

Overview of Colorado Oil and Gas Activities: An Air Quality Perspective

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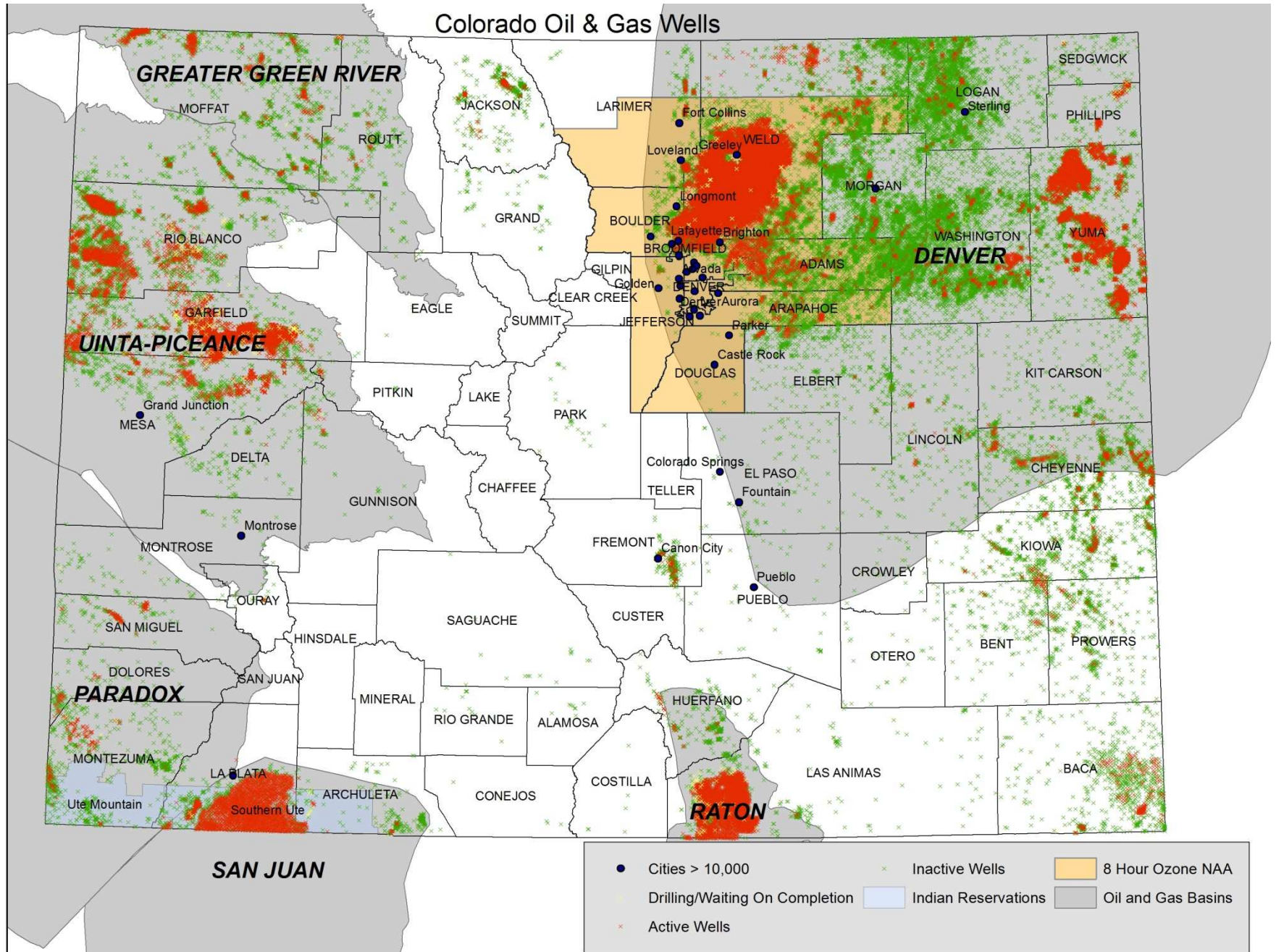
Colorado Environmental Health Association

September 29, 2011

Oil and Gas Regulation in Colorado

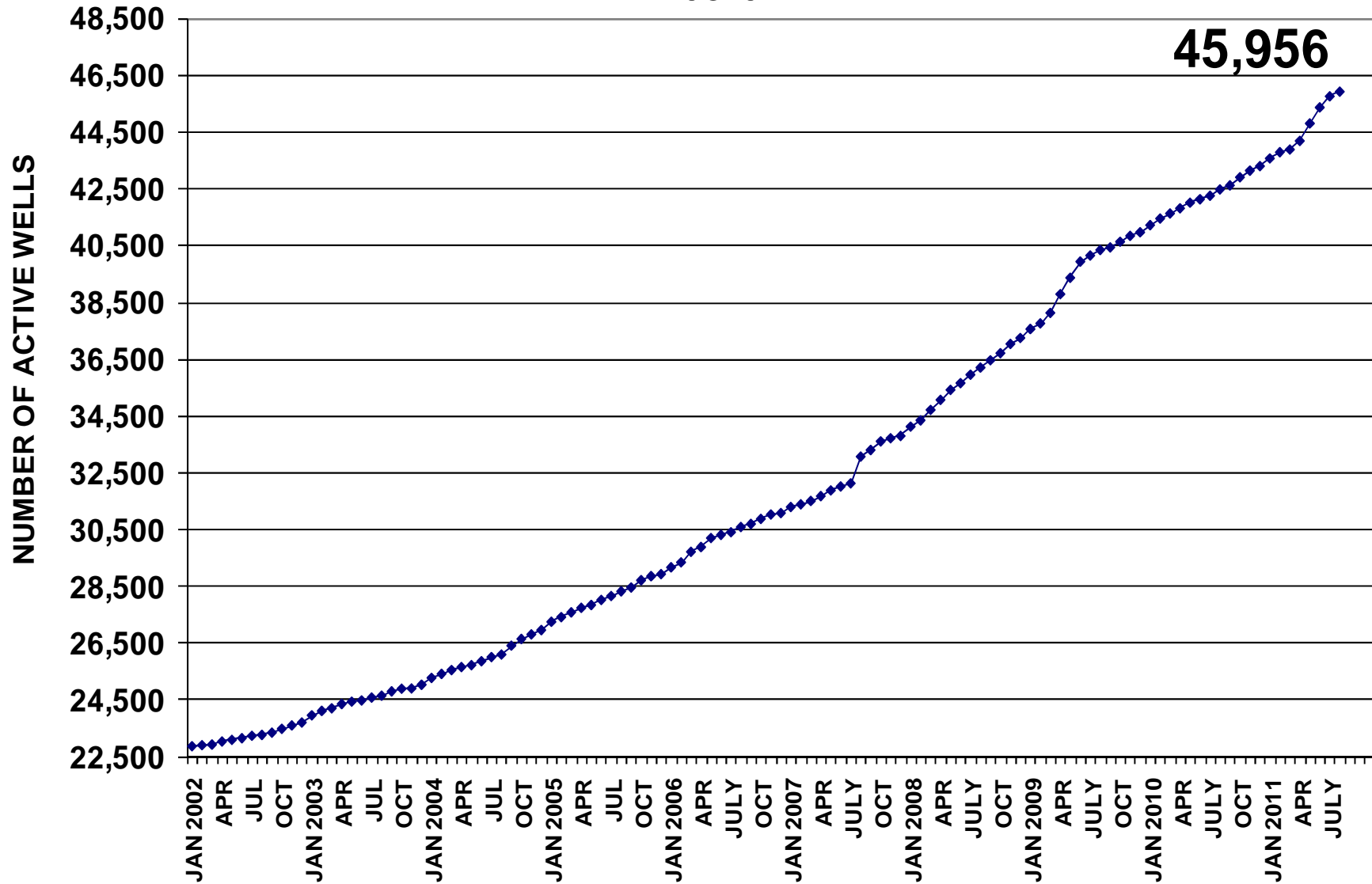
- Drilling activities governed by Colorado Oil and Gas Conservation Commission (COGCC)
- Air quality matters governed by Colorado APCD
- 2008 legislation promotes agency collaboration on many O&G matters, including odor, citizen complaints, environmental performance, etc.
- Strong O&G focal point north of Denver (Denver-Julesburg Basin) and on Western Slope of Colorado (Piceance Basin)

Colorado Oil & Gas Wells



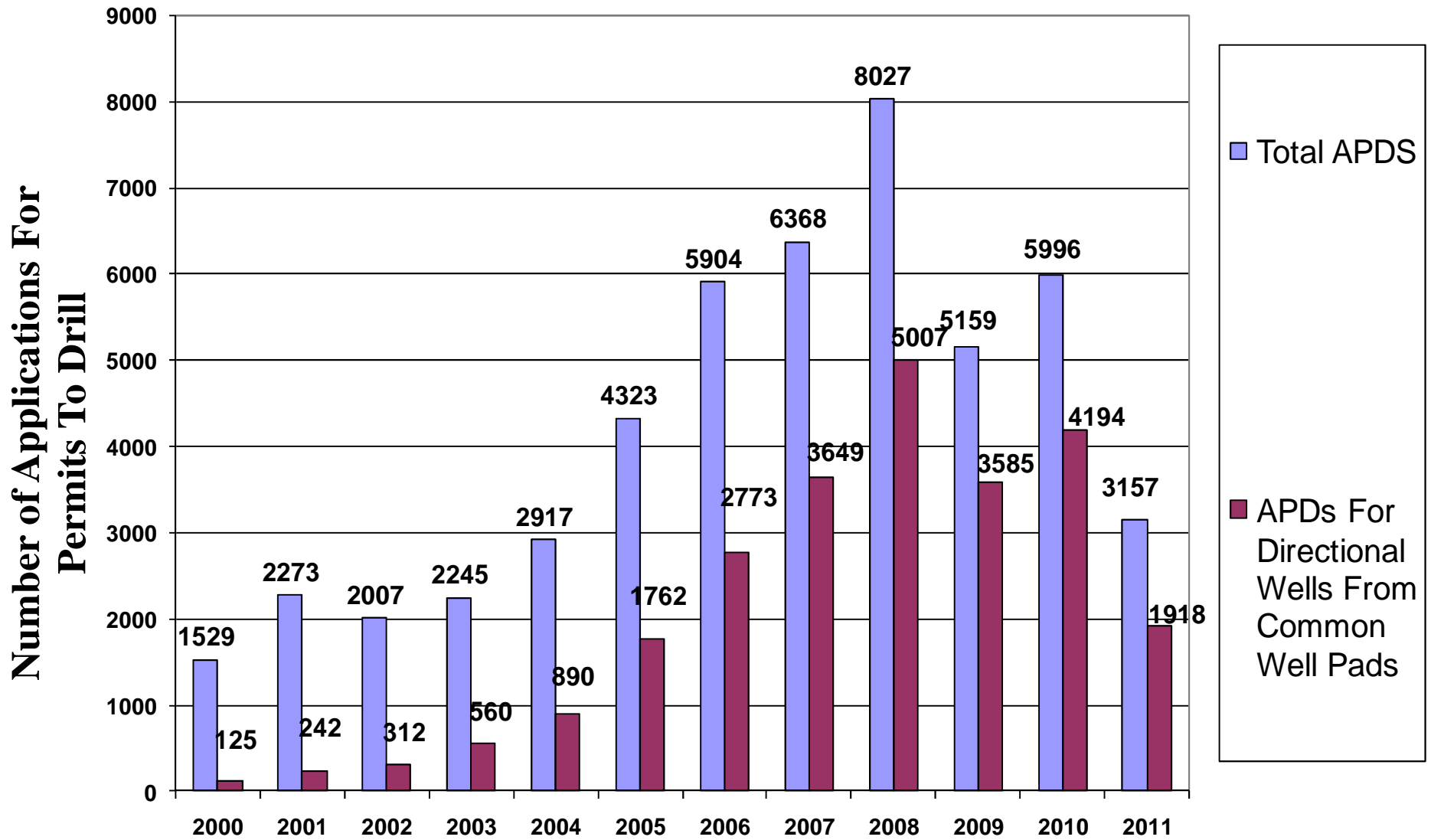
COLORADO MONTHLY ACTIVE WELL COUNT

09-07-11

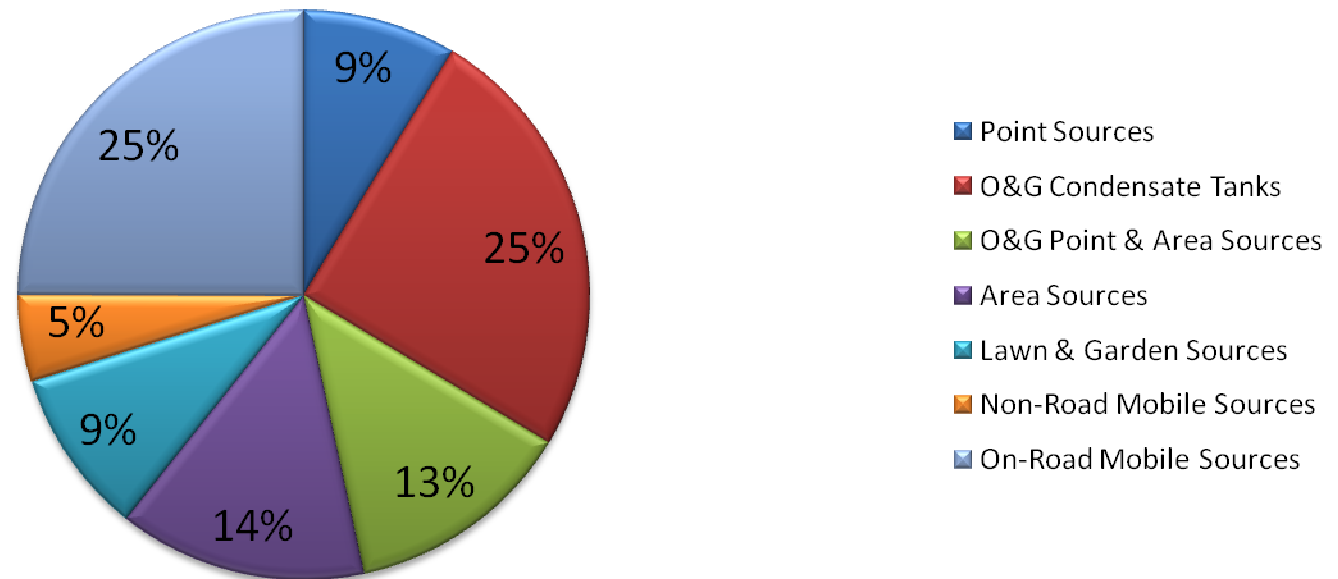


Number of Oil and Gas Well Permits For Wells Drilled Directionally From Common Well Pads in Colorado

09-07-11



Relative VOC Contribution from the Oil and Gas Sector (Anthropogenic sources)



Nine county upper front range ozone non-attainment area (2010)

Colorado Clean Air, Clean Jobs Act

- Legislation passed in 2010
- Designed to promote retirement of older coal-fired power plants
- Promotes natural gas
- 70,000 tons of NO_x and SO_x reductions



Concerns / Challenges Relating to O&G Activity:

- Permits
- Enforcement
- Health Effects
- Air Quality
- Water Quality
- Fracking / Water Usage
- Wildlife



APCD Oil and Gas Permitting

- ~3,360 permit applications received in 2010
 - Represents ~ 70% increase since 2008
- APCD is implementing various mechanisms to address permit volumes
 - Temporary engineers (brings engineers corps to 11+)
 - New permitting tools being developed (*e.g.*, engine general permit)
 - Expanded permit templates and standardized language to speed permitting

APCD Oil & Gas Inspections/Enforcement

- 336 inspections for 2010/2011 inspection period
- Ozone non-attainment area a priority
 - Oil and Gas industry significant portion of non-compliance in Colorado



Recent Steps Taken To Address Oil and Gas Industry Impacts in Colorado

- 2008 - 2009 Overhaul of COGCC Rules
- 2007 - 2008 Revisions to AQCC oil and gas rules

Reciprocating Internal Combustion Engines (RICE)

Stringent statewide emission standards meant to mirror NSPS JJJ requirements.

Regulatory Activities: 2008 Ozone Action Plan

- Glycol dehydrator requirements statewide
- NG-Actuated Pneumatic Devices in DMA NAA
- Condensate Tanks in DMA NAA
 - System must be controlled at 90% during 2011 ozone season

Regulatory Activities: Condensate Tank Emission Reductions Reported in NAA System-wide Regulation No. 7 Report

<i>Ozone Season Year</i>	<i>Ozone Season VOC emissions, if Uncontrolled (tpy)</i>	<i>Ozone Season Controlled VOC emissions (tpy)</i>	<i>Number of Tanks</i>	<i>Number of Controlled Tanks</i>
2009 (81% Control)	50,251	5,809	6,645	5,042
2010 (85% Control)	51,696	4,600	6,952	5,317
Difference	+ 1,445	- 1,209	+ 307	+ 275

Regulatory Activities: Ozone SIP Development Status (2011 Planning)

- Ozone NAAQS update deferred until 2013; standard remains at 75 ppb
- 14 Oil and Gas Ozone whitepapers with 26 strategies
- Papers cover various sources including:
 - Condensate/crude/produced water tanks
 - Dehydrators
 - Drill rigs
 - Fugitive leaks
 - Green completions

Regulatory Activities: Proposed Rules

- EPA Oil and Gas Rules
 - Proposed rules published in Federal Register on 8/23/11
 - APCD presently reviewing extensive set of rules
 - Comments due 10/24/11
- Package has revisions to NSPS KKK, NSPS LLL, MACT HH, and MACT HHH; and, has new NSPS OOOO
- NSPS OOOO:
 - Focus on wellhead emissions (fracking)
 - Requires green completions and/or flaring for most wells
 - Also requires controls on compressors, pneumatics, storage tanks, sweetening units, and onshore natural gas processing plants

Division Innovations to Address Oil and Gas

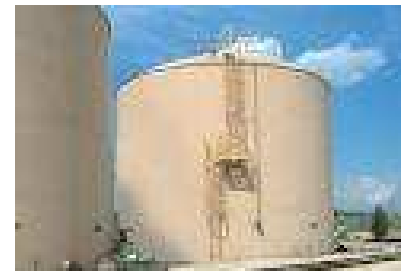
- **Self-Certification of Condensate Tanks**
 - Three-county, three-year pilot project
- **Electronic Surveillance System (ESS) Pilot Project**
 - Early notification of problems with auto-igniters at ESS-equipped tanks
- **Development of various General Permits**



Innovations:

Self-Certification of Condensate Tanks

- 2008 pilot project conducted in San Miguel County (11 tanks), expanded to Boulder County in 2009 (84 tanks) and to Adams County in 2010 (300 tanks)
- Opportunity for APCD to reach out to numerous sources we might not see otherwise
- San Miguel and Boulder County pilot demonstrated 100% accuracy in operator reporting
- Program expanded to Adams County in 2010 (300 tanks)
 - Reporting accuracy not as high
- Considering expanding to additional counties and to other equipment (TBD)



Innovations: ESS Pilot Project

- Three operators in electronic Surveillance System (ESS) Pilot Project (Anadarko, EnCana and Noble Energy)
- Provides early notification of problems with condensate tanks
- ESS at 60 sites
- Pros and cons of ESS
 - Pros: Real time data; quicker notification to operators
 - Cons: Not always reliable; significant cost
- Next steps
 - Report the findings
 - Assess the project as possible ozone SIP strategy

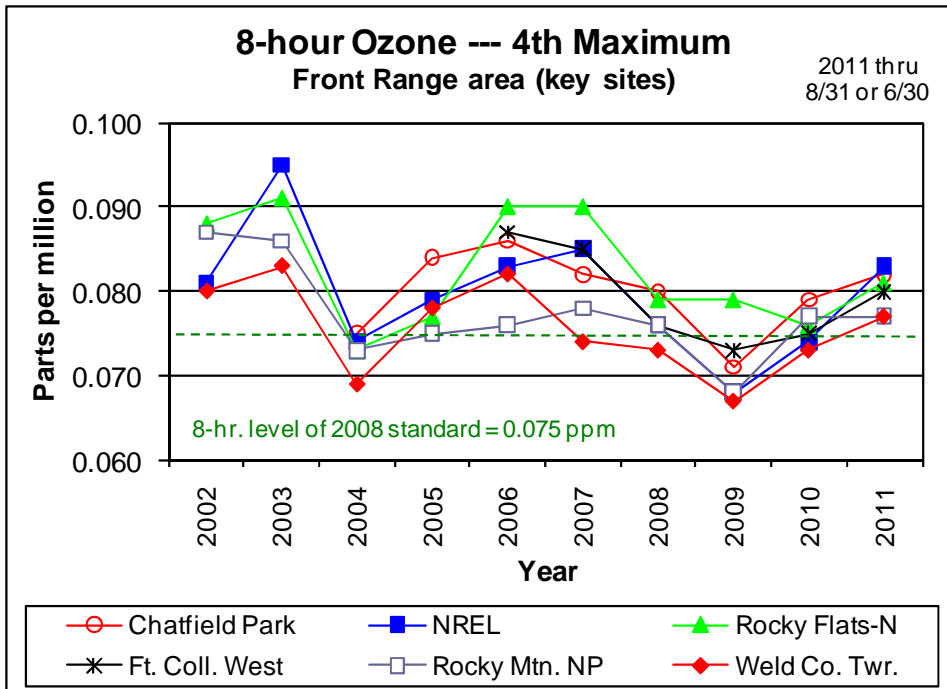


Innovations: Engine General Permit

- On Aug. 1st, APCD launched its RICE General Permit
- Developed after significant stakeholder process
- Numerous oil and gas operators using the GP in lieu of traditional permitting (*i.e.*, construction permits)
- Anticipating some minor updates to our guidance documents to clarify/ reinforce operator requirements

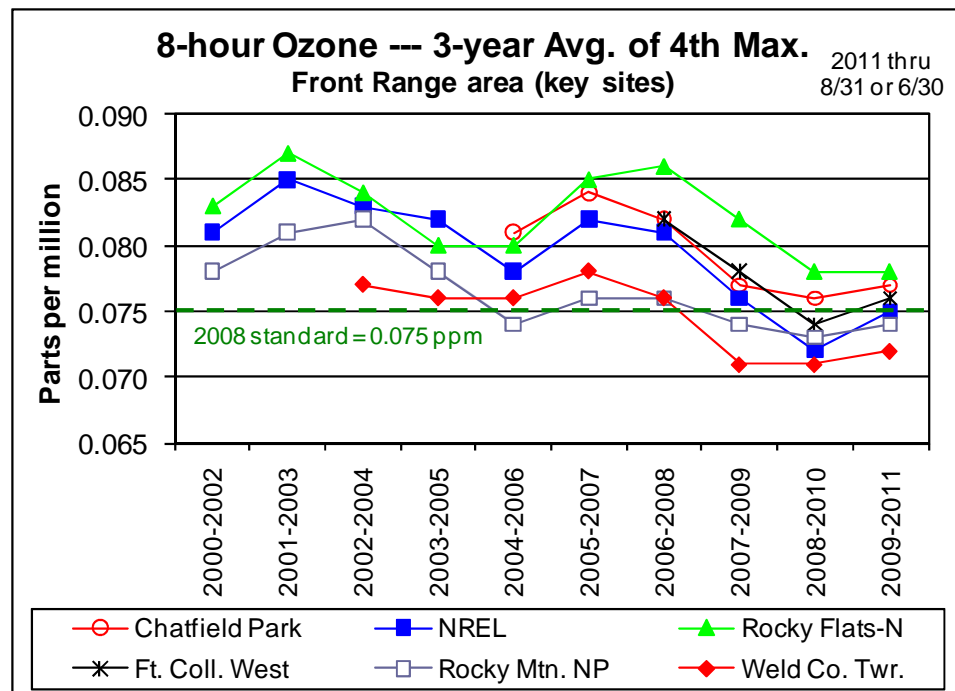
Other Efforts to Assess Oil and Gas Industry Impacts

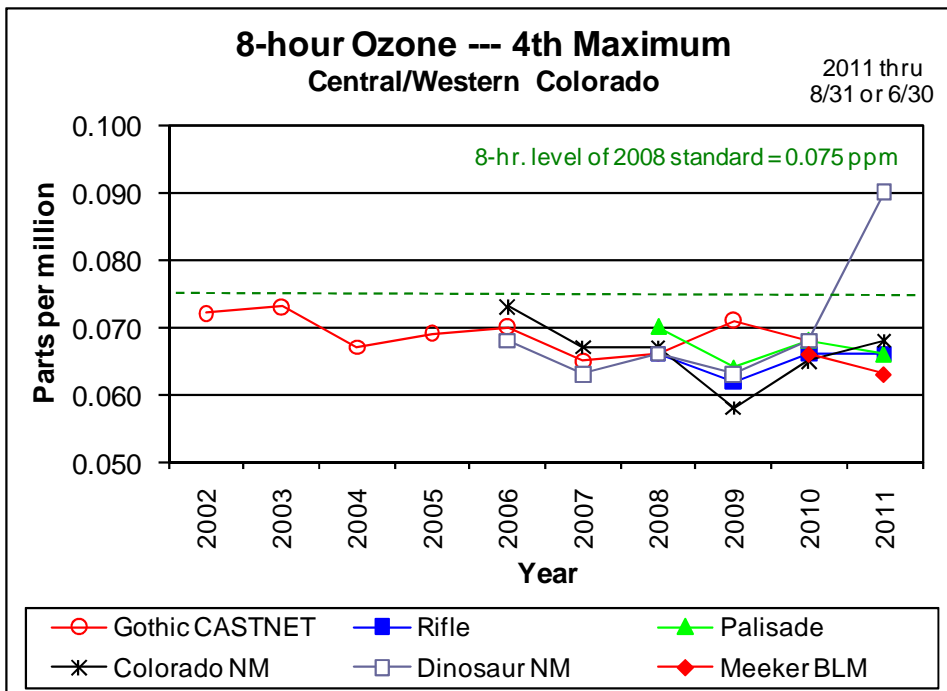
- Oil and Gas baseline inventory completed for Colorado basins (Piceance, D-J, North San Juan)
- Mobile Piceance Basin Pilot Project
 - Evaluate dust and tailpipe emissions from O&G vehicle traffic
- EIS Activities
 - Inform future potential permitting and inventory activities
- Ongoing monitoring (not all oil and gas-specific) throughout State



Denver/North
Front Range
(past 10 years)

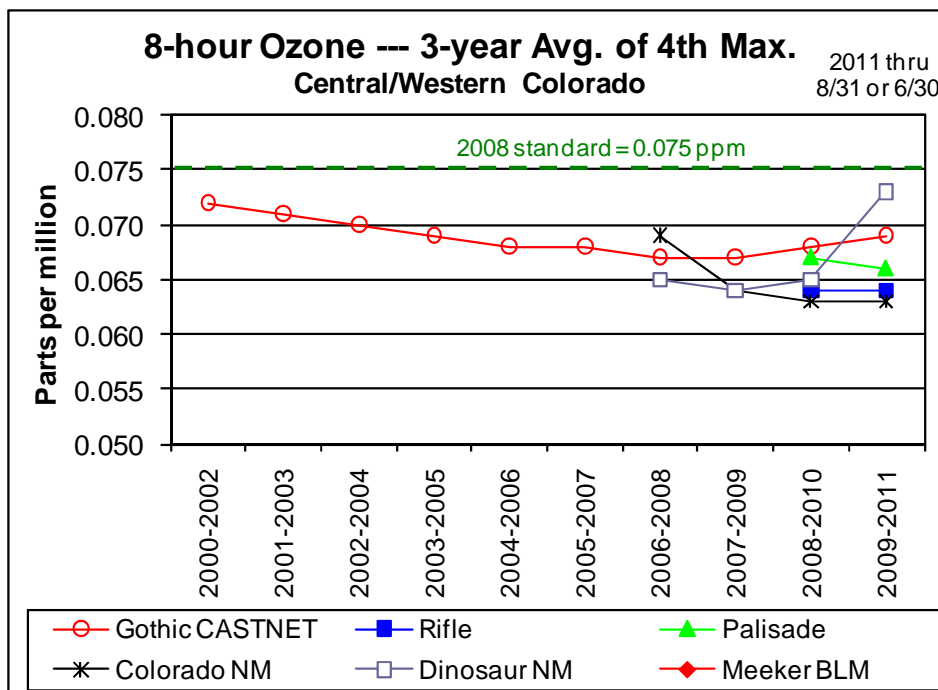
Some sites in
violation of the
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standard

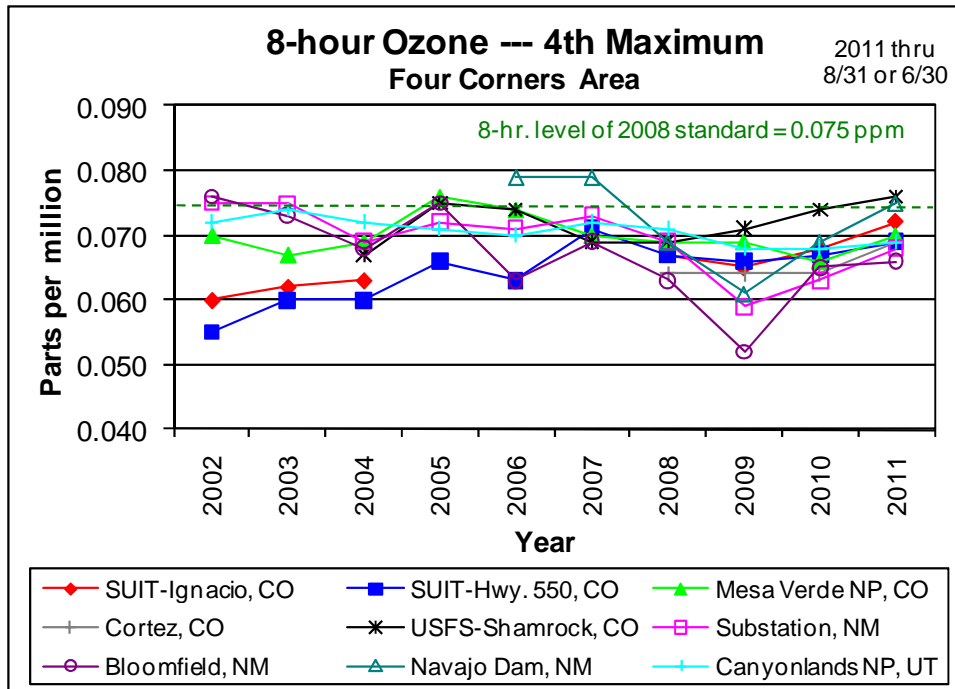




Central/Western Colorado (past 10 years)

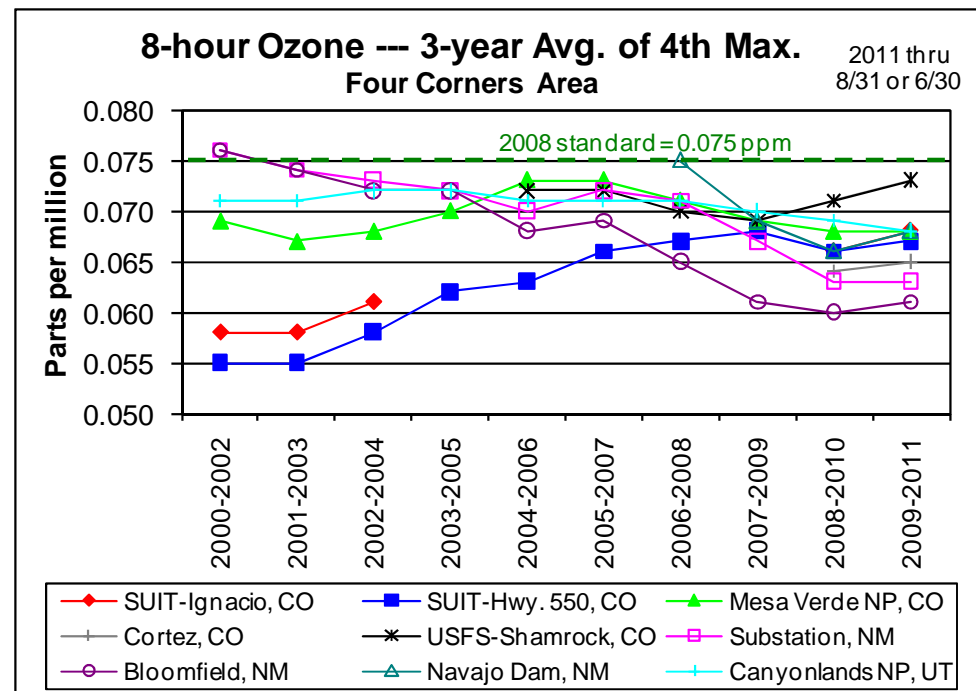
No sites in violation of the current 75 ppb standard





Four Corners Area (past 10 years)

No sites in
violation of the
current 75 ppb
standard



Closing Remarks for Oil and Gas

- O&G largest single sector for APCD
 - VOC Emissions
 - Air Permitting
 - Compliance/ Enforcement
- Oil and gas-related activities remain significant

For More Information

<http://www.cdphe.state.co.us/ap/oilgas.html>

<http://cogcc.state.co.us/>

<http://fracfocus.org/>

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