

# **2013 - 2014 Oxygenated Fuels Program for Washoe County**

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## **Acronyms and Abbreviations**

AQMD	Washoe County Health District - Air Quality Management Division
CO	Carbon monoxide
DBOH	District Board of Health
EISA	Energy Independence and Security Act of 2007
EPA	U.S. Environmental Protection Agency
MOVES	Motor Vehicle Emission Simulator
NAAQS	National Ambient Air Quality Standard
NDOA	Nevada Department of Agriculture
RVP	Reid Vapor Pressure

## **Background**

The oxygenation of gasoline reduces carbon monoxide (CO) emissions from motor vehicles during the winter months, when climatic factors tend to exacerbate CO problems. In 1992, the U.S. Environmental Protection Agency (EPA), under authority of the Clean Air Act Amendments of 1990, mandated an oxygenated fuel (oxy-fuel) program for 39 urban areas in 23 states, including the Truckee Meadows, which had violated the health-based National Ambient Air Quality Standard (NAAQS) for CO.

The Truckee Meadows was designated as a moderate CO non-attainment area on November 15, 1990. Washoe County began its oxy-fuel program in December 1989 and subsequently adopted the EPA's oxy-fuel program in 1992.

In November 2005, the Washoe County Health District - Air Quality Management Division (AQMD) submitted a request to EPA for redesignation of the Truckee Meadows from a moderate CO non-attainment area to an attainment/maintenance area. The redesignation to attainment/maintenance became effective on August 4, 2008.

The Energy Independence and Security Act of 2007 (EISA) required that eight (8) billion gallons of renewable fuels be blended in transportation fuels by 2008 and that thirty-six (36) billion gallons of renewable fuels be blended in transportation fuels by 2028. In October 2012, the DBOH directed AQMD staff to research elimination of the oxygenated fuels program in Washoe County. Because of the low monitored CO concentrations and anticipated gasoline oxygen content from EISA, AQMD staff has determined that the Truckee Meadows will maintain compliance with the CO NAAQS with suspension of the oxygenated fuels program.

On October 24, 2013, the DBOH suspended the oxy-fuel program (DBOH Regulations Governing Air Quality Management Section 040.095). The oxy-fuel program remains in the CO maintenance plan as a contingency measure to be reevaluated if the Truckee Meadows violates the CO NAAQS.

Although this oxy-fuel report is not required, it supports the October 2013 DBOH action to suspend the program and that the Truckee Meadows will continue to maintain the CO NAAQS.

## 2013 - 2014 Program Details

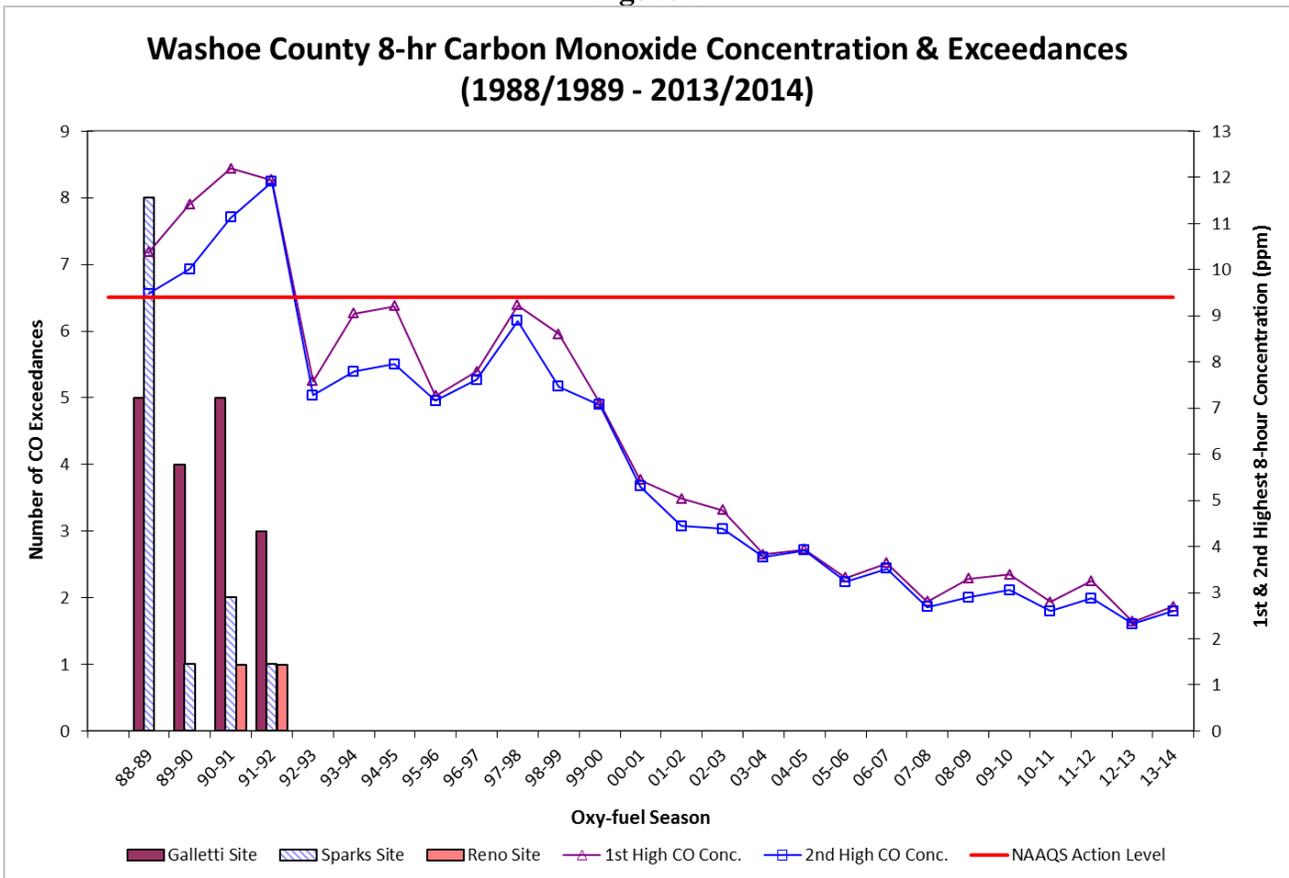
This was the first season that oxygenates were not required because the oxy-fuel program was suspended as of October 24, 2013. According to the State of Nevada, Department of Motor Vehicles, approximately 54 million gallons of gasoline were delivered in Washoe County between October 1, 2013, and January 31, 2014.

### Air Quality

NAAQS for CO are based on 1-hour and 8-hour averaging times. The 2013-2014 oxy-fuel season was a clean season for CO, and levels were comparable to those observed in 2012-2013. No exceedances of either the 1-hour or 8-hour NAAQS for CO were measured at any of the air quality monitors in Washoe County this season. The AQMD has never measured an exceedance of the 1-hour NAAQS and the last exceedance of the 8-hour standard occurred on December 13, 1991.

Figure 1 illustrates the number of CO exceedances since 1988 at the Galletti, Sparks, and Reno monitoring sites. These are the sites in the AQMD's ambient air monitoring network that typically measure the highest CO levels.

**Figure 1**



Additionally, Figure 1 graphically depicts the first and second highest 8-hour CO concentrations from 1988-1989 to 2013-2014.

### **Costs**

Normal fluctuations in market prices make it difficult to isolate the increase in gasoline prices due to oxygenates. According to Western Energetix, LLC, a major local gasoline distributor, oxygenates have not contributed to any gasoline price increase in the last decade. Because the oxy-fuel program was suspended in October 2013, no additional costs to the public were incurred from the oxy-fuel program.

### **Air Quality Emission Reductions**

According to the 2011 Washoe County Emissions Inventory, on-road motor vehicles accounted for approximately 40% (34,641 tons per year) of the CO emissions in the Washoe County. Based on the EPA Motor Vehicle Emission Simulator (MOVES) computer model, oxygenates in gasoline continued to reduce CO emissions from this category by approximately 1,114 tons in Washoe County during the 2013-2014 season.

According to the 2011 Washoe County Emissions Inventory, non-road mobile sources contributed 30% (25,753 tons per year) of the total county-wide CO emissions. Based on the EPA NONROAD 2008a computer model, oxygenates in fuel continue to reduce CO emission by an additional 1,400 tons.

### **Compliance and Enforcement**

Because the oxy-fuel program was suspended in October 2013, no AQMD compliance or enforcement action was required.

The Nevada Department of Agriculture (NDOA) is responsible for testing gasoline octane, Reid Vapor Pressure (RVP), and oxygenates. The NDOA collected and tested 74 samples during the 2013-2014 season. All samples were analyzed using gas chromatography. Ethanol was the only oxygenate fuel in the market. Of the 74 samples tested, the oxygenate content of these samples was between 2.86 and 3.1%.

## Summary

Washoe County's oxy-fuel program was successful as demonstrated by the fact that the AQMD has not measured an exceedance of the CO NAAQS since 1991. Ambient CO concentrations continued to remain low during the first winter season without the oxy-fuel program because of: 1) The Inspection and Maintenance (smog check) program, 2) cleaner on-road motor vehicles, 3) cleaner non-road vehicles and equipment, 4) other federal requirements for oxygenates in gasoline, and 5) the Wood Stove/Fireplace Insert Emission regulation (040.051).

Since implementing the oxy-fuel program in 1989, Washoe County's population has increased 60%<sup>1</sup>, vehicle miles traveled has increased 35%<sup>2</sup>, and gasoline sales during the oxy-fuel season has increased 21%, from 44.5 million gallons in 1989-1990 to 54 million gallons in 2013-2014.

Although the oxy-fuel program was suspended prior to the 2013-2014 season, all 74 gasoline samples analyzed by NDOA contained more than the 2.7% oxygen content required by the suspended Rule 040.095. Oxygenates in this season's gasoline accounted for approximately 3% reduction of CO emissions from on-road mobile sources and 5% reduction from non-road mobile sources as compared to the most recent, comprehensive 2011 Washoe County's emissions inventory.

This is the final report for the oxy-fuel program. If future CO concentrations exceed or violate the NAAQS, contingency measures such as the oxy-fuel program will be reevaluated as a potential control strategy to reduce CO emissions.

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<sup>1</sup> Washoe County Community Development Planning Department.

<sup>2</sup> RTC of Washoe County, Planning Department for 2010 and 2015 Travel Demand Model runs (2013 VMT interpolated).