



# MEETING MINUTES

## **Broadway-Pantano (BP) Water Quality Assurance Revolving Fund (WQARF) Site Community Advisory Board (CAB) Meeting**

**May 29, 2014, 6 - 8 p.m.  
Eastside City Hall, 7575 E. Speedway Blvd.  
Tucson, Arizona**

### **MINUTES**

**CAB Members Present:** Jackie Olson, Michael Smith, Aubrey McMullen, Janet Marcus, Bill Petroustson, Jean Sabo, and Mark Brusseau

**CAB Members Absent:** Cheri Bludau and Mike Mahan

**ADEQ Staff Present:** Gretchen Wagenseller, Project Manager; Caroline Oppleman, Community Involvement Coordinator (CIC); and Delfina Olivarez, CIC

**Members of Public Present:** Wally Wilson, City Tucson Water; Bruce Prior, City of Tucson Water; Lori Ehman, City of Tucson Environmental Services; David Eaker, Pima County Department of Environmental Quality; Mike LeBlanc, Pima County Attorney's Office; and Rita Tulino, Resident

#### **1. Welcome and Introduction**

The meeting began at 6:06 p.m. Co-chair Mr. Petroustson conducted introductions.

#### **2. Vote on 3/27/14 Meeting Minutes**

Ms. Sabo motioned to pass minutes; Mr. Smith seconded motion; minutes approved.

#### **3. City of Tucson Water Presentation (see attached presentation)**

Mr. Wilson discussed water planning for the Tucson region. Mr. Smith asked about the possibility of a municipal water shortage occurring in 2016. Mr. Wilson responded the City of Tucson banks 45,000 acre feet of water yearly so that in the future water only will be shorted, not cut off. The State of Arizona Water Banking Authority (AWBA), which is an arm of the Arizona Department of Water Resources (ADWR), has been recharging and banking water for decades. There is enough water available to meet forecasted demands, even with a shortage in the

Colorado River well into and beyond the 2050s. Mr. Prior discussed the BP western containment system. Ms. Tulino asked for water quality sampling results for the wells located in the El Gheko neighborhood, which is in the BP well network area. Mr. Prior and Ms. Wagenseller replied that they will send Ms. Tulino the groundwater sampling results. Mr. McMullen asked if the St. Joseph's hospital well is being monitored. Ms. Ehman replied that well is extremely old with holes in the casings and is inoperable. Ms. Tulino asked what is being done to clean up the PCE. Ms. Wagenseller replied the site is in the Remedial Investigation (RI) phase (almost completed), is currently being monitored and two early response actions have been conducted to date. Ms. Tulino asked if the site contamination of PCE was the only area of PCE in the City of Tucson. Mr. Prior replied no and that there are a number of other PCE contaminated groundwater areas in Tucson and many more throughout the nation. Mr. Prior explained that the City of Tucson Water will continue to monitor the regional wells to protect the City of Tucson Water Central Well field and in relation to the eventual need to restart the Western Containment System.

#### **4. Presentation by Michael Smith (see handouts attached)**

Mr. Smith talked about bioremediation and suggested considering the possibility of applying this technology at BP. Mr. Petrouson asked when that could be considered at the site. Ms. Wagenseller replied during the Feasibility Study phase. Ms. Sabo asked what the cost would be.

#### **5. Comment letter from CAB to Broadway North and South Landfill Properties (see attached draft letter)**

Mr. Smith presented the draft comment letter to the CAB for review and comment. The letter will be commented on and a vote to finalize will be conducted at the next CAB meeting.

#### **6. Wildcat Dumping Article (see attached article)**

Mr. Smith suggested to *The Daily Wildcat* to publish a series of articles about BP. Mr. Brusseau asked to broaden the coverage to all of the sites of contamination in Tucson. Ms. Olson suggested meeting with *The Daily Wildcat* to discuss what they would publish. Ms. Sabo suggested inviting *The Daily Wildcat* to a future BP CAB meeting. Mr. Brusseau said he would talk to the editor gauge their interest. Mr. Petrouson requested that the ADEQ CIC email the Park Euclid/7<sup>th</sup> Street & Arizona Avenue WQARF site CAB co-chairs' contact information to the BP CAB co-chairs.

#### **7. BP Site Update**

Ms. Wagenseller discussed access to the BP site and gave an update on the RI and the responsiveness summary. Ms. Wagenseller shared that site-wide groundwater sampling will be taking place in fiscal year 2015. Mr. Brusseau asked for a published document of Tucson Water modeling results. Mr. Wilson replied there is no published document.

## **8. \*Call to the Public**

No other comments.

## **9. Future Meeting Plans**

Mr. Petrouson asked Ms. Wagenseller to give a presentation on methane at the next meeting. Mr. Petrouson asked when new monitoring data would be available. Ms. Wagenseller estimated late fall, 2014. Mr. Petrouson requested the next meeting be held when the data are available. Next CAB meeting scheduled for September 18, 2014.

## **10. Adjournment**

Ms. Olson motioned to adjourn; Ms. Sabo seconded motion; meeting adjourned.

*This meeting was recorded on a digital device as a record of the proceedings. To listen to a recording, or for additional information about the content of this meeting, contact ADEQ: Caroline Oppleman at 602-771-6890.*

### Status of the Aquifer

**Presented to:** The Broadway-Pantano Landfill  
Citizen's Advisory Board

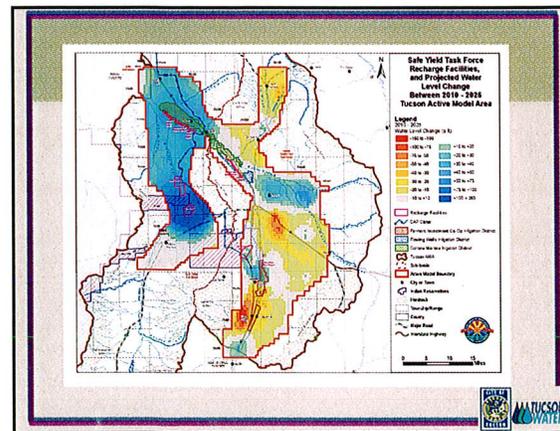
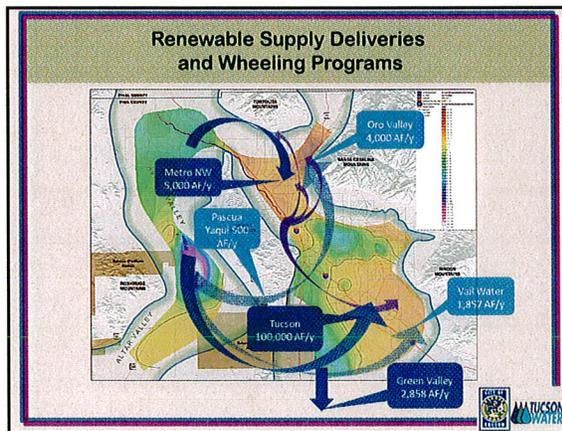
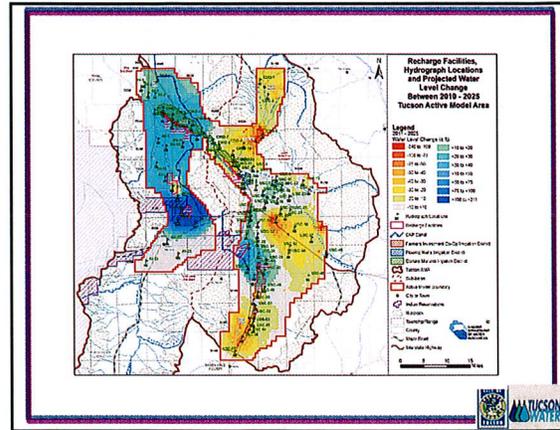
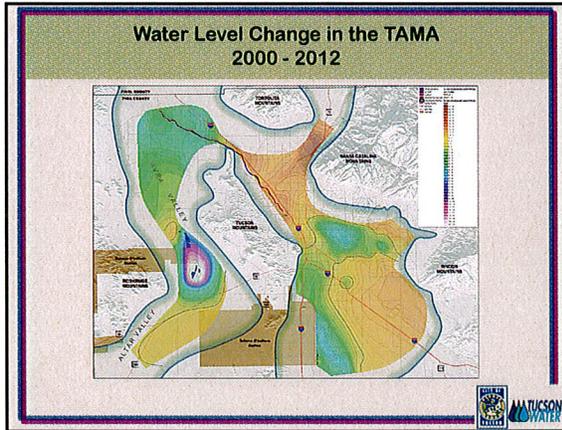
**By:** Wally R Wilson  
Bruce Prior

May 29, 2014



### Overview

- Aquifer Status 2000 – 2012
- Aquifer Status Projections to 2025
- Regional Aquifer Management
- Broadway-Pantano Water Quality Monitoring





**Explanation**

Regional Aquifer Wells  
 13-Year Groundwater Level Change  
 (feet, e.i. = 2 feet)

Well with groundwater recovery  
 Well with groundwater decline

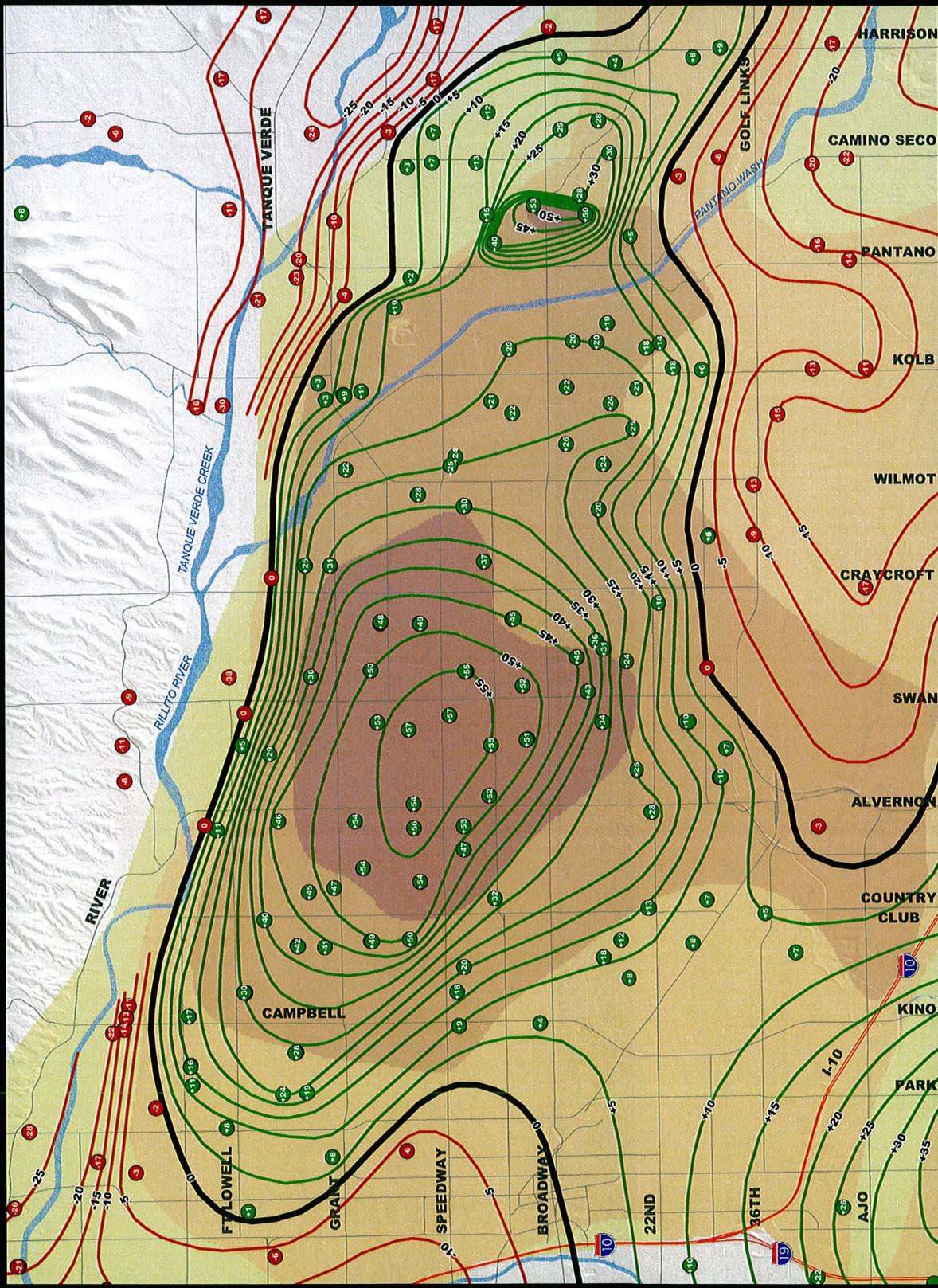
13-Year Groundwater Level Change  
 (feet, e.i. = 2 feet)

Groundwater recovery  
 No change  
 Groundwater decline

Historic 50-Year Groundwater Level  
 Decline 1950 - 2000  
 (feet, e.i. = 50 feet)

-200 ft. -250 ft.  
 -150 ft. -200 ft.  
 -100 ft. -150 ft.  
 -50 ft. -100 ft.

Roads  
 Interstate  
 Major Wash



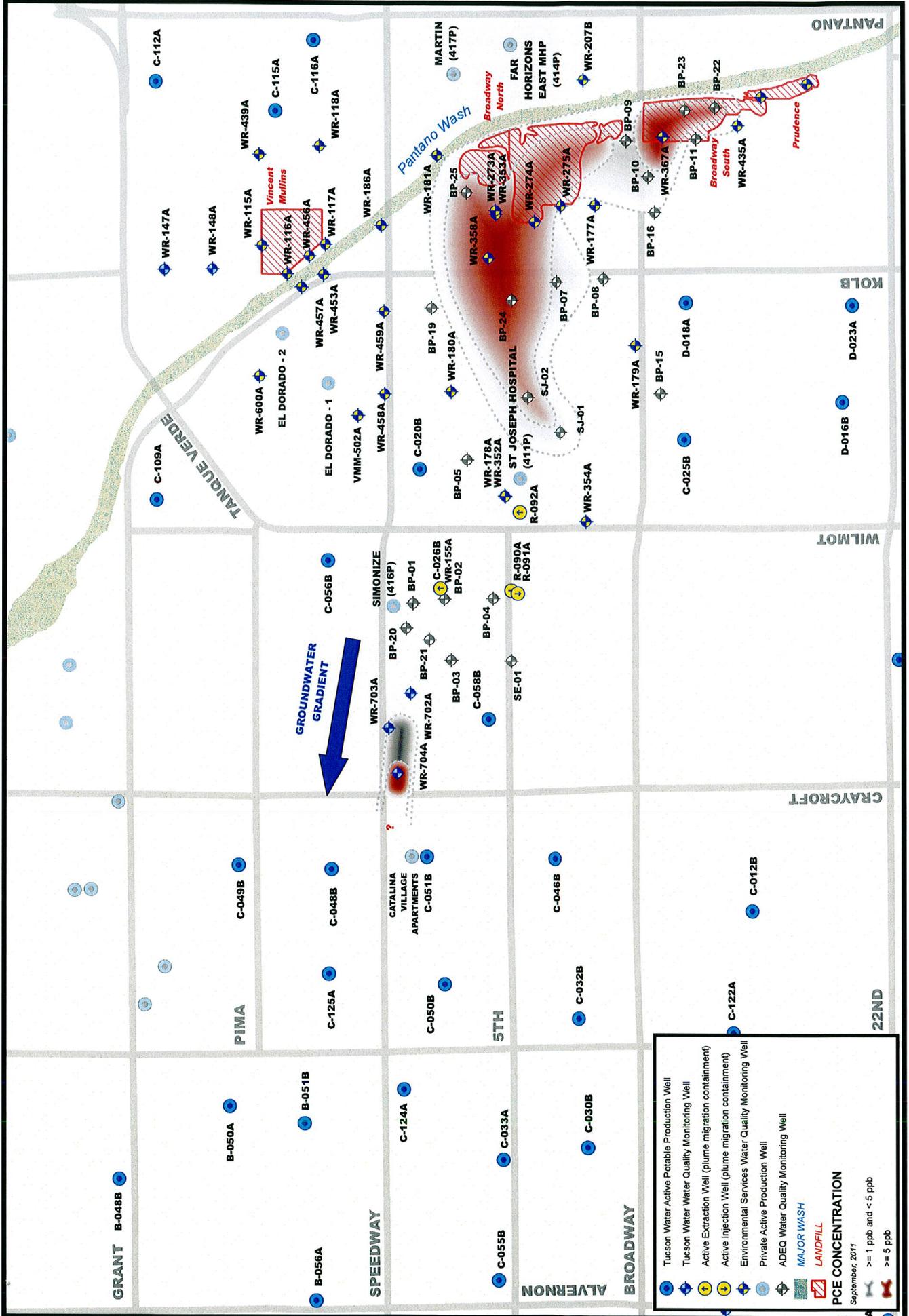
**HISTORIC CENTRAL WELLFIELD GROUNDWATER DECLINE (1950-2000) AND  
 CURRENT CENTRAL WELLFIELD GROUNDWATER RECOVERY (2000-2013)**



# Broadway-Pantano WQARF Site Vicinity

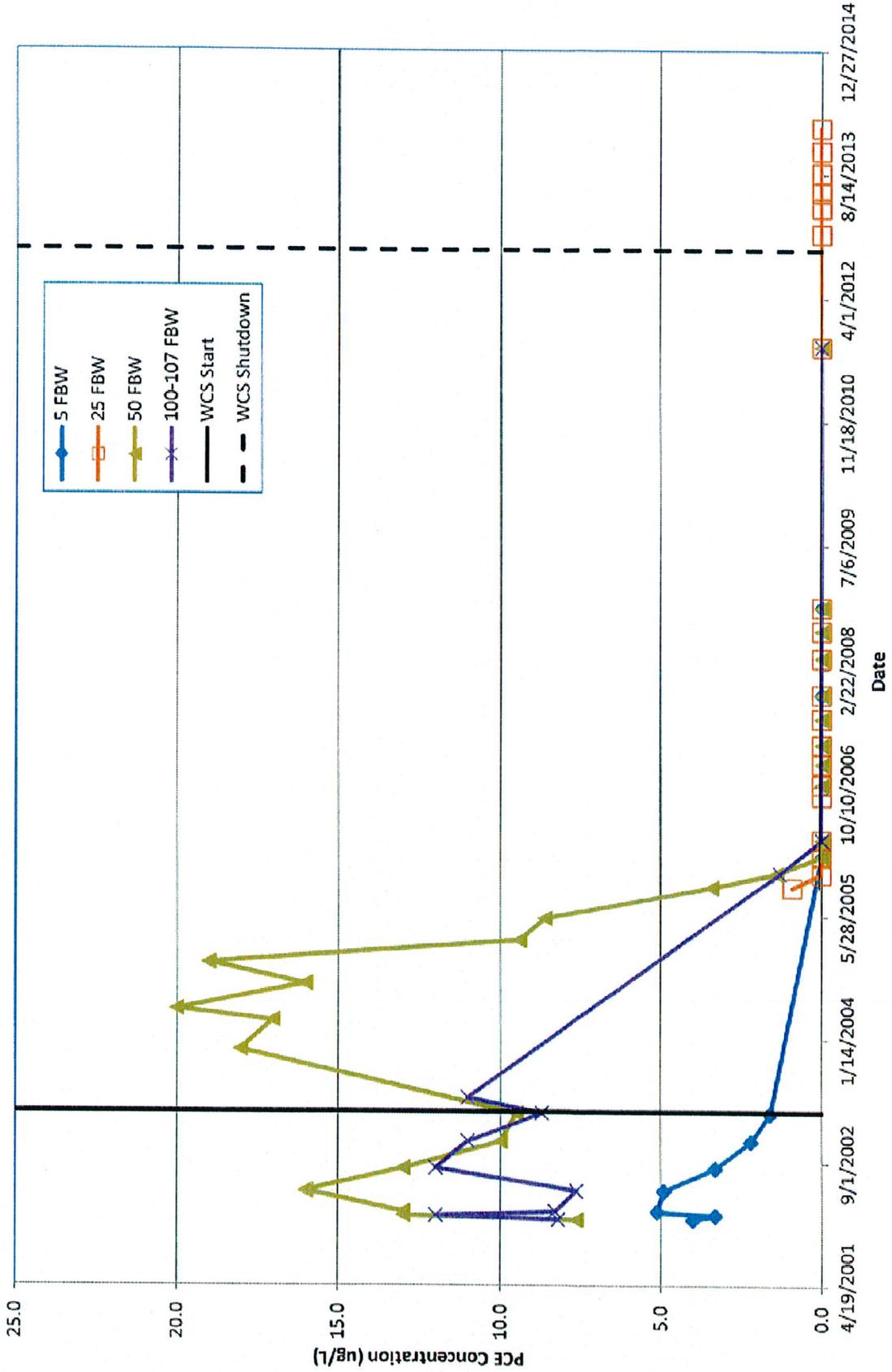
Approximate PCE Concentration - February, 2014

0 0.25 0.5 1  
 Miles  
 5/28/2014

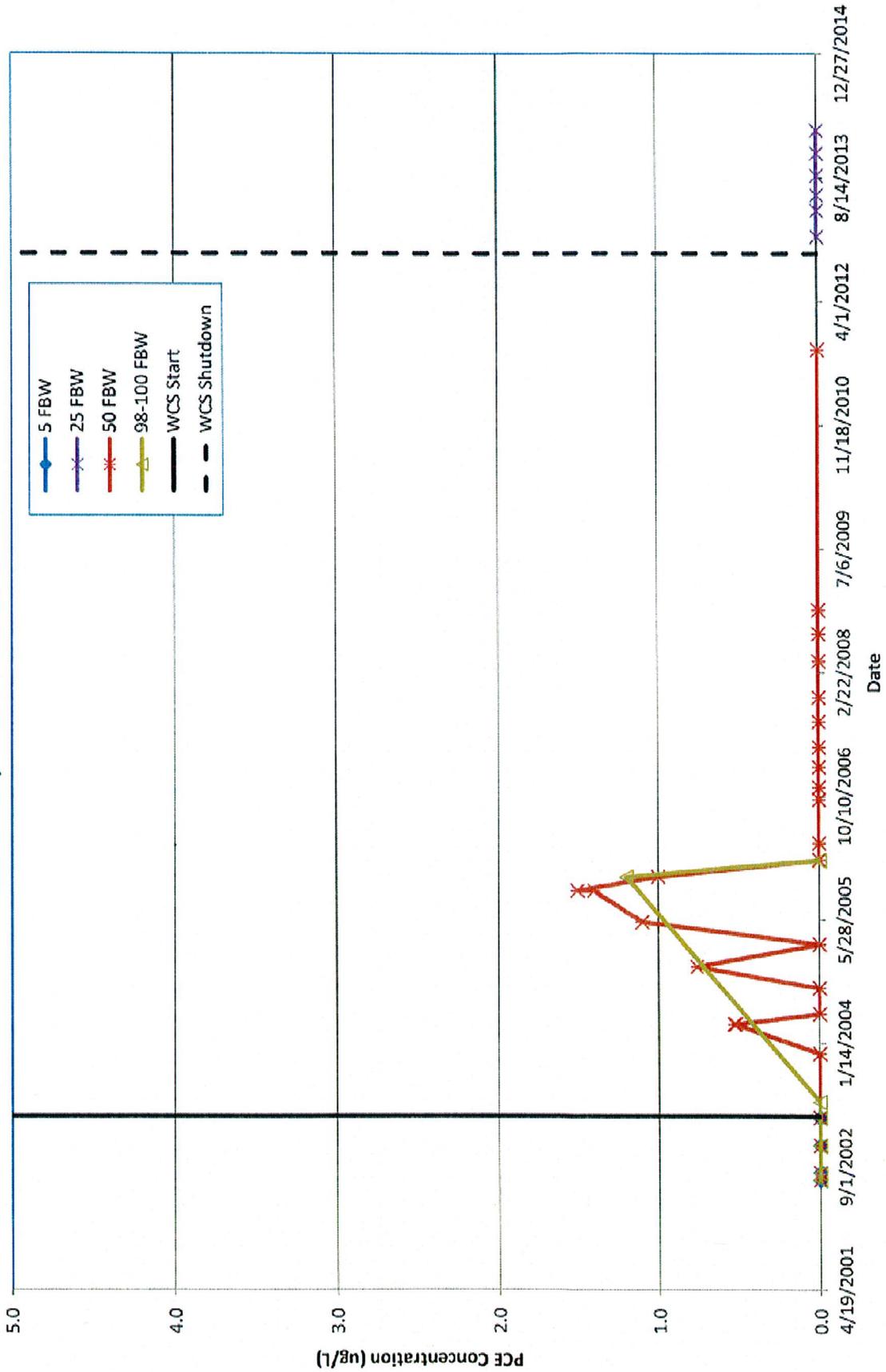


	Tucson Water Active Potable Production Well
	Tucson Water Water Quality Monitoring Well
	Active Extraction Well (plume migration containment)
	Active Injection Well (plume migration containment)
	Environmental Services Water Quality Monitoring Well
	Private Active Production Well
	ADEQ Water Quality Monitoring Well
	MAJOR WASH
	LANDFILL
	<b>PCE CONCENTRATION</b>
	September, 2011
	>= 1 ppb and < 5 ppb
	>= 5 ppb

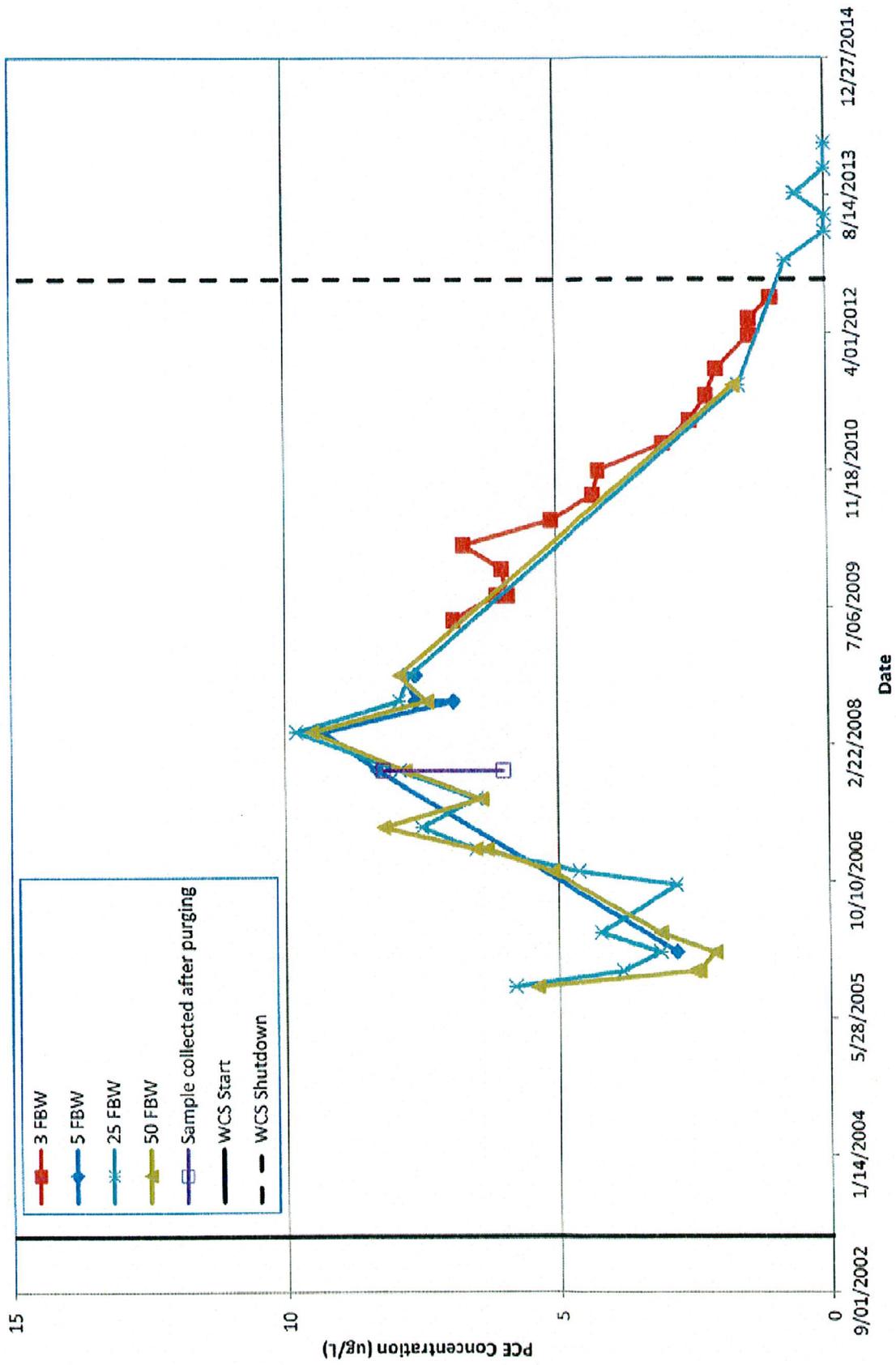
**BP-2 PCE Concentrations  
Broadway - Pantano WQARF Site**



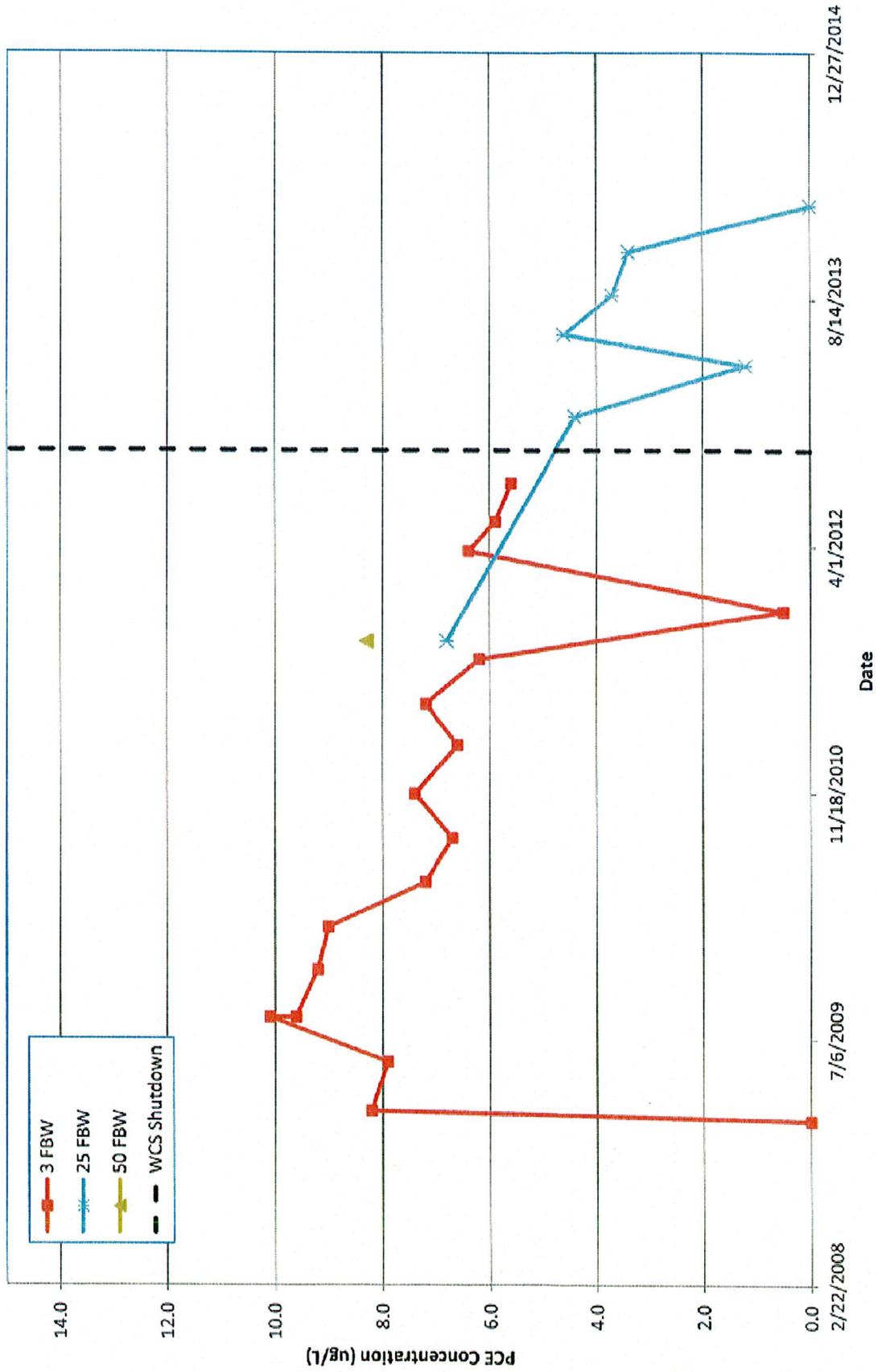
### BP-3 PCE Concentrations Broadway - Pantano WQARF Site



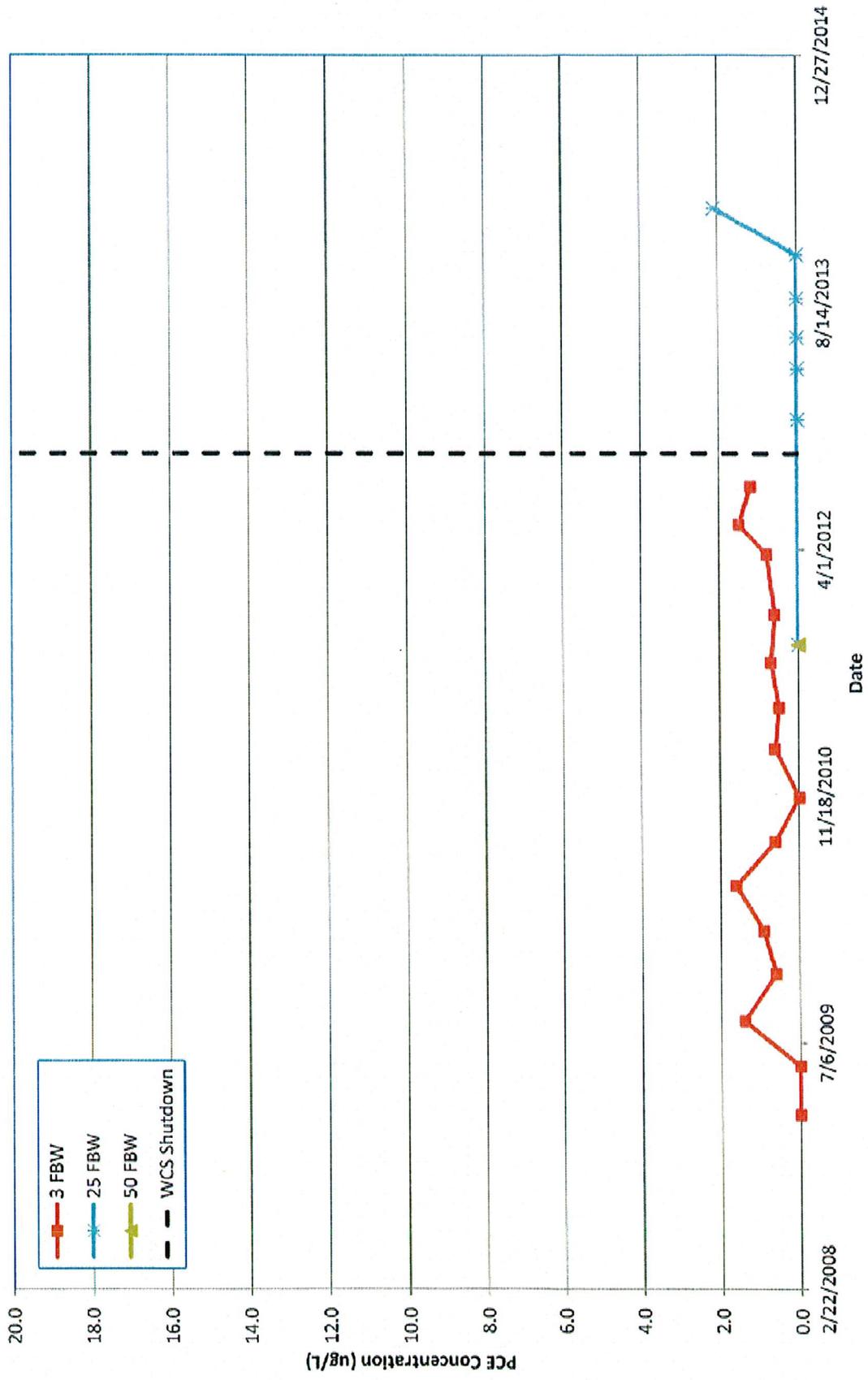
**BP-21 PCE Concentrations  
Broadway - Pantano WQARF Site**



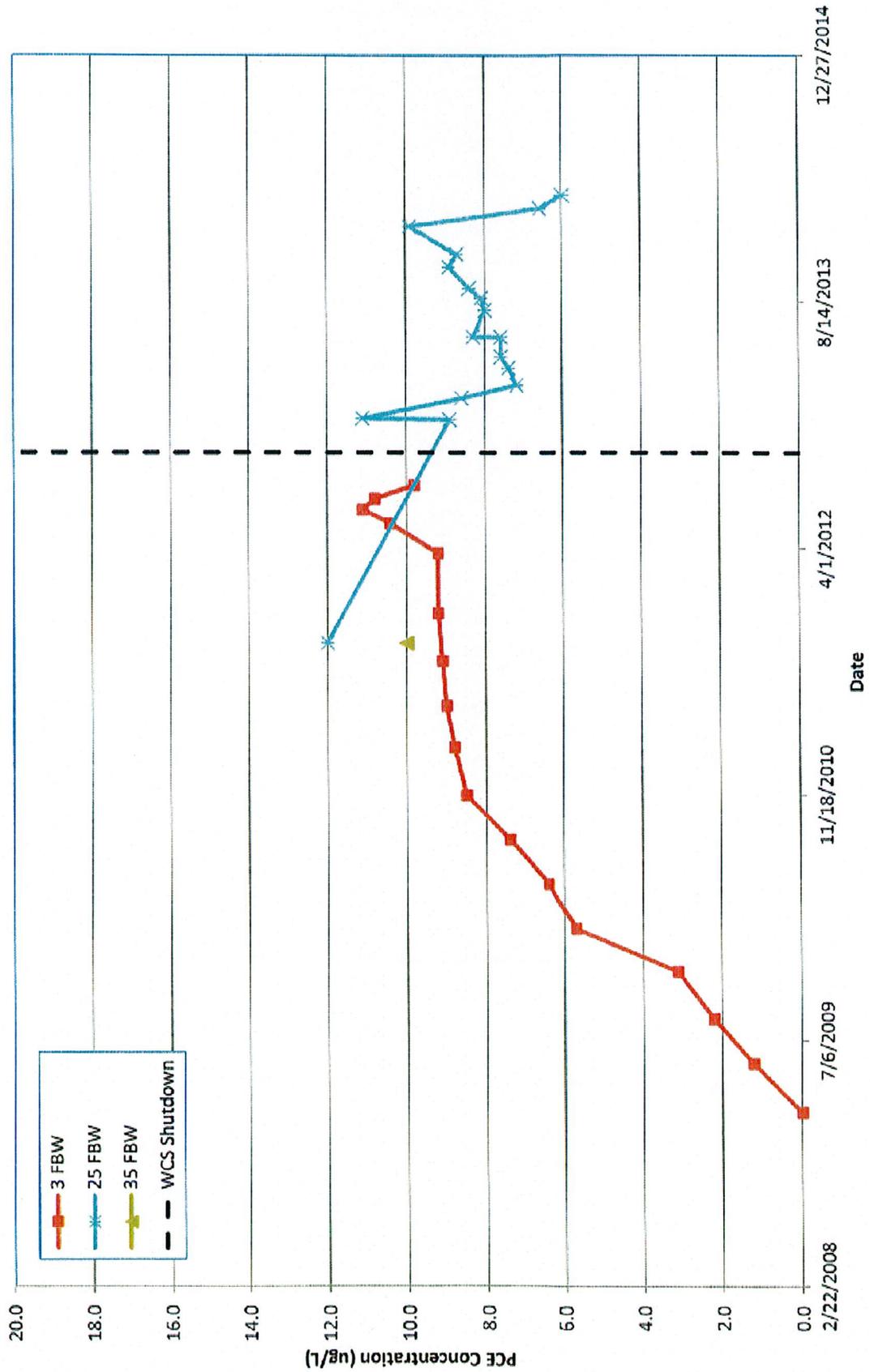
WR-702A PCE Concentrations  
Broadway - Pantano WQARF Site



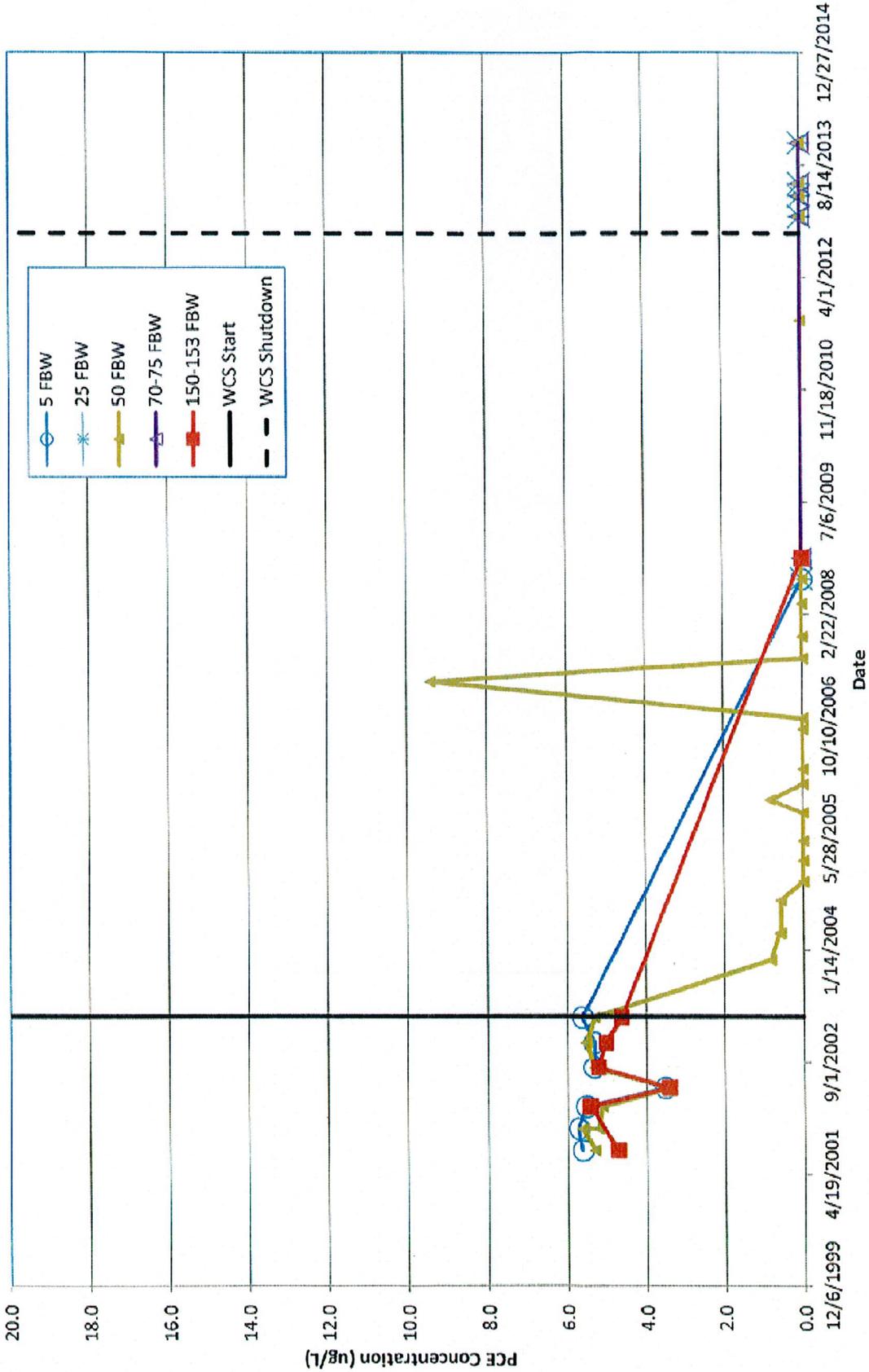
WR-703A PCE Concentrations  
Broadway - Pantano WQARF Site



WR-704A PCE Concentrations  
Broadway - Pantano WQARF Site



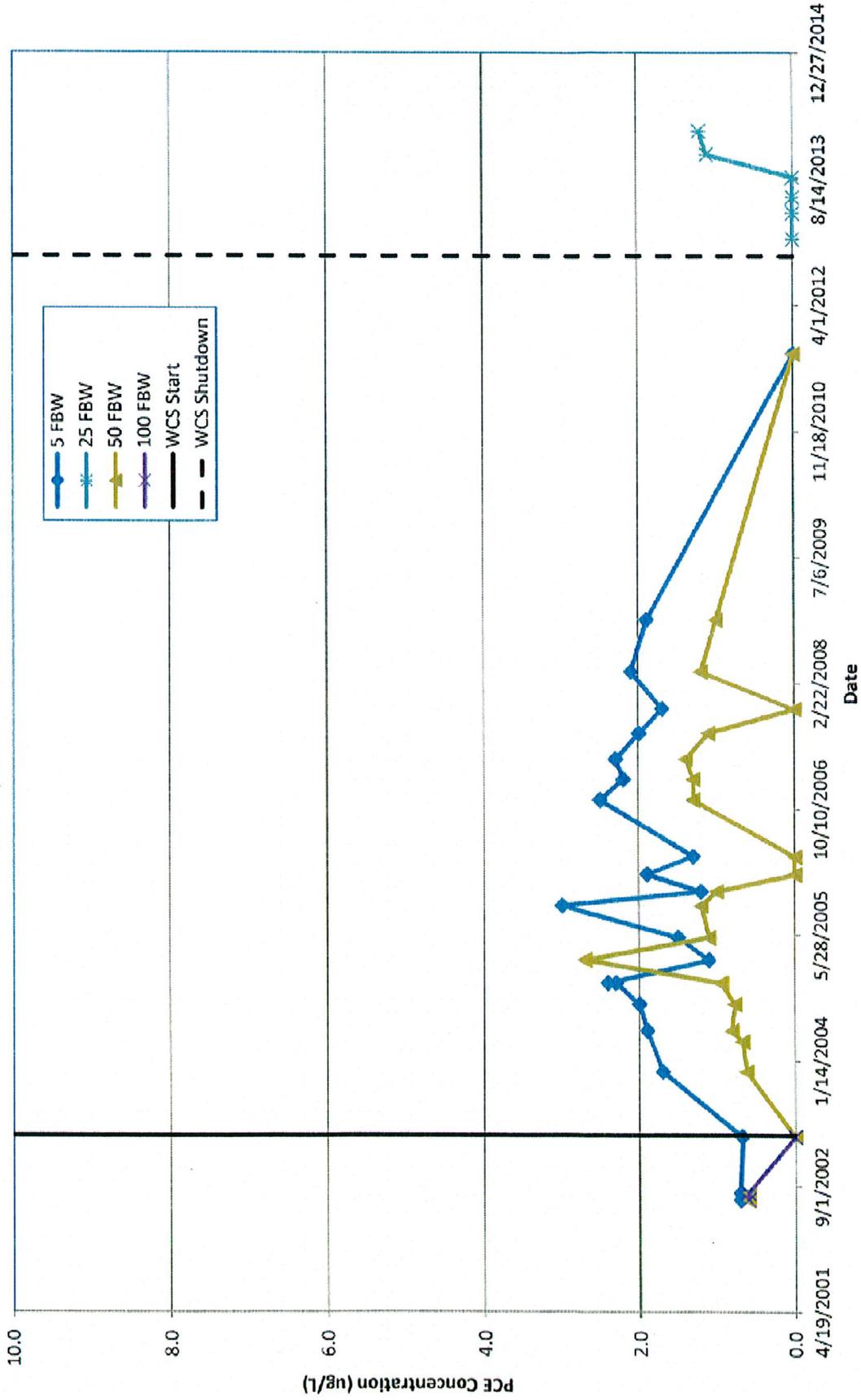
### C-026A PCE Concentrations Broadway - Pantano WQARF Site



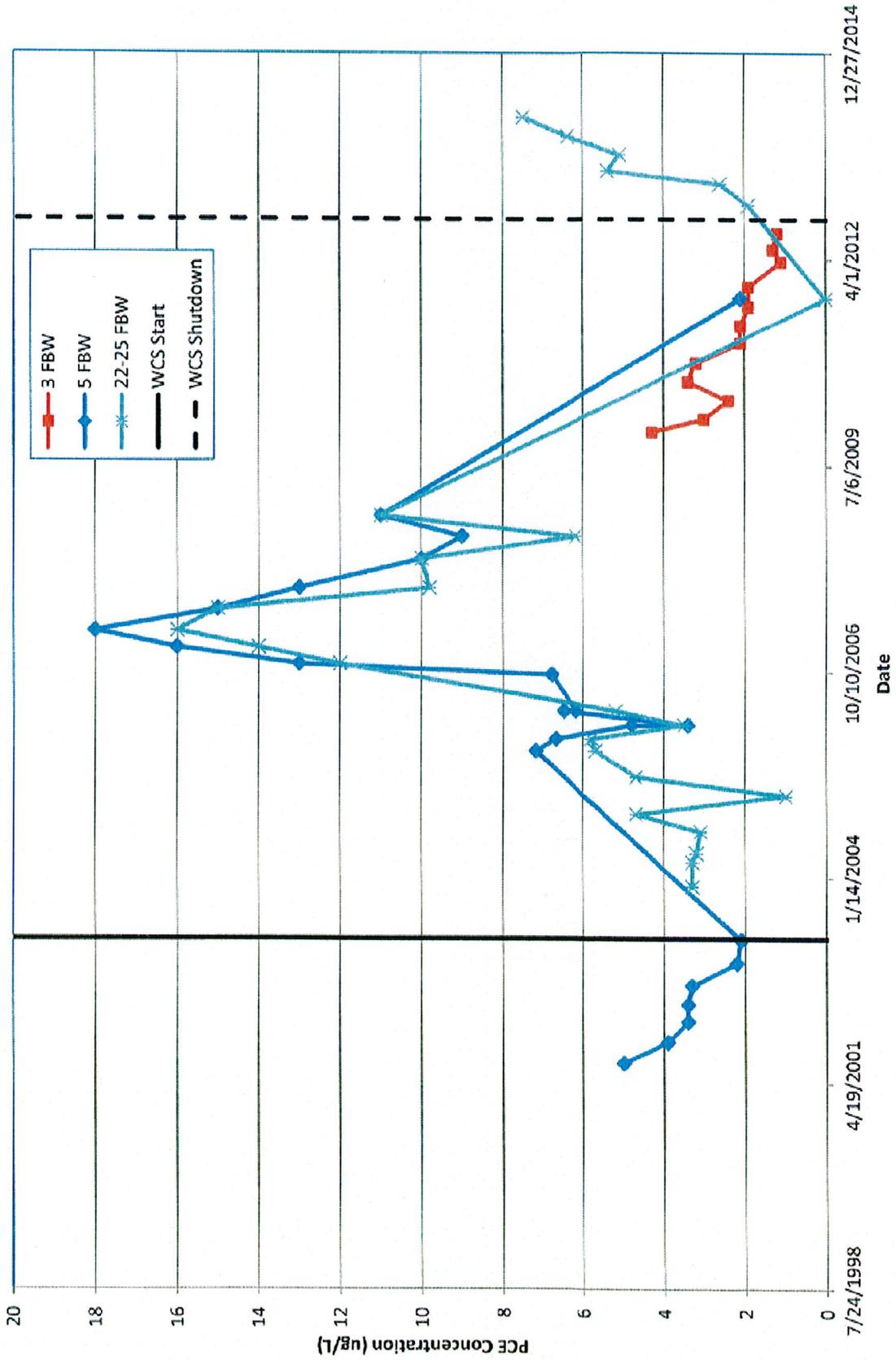
Only select depths charted.



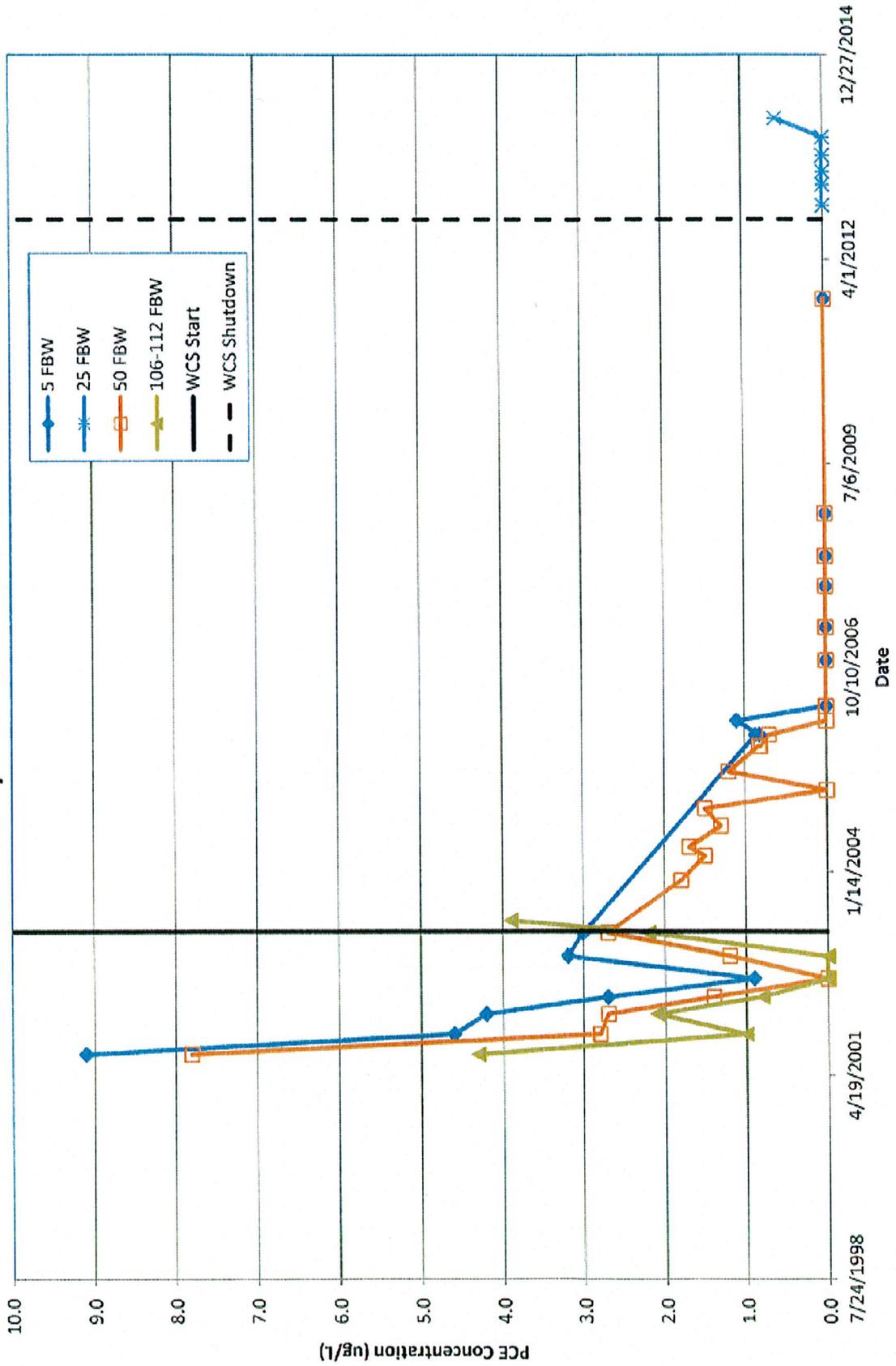
**BP-16 PCE Concentrations  
Broadway - Pantano WQARF Site**



# SJ-002 PCE Concentrations Broadway - Pantano WQARF Site



# WR-178A PCE Concentrations Broadway - Pantano WQARF Site



Working  
Copy

M. Smith  
1 Oct 07

## FINAL REPORT for TRIF PROGRAM

### Assessing the Feasibility of Monitored Natural Attenuation for Remediation of Chlorinated-Solvent Contaminated Groundwater

Mark L. Brusseau<sup>1</sup> and James A. Field<sup>2</sup>

<sup>1</sup>Soil, Water and Environmental Science Department and Hydrology and Water Resources  
Department

<sup>2</sup>Chemical and Environmental Engineering Department  
University of Arizona

The sustainability of potable water supplies in Arizona has become an issue of extreme importance given Arizona's climate, population growth, and economic expansion. Accordingly, the contamination of groundwater by hazardous chemicals and the associated risks to human health and the environment are of great concern. Chlorinated solvents, such as tetrachloroethene, (PCE), trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride (VC), are among the most common groundwater contaminants in the USA due to their widespread use as dry-cleaning solvents and as degreasing and cleaning agents for military, industrial, and commercial applications. In Arizona, chlorinated solvents are the primary contaminants at an overwhelming majority of the State of Arizona WQARF sites (30 out of 34) and federal Superfund NPL sites (13/14). In aggregate, these sites encompass hundreds of km<sup>2</sup> in land area and comprise billions of liters of contaminated groundwater. Clearly, chlorinated solvents are a major source of groundwater contamination in Arizona. As such, chlorinated-solvent contaminated sites pose an immediate, significant, and continuing threat to the sustainability of Arizona's potable water supplies.

The remediation of polluted soil and groundwater at the many chlorinated-solvent contaminated sites present in Arizona is of prime importance for ensuring a safe and sustainable potable water supply. Monitored natural attenuation (MNA) has recently gained great interest as a low-cost, low-tech approach for site remediation. The goal of this project was to enhance the viability and effectiveness of MNA for remediation of chlorinated-solvent contaminated sites in Arizona. The successful application of MNA to the numerous chlorinated-solvent contaminated sites in Arizona has the potential to save millions of dollars in remediation costs. Ultimately, the application of the project products will be of benefit to the public by enhancing the cost effectiveness of soil and groundwater remediation projects, as well as improving the long-term sustainability of Arizona's potable water supplies.

The Park/Euclid WQARF site in Tucson was used as a model Arizona chlorinated-solvent contaminated site for this study. The Park-Euclid site is located approximately 1 km S-SW from the University of Arizona (UA) in Tucson and has both perched and regional aquifers. Prior operation of a commercial dry cleaning facility resulted in the contamination of the perched aquifer with PCE as the single chlorinated solvent; this aquifer is not used for potable-water supply. Cross-contamination of the regional aquifer occurred through a pair of former water-supply wells. The regional aquifer is the main source of water supply for the Tucson Basin. The

Dr. Mark Brusseau's work  
with *Dehalococcoides* in Tucson

nearest water-supply wells are located 0.7 km north (downgradient) of the inferred plume edge and are used by the UA.

We have made significant progress along multiple fronts in the one-year period covered by this report. We have completed a geochemical-based analysis of the potential occurrence of natural attenuation at the site. This included developing a general conceptual model of the site that will be used to provide a framework for further studies, and characterizing the presence of known fingerprints indicative of active transformation processes. This latter component comprised analyzing contaminant concentration histories and the temporal and spatial variability of transformation products and reactants. The results of this work indicate that microbial transformation processes are occurring in the perched aquifer, and perhaps to a much lesser extent in the regional aquifer.

We have conducted multiple rounds of sampling and analysis of groundwater at the site. The purpose of this effort was to evaluate the presence of compounds not included in the site characterization activities conducted by ADEQ. A major finding is that ethene, the ultimate anaerobic degradation product of PCE, is present in some locations at the site. This is strong evidence of active biodegradation processes.

We have conducted PCR-based DNA screening of selected samples collected from the site. These analyses have confirmed that *Dehalococcoides*, a primary bacteria species responsible for the conversion of PCE to TCE and other products, are present in some locations at the site. In addition, other species of bacteria capable of degrading PCE are also present. We have conducted an initial analysis using the Compound Specific Isotope Analysis method. The results indicate that biotransformation of PCE is occurring at the site.

Multiple sets of bench-scale microcosm studies have been conducted. These experiments were performed using groundwater (and associated microorganisms) collected from the site. The results show rapid biodegradation of PCE to TCE and cis-DCE.

The results of all of the multiple components of the study are consistent, supporting that biotransformation of PCE is possible and is occurring at the Park/Euclid site. Thus, this site appears to be an excellent "living laboratory" for further study of natural attenuation of chlorinated solvents under conditions representative of subsurface environments typical to Arizona. Additional study using the information generated from this project would further enhance our understanding of the applicability and utility of monitored natural attenuation as an effective method for remediation of chlorinated-solvent contaminated sites in Arizona.

Dear Sir:

It has come to the attention of the Broadway-Pantano Water Quality Assurance Revolving Fund (WQARF) Registry Site Community Advisory Board (CAB) that wildcat dumping is an on-going problem at the Broadway North Landfill. This was determined through on-site inspection (by one board member), and through discussions with board members and members of the public seen walking on the site in the evening (a routine occurrence).

There are distinct dirt roads on the site with recent tire tracks indication use. This is of concern because of the possibility of additional dumping of PCE (Tetrachloroethene) by members of the general public. PCE is readily available to the public from commercial sources as "ACE Hardware" and probably others. Although the original source of the problem is thought to have been educated as to the importance of proper disposal of chlorinated solvents as PCE, the general public has NOT. Since a small quantity of PCE reaching the aquifer through our porous layers of sandy soil can contaminated millions of gallons of water, and since containment and remediation has proven to be extremely costly, it is obvious that PREVENTION is key to protecting the central well field Tucson water supply. As the on-going drought continues with global warming, and the Colorado River (CAP) Supply is predicted to come up short in 2016, this supply of ground water becomes ever more critical.

So the CAB would like to see restrictions to public access by any means possible, since the site is not and can not be monitored "24/7". This should include BOTH vehicular traffic and pedestrian traffic. This should not be a great public inconvenience since there are excellent public walkways along the adjacent wash.

Please let us know what you are able to do about this issue. Thank you for your consideration of this mater.

SIGNED.

## DRAFT DAILY WILDCAT ARTICLE.

### 1. PURPOSE:

The ADEQ (Arizona Department of Environmental Quality) has created a Broadway-Patano Water Quality Assurance Revolving Fund (WQARF) Registry Site Community Advisory Board (CAB) to provide public input into the on-going efforts to protect Tucson Community Ground Water Supplies from contamination with Chlorinated Solvents, especially PCE (Tetrachloroethene). Unfortunately, despite efforts at community out-reach on a regular basis, these meetings are poorly attended by members of the public and this includes the thousands of University of Arizona students. This article is intended as an out-reach effort to University of Arizona students and staff to get involved in community, public service, as part of their education. We do not often consider what the word UNIVERSITY is intended to mean, but it does mean more than a technical education. A University graduate is supposed to be a well-rounded citizen of the world, who especially understands the need for well educated citizens to volunteer to be involved in major public concerns. What is more major than having a Public Water Supply in Tucson, especially with Global Warming and severe droughts already occurring.

## DRAFT ARIZONA WILDCAT ARTICLE ON THE CAB

HELLO WILDCATS.

Greetings from the poorly attended Community Advisory Board on the Broadway Pantano North and South Landfills. In your hectic and high pressure lives, WHY should you give a minutes thought to your involvement with this?

The purpose of the CAB is to provide public review and input to ADEQ (Arizona Department of Environmental Quality) on the on-going fight to prevent the LOSS OF THE TUCSON CENTRAL WELL FIELD, due to on-going contamination with Chlorinated Solvents especially PCE (Tetrachloroethene, to the chemically inclined). Your first thought may be that this is not all that critical since we have access (at a cost of Billions of dollars) to Colorado River Water (CAP). You may not realize that the on-going severe drought that may be a direct consequence of Global Warming (which is NOT improving) may result in the loss of CAP water as soon as 2016.

So, why you? Can't someone else do your "community service?"

1. You will be a UNIVERSITY Graduate when you complete your studies. Who else is better qualified to understand complex public issues of GREAT importance? It is time that you seriously consider what being a UNIVERSITY graduate means. HINT: It is much more than a technical education.

2. As part of you studies, you often may ask: "What is the good of studying this material". Practical, important applications in the "Real World" are an excellent source of inspiration and motivation. Several fields of study come readily to mind: Environmental Biology, Chemistry, Toxicology, Hydrology, Political Sciences, and others that you can add to the list.



Our mission is to protect and enhance public health and the environment

Google Custom Search

Search

- Home
- About Us
- ADEQ Job Openings
- Assistance
- Complaint
- Compliance
- Databases
- Education & Outreach
- Laws, Rules & Policies
- Newsroom
- Permits
- Procurement
- Programs
- Public Notices & Hearings
- Publications & Forms

Waste Programs Division: Illegal Dumping: Frequently Asked Questions (FAQ)

- [What is illegal dumping?](#)
- [Why are landfills necessary?](#)
- [How does illegal dumping hurt my community?](#)
- [How is ADEQ helping to prevent illegal dumping?](#)
- [What has ADEQ done to help communities with illegal dumping issues?](#)
- [How do I arrange for waste to be hauled legally?](#)
- [What if I see someone illegally dumping waste?](#)
- [What if I find an illegal dump?](#)
- [Additional Resources](#)

**What is illegal dumping?**

Disposal of solid wastes at any location that has not been approved by an authorized agency to accept waste is illegal. Illegal dumping may be prosecuted as a felony or misdemeanor (A.R.S. § 9-499, § 11-268, and § 13-1803).

**Why are landfills necessary?**

Legal landfills and transfer stations are permitted and inspected annually to assure they are safe places to dispose of wastes. Permitted landfills are evaluated and approved to ensure proper designs to store and treat waste so that it will not harm people, water or the environment. Landfills and transfer stations restrict wastes they are permitted to accept. Waste is screened by landfill employees to make sure that only allowable wastes are accepted.

**How does illegal dumping hurt my community?**

Illegal dumping poses a risk to public health, aquatic habitats, and wildlife. Garbage may attract rodents and other animals. Insects, such as mosquitoes that carry diseases, may hatch in water that pools on the waste. Bacteria can grow in discarded food, diapers and human waste. Hazardous chemicals in household and commercial solid waste may contaminate water and soil.

Illegal dumps hurt property values and erode the tax base. Illegal dumping is also a major economic burden on local government, which typically takes responsibility for cleaning up dump sites, diverting funds which could be used for other services.

**How is ADEQ helping to prevent illegal dumping?**

In addition to outreach and networking, ADEQ has supported local illegal dumping prevention projects, such as:

- Help county officials develop a K-12 environmental education program;
- Collaborate with city officials and a local organization to hold an environmentally oriented high school art contest and exhibit;
- Work with two tribes to develop strategies against illegal dumping;
- Help fund cleanups in several Arizona communities.

**What has ADEQ done to help communities with illegal dumping prevention?**

The Illegal Dumping Prevention Program (IDPP) was established to identify opportunities where ADEQ could support local government and private illegal dumping prevention efforts throughout Arizona. More specifically, in partnership with local governments and private organizations, the IDPP will develop meaningful and demonstratively effective strategies to prevent illegal dumping.

**How do I arrange for waste to be hauled legally?**

Beware of unlicensed haulers. If your trash is dumped illegally, the result could be an environmental eyesore and even a citation and fine. Use only licensed businesses to haul your waste. That way, you have some recourse if your waste is not disposed of properly, safely and legally. In addition, you may take the following precautions:

- Get the driver's name and vehicle license number;
- Pay only one-half of the hauling, disposal and recycling fees up front, and insist that the hauler produce a dated receipt from a legitimate disposal facility before final payment;
- Pay by check, rather than cash.

**What if I see someone illegally dumping waste?**

If you see someone dumping waste illegally, please do NOT endanger your safety by approaching the violator yourself. Contact the local law enforcement office instead with the following information:

- Date, time and location of incident;
- Description of vehicle and license plate number;
- Description of person(s) dumping;
- What items/materials were being dumped;
- Your name and phone number (optional).

## Gretchen A. Wagenseller

---

**From:** Rick Saldate, Jr. <Rick.SaldateJr@tucsonaz.gov>  
**Sent:** Wednesday, April 16, 2014 3:46 PM  
**To:** Gretchen A. Wagenseller  
**Cc:** Martin Romero  
**Subject:** Re: REFUSE & Illegal Dumping

Hi forgot our contact information:

Rick Saldate: 240-3257  
Martin Romero 349-8237

>>> Juan Valdez 4/16/2014 3:31 PM >>>

Chapter 16

NEIGHBORHOOD PRESERVATION

Article II. Maintenance Standards

Sec. 16-13. Exterior premises and vacant land.

(a) Accumulation of vegetation prohibited. Each owner, lessee, tenant, resident or occupant shall maintain a property so it is free of the accumulation or untended growth of vegetation. The accumulation or untended growth of vegetation means the presence of plants on property that create a fire, safety or health hazard, or that attract vermin either on the property, on neighboring properties, or on both, and includes but is not limited to:

- (1) Any lawn grass that exceeds six (6) inches in height.
- (2) All weeds that exceed six (6) inches in height.
- (3) Dead trees or dead shrubs.
- (4) Dead palm fronds within ten (10) feet of the ground, a structure, a fence or wall, or of any combustible other than the tree from which the fronds have grown;
- (5) Any tree, shrub, or other form of vegetation of any kind on the property or on the adjoining right-of-way, street, or alley that extends over or under the sidewalk space or roadway in a manner that may interfere with the reasonable use of the street, sidewalk, or alley for pedestrian or vehicular traffic of any kind or that may obstruct the view or light distribution of traffic-control devices or luminaries. Vegetation must be trimmed and maintained to provide an unobstructed pedestrian path a minimum of forty eight (48) inches in width and eighty (80) inches in height from grade.

(b) Accumulation of refuse and debris prohibited. Each owner, lessee, tenant, resident or occupant shall maintain a property so it is free of accumulated refuse and debris. Accumulated refuse and debris means contained or uncontained refuse and debris that is present on the property in a manner not authorized by the Tucson Code. Material recycling facilities meeting the requirements of section 15-24.7 are exempt from this prohibition.

This is the Code for Illegal Dumping:

T.C. Ch. 16, Sec. 16-33. PLACING REFUSE UPON THE PROPERTY OF ANOTHER OR PUBLIC PROPERTY; ILLEGAL LITTERING OR DUMPING PROHIBITED; PERSONS RESPONSIBLE.

(a) No person shall place any refuse upon any private or public property not owned or under the control of that person. In addition to any penalty that may be imposed by this chapter or the Tucson Code, such person shall be liable for all costs for the removal, abatement or enjoining of the refuse.

(b) No person shall litter, discard refuse, or allow refuse to be discarded except at the places and in the manner authorized in Chapter 15 of this Code.

(c) The following persons are jointly and individually liable for a violation of subsection (b):

- (1) The resident of the property upon which the debris has been discarded;
- (2) The person who discarded or allowed the debris to be discarded;

- (3) The person who owns or maintains a refuse container in which refuse is improperly placed or discarded; and
- (4) The person who generated the refuse: When an item contained in refuse discarded in violation of this section identifies a person, the item creates a rebuttable presumption that the person so identified generated the refuse.