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**Internship Duration:** July 16, 2019 - August 22, 2019

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**Organization:** City of Pomona – Water Resources Department

**Report Submission Date:** August 31, 2019

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## **Acknowledgements**

Special thanks to the staff of the City of Pomona Water Resources Department, as well as Public Works, for their support, encouragement, and advice along the way.

I would like to express my gratitude to the Water Resources Institute (WRI) at California State University – San Bernardino.

I extend a sincere thank you to the Santa Ana Watershed Project Authority (SAWPA) and the CivicSpark Fellows.

This project was supported by Santa Ana Watershed Project Authority's (SAWPA) Disadvantaged Communities Involvement (DCI) Program and Proposition 1 funding from the California Department of Water Resources (DWR).

## **Executive Summary**

The City of Pomona Water Resources Department aims to protect and manage the natural water resources for the people of Pomona, providing the cleanest water possible to its residents and businesses. Pomona receives over 75% of its water from underground reservoirs located adjacent to the San Gabriel Mountains and Mount Baldy. The Department addresses work within five divisions: Water Distribution & Wastewater, Administration & Engineering, Water Production & Treatment, Water Quality, and Environmental Programs.

The Water Distribution & Wastewater division provides the maintenance of the City's systems by carrying out scheduled inspections and repairs of infrastructure. The Administration & Engineering division provides an overall administration, engineering management, fiscal control, and interagency coordination with affiliates in the water industry. Water Production and Treatment maximizes locally produced groundwater and locally collected surface water to minimize reliance on more expensive purchased water. The Water Quality Division ensures the cleanest water is being provided to the public through inspections such as cross-connection control, chemical analysis, and bacterial testing in plant facilities. In order to adhere to the city's need of public health and clean water supply, the Environmental Programs division strives to protect and monitor the regulations for the water natural resources available through value-based education, planning, waste reduction, and pollution prevention.

This internship will focus on a number of efforts to help and support the City's Water Resources Department, Public Works, Building & Safety, and GIS Departments. The intern's duties and responsibilities will be discussed in the Project Objectives as well as a detailed description concerning the environmental cleanup project at the CalSol Property.

## **Project Objectives**

### *Internship Entailment*

In my short time at the department, I have taken on the responsibility of reviewing and analyzing land development plans that have been picked up from City Hall. I would then conduct on-site inspections of the property plans and check utility status/location and any factors concerning public health and safety. I edited different GIS data projects and verified the location of water infrastructure out in the field to make sure they were accurate in the GIS database. I also reviewed parcel memorandums to determine jurisdiction and legal rights, as well as any lot line adjustments that are existing or were proposed. With respect to the CalSol environmental cleanup project, I created a fact sheet to inform the residents on the current status of the project and any public health concerns they may have (Appendix A).

### *822 West Commercial Street*

Known as the former CalSol Facility, 822 West Commercial Street is the location of an environmental cleanup project. In 1976, a city refuse truck was hit by an oncoming train and the fragments from the accident caused a spill from an above ground tetrachloroethylene (PCE) tank which was found to be illegally located under city regulations. Another toxic chemical trichloroethylene (TCE) was later found on the property in high concentrations. These chemicals eventually contaminated the surrounding neighborhood's soil and aquifer. TCE and PCE are both harmful substances because they are carcinogens which increase the risk of cancer and can cause heart defects in fetuses.

A plan called the Removal Action Workplan (RAW) was formulated to describe the cleanup process for the site. Two cleanup methods were introduced within the report. One option was to install a Soil Vapor Extraction (SVE) system, where it would work like a vacuum to remove the underground chemical vapor. The second option was to use a method called In-Situ Chemical Oxidation (ISCO), where it would use chemicals to break down PCE and TCE.

## **Project Outcomes**

Soil Vapor Extraction (SVE) is the chosen system to remove the volatile organic compounds (VOCs) from the soil. There are currently 19 SVE wells at the site that are connected to the SVE system. Each SVE well has a valve and monitoring port at each wellhead to control airflow and to monitor photoionization detector (PID) concentrations. The contaminated soil vapor extracted by the SVE in the surrounding neighborhood will be treated by granular activated carbon (GAC) absorption.

According to the 2018 Fourth Quarter Report on the CalSol Property, PCE and TCE concentrations have been steadily decreasing over the years, as can be seen in appendices D and E. As a result, groundwater contamination has also decreased as these chemicals are being cleared from the aquifer. Continuing efforts will reduce the chemical concentration as much as possible to ensure public health and safety. The site will eventually be turned into an urban plaza for neighborhood benefit. No residential development is intended for the site.



### **Future Intern Advice**

Although my time with the City of Pomona Water Resources Department was short, I did learn a number of things inside the office and out on the field. I would recommend to not be afraid to ask questions if you do not understand something. View your supervisor as a resource and learn as much as you can. I would recommend to research certain terminology to gauge a better perspective of what it means exactly. Also, do not be afraid to play around with programs such as AutoCad and ArcGIS. Experiment with the different commands and features to understand what each tool does.

**Appendix A**

**CalSol Fact Sheet**

# COMMUNITY UPDATE

## Environmental Cleanup Plan for 822 West Commercial Street (CalSol Facility)

Known as the former CalSol facility, 822 West Commercial Street is the location of a chemical spill that occurred in 1976 when a garbage truck was hit by an oncoming train and the fragments from



the accident hit a tank containing dry cleaning fluid. The chemicals tetrachloroethylene (PCE) and trichloroethylene (TCE) were spilled on the property and surrounding neighborhood, contaminating the soil. Long term exposure to TCE and PCE can increase the risk of cancer. Short term exposure may also cause other health problems such as heart defects in fetuses.

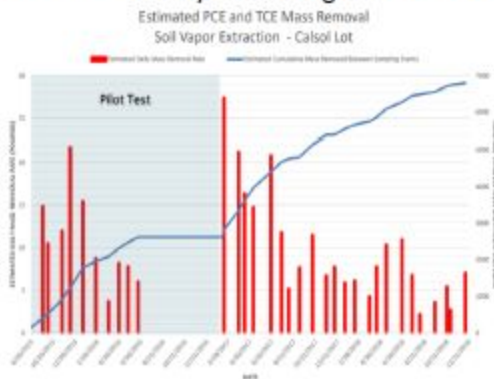
### Method of Removal

A Removal Action Workplan (RAW) was created and describes the current method that is being used to cleanup the site. A Soil Vapor Extraction (SVE) system was installed, where it operates like a vacuum to remove the chemicals from underground. There are currently 19 SVE wells on the site that are connected to the SVE system.



### Current Status

According to the 2018 Fourth Quarter Report on the CalSol property, PCE and TCE concentrations have been steadily decreasing over time. To date, around 6,800 pounds of contaminants have



been removed. As a result, groundwater contamination has also decreased as these chemicals are being cleared from the soil. The figure on the left shows the amount of PCE and TCE that has been removed since the start of the project. Continuing efforts will reduce the chemical concentration as much as possible to ensure public safety, and the site will eventually be turned into a neighborhood plaza. No residential development is intended for the site.

**Appendix B**

**Pomona Water Reclamation Plant Tour**





**Appendix C**

**Field Visits - Infrastructure Verifications**







**Appendix D**

**PCE Soil Vapor Iso-Concentrations**



**Appendix E**

**Estimated PCE and TCE Mass Removal by Soil Vapor Extraction**

## Estimated PCE and TCE Mass Removal Soil Vapor Extraction - Calsol Lot

