SYSTEM-WIDE ODOR MANAGEMENT PROGRAM
Semi-Annual Report
January-June 2010

Pima County Regional Wastewater Reclamation Department

July 2010

Introduction

Second Quarter 2009 System-Wide Odor Control Management activities included:

- *Odor Complaint Report Summary*
- *Reclamation Facility Odor Control Performance at Fenceline*
- *Conveyance Construction Odor Control Support*

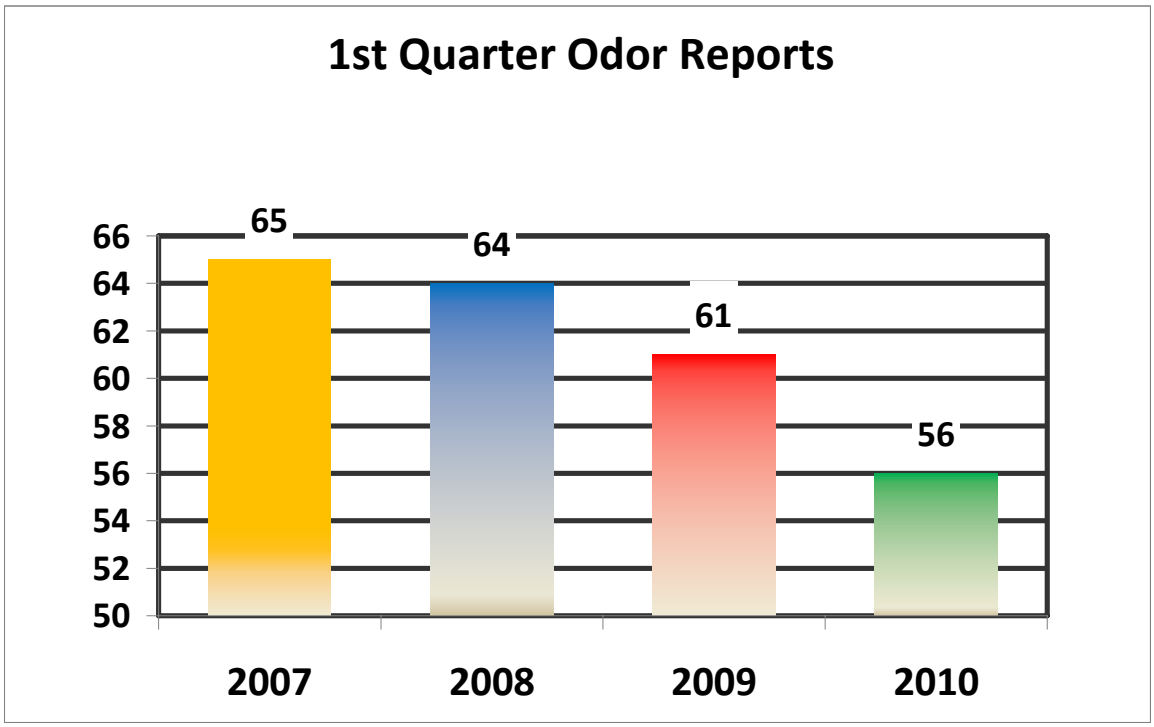
Quarterly Odor Complaint Report Summary

Because seasonal weather conditions, temperatures, and population-based flows affect metropolitan conveyance system odor generation, quarterly odor report frequencies are best compared on a year-to-year basis. For the six-month period covered by this report, between January 1st and June 30th 2010, there were a total of 148 odor reports.

System Wide Odor Reports

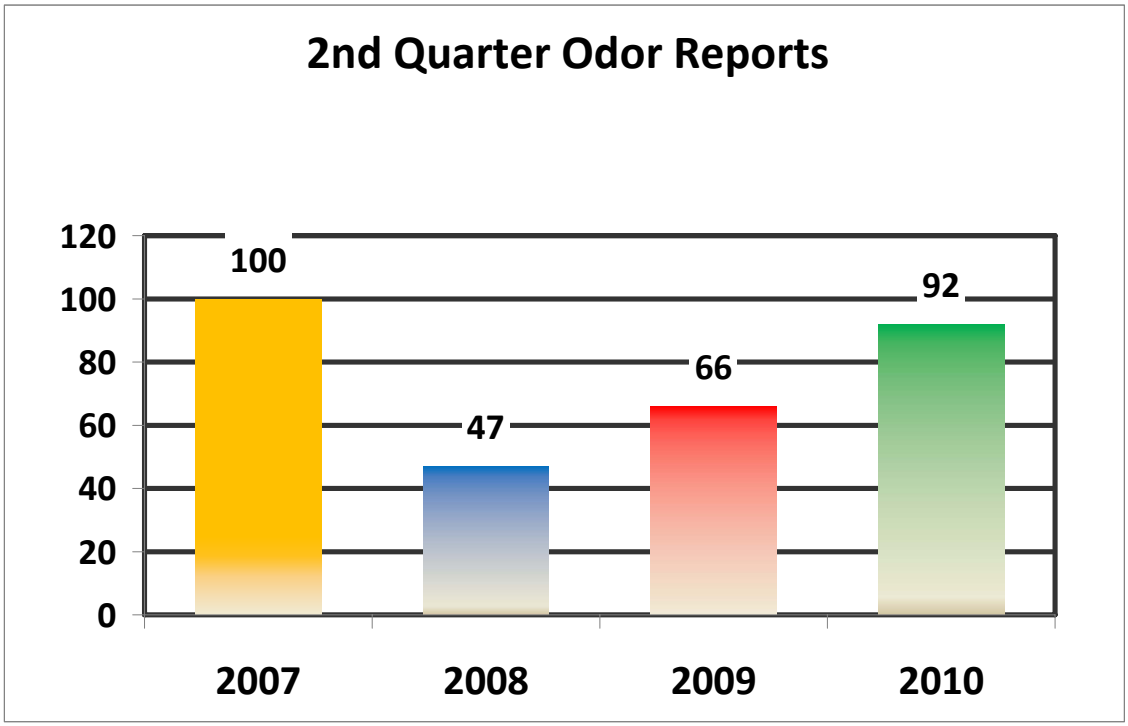
In the first quarter, 56 odor reports were due to odors emitted from either public or private systems. The number of first quarter odor reports for 2007, 2008, 2009, and 2010 are presented in Figure 1.

Figure 1. Conveyance Odor Complaints for 1st Quarter 2007 - 2010



In the second quarter, 92 odor reports were due to odors emitted from either public or private systems. The number of second quarter odor reports for 2007, 2008, 2009, and 2010 are presented in Figure 2.

Figure 2. Conveyance Odor Complaints for 2nd Quarter 2007 - 2010



The increase in odor complaints for the second quarter 2010 is directly attributable to conveyance construction projects in midtown between 18th and Alameda streets, along Park Ave and 36th Streets, and at Sweetwater and the I-10 frontage road.

While the system wide odor control team was brought into these projects too late to provide more than mitigation odor control, these projects have provided the nexus for cooperation and organizational learning so that odor control planning on conveyance construction projects is now introduced at the beginning of the project.

The private system odor complaints result from either a private system requiring operational maintenance or a restaurant discharging through a grease interceptor.

Of the 56 reports for the first quarter, as indicated in Figure 3:

- 27 (48%) were the result of public conveyance system odors, and

- 29 (52%) were attributable to private sources, such as homes, businesses, or private sewer systems not under the control of PCRWRD.

Figure 3. System Wide Odor Reports for 1st Quarter 2010

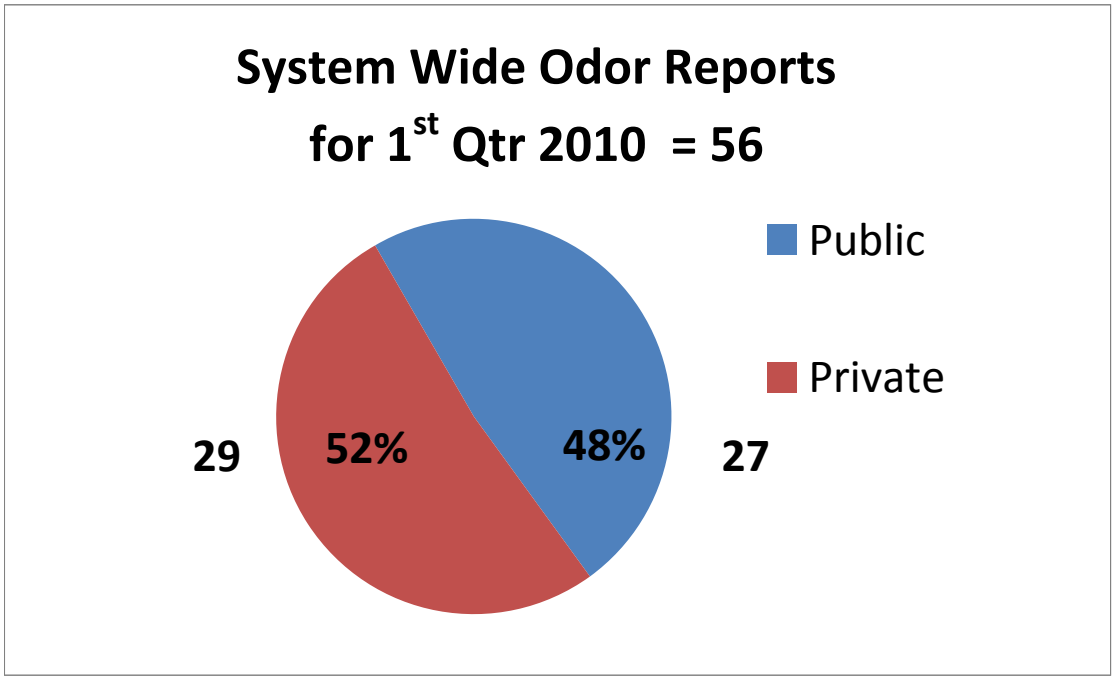
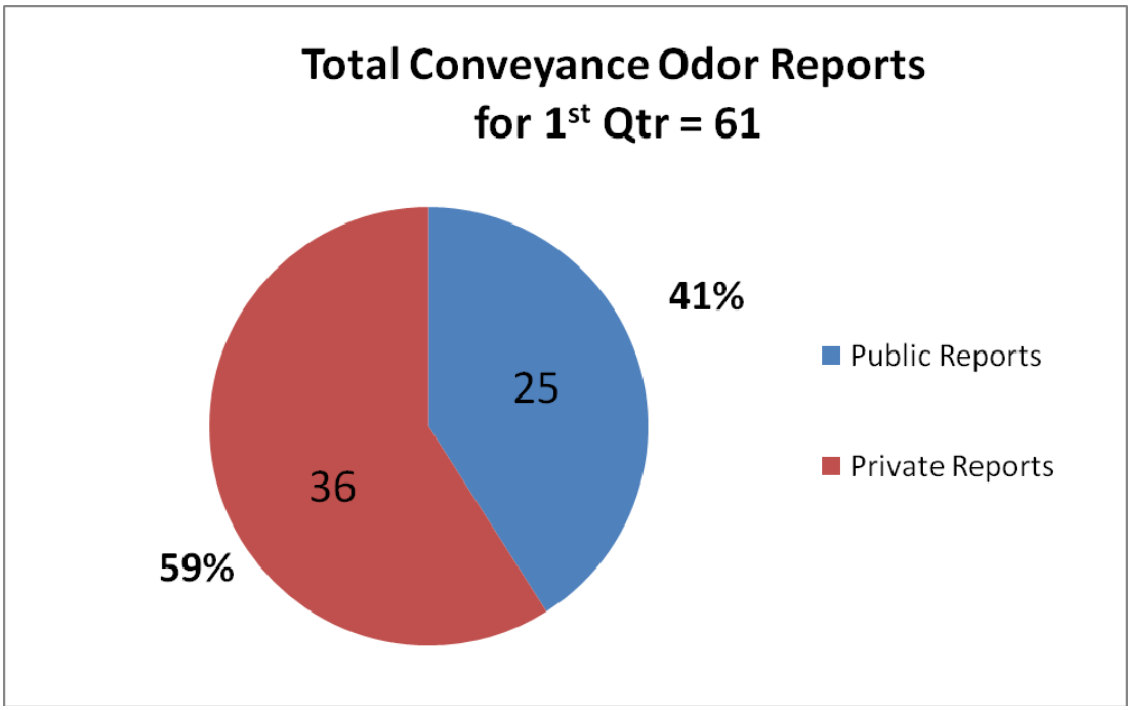


Figure 4. Conveyance Odor Complaints for 1st Quarter 2009

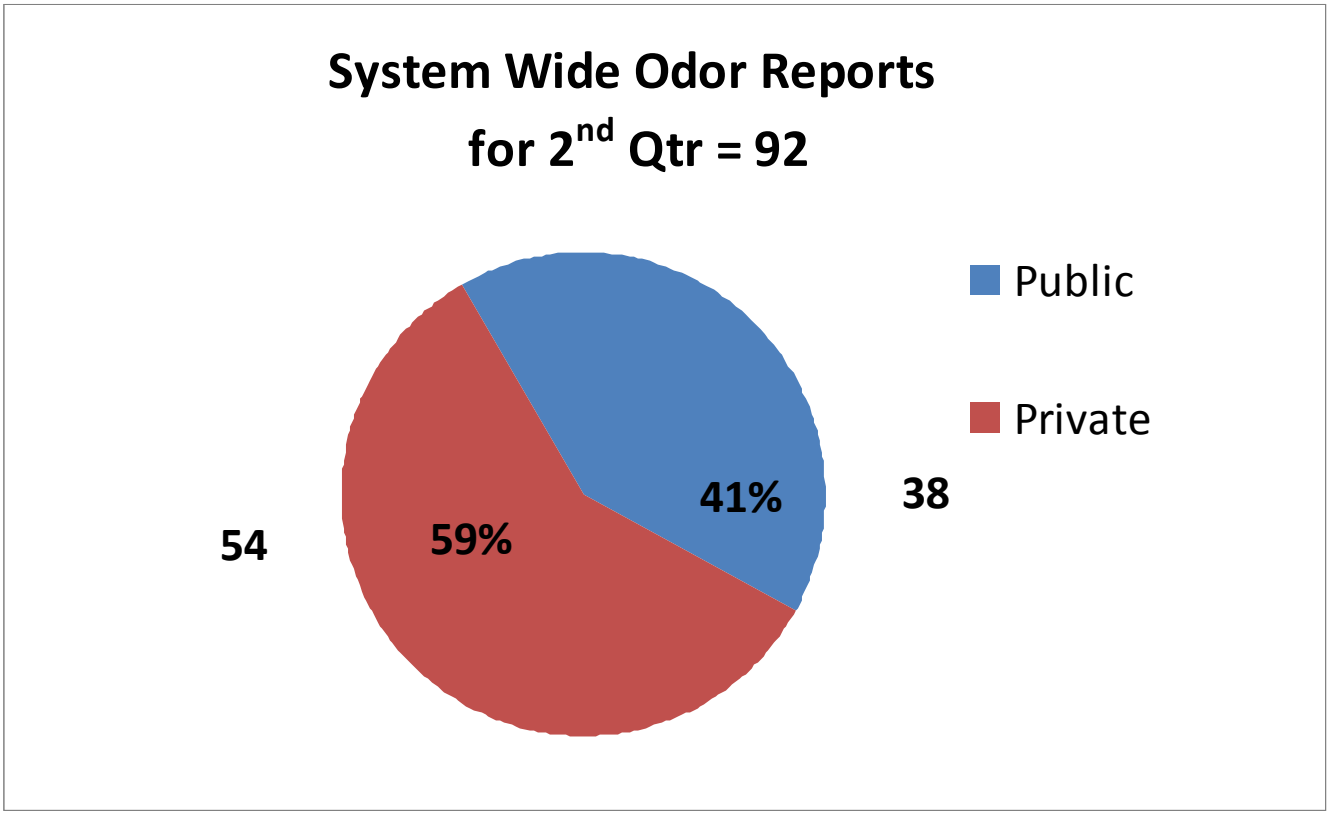


As indicated above in Figure 4, for first quarter 2009, 59% (36) of the 61 conveyance odor complaints were a result of fugitive emissions from private sewer systems.

Of the 56 reports for the second quarter, as indicated in Figure 5 below:

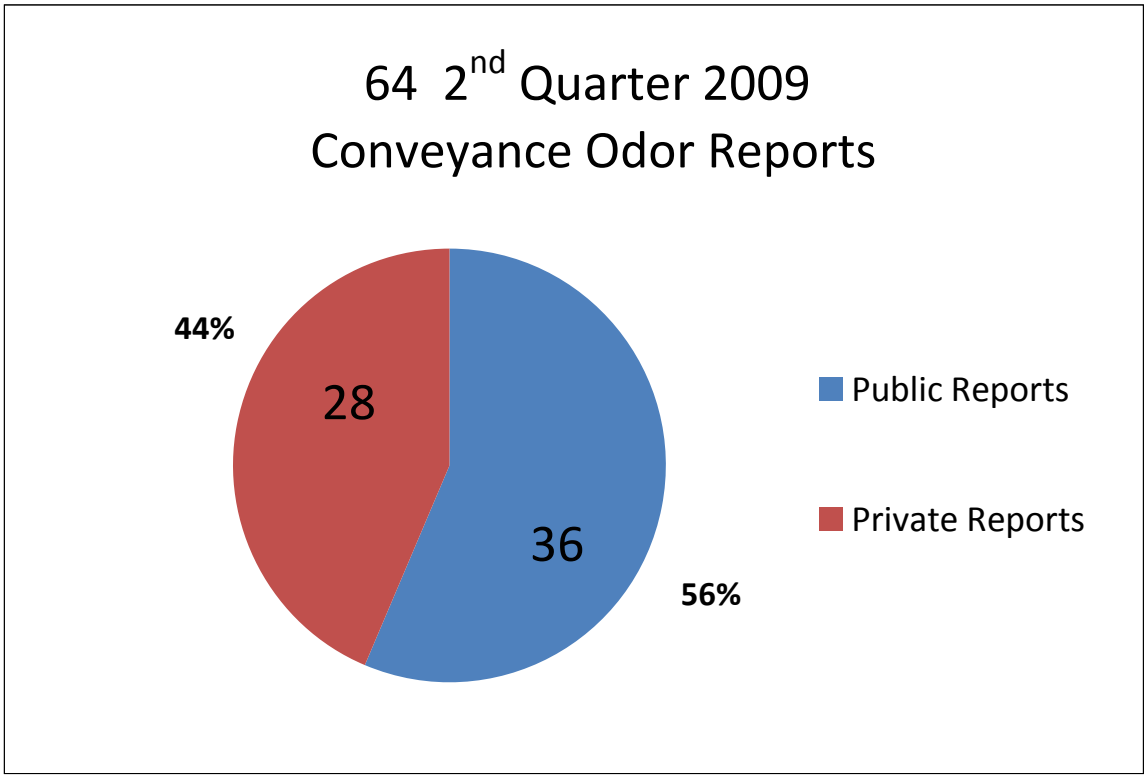
- 38 (41%) were the result of public conveyance system odors, and
- 54 (59%) were attributable to private sources, such as homes, businesses, or private sewer systems not under the control of PCRWRD.

Figure 5. System Wide Odor Complaints for 2nd Quarter 2010



As indicated below in Figure 6, for second quarter 2009, 44% (28) of the 64 conveyance odor complaints were a result of fugitive emissions from private sewer systems.

Figure 6. Conveyance Odor Complaints for 2nd Quarter 2009



The Metropolitan Service area is divided into quadrants divided by Speedway Boulevard and Alvernon Way. Although the maps in Figure 7, (page 7) and Figure 8 (page 8) do not depict the entire Metropolitan Service area, they clearly illustrate the spatial distribution of odor reports for the first and second quarters of 2010 – which is consistent with 2009.

- 61% of all the reports originated west of Alvernon Way in the northwest and southwest quadrants for both quarters.

- 50% and 54% of these reports were the result of private system odors for the first and second quarters respectively.

Odor complaints that occur in clusters are further investigated to determine whether mitigation requires structural, operational, or maintenance changes to achieve interim and permanent improvements.

Figure 7. Odor Report Map for First Quarter 2010

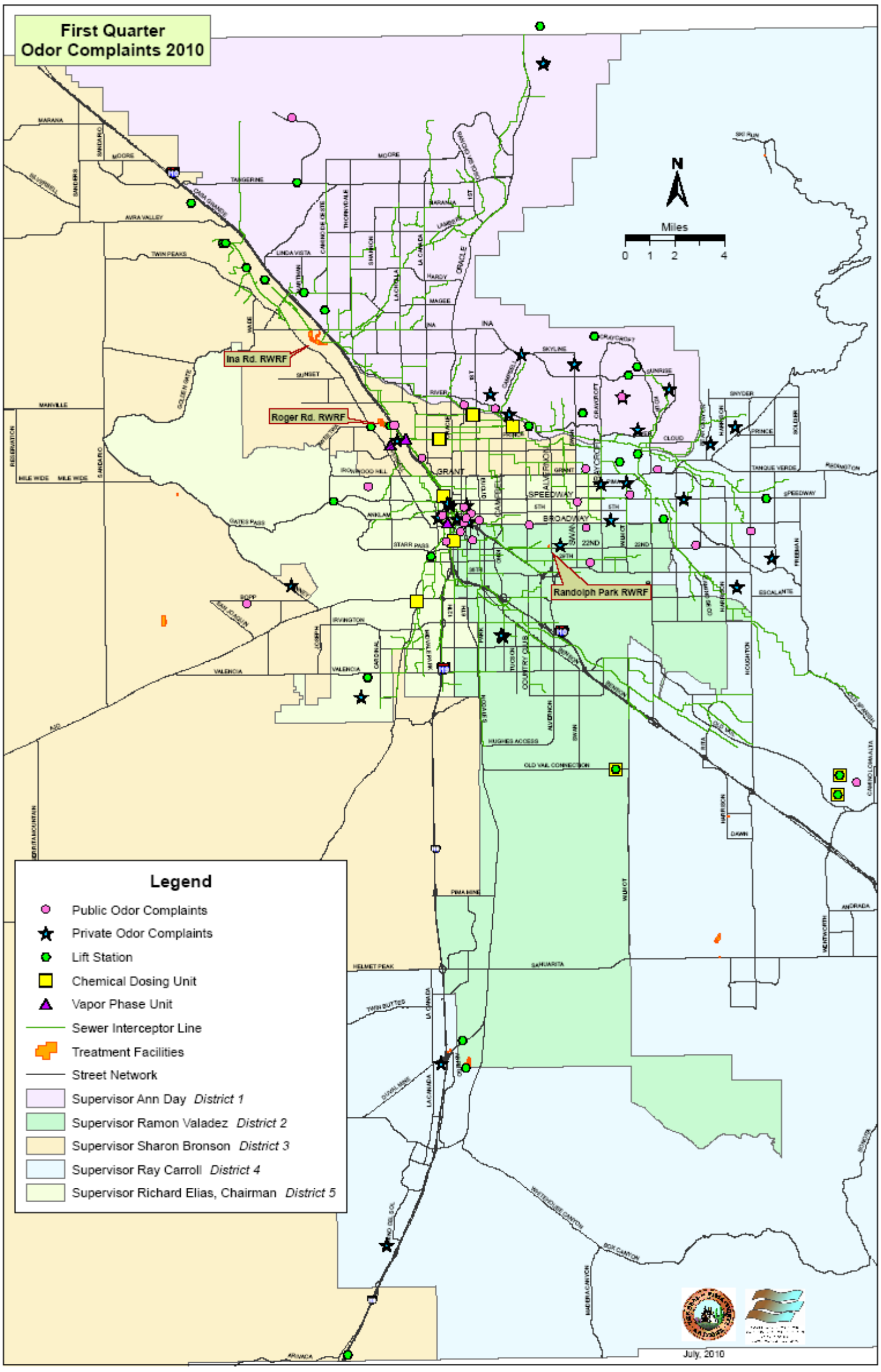
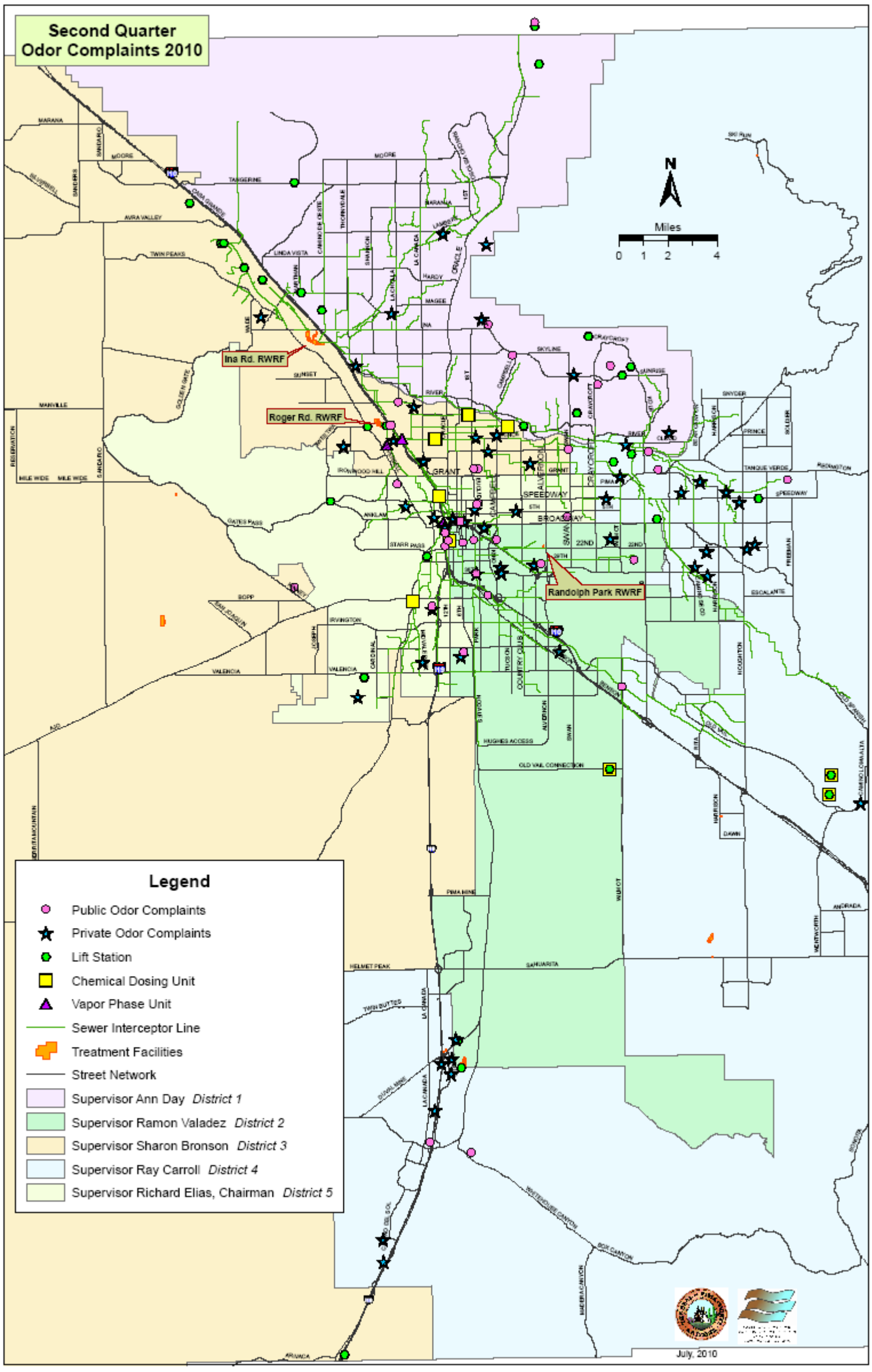


Figure 8. Odor Report Map for Second Quarter 2010



Reclamation Facility Odor Control Performance at Fenceline

An independent consultant performs monthly fence line monitoring. This entails collecting measurements at 50-foot intervals along the linear perimeter of the fence line at each facility. The measurements are recorded in parts per billion, (which is equivalent to one second of time in a 32-year span). The 30 parts-per-billion (ppb) hydrogen sulfide fenceline concentration goal is the concentrations below the nuisance threshold. The graphs in Figure 9 and 10 depicts the average fence line concentrations measured at each facility for 1st Quarter 2010 and 2nd Quarter 2010 respectively.

Roger Road WRF Fence Line Performance

The fenceline consists of 6,000 linear feet requiring 150 separate sample measurements taken consecutively in one day. As such, the average fenceline hydrogen sulfide profile represents a single snapshot of the facility perimeter average hydrogen sulfide. As indicated in Figures 9 and 10, the average fenceline concentrations are well below the 30 ppb nuisance level.

Ina Road WRF Fence Line Performance

Fence line monitoring indicates that the odor control systems in operation successfully controlled odors at the fence line during the fenceline monitoring.

Sub-Regional Facilities Fence Line Performance

The sub-regional wastewater reclamation facilities include:

- Green Valley WRF
- Avra Valley WRF
- Marana WRF
- Corona de Tucson WRF
- Randolph Park WRF
- Continental Ranch Regional Pump Station

Sub regional facilities are scheduled for quarterly fence line monitoring. As indicated in Figures 9 and 10 the fenceline performance as measured by average fenceline H_2S [ppb] is significantly below nuisance level [30 ppb] at all facilities.

Figure 9: 1st Quarter 2010 WRF Fenceline Odor Control Performance

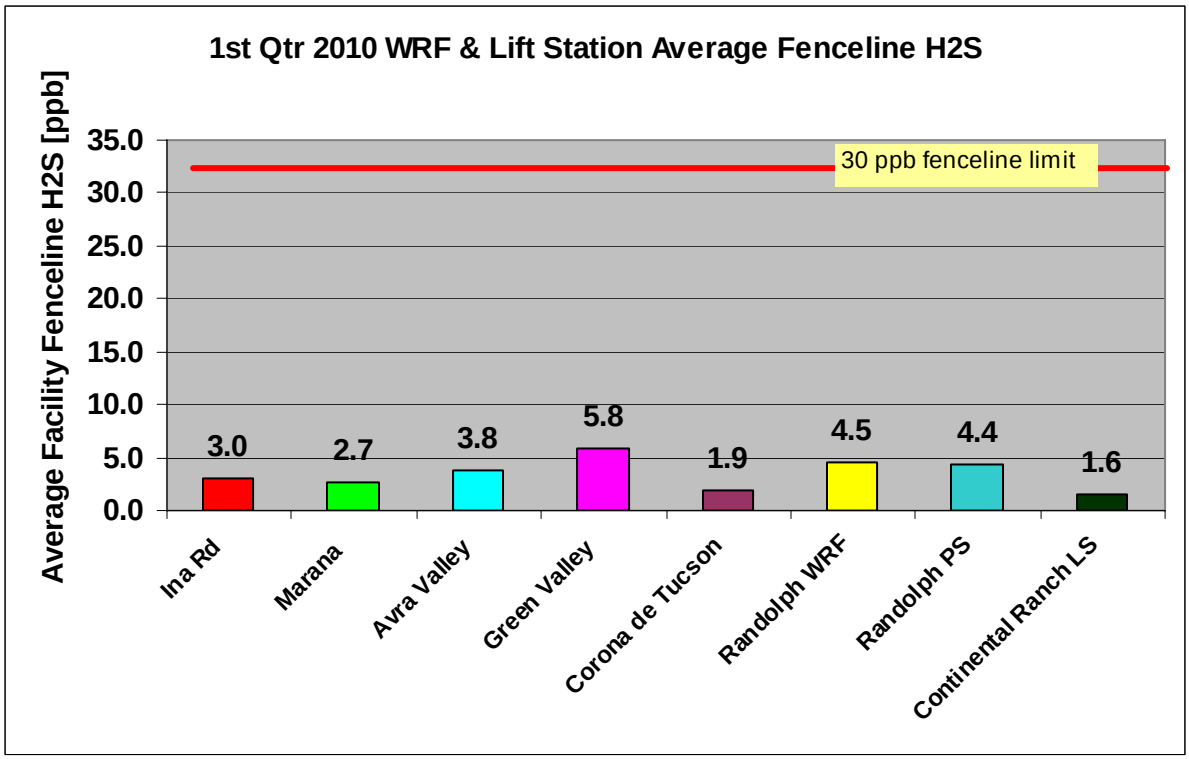
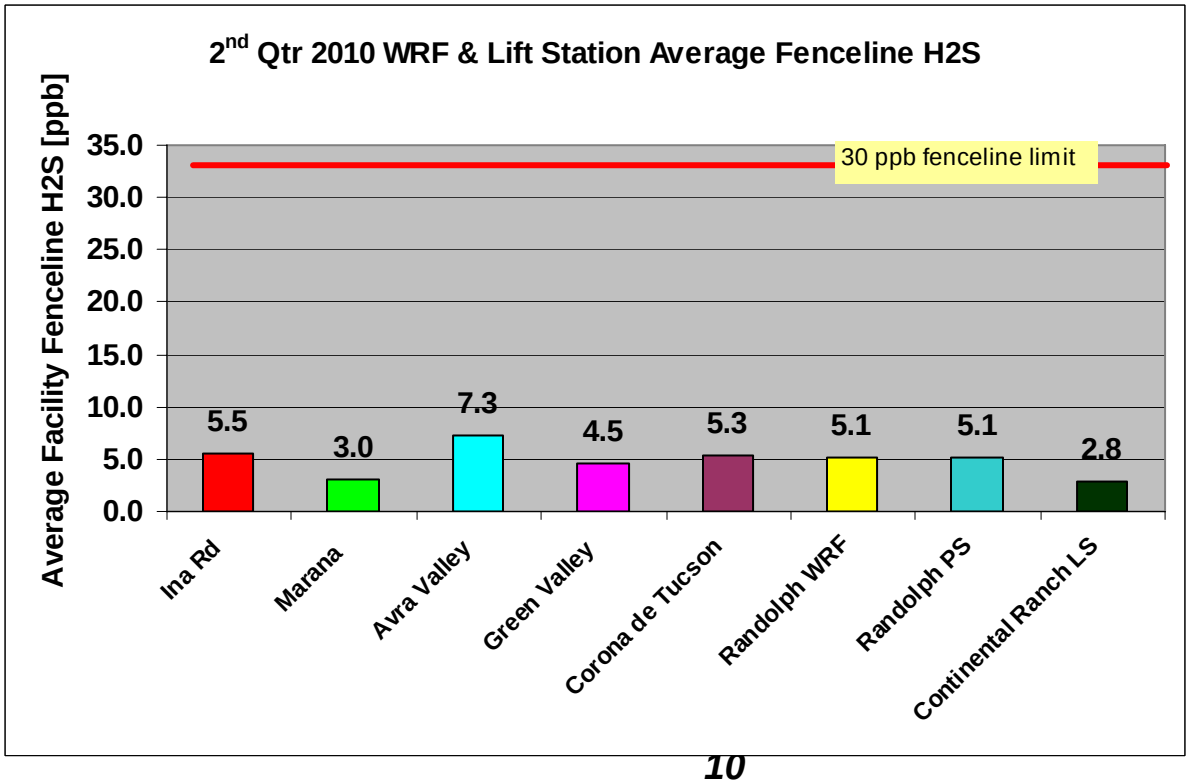



Figure 10: 2nd Quarter 2010 WRF Fenceline Odor Control Performance