s until 1974. The property has been a mixed use (industrial/commercial/residential) property since the cessation of the E.C. Winter operation.

1993: VOCs were detected in the City of Tucson Z-006A Water Supply Well, and this well was taken out of the [Tucson Water](#) distribution system. This well is currently used as a monitor well.

1994: VOCs were detected in Metro Water's South Shannon Well and in the Acacia Gardens Mobile Home Park Water Supply Well. Metro Water designated the South Shannon Well as a backup well, and the water drawn from it was blended with the water from two other wells prior to distribution.

1995-2000: In June 1995, the [Pima County Health Department](#) tested residents on the Arizona Wrecksperts property, formerly the AMRI Oil facility for [lead](#). The children on Site had elevated blood lead levels, and the residents moved off Site until April 1996. From February to April 1996, ADEQ's [Site Assessment Unit](#) conducted an initial investigation and a soil removal action at the Arizona Wrecksperts property, after a black, tar-like substance was found on the property. Soil contaminated by lead and waste oil was removed and replaced with clean backfill. Additional investigations were conducted to monitor the residents' lead levels and to determine if the contamination impacted groundwater.



**Excavated Soil from the Former
E. C. Winter Property**

In 1995, Acacia Gardens Mobile Home Park was connected to Tucson Water. In 1997, the owners of Acacia Gardens installed a [wellhead](#) treatment system for their well and operated their system until December 2000.

In September 1996, [Pima County](#) began the operation of a pilot landfill gas mitigation system flare. This system utilized a series of gas [extraction wells](#) that removed landfill gasses from the El Camino del Cerro Landfill to a flare where they were burned off.

In May 1997, ADEQ completed the installation of five [soil vapor](#) monitoring wells in the area of the El Camino del Cerro Landfill. In June 1997, Metro Water completed the installation of a wellhead treatment system for the South Shannon Well.

In December 1997, Pima County completed the El Camino del Cerro Study Area Landfill and Groundwater [Operable Unit Feasibility Study](#) (FS) Reports. Addendums to the reports were issued by Pima County in 1999. Subsequent landfill cleanup utilized vapor extraction wells and the extracted gas was piped to a biomass filter. Between 20 and 40 pounds of VOCs were

removed each week when this system was operating. The system eventually reached a state of ineffective mass removal and Pima County shut down the system to let the landfill [soil gas](#) return to equilibrium.

The El Camino del Cerro Site was placed on the [WQARF Registry](#) in August 1998 with a score of 71 out of a possible 120. In April 1999, the Shannon Road-Rillito Creek Site was placed on the [WQARF Registry](#) with a score of 53 out of a possible 120.

2001: In February, lead-contaminated soil was found in the southeast corner of Western Trailer Park property, formerly part of AMRI Oil property. The lot was unoccupied, so there was no risk to residents. Additional soil and groundwater tests were conducted to further determine the extent of the contamination and any potential risks it may pose.

A site investigation of the former E.C. Winter Oil property was completed and an engineering evaluation/cost analysis was issued in June 2001. In the fall, ADEQ excavated surface and near-surface contaminated soil for disposal in a permitted landfill. Also, the Acacia Gardens Well was abandoned. The mobile home park is currently being supplied water from the City of Tucson.

2004-2006: [Remedial investigations](#) (RIs) were conducted by Pima County in the vicinity of the El Camino del Cerro Landfill and northeast of I-10. The RI included characterization of the nature and extent of groundwater contamination, evaluation of [aquifer](#) characteristics near the landfill, and characterization of the composition of the landfill gas. Available data showed that there was a single plume and support the combining of the El Camino del Cerro and Shannon Road-Rillito Creek WQARF Sites into one site. The El Camino del Cerro and Shannon Road-Rillito Creek WQARF Sites were administratively combined into one site, the Shannon Road/El Camino del Cerro WQARF Site, in the Fall of 2004 based on these sampling results.

An ADEQ study to determine the vertical extent of the groundwater contamination within contaminated wells at the Site was conducted. The data gathered was used to develop future monitor well designs.

An extensive passive soil gas survey was conducted south of Rillito Creek along the east side of I-10 to screen for potential sources of the groundwater contamination. The survey did not indicate that a significant source for the groundwater contamination exists in this area. Additional active soil vapor investigations at the former E.C. Winter Oil and AMRI Oil properties were also completed because these properties had the highest passive soil gas results. The data gathered from these investigations were analyzed to determine the significance of these potential source areas and any risks they may pose. In June 2006, a [soil vapor extraction](#) (SVE) system was installed at the former E.C. Winter Oil property and began operating to remove VOCs in the soil. The system was expected to operate for one to two years alternating on and off for six month periods.



Upgrading the Treatment System at the South Shannon Well

The effectiveness of the treatment system at Metro Water's South Shannon Well was diminishing as VOC concentrations increased in the well water. An FS of upgrading the system was performed. The treatment system was shut down from April 2004 through June 2006 and upgraded with two large GAC filters. Five additional groundwater monitor wells were installed in Winter 2006 to further evaluate the groundwater on the Arizona Wrecksperts property.

2007: Five new monitor wells were installed at the Site in the early summer. A soil removal action was completed at the former AMRI Oil facility in the spring and summer. A total of 1,600 tons of lead-contaminated soil were removed from the eastern portion of the former Wrecksperts and former Western Trailer Park properties. In addition, a number of soil samples were collected on the western portion of the former Wrecksperts property in order to complete a human health risk assessment regarding an area of the property that used to contain waste oil pits. This risk assessment indicated that there is no unacceptable risk associated with the soils at the former Wrecksperts property.

2008: Four additional monitor wells were installed in January. These wells were designed to more fully define the extent of contamination and to replace some wells that have gone dry. Three of the new monitor wells will also serve as "sentinel" wells for monitoring possible contaminant migration toward Metro Water wells. Data gathered from these new wells will be used to complete the RI of the Site. Also in January, ADEQ discontinued operation of the SVE system at the former E.C. Winter property, due to declining extraction rates.

Contaminants:

The current contaminants of concern at the Site include [tetrachloroethene](#) (PCE), [trichloroethene](#) (TCE), 1,1-[dichloroethene](#) (1,1-DCE), [vinyl chloride](#), and [benzene](#). Contaminants that have been detected in groundwater at the Site above regulatory levels include: PCE, TCE, 1,1-DCE, 1,1-[dichloroethane](#) (1,1-DCA), cis-1,2-[dichloroethene](#) (1,2-DCE) and [dichlorodifluoromethane](#) (Freon 12). Additionally, [lead](#) was detected in soil samples collected from the former AMRI Oil property. Contaminants of concern at the Site may change as new data become available.

Public Health Impact:

There are risks associated with exposure to VOCs, principally through drinking contaminated groundwater. Many of the private wells along Casa Grande Highway and Highway Drive were impacted by the contamination. In April of 1987, Pima County began supplying bottled water to businesses along I-10, and in late 1989, Pima County purchased the private wells and connected the properties to the municipal water system. A water treatment system is used by Metro Water on the South Shannon Well to ensure that drinking water meets the drinking water standards. No one is known to be drinking contaminated water from this Site; however, if you are drinking water from a private well within the boundaries of the Site, please contact the ADEQ Project Manager.

The [Arizona Department of Health Services](#) conducted a preliminary risk assessment to address potential and/or current exposure to chemicals in groundwater and soil at the Site. The preliminary risk assessment has been used to guide the investigation at the Site, as well as to help determine if a health effects study in the area is warranted. In addition to a final risk assessment, other risk assessment activities may be needed prior to selection of a final remedy for the Site.

Site Hydrogeology:

The western portion of the Site is located within the Cortaro Basin, a block fault subbasin of the Tucson Basin. The eastern portion of the Site is located within the Tucson Basin. The Tucson Basin is a broad, northwest sloping [alluvial](#) valley surrounded by mountain ranges and can be divided into four geologic units: the Pantano Formation, Tinaja Beds, Fort Lowell Formation, and recent alluvial deposits. The lower portion of the Ft. Lowell Formation and the upper Tinaja Beds comprise the regional aquifer at the Site.

The Tucson Basin is drained to the northwest by the Santa Cruz River and the Rillito Creek, one of the major Santa Cruz River tributaries. The Santa Cruz River and Rillito Creek are ephemeral streams that flow as a result of seasonal storm events. Effluent released from the Roger Road Wastewater Treatment Plant provides a perennial source of flow in the Santa Cruz River adjacent to the Site.

Depth to groundwater ranges from 120 to 135 feet below ground surface in the western portion of the Site, and at approximately 130 to 135 feet below ground surface in the eastern portion of the Site. Groundwater flow direction is generally toward the northwest, parallel to the Santa Cruz River.

Contacts:

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* In Arizona, but outside the Tucson area, call toll free (888) 271-9302.

Information Repository:

Interested parties can review select Site information at the [Flowing Wells Branch Library](#) located at 1730 W. Wetmore Road in Tucson, (520) 594-5225.

The complete official Site file is located in Phoenix at the ADEQ Central Office at 1110 W. Washington Street; however, select documents are also available in Tucson at the [Southern Regional Office](#) at 400 W. Congress, Suite 433. Files are available for review Monday through Friday from 8:30 a.m. to 4:30 p.m. To arrange for a time to review the Site file at the main ADEQ office, please call the ADEQ Records Management Center with 24-hour notice at (602) 771-4380 or (800) 234-5677 (Arizona toll-free). Please call (520) 628-6715 to arrange a file review appointment at the Southern Regional Office.